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The Roles of Maternal Psychopathic Traits, Maternal Antisocial Personality Traits, and Parenting in the Development of Child Psychopathic Traits

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SYNOPSIS

Objective. The development of psychopathic traits in children has been largely understudied compared with the etiology of these traits in adults; therefore, this study aims to elucidate factors that may be involved in the development of psychopathic traits in childhood. **Design.** The potential impact of maternal personality traits on parenting practices and child personality were examined. Specifically, statistical relations were examined among maternal psychopathic traits, maternal antisocial personality traits, and child psychopathic traits, and the role of parenting as a potential mediator and/or moderator of these relations within an all-male sample ($N = 75$) between the ages of 7 and 11 years. **Results.** Parenting mediated the relation between maternal antisocial personality traits and child psychopathic traits, but not the relation between maternal and child psychopathic traits. In addition, positive parenting interacted statistically with maternal psychopathic traits, such that maternal and child psychopathic traits were related only when positive parenting practices were lacking. **Conclusion.** These findings support the consideration of parenting as a point of intervention in the prevention of childhood psychopathic traits.

INTRODUCTION

Although psychopathic adults have held the attention of clinical researchers for many years, children exhibiting psychopathic traits have only recently become a major focus of study (Salekin & Lynam, 2010). Nonetheless, the idea of applying the construct of psychopathy to children and adolescents is hardly new. This notion dates back at least to Cleckley's (1941) groundbreaking monograph, *The Mask of Sanity*, which suggested that psychopathy often began in childhood or adolescence (see also Salekin & Frick, 2005). Psychopathy in childhood is commonly described as involving a cold, unemotional disposition, a general lack of remorse or empathy, and a tendency to use or manipulate others for one's own gain. These characteristics can be effectively conceptualized as falling within three dimensions of the broader construct of psychopathy: callous-unemotional traits, narcissism, and impulsivity (Frick, Bodin, & Barry, 2000).

Callous–unemotional traits are often described as involving an absence of guilt or empathy, lack of fearful inhibitions, and a cold interpersonal style. Narcissistic traits are described as involving excessive bragging, manipulateness, and a tendency to display superficial charm. Finally, impulsivity in this model involves a child’s tendency to act without thinking, engage in risky activities, and have difficulty planning ahead (Frick et al., 2000). The child psychopathy literature has emphasized callous–unemotional traits (see Hawes, Price, & Dadds, 2014, for a review), likely because these traits have been hallmarks of clinical depictions of psychopathy for decades. Nonetheless, all three dimensions of child psychopathy are important but remain relatively poorly understood at this developmental stage.

There are at least two reasons why understanding the implications and etiology of psychopathy in children and adolescents is crucial. First, psychopathic traits in children and adolescents are potentially useful for predicting antisocial behavior and psychopathy in adulthood (Frick, 2007; Frick & Hare, 2001; Kotler & McMahon, 2005; but see Edens, Skeem, Cruise, & Cauffman, 2001; for an alternative view). Callous–unemotional traits, in particular, may make children vulnerable to psychopathy and certain forms of antisocial behavior in adolescence. Such behavior is more likely to be life-course persistent and severe than in children without callous–unemotional traits (Frick & White, 2008). Therefore, children exhibiting psychopathic traits may compose an especially intractable subgroup of conduct-disordered youth (Salekin & Frick, 2005) who may often go on to display aggression and violence in adulthood (Kotler & McMahon, 2005).

Second, attempts to treat psychopathy in adulthood have met with at best mixed success, with longer, more intensive interventions tending to be the most successful (Caldwell, Skeem, Salekin, & Van Rybroek, 2006; Salekin, 2002). Given this finding, earlier identification and intervention in childhood and adolescence may be necessary to achieve positive treatment outcomes (Kotler & McMahon, 2005). As with most forms of psychopathology, interventions applied in earlier stages may be more effective than those applied later (Durlak & Wells, 1997, 1998; Weisz, Sandler, Durlak, & Anton, 2005). Moreover, the rise in juvenile crime over the past few decades (Puzzanchera, Adams, & Hockenberry, 2012) has generated interest in understanding variables, including parental influences, that contribute to conduct problems and violent behaviors in youth (see Kaminski, Valle, Filene, & Boyle, 2008, for a review).

Maternal Personality Traits and Parenting

Much of the effort directed toward understanding psychopathic traits in childhood has involved the identification of potential etiological pathways. Perspectives on etiology have varied, with some researchers highlighting environmental influences and others genetic influences (Loney, Huntenburg, Counts-Allan, & Schmeelk, 2007; Viding, Blair, Moffitt, & Plomin, 2005). However, the field has come to acknowledge that both sets of factors are critical, suggesting that the children at greatest risk for psychopathy may be those reared by parents who themselves evidence high levels of these traits. Nonetheless, these findings do not permit investigators to distinguish genetic from shared environmental influences given that the families are typically intact.

Of the environmental influences that have been proposed as potential factors involved in the etiology of psychopathy, parenting lends itself nicely to consideration as a mediator. The relation between parental traits and child development has been

well documented and suggests that, overall, parents possessing distinctive levels of certain traits (e.g., low neuroticism) are likely to be better parents (Belsky & Barends, 2002) and, consequently, may be more likely to rear children with better developmental outcomes. Bornstein and colleagues (2007) point to the idea that parents' personality traits, in particular, appear important to their understanding and application of parenting. They demonstrated that dimensions on the Five Factor model of personality traits differentially predict various parenting thoughts and behaviors. Other studies have demonstrated similar findings involving the potential impact of Big Five personality traits on parenting behaviors (e.g., Prinzie, Stams, Deković, Reijntjes, & Belsky, 2009). The current study aims to extend these findings by examining a specific type of parental personality traits, namely, psychopathic and antisocial personality traits.

The psychopathy literature has begun to focus on parenting as a construct that may be relevant to the development of psychopathic traits and conduct problems in children (e.g., Loney et al., 2007), and the current study aims to extend that literature. Extensive evidence supports several main effect associations between specific negative parenting practices and conduct problems and aggression (Frick & Loney, 2002; Loney et al., 2007). For example, low warmth and positive reinforcement, poor monitoring and supervision of children's activities, harsh and inconsistent discipline, and low involvement in children's activities have all been associated with children's conduct problems (Loney et al., 2007; Loukas & Roalson, 2006; McCoy, Loney, Frick & Ellis, 1999). Although there is a dearth of literature examining main effect associations between specific parenting deficits and child psychopathic traits, studies suggest that harsh physical punishment and low parental involvement may be the parenting practices most strongly associated with child callous-unemotional traits (Waller, Gardner, & Hyde, 2013).

Although there has been considerable research exploring the main effects between parenting and various child personality traits, only one published study, to our knowledge, has examined the relations among maternal psychopathic traits, parenting, and child psychopathic traits within a mediation model. Loney et al. (2007) reported significant associations between maternal and child psychopathic traits, suggesting that these traits may, indeed, be transmitted from mother to child. Moreover, they found that parenting practices (parenting dysfunction and parental hostility) fully mediated this association between maternal and child psychopathic traits, lending support to the notion that parenting may serve as the environmental mechanism explaining the transmission of psychopathic traits from mother to child. Although Loney et al. (2007) found that a composite measure of dysfunctional parenting mediated the relation between maternal and child psychopathic traits, neither this study, nor any other that could be found, examined the mediating role of *specific* parenting deficits (beyond broad constructs, such as parenting dysfunction) in the association between maternal and child psychopathy. Greater specification of these parenting practices could bear significant implications for the development of prevention strategies aimed at high-risk youth. For this reason, separate parenting variables are examined in the current study to distinguish between varying effects of maternal traits on parenting behaviors. There are differences in relations between parenting and child behavior depending on the specific parenting practice examined, and these specific parenting practices have a differential impact on behavior when targeted in interventions (e.g., Shaffer, Lindheim, & Kolko, 2012; Stormshak, Bierman, McMahon, & Lengua, 2000).

Parenting As a Potential Moderator

Another unexplored question is whether positive parenting practices ameliorate the negative potential impact of maternal traits on child outcomes. A recent review of the literature on parenting and child callous-unemotional traits concluded that “a focus on positive affective dimensions [of parenting] may be of particular relevance to the development or prevention of CU [callous-unemotional] traits” (Waller et al., 2013, p. 605). Given the findings presented within this review, it seems plausible that children whose mothers have high levels of psychopathy but use positive parenting practices may be less likely to develop callous-unemotional traits than other children whose mothers have high levels of psychopathy. If so, this finding could hold implications for intervention and prevention. We aim to examine the possibility that parenting serves as a moderator in the relation between maternal and child traits within this study.

The overarching goal of the present study is to attempt to replicate and extend initial findings concerning the intergenerational transmission of psychopathic traits from mother to child. Specifically, we aim to examine whether specific dimensions of parenting are more or less likely to act as mediators and whether positive parenting moderates this intergenerational risk process.

Narcissism and Impulsivity

In comparison to existing research on child callous-unemotional traits, relations among parenting and the narcissism and impulsivity dimensions of psychopathy are less well understood. Therefore, exploration of the role of narcissism and impulsivity in these mediating and moderating models will be another distinctive contribution of the current study. Given recent research demonstrating predictive validity of narcissism above and beyond callous-unemotional traits in predicting certain child outcomes (e.g., intelligence), this dimension warrants further exploration (Allen, Briskman, Humayun, Dadds, & Scott, 2013).

Maternal Versus Paternal Parenting

This study examines parenting in the context of potential maternal, but not paternal, influence on child psychopathic traits. The decision and justification to focus on maternal influence was made on the basis of two reasons. First, given the critical role that mothers often play in their children’s upbringing and development, it is important to understand the role that mothers play in the development of psychopathic traits in childhood and adolescence. Notably, fathers are more likely to be absent from the home than mothers (as was the case in many households within our sample), so despite there likely being a higher level of psychopathic traits among male parents, they may not be as useful in understanding the effects of *direct parenting* (U.S. Census Bureau, 2014). Second, most evidence suggests quite similar external correlates of psychopathy measures in men and women (see Miller, Watts, & Jones, 2011). There is, therefore, no intrinsic reason to believe that the pattern of relations found in mothers would differ from that found in fathers or other males. Given the scarcity of studies exploring the influence of maternal psychopathic traits on child outcomes, examination of these relations within a maternal sample is warranted and of potential scientific value.

Aims

The current study aims to examine the potential mediating and moderating effects of parenting practices in the relation between maternal and child psychopathic traits in a community sample of mothers and their male children. Our sample was recruited by identifying children within the community who were considered “handfuls” by their parents. This sampling strategy was advantageous in that it ensured adequately elevated levels of psychopathic traits for analysis; however, because we selected for children with behavior problems, this sample may not be entirely representative of the population at large. Still, variability in our sample on child psychopathic traits was comparable to that of other, much larger community samples; therefore, there appears to be sufficient range on these traits to warrant our analyses (e.g., Frick et al., 2000). The current sample also selected for males exclusively. Females were excluded because the primary study goal (not the focus of the current analyses) was to examine the intersection of overt aggression and psychopathy in children, and overt aggression occurs at lower levels in girls than in boys. We believed that an all-male sample would increase the likelihood that we would have more elevated scores on these measures.

Although our study design, which examined intact families, precludes us from testing directly for genetic influences, it allows us to speak to the potential for heightened risk of psychopathic traits among children of mothers with psychopathic or antisocial traits. There has been considerable debate regarding the relation between psychopathy and antisocial personality disorder (Lilienfeld, 1994), with some authors viewing the two constructs as largely isomorphic but others contending that they are substantially different (Lykken, 1995). We aimed to examine whether psychopathic traits and antisocial personality traits were similarly or differentially related to parenting and offspring in our sample. We hypothesized that maternal psychopathic and antisocial traits would predict dysfunctional parenting (as assessed by specific subscales within a parenting measure), which in turn would predict child psychopathic traits. In addition, we hypothesized that positive parenting would moderate the association between maternal psychopathic/antisocial traits and child psychopathic traits, such that this association would be less pronounced when mothers display high levels of positive parenting. Broadly speaking, the goal of this study is to shed light on potential influences of maternal traits and parenting on children’s development of psychopathic traits—an area that calls for more attention.

METHOD

Participants

The initial sample consisted of 88 parent and male child dyads in which parenting data from biological mothers were available. Six cases were excluded in which parent measures were completed by fathers only, due to our primary interest in maternal traits. We focused on maternal traits given the absence of father figures within the households of many children in the sample and because of the traditional role of mother figures as most active in childrearing. Our sample of parents includes one aunt and one grandmother. As we are interested in the influence of traits possessed by maternal figures on the child rather than in the heritability of these traits, these two individuals were retained in the final sample. Results did not differ when these individuals were removed from the analyses. Six additional cases were also excluded because they

involved adopted children. One additional case was excluded due to missing maternal questionnaire data. The remaining 75 boys, who composed the final sample for analyses, were between the ages of 7 and 11 ($M = 8.80$ years, $SD = .97$ years). Mothers in the sample were between the ages of 22 and 68 ($M = 41.30$, $SD = 9.54$), predominantly (>65%) married or living with a partner, and had a median education level of 2 years of college. The ethnic composition of the children in the sample was 47% Caucasian, 49% African American, 3% Asian American, and 1% Hispanic. Given the diversity of the greater Atlanta area (54% African American, 36.3% Caucasian, 3.1% Asian American, and 5.2% Hispanic; United States Census Bureau, 2010), the composition of the sample was adequately representative of this population (see Sylvers, Brennan, & Lilienfeld, 2011, for a fuller description).

Procedures

Participants were recruited by means of flyers mailed to home addresses in the greater Atlanta metropolitan area. These flyers indicated that the researchers were interested in preadolescent children who were “handfuls” and exhibited problem behaviors both at home and at school. Additionally, flyers were posted at surrounding medical clinics and community facilities throughout Atlanta. Exclusion criteria for the children were mother-reported autism-spectrum disorders, bipolar disorder, and intellectual disability. Because these are rare conditions affecting a wide variety of behaviors, we believed that children with these disorders would be outliers on many, if not all, behaviors of interest in this study.

We did not exclude children with diagnoses of attention deficit hyperactivity disorder (ADHD; $n = 8$ in our sample) because it is a more common disorder, and we believed children with ADHD were less likely to be outliers on the variables assessed. Nevertheless, we examined the role of continuously measured ADHD symptoms in statistical models in which it was considered a potential conceptual confound, as noted later for results with Mother and Child Impulsivity subdimensions of psychopathy. In addition, we performed post-hoc sensitivity analyses removing children with ADHD diagnoses from the sample and retesting our hypotheses; our results remained unchanged (data are available from the first author on request).

The criterion involving children’s histories of problem behaviors was assessed using the Diagnostic Interview Schedule for Children, Fourth Edition (DISC-IV) externalizing disorder module. Given that this measure is a semi-structured interview, there were no numerical cutoffs used for inclusion/exclusion criteria. Our return rate for distributed fliers was less than 10% given the extensiveness of our mailing list and distribution parameters (mailings throughout all of greater Atlanta and postings in community facilities and clinics throughout Atlanta).

Before participating, mothers were screened over the telephone to assess their child’s histories of problem behaviors and previously diagnosed conditions. Those mother-child dyads meeting inclusion/exclusion criteria (i.e., those in which the mother said that her son was frequently in trouble both at home and at school, and might be described as a “handful” but had never been diagnosed with an autism spectrum disorder, bipolar disorder, or intellectual disability) were invited to a laboratory at Emory University for participation. Informed consent and assent were obtained from both mothers and children prior to the study’s initiation. In separate rooms, the mother and child completed a battery of semi-structured interview and questionnaire measures. All data were collected by trained research assistants during one laboratory visit. Mothers in our sample

were given \$30 cash for their participation in this study; children were given a \$10 gift card.

Measures

Psychopathic Personality Inventory–Revised (PPI-R). The PPI-R (Lilienfeld & Widows, 2005) is a 154-item self-report measure of global psychopathic traits that contains eight lower-order subscales. The PPI-R is not limited to use within antisocial and criminal populations, as it measures the continuum of psychopathic personality traits present in both clinical (e.g., forensic) and non-clinical (e.g., student, community) settings. The eight subscales of the PPI-R (Machiavellian egocentricity, social influence, coldheartedness, carefree non-planfulness, fearlessness, blame externalization, rebellious non-conformity, and stress immunity) can be condensed into a two-factor structure. PPI Factor 1, fearless dominance, is composed of the social influence, fearlessness, and stress immunity subscales, whereas PPI Factor 2, self-centered impulsivity, is composed of the Machiavellian egocentricity, rebellious non-conformity, blame externalization, and carefree non-planfulness subscales (Benning, Patrick, Hicks, Blonigen, & Krueger, 2003; but see Neumann, Malterer, & Newman, 2008; for an alternative factor structure). The coldheartedness subscale does not load highly on either of these factors and is excluded from these two higher-order factors (Lilienfeld & Widows, 2005). The PPI-R also contains several validity scales designed to detect inconsistent or deviant responding, including potential malingering; because there were no outliers on these scales in this sample, they were not used to exclude participants.

The internal consistencies of each of the two factors in this sample were modest, but acceptable (PPI Factor 1/fearless dominance: Cronbach's $\alpha = .72$; PPI Factor 2/self-centered impulsivity: Cronbach's $\alpha = .84$; see also Sylvers, Brennan, & Lilienfeld, 2011). However, modest alphas are to be expected given the diversity of the psychopathic features composing each of these factors and the heterogeneity of psychopathy as a construct. PPI mean values within our sample are comparable with those in female community samples within other studies (e.g., Smith, Lilienfeld, Coffey, & Dadds, 2013).

Personality Diagnostic Questionnaire (PDQ)–Version 4. The PDQ-4 (Hyler, 1994) is a 99-item self-report instrument designed to screen individuals for the presence of Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) personality disorders. The scale measures all 10 personality disorders (paranoid, schizotypal, schizoid, histrionic, narcissistic, borderline, antisocial, avoidant, dependent, and obsessive-compulsive) in the DSM-IV and assesses each criterion using one item. Although data were collected for all personality disorders, maternal antisocial personality traits (assessed dimensionally as a sum of all Antisocial Personality Disorder criteria) were of primary interest. Internal consistency for the ASPD scale within our sample was acceptable (Cronbach's $\alpha = .82$).

Alabama Parenting Questionnaire (APQ). The APQ (Frick, 1991) is a 42-item measure designed to assess dimensions of parenting practice that have been found to be linked to conduct problems (Shelton, Frick, & Wootton, 1996). The measure was designed for use with children from ages 6 to 17 and is well-validated as a measure

of parenting style (Dadds, Maujean, & Fraser, 2003; Shelton et al., 1996). The APQ assesses parenting strategies across five domains: positive parenting, parental involvement, poor monitoring/supervision, inconsistent discipline, and corporal punishment. Item responses range from 1 to 5 (1: *never*, 2: *almost never*, 3: *sometimes*, 4: *often*, 5: *always*) and are summed to create total scores as well as composite scores for each parenting subscale. Higher scores on the corporal punishment, poor monitoring, and inconsistent discipline scales indicate poorer parenting skills, whereas higher scores on parental involvement and positive parenting indicate better parenting skills. Although the APQ was completed by mothers and their children, only mother-reported ratings were used in the present study to avoid potential shortcomings with the reliability and validity of youth reports. Specifically, young children (ages 9 and below) often engage in deviant responding on this measure and respond to questions concerning frequency of parent behaviors using a consistent response set, providing either very high or very low frequencies of behaviors (Shelton et al., 1996). Given low correlations between mothers' and children's reports on this measure, mothers' reports were used in recognition of the potential for deviant responding amongst children. Additionally, reliabilities for mother-reported APQ data were higher than reliabilities for child-reported data with one exception (poor monitoring).

The test-retest reliability of the APQ ranges from .84 to .90 (Dadds et al., 2003). In this sample, internal consistencies for the APQ subscales were adequate, with one exception (positive parenting: Cronbach's $\alpha = .83$; parental involvement: Cronbach's $\alpha = .78$; poor monitoring/supervision: Cronbach's $\alpha = .74$; inconsistent discipline: Cronbach's $\alpha = .76$; and corporal punishment: .47). The low internal consistency for the corporal punishment scale in part reflects its brevity (three items). Given the low internal consistency of this scale and the fact that it was not central to our studies aims, it was excluded from subsequently reported analyses.

The Antisocial Process Screening Device (APSD). The APSD (Frick & Hare, 2001) is a widely used scale designed to assess psychopathic traits in youth between the ages of 6 and 13. The measure contains 20 items rated on a 3-point Likert scale containing response options of 0: *not at all true*, 1: *sometimes true*, and 2: *definitely true*. Scores are based on Frick, Bodin, and Barry's (2000) three-factor model, which comprises the following factors: callous-unemotional (e.g., "does not show emotions"), narcissism (NAR; e.g., "brags excessively"), and impulsivity/conduct problems (ICP; e.g., "acts without thinking").

The items comprising the APSD are modeled largely after the Psychopathy Checklist-Revised (PCL-R), a well-validated and widely used measure of psychopathy in adults. The APSD possesses test-retest reliability and convergent validity commensurate to the PCL-R (Christian, Frick, Hill, Tyler, & Frazer, 1997; Fite, Greening, Stoppelbein, & Fabiano, 2009; Frick & Hare, 2001; Lee, Vincent, Hart, & Corrado, 2003).

Parent, teacher, and child versions of the APSD are available, but for purposes of this study, only child and parent ratings were obtained. Mothers' reports were the focus of our analyses; however, the results of our analyses were highly similar when scores from mother and youth reports were combined to calculate composite and total scores, as recommended in the APSD manual (Frick & Hare, 2001). We decided to use mothers' scores given that subscales from this method had higher internal reliabilities than did child reports (internal reliabilities for mothers' ratings were callous-unemotional: Cronbach's $\alpha = .64$; narcissism: Cronbach's $\alpha = .75$; and ICP: Cronbach's $\alpha = .63$). These alphas are

TABLE 1
Descriptive statistics for Variables of Interest

Variable	<i>N</i>	<i>M</i>	<i>SD</i>
Mother PPI Factor 1 (fearless dominance)	73	108.69	20.74
Mother PPI Factor 2 (self-centered impulsivity)	73	123.24	23.36
Mother antisocial personality traits	71	1.31	2.13
Poor monitoring	75	14.36	4.52
Inconsistent discipline	75	16.07	3.91
Positive parenting	75	26.10	3.01
Parental involvement	75	40.24	4.38
Child callous-unemotional	75	3.92	2.13
Child narcissism	75	5.43	3.25
Child impulsivity	75	6.15	2.00

comparable with those reported in a larger community sample assessing these traits in childhood (Muñoz & Frick, 2007); therefore, inclusion of this measure in our analyses was deemed to be justified.

RESULTS

Preliminary Data Analyses

Descriptive statistics for the major variables are shown in Table 1. Preliminary analyses revealed no significant correlations between age and any of the three dimensions of child psychopathic traits (all $ps > .43$). The three outcome variables (the three dimensions of child psychopathic traits) in our sample satisfied the distributional requirements of analysis of variance (ANOVA), so this analysis was conducted to examine the relations between ethnicity and these outcome variables. ANOVAs revealed that ethnicity bore no significant relations with these three outcome variables (all $ps > .12$).

Mediator Analyses

To demonstrate mediation, bivariate correlations among maternal traits, parenting variables, and child psychopathic traits were first examined. Subsequently, methods described by Preacher and Hayes (2004) were used to determine the indirect effects of maternal psychopathic and antisocial traits on child psychopathic traits via parenting. Testing indirect effects among variables of interest has come to supersede the more traditional Baron and Kenny (1986) approach to testing mediation given recent work asserting that a direct effect between predictor and outcome variables is not necessary to demonstrate mediation (e.g., Collins, Graham, & Flaherty, 1998; Hayes, 2013). Consequently, bootstrapping methods are now viewed as a preferred approach to testing mediation models. Within this study, PROCESS Macro for Statistical Package for the Social Sciences (SPSS) was used to examine indirect effects among maternal psychopathic and antisocial traits, parenting, and child psychopathic traits given suitability of this Macro for testing continuous variables (Hayes & Preacher, 2014).

TABLE 2
Zero-Order Correlations Among Maternal Antisocial Personality and Psychopathic Traits, Parenting, and Child Psychopathic Traits

Variable	1	2	3	4	5	6	7	8	9	10
1. PDQ antisocial	—	-.04	.32**	.29*	.51**	-.03	-.31**	.35**	.35**	.38**
2. PPI factor 1/fearless dominance		—	.04	.13	-.10	-.01	-.02	.16	-.06	.04
3. PPI factor 2/self-centered impulsivity			—	.07	.16	.06	-.06	.23	.35**	.11
4. Poor monitoring				—	.44**	-.27*	-.31**	.34**	.32**	.28*
5. Inconsistent discipline					—	-.08	-.35**	.36**	.40**	.45**
6. Positive parenting						—	.45**	-.05	.05	-.02
7. Parental involvement							—	-.11	-.07	-.23
8. Child narcissism								—	.56**	.52**
9. Child impulsivity									—	.38**
10. Child callous-unemotional										—

Note. PPI: psychopathic personality inventory.

* $p < .05$, ** $p < .01$.

Maternal Psychopathic Traits. We hypothesized that maternal psychopathic traits would be significantly associated with child psychopathic traits, and that this relation would be mediated by parenting practices. Bivariate correlations were conducted to examine associations between potential predictors, mediators, and outcomes (see Table 2). These correlations revealed that higher maternal self-centered impulsivity scores were associated with higher levels of child ICP, but not child narcissism or callous-unemotional traits (see Table 2). This significant association between maternal impulsivity and child impulsivity was further examined to determine whether it might be elucidating a risk process for ADHD symptoms in children, rather than psychopathic traits *per se*. Indeed, when controlling for ADHD symptoms (impulsivity, inattention, and hyperactivity), this correlation was no longer significant (results not shown), so this correlation is plausibly attributable to ADHD symptoms in children.

Maternal fearless dominance and self-centered impulsivity were not significantly related to any parenting variables (see Table 2), suggesting that parenting was not a mediator of the relation between maternal and child psychopathic traits. Higher levels of poor monitoring and inconsistent discipline were associated with higher levels of child ICP, narcissism, and callous-unemotional traits, and these associations held even when statistically controlling for maternal fearless dominance and self-centered impulsivity using partial correlations (all $ps < .05$).

We also used SPSS PROCESS procedures (Hayes, 2012) to test for indirect effects of maternal psychopathic traits on child psychopathic traits, through mother-reported parenting variables. Results of these analyses indicated that no indirect effects were significant. These findings suggest that parenting does not mediate the relation between maternal and child psychopathic traits.

Maternal Antisocial Personality Traits. We next examined associations among maternal antisocial personality traits, parenting, and child psychopathic traits. Correlations among these variables are shown in Table 2. Higher levels of maternal antisocial personality traits were significantly associated with higher levels of child narcissism, ICP, and callous-unemotional traits. In addition, higher levels of maternal

antisocial personality traits were associated with more maladaptive scores on poor monitoring and inconsistent discipline. More maladaptive scores on each of these parenting qualities were, in turn, associated with higher levels of child callous-unemotional traits, ICP, and narcissism. When controlling for the two parenting variables (poor monitoring and inconsistent discipline), the association between the independent and dependent variables was no longer significant (all $ps > .13$). SPSS PROCESS was used to ascertain which indirect effects were statistically significant. Significant indirect effects suggest that a statistically significant pathway between independent and dependent variables can be accounted for by the included mediator variable. The results for parenting mediators between maternal antisocial personality traits and child callous-unemotional traits revealed a significant total indirect effect (Beta = .22; Confidence Interval: .05-.51), and a significant indirect effect for inconsistent discipline (Beta = .16; CI: .03-.37) (see Figure 1). The results for parenting mediators between maternal antisocial personality traits and child impulsivity traits revealed a significant total indirect effect (Beta = .14; CI: .03-.28), and a significant indirect effect for poor monitoring (Beta = .06; CI: .01-.18) (see Figure 2). In the relation between maternal antisocial personality traits and child narcissistic traits, there was a significant total indirect effect for parenting variables (Beta = .26; CI: .03-.70), as well as significant indirect effects for both inconsistent discipline (Beta = .17; CI: .01-.42) and poor monitoring (Beta = .11; CI: .01-.43) (see Figure 3).

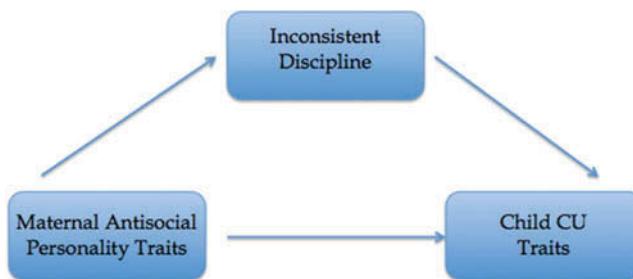


FIGURE 1

Significant indirect effect of maternal antisocial personality traits on child callous-unemotional traits via inconsistent discipline.

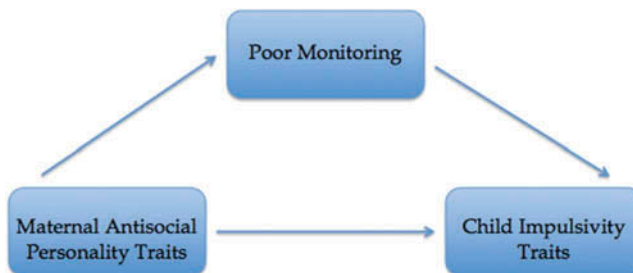


FIGURE 2

Significant indirect effect of maternal antisocial personality traits on child impulsivity traits via poor monitoring.

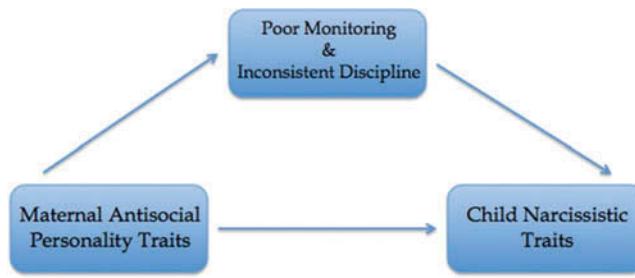


FIGURE 3

Significant indirect effect of maternal antisocial personality traits on child narcissistic traits via poor monitoring and inconsistent discipline.

Moderator Analyses

Maternal Psychopathic Traits and Positive Parenting. We hypothesized that positive parenting would moderate the association between maternal and child psychopathic traits. To test for these effects, we centered maternal fearless dominance, self-centered impulsivity, and maternal positive parenting scores. We then created interaction terms by multiplying our centered variables by one another (e.g., the interaction term for maternal fearless dominance and maternal positive parenting practices was created by multiplying the centered maternal fearless dominance variable by the centered maternal positive parenting variable). We used hierarchical linear regression analyses to separately analyze results for each of the three child psychopathy dimensions. In each of these regression analyses, the centered main effect for maternal psychopathy and parenting variables were entered in block 1, and the centered interaction term was entered in block 2. Results of these analyses revealed that maternal positive parenting practices moderated the relations between maternal self-centered impulsivity scores and both child callous–unemotional and narcissistic traits (see Table 3). In other words, two of six potential interaction analyses concerning maternal psychopathic traits were found to be significant.

TABLE 3
Positive Parenting As a Moderator Between Maternal Traits and Child Psychopathy Indices

	F change	R ² change	p
PPI factor 1 by positive parenting			
Child callous–unemotional	1.01	.02	.32
Child narcissism	.18	.003	.67
Child impulsivity	.36	.01	.55
PPI factor 2 by positive parenting			
Child callous–unemotional	11.44	.15	.001
Child narcissism	5.56	.07	.02
Child impulsivity	1.32	.02	.26
PDQ antisocial by positive parenting			
Child callous–unemotional	1.39	.02	.24
Child narcissism	.50	.01	.48
Child impulsivity	.01	.00	.93

Follow-up analyses were undertaken to probe the significant interactions between positive parenting and maternal self-centered impulsivity scores in the prediction of child callous-unemotional and narcissistic traits. Higher levels of maternal self-centered impulsivity predicted higher levels of child callous-unemotional, $t(1,30) = 2.19, p = .04$, and narcissistic traits, $t(1,30) = 2.67, p = .013$, but *not* when mothers scored high on positive parenting (i.e., scores above a mean of 26.10; child callous-unemotional traits: $t(1,39) = -.30, p = .76$; child narcissistic traits: $t(1,39) = .66, p = .52$). Therefore, positive parenting acted as a protective factor moderating the relation between maternal and child psychopathic traits.

Maternal Antisocial Personality Traits and Positive Parenting. We also examined whether positive parenting practices moderated the association between maternal antisocial personality disorder traits and dimensions of child psychopathy. Hierarchical multiple regression analyses were performed in a manner similar to those described above (with maternal ASPD traits rather than maternal psychopathy measures included). No interaction terms were statistically significant (see Table 3).

Exploratory Analyses

Finally, the PPI-R coldheartedness scale, which does not load highly on either of the two major PPI-R higher-order factors, was analyzed to determine whether it bore any statistical relation to parenting or child psychopathic traits, given that this scale has become increasingly used as a third factor in psychopathy research (Lilienfeld & Widows, 2005). Exploratory analyses revealed that this scale was not related to parenting or child psychopathic traits, nor did it interact with positive parenting to predict outcome (results are available from the first author on request).

DISCUSSION

Although data from previous studies suggest that psychopathic personality traits in children are largely heritable (Viding et al., 2005), little is known about the ways in which these traits are intergenerationally transmitted. Maternal personality traits were of particular interest in the current investigation. Here, we found support for our hypothesis that parenting may explain the relation between maternal antisocial personality traits and child psychopathic traits, but we did not find support for our hypothesis that parenting would explain the relation between maternal and child psychopathic traits. Additionally, we found support for our hypothesis that positive parenting would moderate the relation between maternal and child psychopathic traits. This moderation model did not apply to the relation between maternal antisocial personality traits and child psychopathic traits.

Parenting as a Mediator

Our finding that parenting serves as a mediator in the relation between maternal antisocial personality traits and child psychopathic traits dovetails with prior research demonstrating that parenting mediates the relation between maternal antisocial traits and child callous-unemotional traits (Waller et al., 2013). This finding suggests that offspring of mothers with high antisocial traits may be at higher risk for development of

psychopathic traits (across all three dimensions, not just callous-unemotional traits), and that this relation may be explained by mothers' routine practice of dysfunctional parenting.

Our findings suggest that parenting mediates the relation between maternal antisocial personality traits and child psychopathic traits, but *not* the relation between maternal and child psychopathic traits. Therefore, we did not replicate Loney and colleagues' (2007) finding that dysfunctional parenting mediates the relation between maternal and child psychopathy. This divergence between maternal psychopathic traits and maternal antisocial personality traits might be understood by examining the nature of the measures used to assess these constructs. Whereas the maternal psychopathy measure (PPI-R) assesses broad personality traits (e.g., self-centeredness, fearlessness) displayed by mothers, the antisocial personality trait measure (PDQ-4) assesses behavioral transgressions (e.g., lying, stealing) displayed by mothers. Parenting practices may be more heavily implicated in a model of maternal *behaviors* resulting in the development of psychopathic traits, rather than a model of maternal and child *personality traits*. Maternal antisocial behaviors may contribute to negative parenting practices, increasing the risk of psychopathic traits in children. In contrast, maternal psychopathic traits may be less clearly linked to parenting practices. This explanation appears to be supported by our mediation analyses as well as our zero-order correlations (see Table 2), which revealed no significant relation between maternal psychopathic traits and parenting practices. Mothers with high levels of psychopathic traits may very well evidence these traits in their interactions with others, but these traits do not appear to have any direct impact on their parenting behaviors. This finding could suggest that the transmission of psychopathic traits from mother to child has more of a genetic basis than an environmental one, or alternatively that other types of parenting or other environmental influences are important to understanding the intergenerational continuity of psychopathic traits. Alternatively, this negative finding may be a result of Type II error, and independent replication of our findings in studies with larger samples will be necessary. In any case, our results do not offer support for the hypothesis that dysfunctional parenting practices matter greatly in the transmission of psychopathic traits from parent to child (Loney et al., 2007).

Parenting as a Moderator

Although *dysfunctional* parenting did not mediate the relation between maternal and child psychopathic traits, we found a statistical interaction between maternal psychopathic traits and *positive* parenting practices. More specifically, maternal self-centered impulsivity traits were significantly associated with child callous-unemotional and narcissistic traits, but only when positive parenting practices were lacking. Maternal and child psychopathic traits were not significantly related when positive parenting practices were present. Therefore, positive parenting practices may act as a protective factor, helping to prevent the development of psychopathic traits among children whose mothers display these traits themselves.

To our knowledge, these are the first findings suggesting that positive parenting moderates the relation between maternal and child psychopathic traits. Nevertheless, some research suggests that positive parenting precedes, and may lead to, decreases in children's antisocial behavior over time (e.g., Hawes Dadds, Frost, & Hasking, 2011) and parenting-focused interventions may reduce children's callous-unemotional traits

over time (Hawes & Dadds, 2007; Kolko et al., 2009; McDonald, Dodson, Rosenfield, & Jouriles, 2011; Somech & Elizur, 2012). These latter findings were extended in the current study by showing that positive parenting practices may counteract the negative impact of maternal psychopathic traits on the development of psychopathic traits in children, although our design was correlational rather than experimental. This extension of the literature is important given the need for effective interventions in targeting psychopathic traits among children at elevated risk for developing them. Given the body of literature supporting parenting-focused interventions for callous-unemotional traits (see Waller et al., 2013, for a review), these interventions may be particularly critical for the children of mothers with high levels of psychopathic traits themselves. Our findings also extend the extant literature, which focuses primarily on the relation between positive parenting and callous-unemotional traits, by suggesting that positive parenting practices may attenuate child narcissistic traits as well.

It is worth noting that our moderation findings involved self-centered impulsivity of our maternal psychopathy measure and not maternal fearless dominance, and involved only two of the three child psychopathy dimensions (callous-unemotional traits and narcissism, but not impulsivity). Negative findings within this model may be a result of Type II error. Independent replication of our findings for callous-unemotional traits and narcissism, but not impulsivity/conduct disorder traits, will be necessary. Also, given that the relation between maternal self-centered impulsivity and child impulsivity traits may also reflect children's ADHD symptoms (as stated above), these symptoms may be less amenable to any effects that positive parenting may have on children's behaviors.

Limitations

The current findings and interpretations are derived from cross-sectional, rather than longitudinal, research. Because the current study was cross-sectional, the temporal direction of these findings cannot be inferred. Rather than speaking exclusively to a causal link between maternal and child traits, these findings are probably bidirectional: Children's behaviors in part stem from, but also contribute to, subsequent changes in parenting practices (Bell, 1968). Indeed, Belsky's (1984) model of parenting suggests that there are three categories of factors that appear to influence parenting practices: (1) the personality traits and psychological resources of the parent, (2) characteristics of the child, and (3) contextual factors. Therefore, these other two categories of factors cannot be ignored despite not being a focus of the current study. Research by Hawes and colleagues (2011) supports a bidirectional dynamic between maternal and child psychopathic traits. They found that callous-unemotional traits in children uniquely predicted change in several domains of parenting (positive parenting, parental involvement, and poor monitoring) at 12-month follow-up. Generally speaking, longitudinal data within this body of literature are lacking. Future research should capitalize on longitudinal designs to begin to tease apart the nature of these parent-child behavior patterns. However, because our mediation model was informed by theory and based on previous empirical work, our results are informative and worthy of replication and extension to other, larger samples. Further studies should also use a broader range of measures of both maternal and childhood psychopathic and antisocial traits particularly because of the limited quantity of longitudinal data in this area of study; furthermore, only one previous study has examined potential mediators and moderators in the transmission of psychopathic traits from mothers to offspring (i.e., Loney et al., 2007).

Another important methodological limitation in the current study was our reliance on maternal report to assess all variables of interest. We used maternal reports rather than child reports given the low reliabilities of child reports. It is possible that mothers' responses on measures might be inaccurate, dishonest, or biased (particularly if they were high on psychopathic or antisocial traits), but we would expect that if this sort of bias were in play, similar findings would be observed for mothers' antisocial and psychopathic traits. Instead, we found that maternal antisocial traits were correlated with all but one parenting variable, and psychopathic traits were not related to any parenting variables. We believe that it would be interesting and worthwhile to explore the relation between children's reports of parenting and mothers' psychopathy in future studies, but this relation would have to be explored in an older sample to ensure validity and reliability of child-report measures of parenting. Additionally, to avoid shared method variance and the potential for socially desirable responding in mothers' reports, these findings should be replicated using multiple observers' ratings as well as laboratory observations of parenting practices.

An additional limitation concerns our sample size. Although our sample size ($N = 75$) was comparable with that of Loney et al. (2007; $N = 83$), it was, nonetheless, only moderate in size. Hence, our findings should be interpreted with this caveat in mind. Indeed, in future research it will be important to rule out the possibility that our positive findings for mediation and moderation may have resulted from what Button et al. (2013) deemed the "winner's curse," wherein small, underpowered studies yield spurious (false positive) findings and inflated effect sizes that are not replicable or shrink in magnitude in subsequent studies. This limitation highlights the importance of replicating our findings in larger, independent samples, especially given the consistency of our findings with those reported in previous studies (e.g., Waller et al., 2013).

CONCLUSION

These findings shed light on the development of psychopathic traits in children, an area of research that remains poorly understood. Bearing in mind the fact that our findings derive from intact families, which do not permit us to distinguish genetic from shared environmental influences, our findings suggest that parenting practices are a potential candidate for interventions designed to prevent psychopathic traits and antisocial behaviors in children. Overall, this study offers useful insights into the etiology of psychopathic traits in children as well as the possible role of parent training to prevent the development of these traits.

IMPLICATIONS FOR PRACTICE, APPLICATION, THEORY, AND POLICY

If supported by future research, a focus on positive parenting might serve as a promising intervention point for attenuating the impact of maternal psychopathic traits on offspring. Given the many challenges of treating psychopathy once it is fully developed, the possibility of introducing positive parenting practices to minimize the potential impact of maternal psychopathic and antisocial personality traits on the development of child psychopathic traits appears to be worth pursuing. At the same time, we offer this recommendation with caveats given that the link between positive parenting and child psychopathy may not be purely environmental. To the extent that the same genes

predispose to personality dispositions (e.g., low frustration tolerance, inadequate empathy, poor impulse control) that contribute to both low positive parenting and high levels of child psychopathy, the association between parenting and child behaviors may reflect passive gene-environment correlation (Plomin, DeFries, & Loehlin, 1977). Future studies using genetically informed (e.g., twin, adoption) designs should evaluate the extent to which genetic factors may play a role in these models.

These findings may also shed light on another point of intervention (viz., dysfunctional parenting practices). By reducing the dysfunctional parenting practices experienced by children at risk for psychopathic traits, the subsequent development of antisocial behaviors might be partly curtailed, although this possibility will need to be examined in controlled studies. Notably, in our analyses, both forms of dysfunctional parenting (poor monitoring and inconsistent discipline) appeared relevant in explaining the relation between maternal antisocial personality traits and child psychopathic traits. Therefore, a broad-based approach to parenting interventions may be warranted for children of parents with psychopathic or ASPD traits, again bearing in mind the caveat that some dysfunctional parenting behaviors, such as those reflecting callousness (e.g., poor parental monitoring), may themselves be tied to the same genetic influences that confer risk for child psychopathy.

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