Do Harsh and Positive Parenting Predict Parent Reports of Deceitful-Callous Behavior in Early Childhood?

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Abstract

Background—The relationship between parenting and the development of antisocial behavior in children is well established. However, evidence for associations between dimensions of parenting and callous unemotional (CU) traits is mixed. As CU traits appear critical to understanding a subgroup of youth with antisocial behavior, more research addressing the link between early parenting and CU traits is needed.

Methods—The current study investigated longitudinal predictions between measures of harsh and positive parenting, and early CU behavior. Data from mother-child dyads (*N*=731; 49% female) were collected from a multi-ethnic, high-risk sample with young children, and included self-reported and multi-method observed parenting. CU behavior was assessed using a previously validated measure of deceitful-callous behavior (Hyde et al., in press).

Results—Results suggest that dimensions of harsh parenting, but not positive parenting, contribute to the development of child deceitful-callous behavior. Nevertheless, deceitful-callous behavior showed strong stability over time and the effects of harsh parenting, especially observed harshness, were modest.

Conclusions—The current findings have implications for developmental psychopathology and early interventions for antisocial behavior. The results also raise a number of issues about measuring emerging CU behavior in very young children, including the interrelation between parent perceptions and reports of child behavior, parent reactions, and the subsequent development of severe antisocial behavior.

Keywords

Patterns of poor parenting are a well-recognized risk factor for the development and maintenance of conduct problems (CP) in children. Research has consistently highlighted the importance of particular aspects of parenting, including rejecting parenting practices (Shaw, Gilliom, Ingoldsby, & Nagin, 2003), coercive patterns of parent-child interaction (Patterson, 1982) and positive parent-child engagement (Gardner, Ward, Burton, & Wilson, 2003). At the same time however, it has long been recognized that children with CP are a heterogeneous group. As such, there have been numerous attempts to identify meaningful subgroups, each potentially associated with distinct developmental trajectories, and thereby having important implications for basic research, prevention, and treatment.

Recent research efforts have focused on the presence of callous-unemotional (CU) traits for a subgroup of youth with CP, which may indicate unique risk processes (Frick & Viding, 2009). High levels of CU traits are associated with specific patterns of personality, cognitive and affective characteristics, including deficits in empathy and insensitivity to punishment (Frick & White, 2008). These findings have been replicated in samples ranging in age from 4–18 years, although research has mainly focused on clinical or adjudicated adolescent samples. CU traits are also associated with earlier onset of CP (Christian, Frick, Hill, Tyler, & Frazer, 1997) and more severe patterns of concurrent and later antisocial behavior (Pardini, Obradovic, & Loeber, 2006). Moreover, there appears to be stronger genetic influence on the CP of children with high versus low levels of CU traits (Viding, Blair, Moffitt, & Plomin, 2005).

A key question is whether poor parenting, known to be a risk factor for the development of CP, is related to the emergence of CU traits. Typically, two study designs have been employed to assess how parenting relates to CU traits in youth. First, studies have tested whether CU traits moderate the association between parenting and CP, often utilizing a cross-sectional design. Findings from cross-sectional moderation studies suggest that parenting practices, such as harsh parenting or inconsistent discipline, are not consistently related to CP when children have high concurrent levels of CU traits (e.g., Oxford, Cavell, & Hughes, 2003).

A second type of study has directly assessed the effect of specific parenting practices on the development of CU traits, aided by prospective and longitudinal designs. For example, Fontaine, McCrory, Boivin, Moffitt, & Viding (2011) identified the joint developmental trajectories of child CP and CU traits in a large sample (N=9,578; aged 7–12 years). While only a small proportion of children demonstrated a trajectory of both high CU traits and high CP (4.4% of sample), the results indicated this group to have had more risk predictors at age 4, including negative parental feelings and discipline, compared to a group with low levels of CU traits but high CP at age 12. Pardini, Lochman, and Powell (2007) investigated CU traits over a year in aggressive, high-risk children (N=120; aged 9–12 years old). Controlling for earlier CU traits, higher levels of corporal punishment predicted increases in CU traits, and higher parental warmth/involvement predicted decreased levels. Other longitudinal studies have found low levels of child-reported positive parenting in middle-school children (M age=10.65; Frick, Kimonis, Dandreaux, & Farell, 2003) and high parent-child conflict in adolescence (mean age at baseline=13.9; Pardini & Loeber, 2008) predicted CU trait stability. Therefore, there is increasing evidence that positive and negative dimensions of parenting predict CU traits in childhood and adolescence.

No study, however, has yet assessed the prospective, longitudinal associations between parenting and the development of CU behavior in early childhood. First, this is surprising because childhood problem behavior is known to have its developmental roots in the preschool years (Shaw et al., 2003). Second, high rates of disruptive behavior during the preschool period are associated with harsh and inconsistent parenting practices (e.g., Bell & Harper, 1977; Johnston & Mash, 2001). Third, there is developmental evidence to support extending the construct of CU traits to preschool children. Studies that have investigated related concepts, such as empathy (Knafo, Zahn-Waxler, Van Hulle, Robinson, & Rhee, 2008), and guilt (Cornell & Frick, 2007; Kochanska, Gross, Lin, & Nichols, 2002) suggest that these behaviors mature rapidly from ages 2 to 5, and are influenced by early parenting (e.g., Kochanska, 1997). Prosocial behavior also emerges and develops significantly between 18 and 30 months of age, although it appears to require greater scaffolding and support from an adult caregiver at earlier ages (Svetlova, Nichols, & Brownell, 2010). This finding highlights the potential role of parenting in shaping young children's knowledge of the social world and their developing prosocial and other related behaviors. A handful of recent studies have also established the validity of measuring CU behavior in preschool aged children (Dadds, Fraser, Frost, & Hawes, 2005; Hyde et al., in press; Kimonis et al., 2006; Willoughby, Washbusch, Moore, & Propper, 2011). Finally, the extension of the construct of CU traits to very young samples seems important for informing interventions for early starting conduct problems at a stage in development when child behavior may be more malleable, and prevention possibilities stronger.

The current study is unique in investigating the question of whether harsh and positive parenting practices, assessed during the preschool period, predict CU behavior. Specifically, parenting and CU behavior were both assessed at a young age and the association was tested longitudinally. Parenting was assessed using parent reports of parenting and multi-informant observed measures of harsh and positive parenting. Indeed, while there is evidence that both parental harshness and warmth may be important for CU behavior development, no studies have compared their unique effects using observed parenting measures. The data were drawn from a large, high-risk sample, with roughly equal numbers of boys and girls. A key strength of assessing the direct effect of parenting on later CU behavior in this sample is the ability to separate out evocative effects of earlier child behavior on parenting. Indeed, being able to control for earlier CU behavior provides strong evidence that parenting predicts later CU behavior because it precludes the potentially negative influence of a child's early patterns of CP on parenting.

Methods

Participants

Participants were mothers and children recruited as part of the large, ongoing Early Steps Multisite trial of the Family Check-Up (FCU) parenting intervention (Dishion et al., 2008). During 2002/2003, families with a child aged between 2 years 0 months and 2 years 11 months were recruited from the Women, Infants, and Children Nutrition Program from suburban Eugene, OR, urban Pittsburgh PA, and more rural Charlottesville, VA. Of 1666 families screened, 879 met eligibility criteria and 731 consented to participate. Eligibility criteria were defined as scoring one or more SD above the normative average on at least two of three screening measures. The screening measures were child behavior (including CP and high-conflict relationships), family problems (including maternal depression and substance abuse), and socioeconomic risk (including low education achievement or low income). Ethical approval was granted by the IRB at each site (Dishion et al., 2008), and consent was obtained during annual assessments from the primary caregiver. At the first assessment, children in the sample (N=731; 49% female) had a mean age of 29.9 months (SD=3.28 months). Across sites, primary caregivers self-identified as European-American (50%),

African-American (28%), biracial (13%) and other groups (9%). The majority of primary caregivers were biological mothers (96% at age 2 and 3). Children lived with both biological parents (37%), a single/separated parent (42%) or a cohabiting single parent (21%). Sixty-six percent of the sample reported annual family income below $20,000. Half the sample was randomly assigned to the intervention (for full details, see Dishion et al., 2008); intervention status was used as a covariate in analyses.

Measures

All assessments were conducted in the home annually from age 2 with mothers, and if present, an alternative caregiver, such as a father or grandmother. Assessments began by having the child engage in free play with age-appropriate toys, while the mother completed questionnaires. After the free-play task (15 minutes), mother and child participated in a clean-up task (5 minutes), followed by a delay of gratification task (5 minutes), four teaching tasks (3 minutes each), a second free-play (4 minutes) and clean-up task (4 minutes), the presentation of inhibition-inducing toys (2 minutes each), and a meal preparation/lunch task (20 minutes). All tasks were videotaped and the clean-up, teaching, and meal preparation/lunch tasks were used for observational coding of parenting.

Demographics questionnaire

A demographics questionnaire was administered at ages 2 and 3, which included questions about parental education and income (Dishion et al., 2008).

Deceitful-callous behavior

The measure of deceitful-callous behavior was drawn from a previous study using this sample (Hyde et al., in press). The measure was constructed from parent-reported items from the CBCL (Achenbach & Rescorla, 2000), Eyberg Child Behavior Inventory (Robinson, Eyberg, & Ross, 1980) and Adult-Child Relationship Scale (Pianta, 2001) at ages 2, 3 and 4. Items were chosen if they reflected an early lack of guilt, lack of affective behavior and deceitfulness, were related to the construct of CU traits, or were similar to items on the CU traits scale of the Antisocial Process Screening Device (APSD; Frick & Hare, 2002) or Inventory of Callous-Unemotional Traits (ICU; Frick, 2004). Items were examined in an exploratory factor analysis on half the sample, and a confirmatory factor analysis on the other half. Results confirmed that the following five items loaded onto a single factor, termed deceitful-callous behavior: 'child doesn't seem guilty after misbehaving,' 'punishment doesn't change behavior,' 'child is selfish/won't share,' 'child lies' and 'child is sneaky/tries to get around me' (Hyde et al., in press). The five-item deceitful-callous behavior measure demonstrated modest internal consistency at age 2 (a=.57), which improved at ages 3 (a=.64) and 4 (a=.72). Internal consistencies were comparable with other measures of CU traits in older samples of children and adolescents (e.g., Frick et al., 2003; Hipwell et al., 2007).

Parent-reported harshness

Parent-reported harshness was assessed using the over-reactivity subscale of the Parenting Scale at ages 2 and 3 (Arnold, O'Leary, Wolff, & Acker, 1993). The Parenting Scale is a 30-item self-report measure of parenting practices made up of three factors (over-reactivity, laxness, and verbosity). The 10-item over-reactivity subscale assesses harsh discipline, including reports of displaying anger and irritability (e.g., 'when my child misbehaves, I spank, grab, or hit him/her.'), each rated on a 1–7 scale. In the current sample, alphas were modest (age 2, a=.56; age 3, a=.58) and harsh parenting was also examined using observational measures.

Observed harsh parenting

Observed harsh parenting was defined and validated at ages 2 and 3 as a multidimensional factor, incorporating general parenting qualities (e.g., overall harshness) and specific parental behaviors (e.g., negative comments) (Moilanen et al., 2010), using two coding methods. First, a team of undergraduates, blind to families' intervention status, coded videotaped family interaction tasks using the Relationship Process Code (RPC; Jabson, Dishion, Gardner, & Burton, 2004). The RPC is derived from the Family Process Code (Dishion, Gardner, Patterson, Reid, & Thibodeaux, 1983), which has been used extensively in previous research. RPC inter-rater reliability was calculated using Noldus Observed Pro 5.0 software based on the duration of each micro-social behavior. To reach acceptable reliability, coders had to achieve 70% agreement and kappa=.70 on two consecutive training assignments, which had been coded by a 'master coder.' Fifteen percent of videotapes were coded twice, with acceptable agreement (average team percent agreement=.87; kappa=.86). The three RPC codes used in the observed harsh parenting construct were the duration proportions of a summary score of parental negative verbal, directive, and physical behavior.

Following the micro-social coding, coders completed a macro-social rating scale on the same videotaped interactions using the Coder Impressions Inventory (Dishion, Hogansen, Winter, & Jabson, 2004). Negative parenting behavior was assessed by six items: parent 'gives developmentally inappropriate reasons for desired behavior change,' 'displays anger/ frustration/annoyance,' 'criticizes/blames child for family problems,' 'uses physical discipline,' 'actively ignores/rejects the child' and 'makes statements/gestures indicating child is worthless.' The three RPC and six macro-ratings were standardized and summed to create a composite index of observed harsh parenting (α=.75; Moilanen et al., 2010).

Observed positive parenting

A composite for observed positive parenting at ages 2 and 3, labeled 'positive behavior support' was also created for the Early Steps study (Dishion et al., 2008; Lunkenheimer et al., 2008). This construct assesses a parent's support for their child's positive behavior, using items from three different measures. First, home visitors completed the HOME (Bradley et al., 2001). At age 2, in order to retain blindness, this was done before families were told their intervention status. The three-item HOME Involvement subscale was used: the parent 'keeps child in visual range', 'talks to child while doing household work' and 'structures child's play periods'. Second, two subscales comprising RPC micro-social codes from the videotaped interactions were used (see above for coding information). The positive reinforcement subscale included four RPC codes: positive verbal (e.g., praise); positive physical (e.g., hugging); verbal suggestions and prompts for positive activities; and positive structure (e.g., guidance of behaviour). The engaged interaction subscale included two RPC codes: a neutral verbal code, which captured neutral questions, answers and teaching, and a neutral physical code, which captured physical contact that was helpful and non-intrusive (e.g., holding child to ensure safety).

Finally, six macro-social items from the Coder Impressions Inventory formed a subscale of proactive parenting: parent 'gives child choices for behavior change,' 'communicates to child in calm/simple/clear terms,' 'gives understandable, age-appropriate reasons for behavior change' 'adjusts situation to ensure child's interest/success/comfort,' 'redirects to appropriate behavior if child is off task/misbehaves,' and 'uses verbal structuring to make task manageable.' Confirmatory factor analysis indicated that the four subscales from these measures formed a latent factor and consequently, scores were standardized and summed to form a composite of observed positive parenting, labeled 'positive behavior support' (α=.61; Dishion et al., 2008; Lunkenheimer et al., 2008).

Analysis

First, bivariate correlations between study variables were computed. Second, prediction of deceitful-callous behavior by earlier parenting was assessed, using hierarchical regression models. In step one of models, child gender and race, intervention group status, parent education and earlier deceitful-callous behavior were entered as covariates. In step two, observed positive behavior support and then either observed harsh parenting or parent-reported harshness were entered in separate models, which enabled comparison of these two methods, while controlling for the effect of observed positive parenting on deceitful-callous behavior outcome for both. The two-step comparative process was repeated for the following ages: age 2 parenting predicting deceitful-callous behavior at 3 and 4, and age 3 parenting predicting deceitful-callous behavior at age 4. It was necessary to control for intervention status as, after age 2, half the sample had been allocated to the FCU intervention. Earlier deceitful-callous behavior was controlled for to account for potential parent-child reciprocity and to ensure models assessed prediction of child deceitful-callous behavior by parenting, over and above child-driven effects.

Attrition

Of the 731 families entering the study at child age 2, 659 (90%) participated at age 3 and 622 (85%) at age 4. Selective attrition analyses conducted from 2–4 years old revealed no significant differences in project site, race, ethnicity, gender, or externalizing behavior (Dishion et al., 2008). Though the amount of missing data was small for individual measures (n=622–731, for self-report; 585–731, for observed), listwise deletion may have limited the power and biased estimation. Thus, to address missing data, values were imputed (via the EM algorithm in SPSS 18.0) (covariance coverage=.75–1.00). All analyses were run using both imputed and non-imputed datasets. The results were similar for both, although for brevity, the results reported are only for the imputed data (i.e., effective sample size of 731). Sources of missing data beyond attrition included families refusing to be videotaped, damaged videotapes, or families moving away and being unavailable for observations, although submitting self-report questionnaires via mail.

Results

Correlation analysis

Cross-sectional and longitudinal correlations for all study variables were computed (Table 1). There were moderate to strong correlations between deceitful-callous behavior at different ages (range r=.41–.61), indicating stability in the construct. There were moderate correlations between parent-reported harshness and deceitful-callous behavior (range r=.20–.36), except the cross-sectional correlation at age 2. There were modest significant correlations between observed harsh parenting and deceitful-callous behavior cross-sectionally and longitudinally (range r=.15–.18). The correlations between positive behavior support and deceitful-callous behavior were smaller, although in all cases but one reached significance.

Regression analysis

Parent-reported harshness consistently predicted later deceitful-callous behavior, controlling for earlier deceitful-callous behavior, child and parent covariates, and concurrent positive behavior support (Table 2). The model predicting age 3 deceitful-callous behavior from age 2 measures was significant, (R^2=.25, p<.001) and age 2 parent-reported harshness contributed uniquely to the model (ΔR^2=.04, β=.20, p<.001). The model predicting age 4 deceitful-callous behavior from age 2 measures was also significant (R^2=.20, p<.001) and age 2 parent-reported harshness added unique variance (ΔR^2=.03, β=.16, p<.001). Finally,

the model predicting age 4 deceitful-callous behavior from age 3 measures was significant (R^2=.38, p<.001) and age 3 parent-reported harshness added unique variance (ΔR^2=.004, β=.07, p<.05). Earlier deceitful-callous behavior, but not positive behavior support, consistently added unique variance to each of the models. This remained true when parent-reported harshness was removed from the model.

Observed harsh parenting showed a similar pattern and consistently predicted later deceitful-callous behavior, controlling for earlier deceitful-callous behavior, child and parent covariates and concurrent positive behavior support (Table 3). The model predicting age 3 deceitful-callous behavior from age 2 measures was significant, (R^2=.22, p <.001) and age 2 observed harsh parenting uniquely added variance (ΔR^2=.01, β=.08, p<.05). The model predicting age 4 deceitful-callous behavior from age 2 measures was also significant (R^2=.18, p <.001) and age 2 observed harsh parenting added unique variance (ΔR^2=.01, β=.12, p<.01). Finally, the model predicting age 4 deceitful-callous behavior from age 3 measures was significant (R^2=.38, p<.001) and age 3 observed harsh parenting added unique variance (ΔR^2=.04, β=.09, p<.01). Earlier deceitful-callousness, but not positive behavior support, added unique variance to each of the models. This remained true when observed harsh parenting was removed from the model.

Discussion

This study advances understanding of the development of CU behavior by prospectively analyzing the prediction of deceitful-callous behavior in high-risk toddlers by early harsh and positive parenting. Limitations of previous studies include a reliance on parent reports of parenting and cross-sectional designs, with very few studies prospectively assessing parenting, CU behavior, or their potential association, in young children. The current findings provide support for the role of early harsh parenting in the development of CU behavior, and are consistent with previous studies that demonstrate an association between negative parenting practices and CU trait development in older children (e.g., Fontaine et al., 2011; Pardini et al., 2007). Results were similar when either parent-reported or observed harshness was used as a predictor, supporting the reliability of this association across measurement methods. In addition, the prospective design enabled earlier deceitful-callous behavior to be controlled for in models, strengthening the conclusions drawn about the effect of harsh parenting. Indeed, Daversa (2010) argued that parents who demonstrate unemotional or harsh behavior, or who communicate their feelings poorly, may leave their children unable to understand the perspectives or emotional demonstrations of others, and at greater risk for psychopathic-like behaviors. The results from the current study fit well with Daversa's theoretical perspective.

While the results suggest that harsh parenting relates to the early development of deceitful-callous behavior, the contribution made by parenting and especially observed harshness, was modest, and earlier deceitful-callous behavior was a consistently strong predictor in models. The current study did not directly test this question, but it is theoretically intuitive that if a child is perceived as showing high levels of CU behavior, and is seen as fearless in response to punishment and non-compliant with directives, this may motivate a parent to use harsher punishment. Increasingly harsh parenting feeds into cycles of mutual negative reinforcement, where both parent and child continually resort to coercion in their interactions (Patterson, 1982) and punishment severity and inconsistent parenting escalates (Dadds & Salmon, 2003). Future studies could assess cascade models of reciprocal influence between CU and parenting behaviors.

The lack of significant prediction of deceitful-callous behavior by observed positive parenting also merits discussion. The cognitive and affective characteristics of children with

high levels of CU traits include insensitivity to punishment and reward-drive aggression (Frick & White, 2008), which suggests that positive, reward-focused parenting may be a theoretically salient target of investigation. While positive parenting did not predict deceitful-callous behavior in the current study, other studies have found an association between positive dimensions of parenting and child CU traits (e.g., Frick et al., 2003; Pardini et al., 2007). Furthermore, parental warmth and positive affect have been found to predict conscience development in children showing fearlessness and punishment-insensitivity (e.g., Kochanska, 1997). The current measure focused on observed, active parenting behavior, whereas it may be that parental warmth and affect are more relevant to the construct of CU traits and related behaviors. On the other hand, previous studies using this sample (Dishion et al., 2008) have shown that increases in positive parenting predict decreases in conduct problems. Thus, it also may be that positive parenting is critical for the development of conduct disorders, but has less of an effect on specific CU behaviors.

There are a number of unique strengths to the present study, including the large sample size, the use of observed measures of parenting and prospective, longitudinal measurement from toddler age. At the same time, the results should be interpreted in the context of several limitations. First, it is yet to be established how and whether the measure of deceitful-callous behavior is prognostic of CU traits in middle childhood and adolescence, especially given that it contains a greater preponderance of deceitful and fewer unemotional items than CU traits scales for older ages. Future studies using the current sample will seek to validate the deceitful-callous behavior measure against a fuller measure of CU traits, the ICU (Frick, 2004) at later assessment waves. Second, the results highlight the need for continued investigation into the extension of the construct of CU traits to very young children. Specifically, while a variety of observational paradigms employed within the developmental literature suggest that preschool children demonstrate behaviors relating to the construct of CU traits (e.g., Kochanska et al., 2002), the internal consistency for the deceitful-callous measure was weak at age 2. Thus, aspects of deceitful-callous or CU behaviors may be insufficiently developed to assess before age 3 (Hyde et al., in press).

Third, it is difficult to assess the role of distorted parental perceptions of their child, which may be a key factor in defining parent-child interaction processes of harshness. The issue of parental perceptions again highlights the need to assess early manifestations of CU behavior using methods independent of parent perceptions, including observational tasks and experimental paradigms (e.g., Kochanska et al., 2002; Svetlova et al., 2010). Fourth, the measures of parenting may have been limited by a focus on goal-directed parenting, potentially explaining the small contribution made by observed parental harshness to deceitful-callous behavior outcome, and the fact that observed positive parenting was not a significant predictor in models. These results suggest that studies may benefit from testing associations between affectively-based, rather than goal-directed, measures of parenting and CU trait development during early and later childhood. Finally, the current study focused on low-income children with multiple risk factors, including family risk (e.g., maternal depression, substance use), and early child problem behavior. Thus, it is unclear whether the results would be generalizable to children from higher-income families with fewer risk factors.

The present study is the first to have examined the role of very early parenting in the development of deceitful-callous behavior. Parent-reported and observed harsh parenting were longitudinally associated with young children displaying deceitful-callous behaviors. The results provide some support for early interventions to target harsh parenting, in order to prevent the development of behaviors that seem reliably and strongly related to later child CP (Hyde et al., in press). At the same time, given the modest effects of the parenting measures, the results highlight the need for future studies to examine child-driven effects,

including the extent to which deceitful-callous behaviors have a genetic basis, the role of temperamental factors, such as fearlessness, and the interaction of these with specific aspects of parenting.

Acknowledgments

Abbreviations

CP	Conduct problems
CU	Callous-unemotional
FCU	Family Check-Up
RPC	Relationship Process Code

References

Achenbach, TM.; Rescorla, LA. Manual for the ASEBA Preschool Forms and Profiles. Burlington, VT: University of Vermont Department of Psychiatry; 2000.

Arnold DS, O'Leary SG, Wolff LS, Acker MM. The parenting scale: A measure of dysfunctional parenting in discipline situations. Psychological Assessment. 1993; 5:137–144.

Bell, RQ.; Harper, LV. Child effects on adults. Hillsdale, NJ: Lawrence Erlbaum; 1977.

Bradley RH, Corwyn RF, McAdoo HP, Garcia Coll C. The Home Environments of Children in the United States Part I: Variations by Age, Ethnicity, and Poverty Status. Child Development. 2001; 72:1844–1867. [PubMed: 11768149]

Christian RE, Frick PJ, Hill NL, Tyler L, Frazer DR. Psychopathy and conduct problems in children: II. Implications for subtyping children with conduct problems. Journal of the American Academy of Child and Adolescent Psychiatry. 1997; 36:233–241. [PubMed: 9031576]

Cornell AH, Frick PJ. The moderating effects of parenting styles in the association between behavioral inhibition and parent-reported guilt and empathy in preschool children. Journal of Clinical Child and Adolescent Psychology. 2007; 36(3):305–318. [PubMed: 17658976]

Dadds MR, Salmon K. Punishment insensitivity and parenting: Temperament and learning as interacting risks for antisocial behavior. Clinical Child and Family Psychology Review. 2003; 6:69–86. [PubMed: 12836578]

Dadds MR, Fraser J, Frost A, Hawes DJ. Disentangling the underlying dimensions of psychopathy and conduct problems in childhood: a community study. Journal of Consulting and Clinical Psychology. 2005; 73(3):400–410. [PubMed: 15982138]

Daversa MT. Early environmental predictors of the affective and interpersonal constructs of psychopathy. International Journal of Offender Therapy and Comparative Criminology. 2010; 54:6–21. [PubMed: 19109443]

Dishion, TJ.; Gardner, K.; Patterson, GR.; Reid, JB.; Spyrou, S.; Thibodeaux, S. Unpublished report. Oregon Social Learning Center; Eugene, OR: 1983. The Family Process Code: A multidimensional system for observing family interaction.

Dishion, TJ.; Hogansen, J.; Winter, C.; Jabson, J. Unpublished manual. Child and Family Center; 195 W. 12thAvenue, Eugene, OR 97401: 2004. Coder Impressions Inventory.

Dishion TJ, Shaw D, Connell A, Gardner F, Weaver C, Wilson M. The Family Check-Up with high-risk indigent families: Preventing problem behavior by increasing parents' positive behavior support in early childhood. Child Development. 2008; 79:1395–1414. [PubMed: 18826532]

Fontaine NMG, McCrory EJP, Boivin M, Moffitt TE, Viding E. Predictors and outcomes of joint trajectories of callous-unemotional traits and conduct problems in childhood. Journal of Abnormal Psychology. 2011 Feb 21. Advance online publication. 10.1037/a0022620

Frick, PJ.; Hare, RD. The Antisocial Process Screening Device. Toronto: Multi-Health Systems; 2002.

Frick PJ, Kimonis ER, Dandreaux DM, Farell JM. The 4 year stability of psychopathic traits in non-referred youth. Behavioral Sciences and the Law. 2003; 21:713–736. [PubMed: 14696028]

Frick, PJ. Unpublished rating scale. University of New Orleans; 2004. The Inventory of Callous-Unemotional Traits.

Frick PJ, White SF. Research review: The importance of callous-unemotional traits for developmental models of aggressive and antisocial behavior. Journal of Child Psychology and Psychiatry. 2008; 49:359–375. [PubMed: 18221345]

Frick PJ, Viding E. Antisocial behavior from a developmental psychopathology perspective. Development and Psychopathology. 2009; 21:1111–1131. [PubMed: 19825260]

Gardner F, Ward S, Burton J, Wilson C. Joint play and the early development of conduct problems in children: A longitudinal observational study of pre-schoolers. Social Development. 2003; 12:361–379.

Hawes DJ, Dadds MR. The treatment of conduct problems in children with callous-unemotional traits. Journal of Consulting & Clinical Psychology. 2005; 73:737–741. [PubMed: 16173862]

Hipwell AE, Pardini DA, Loeber R, Sembower M, Keenan K, Stouthamer-Loeber M. Callous-unemotional behaviors in young girls: Shared and unique effects relative to conduct problems. Journal of Clinical Child & Adolescent Psychology. 2007; 36:293–304. [PubMed: 17658975]

Hyde LW, Shaw DS, Gardner F, Cheong J, Dishion T, Wilson M. Dimensions of callousness in early childhood: Links to problem behavior and family intervention effectiveness. Development and Psychopathology. 2011 in press.

Jabson, JM.; Dishion, TJ.; Gardner, F.; Burton, J. Unpublished manual. Child and Family Center; 195 W. 12thAvenue, Eugene, OR 97401: 2004. Relationship Process Code V-2.0 training manual: A system for coding relationship interactions.

Johnston C, Mash EJ. Families of children with Attention-Deficit/Hyperactivity Disorder: Review and recommendations for future research. Clinical Child and Family Psychology Review. 2001; 4:183–207. [PubMed: 11783738]

Kimonis ER, Frick PJ, Boris NW, Smyke AT, Cornell AH, Farrell JM, et al. Callous-unemotional features, behavioral inhibition, and parenting: independent predictors of aggression in a high-risk preschool sample. Journal of Child and Family Studies. 2006; 15:745–756.

Knafo A, Zahn-Waxler C, Van Hulle C, Robinson JAL, Rhee SH. The developmental origins of a disposition toward empathy: Genetic and environmental contributions. Emotion. 2008; 8:737–752. [PubMed: 19102585]

Kochanska G. Mutually responsive orientation between mothers and their young children: Implications for early socialization. Child Development. 1997; 62:284–300.

Kochanska G, Gross JN, Lin MH, Nichols KE. Guilt in young children: Development, determinants, and relations with a broader system of standards. Child Development. 2002; 73:461–482. [PubMed: 11949903]

Lunkenheimer ES, Dishion TJ, Shaw DS, Connell AM, Gardner F, Wilson MN, Skuban EM. Collateral Benefits of the Family Check-Up on Early Childhood School Readiness: Indirect Effects of Parents' Positive Behavior Support. Developmental Psychology. 2008; 44:1737–1752. [PubMed: 18999335]

Moilanen KL, Shaw DS, Dishion TJ, Gardner F, Wilson MN. Predictors of longitudinal growth in inhibitory control in early childhood. Social Development. 2010; 19:326–347. [PubMed: 20376201]

Oxford M, Cavell TA, Hughes JN. Callous/unemotional traits moderate the relation between ineffective parenting and child externalizing problems: A partial replication and extension. Journal of Clinical Child & Adolescent Psychology. 2003; 32:577–585. [PubMed: 14710466]

Pardini DA, Obradovic J, Loeber R. Interpersonal callousness, hyperactivity/impulsivity, inattention, and conduct problems as precursors to delinquency persistence in boys: A comparison of three grade-based cohorts. Journal of Clinical Child & Adolescent Psychology. 2006; 35:46–59. [PubMed: 16390302]

Pardini DA, Lochman JE, Powell N. The development of callous-unemotional traits and antisocial behavior in children: are there shared and/or unique predictors? Journal of Clinical Child & Adolescent Psychology. 2007; 36:319–333. [PubMed: 17658977]

Pardini DA, Loeber R. Interpersonal callousness trajectories across adolescence. Criminal Justice and Behaviour. 2008; 35:173–196.

Patterson, GR. Coercive family process. Eugene, OR: Castalia; 1982. A social learning approach; III.

Pianta, RC. Student-teacher relationship scale: Professional manual. Odessa, FL: Psychological Assessment Resources; 2001.

Robinson EA, Eyberg SM, Ross AW. The standardization of an inventory of child conduct problem behaviors. Journal of Clinical Child Psychology. 1980; 9:22–28.

Shaw DS, Gilliom M, Ingoldsby EM, Nagin DS. Trajectories leading to school-age conduct problems. Developmental Psychology. 2003; 39:189–200. [PubMed: 12661881]

Svetlova M, Nichols S, Brownell C. Toddlers' prosocial behavior: from instrumental to empathic to altruistic helping. Child Development. 2010; 81:1814–1827. [PubMed: 21077866]

Viding E, Blair RJ, Moffitt TE, Plomin R. Evidence for substantial genetic risk for psychopathy in 7-year-olds. Journal of Child Psychology and Psychiatry. 2005; 46:592–597. [PubMed: 15877765]

Willoughby M, Waschbusch D, Moore G, Propper C. Using the ASEBA to Screen for Callous Unemotional Traits in Early Childhood: Factor Structure, Temporal Stability, and Utility. Journal of Psychopathology and Behavioral Assessment. 2011; 33(1):19–33. [PubMed: 21483647]

Key points

- Early parent-reported and observed harsh parenting predicted stability in deceitful-callous behavior between ages 2–4 years old

- Parent reports of deceitful-callous behavior also predicted later deceitful-callous behavior

- A multi-method measure of observed positive parenting did not predict deceitful-callous behavior

- The results suggest that interventions targeting harsh parenting practices may also help to reduce child CU behavior.

- Future longitudinal and intervention studies are needed to examine child-driven effects of early CU behavior and their interaction with parenting practices

Table 1

Bivariate correlations between study variables (N=731)

	1.	2.	3.	4.	5.	6.	7.	8.
1. Age 2 deceitful-callous behavior								
2. Age 3 deceitful-callous behavior	.46**							
3. Age 4 deceitful-callous behavior	.41**	.61**						
4. Age 2 parent reported harshness	.10**	.23**	.20**					
5. Age 3 parent-reported harshness	.13**	.36**	.28**	.56**				
6. Age 2 observed harsh parenting	.16**	.16**	.18**	.07	.12**			
7. Age 3 observed harsh parenting	.04	.15**	.18**	.06	.20**	.23**		
8. Age 2 positive behavior support	−.13**	−.05	−.09*	.01	−.02	−.17**	−.13**	
9. Age 3 positive behavior support	−.14**	−.11**	−.08*	−.02	−.08*	−.19**	−.22**	.53**

**
p<.01 (2-tailed).

*
p<.05 (2-tailed).

Table 2

Longitudinal prediction of deceitful-callous behavior by parent-reported harshness

Predictors	Outcome of regression model					
	Age 3 deceitful-callous $R^2=.25^{***}$		Age 4 deceitful-callous $R^2=.20^{***}$		Age 4 deceitful-callous $R^2=.38^{***}$	
	B (SE)	B	B (SE)	β	B (SE)	B
Age 2 deceitful-callous	.58 (.04)	.44 ***	.76 (.066)	.40 ***		
Age 3 deceitful-callous	n/a	n/a	n/a	n/a	.85 (.046)	.59 ***
Age 2 positive behavior support	−.002 (.007)	.007	−.012 (.011)	−.039	n/a	n/a
Age 2 parent-reported harshness	.04 (.007)	.20 ***	.048 (.01)	.16 ***	n/a	n/a
	$\Delta R^2=.04, p<.001$		$\Delta R^2=.03, p<.001$			
Age 3 positive behavior support	n/a	n/a	n/a	n/a	−.004 (.01)	−.013
Age 3 parent-reported harshness	n/a	n/a	n/a	n/a	.02 (.01)	.07 *
					$\Delta R^2=.004, p<.05$	

*
$p<.05$,

**
$p<.01$,

***
$p<.001$.

Note: Intervention group, parent education, and child race and gender

included in step 1 of models, but not shown in table. Δ R^2 for final step adding parenting measures.

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Table 3

Longitudinal prediction of deceitful-callous behavior by observed harsh parenting

Predictors	Outcome of regression model					
	Age 3 deceitful-callous R^2=.22***		**Age 4 deceitful-callous** R^2=.18***		**Age 4 deceitful-callous** R^2=.38***	
	B (SE)	β	B (SE)	B	B (SE)	B
Age 2 deceitful-callous	.60 (.045)	.44***	.76 (.067)	.39***	n/a	n/a
Age 3 deceitful-callous	n/a	n/a	n/a	n/a	.87 (.043)	.60***
	ΔR^2=.01, p<.05		ΔR^2=.01, p<.01			
Age 2 positive behavior support	−.005 (.007)	.022	−.006 (.011)	−.02	n/a	n/a
Age 2 observed harsh parenting	.003 (.001)	.08*	.006 (.002)	.12**	n/a	n/a
Age 3 positive behavior support	n/a	n/a	n/a	n/a	.001 (.011)	.002
Age 3 observed harsh parenting	n/a	n/a	n/a	n/a	.004 (.003)	.09**
					ΔR^2=.01, p<.01	

*
p<.05,

**
p<.01,

***
p<.001.

Note: Covariates not shown in table. ΔR^2 for final step adding parenting measures.