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The Emergence of Parent-Child Coercive Processes in Toddlerhood

Hyein Chang and

Department of Psychology, Sungkyunkwan University

Daniel S. Shaw

Department of Psychology, University of Pittsburgh

Abstract

Parent-child coercion typically emerges in toddlerhood with the child's first acts of willful defiance and the parent's first disciplinary attempts. We explored how parents and children may contribute to this process by examining bidirectional and interactive effects between child and maternal negative behavior in 310 low-income, ethnically diverse boys. Using multiple informants and methods, child negative emotionality and maternal negative control were assessed at 18 months and child disruptive behavior and maternal negative control were measured at 24 months. Indicative of parent effects, maternal negative control at 18 months amplified the relation between children's negative emotionality at 18 months and disruptive behavior at 24 months. Child effects were found in an unexpected direction such that children's negative emotionality at 18 months predicted decreases in mothers' negative control at 24 months. Findings are discussed within a transactional framework that emphasizes mutual influence of children and parents over the course of development.

Keywords

coercion; negative emotionality; disruptive behavior; parenting; toddlerhood

According to transactional models of child development, associations between child behavior and parent behavior likely reflect reciprocal effects of children and parents over time [1, 2]. Of particular focus in this study was the emergence of coercive interaction between the child and parent, which has been identified as an early predictor of conduct problems and more serious forms of antisocial behavior [3–5]. It has been theorized that children who are temperamentally difficult tend to elicit harsh responses from parents, which in turn are postulated to contribute to children's poorly regulated behavior such as aggression. Children's disruptive behavior then may provoke even more negative reactions from parents resulting in a vicious cycle of parent-child coercive behavior (for review, see [6]). Alternatively, parents may initiate the process by engaging in harsh discipline, which could lead to higher levels of child disruptive behavior and fuel even more negative behavior from the parent [5]. In addition, both theory and research [7–9] have suggested that

there may be interactive effects in which the impact of parents and children on each other's behavior may differ depending on the characteristics of the recipient (e.g., the effects of same parenting behavior may vary for children with different temperamental attributes). Stated differently, the continuity of parent and child behavior may be influenced by the other party's behavior (e.g., the continuity of children's negative behavior may be affected by their parents' behavior). However, these lines of research have largely been pursued in separate literatures without investigating bidirectional and interactive effects between children and parents together in the same study. Additionally, few studies have focused on how those processes may emerge early in toddlerhood and lay the foundation for pathways to later child conduct problems. Thus, this study examined bidirectional and interactive effects of child negative behavior and maternal negative behavior between the ages of 18 and 24 months in a sample of boys from low-income families. It was hoped that this investigation would advance our understanding of how parent-child coercive processes may initially appear in toddlerhood and provide useful information for early prevention and intervention efforts.

Bidirectional processes

A robust body of research suggests that negative parenting has detrimental effects on children. Specifically, harsh and intrusive discipline is thought to compromise children's ability to regulate impulses and acquire more adaptive behavior by discouraging their autonomy, stimulating high levels of arousal that interfere with social learning, or directly modeling poor control of negative emotions [10, 11]. From an attachment perspective, negatively controlling parenting may also harm the parent-child relationship that serves as a foundation for the child's motivation to internalize and comply to parental messages [12]. As a consequence, the child may not acquire good regulatory skills, leading to more displays of problem behavior. Empirical findings have also been accumulated for parent effects on child conduct problems beginning in early childhood (see [13] for a review; [9, 14–17]).

Researchers have also attended to the possibility that the association between child and parent behavior in relation to early emerging conduct problems may be driven by the effects of children on their parents. It has been repeatedly proposed that children with difficult temperament may elicit more negative responses from their parents ([1, 18]; see [19] for a review on bidirectional and interactive relations between child temperament and parenting). Among different dimensions of temperament, we focused on negative emotionality, which has been highlighted as a predictor of lower levels of positive parenting and/or higher levels of negative parenting ([20, 21]; see [22] for a review on associations between child negative emotionality and parenting). Interestingly, it has also been suggested that child effects could occur in an opposite direction, such that negative child behavior actually leads to *improved* parenting, as some parents may initially respond to their difficult children with greater efforts to be responsive to their offspring's needs [23]. Such child effects, if evident, may most likely appear early in life before the parent is no longer able to sustain their positive efforts to manage their children's difficult behavior in non-coercive ways.

With a few notable exceptions [8, 24–26], previous studies have rarely tested bidirectional effects between children and parents in the same study, particularly in the toddler period.

For example, in a small sample of low-income families, mothers' contingent harsh parenting in response to their child's noncompliance during a cleanup task at 12 months predicted increased distress reactivity in children at 24 months [24]. In this study, child effects were also evident, such that children's distress reactivity (i.e., a component of negative emotionality) observed at 12 months predicted declines in maternal supportive parenting at 24 months but not increases in maternal harsh parenting [24]. In a 4-wave longitudinal study of boys of middle-income families, child externalizing behavior predicted dimensions of parenting concurrently at 23, 29, and 35 months, but no longitudinal effects were evident [26]. However, this study only used parent ratings of child behavior and parenting, which probably limited its power to detect longitudinal parent or child effects, if evident, in a cross-lagged model. Bidirectional effects have also been documented for preschoolers [25] and school-age children [27–29]. In sum, prior findings support reciprocal, transactional processes between children and their social context. However, more work is needed, particularly in toddlerhood, to explain how parents and children may reinforce each other's negative behavior and initiate mutually coercive cycles.

Interactive effects

In a separate line of research, it has been proposed that interactive effects between child behavior and parent behavior may also need to be considered [7], particularly with respect to the emergence of early-starting conduct problems [8, 9]. Studies in this area have typically focused on revealing how child attributes may moderate the effects of parenting, or alternatively, how parenting may impact the continuity of children's problem behavior. For example, Martin (1981) found that, in addition to independent effects of maternal responsiveness and infant demandingness at 10 months, an interactive term involving the two variables predicted noncompliant child behavior at 22 months within boys of middle-income families so that nondemanding boys with responsive mothers were most likely to be compliant. In another small sample of middle-income families, children's aggression observed at 2 years predicted their externalizing behavior at 4 years only if their mothers had engaged in high levels of negativity at 2 years [30]. Children's increases in noncompliance between the ages of 2 and 4 years were related to maternal controlling behavior at 2 years, and this association was stronger for children displaying moderate or high levels of initial noncompliance [25]. Similar findings have also been documented for low-income families such that a combination of early child aggression and lack of maternal responsiveness at 12 months contributed to high levels of externalizing behavior at 36 months [9]. Using a subset of the current sample, Shaw and colleagues (1998) found that the interaction between child noncompliance and maternal rejection at 24 months significantly predicted child externalizing problems at 42 months. Generally, the findings are consistent with the notion that harsh discipline would exacerbate the association between early and later child negative behavior.

In a small sample of middle-income families, Calkins (2002) reported a significant interaction between aversive child behavior (i.e., distress) and maternal positive guidance at 18 months in predicting children's venting behavior at 24 months, such that early aversive child behavior contributed to later venting only when mothers demonstrated low levels of positive guidance. Interestingly, maternal negative control at 18 months was not directly

related to child venting behavior at 24 months. It is also noteworthy that Calkins (2002) also tested additive and interactive child effects on parent behavior, because, unlike additive effects, interactive effects have been typically explored in relation to a child outcome. However, aversive child behavior at 18 months did not contribute to maternal negative control over the period of 6 months either alone or in combination with early maternal behavior [31].

Together, previous research indicated that the likelihood of a child continuing to display difficult behavior appears to be influenced by parenting, such that the continuity of children's negative behavior is most salient for those whose parents showed more extreme individual differences in positive or negative caregiving. However, studies have rarely focused on predicting parent behavior to address the possibility that the continuity in caregiving quality may be affected by child behavior, or alternatively, child effects on parents may vary based on the parent's caregiving. Additionally, earlier research has more commonly used small, middle-income samples with more restricted variability in child and parent behavior. More importantly, findings on interactive effects also point to limitations of examining parent effects and child effects using an additive effects model. However, very few studies have incorporated bidirectional and interactive effects of children and parents on each other's behavior within the same study. Such an investigation could offer to a more refined understanding of how children and parents may independently and interactively contribute to the emergence of coercive transactions and provide useful information for prevention of early-starting conduct problems.

Timing of effects

Toddlerhood is a critical developmental transition during which a pattern of mutual coercion may develop between children and parents [5, 24, 31]. Children's second year of life is noted for rapid growth in their mobility, autonomy, and communication. As children begin to explore the environment with limited understanding of the consequences of their action, parents also begin to use strategies to control their child's behavior. Parents' disciplinary attempts, however, are often met with anger and frustration from the child, who may respond with disruptive behavior because of their immature regulatory abilities [5]. Toddlers' increased negativity, noncompliance, and aggression may reflect a phase of normative development, but these behaviors could also be an early marker for future problems [13, 30]. Likewise, although many parents begin to use control strategies with their toddlers, some parents may employ harsh discipline that could unwittingly impede the child's development of autonomy and self-regulation. Such negative behavior on the part of the child or parent may trigger a cycle of coercive interaction that has been implicated in models of early pathways to antisocial behavior [5]. Thus it would be particularly important to focus on toddlerhood to elucidate how children and parents may contribute to an early emergence of those processes.

The Present Study

This study examined bidirectional and interactive effects between child negative behavior (i.e., negative emotionality at 18 months and disruptive behavior at 24 months) and maternal

negative parenting (i.e., negative control at 18 and 24 months) during toddlerhood. Different constructs of child negative behavior were observed at each assessment to incorporate salient developmental changes that children undergo in the early years. For example, individual variations in negative emotionality appear in infancy and serve as a temperamental basis for later negative behavior [6]. Disruptive behaviors such as noncompliance and aggression are most problematic when children are around the age of 2 years [13]. It was hypothesized that bidirectional effects between parents and children would be evident. Specifically, we anticipated that higher levels of maternal negative control at 18 months would predict higher levels of child disruptive behavior at 24 months (parent effects) and that higher levels of child negative emotionality at 18 months would predict higher levels of maternal negative control at 24 months (child effects). Interactive effects were also expected, such that the continuity in child or maternal negative behavior from 18 to 24 months would be amplified if the other party had engaged in higher levels of negative behavior at 18 months.

To address the goals of this investigation, multi-method, multi-informant data were drawn from a longitudinal study of boys in low-income families. As boys and children of poverty have been consistently found to be at heightened risk for developing antisocial behavior [32, 33] the current focus on this sample provided an opportunity to examine the early emergence of coercive processes between the child and parent among children at most risk for developing conduct problems in the future.

Method

Participants and procedures

Participants were 310 low-income families recruited from the Women, Infant, and Children (WIC) clinic in the metropolitan Pittsburgh area when the boys were aged 6 to 17 months [16]. Participants were primarily of European American (51%) and African American (39%) heritage. In terms of family constellations, 64% of the families were either married or living together, 28% were single, and 7% were divorced or separated. Mothers ranged in age from 17 to 43 years ($M = 27.8$, $SD = 5.3$) and two thirds of them had education of 12 years or less. The mean monthly family income was \$1043.00 ($SD = 638.20$, range = \$205 to \$4000), with 68% of the families living below the federal poverty line.

Families participated in laboratory and home visits. For the purposes of this study, data collected at the ages of 18 and 24 months were used. At each assessment, mothers completed questionnaires on child and family attributes and engaged in structured activities with their son that varied in stress level to allow an examination of child and parent behavior across contexts (e.g., free play, clean-up, teaching task, the Strange Situation). Ninety-six percent of the original families were retained over the period of 6 months. Families who dropped out of the study did not differ from the rest with respect to maternal education, family income, child ethnicity, and child and parent behavior at 18 months. The final analytical sample, consisting of 251 families who provided full data on all study variables, did not differ from the full sample on any child or family factors of interest in this study.

Measures

Child negative emotionality—At 18 months, negative emotionality was measured using observation and maternal report. Specifically, children's expression of negative emotions was coded by a team of coders based on mother-son interactive activities that lasted for about 70 minutes during the 18-month lab visit. Consistent with a previous study, a factor for observed negative emotionality was constructed based on one molecular code and three global codes [34]. The molecular code was *percent of time spent fussing and crying* which reflected the proportion of time the child was fussing and crying in relation to the total length of time ($\kappa = .88$). The three global codes were rated after the coders watched all tasks on a 5-point scale (1 = *low*; 5 = *high*): *the amount of fussing and crying* ($\kappa = .83$), *the intensity of fussing and crying* ($\kappa = .84$), and *the difficulty of the child* ($\kappa = .77$). The four codes were standardized and aggregated into a measure of observed negative emotionality ($\alpha = .91$).

Additionally, mothers responded to the Infant Characteristics Questionnaire (ICQ; [35]) and the Toddler Behavior Checklist (TBC; [36]). The ICQ is a measure of child temperament on which mothers were asked to rate their infant on a scale ranging from 1 (*easy temperament trait*) to 7 (*difficult temperament trait*). The 7-item Difficultness factor (e.g., "How much does your baby cry and fuss in general?") that assesses the frequency and intensity of fussing and crying was used ($\alpha = .81$). The TBC is a 103-item questionnaire that evaluates socioemotional behavior of young children with each item rated on a 4-point scale (0 = *never*; 3 = *frequently*). In this study, 8 items that tap the child's negative emotionality (e.g., "Gets angry over minor things") were selected and summed ($\alpha = .82$). Scores on the ICQ and the TBC were standardized and averaged ($r = .59, p < .01$). Finally, a single composite of child negative emotionality at 18 months was created by aggregating observational and maternal ratings ($r = .30, p < .01$).

Child disruptive behavior—At 24 months, examiners and mothers contributed ratings of children's oppositional and aggressive behavior. The 24-month assessment began at the family's home where for approximately one hour parents were interviewed about the child, and the parent-child dyad was observed in less structured tasks than in the lab. After driving families to the lab, mothers and sons participated in a similar set of tasks that had been completed the 18-month visit. Upon completion of the entire task which typically lasted for approximately 4 hours including transportation time, examiners responded to a 4-item scale based on their impression of the child. Two of those items that address the child's levels of compliance (1 = *repeatedly gets in trouble, is disobedient, noncompliant*; 4 = *noticeably cooperative and responsive to directions*) and aggression (1 = *unaggressive*; 4 = *severely aggressive*) were used in this study. The compliance item was reverse coded so that higher scores indicated higher levels of noncompliance. The two items were summed ($\alpha = .72$).

Mothers also reported their child's levels of disruptive behavior on the Child Behavior Checklist (CBCL/2-3; [37]), a widely-used measure of child problem behavior. Each of the 99 items is rated from 0 (*not true*) to 2 (*very/often true*) based on the child's behavior within the past two months. For the purposes of this study, 9 items that evaluate the child's oppositional, aggressive, and defiant behavior (e.g., "Disobedient," "Hits others") were

selected and summed ($\alpha = .75$). Finally, examiner and maternal ratings were aggregated to construct a single index of child disruptive behavior at 24 months ($r = .11, p < .10$). A low interrater correlation was somewhat expected, as prior studies have documented weak, sometimes nonsignificant, convergence across informants and contexts (e.g., [38]). This may be the case particularly for behaviors with low base rates (e.g., aggression), as different informants and methods would have less chance of detecting those behaviors. Additionally, such discrepancy may be especially pronounced in toddlerhood when child behavior is relatively unstable across settings. Interestingly, it has been suggested that incorporating multiple perspectives might be more valuable if they are more discrepant because they would each provide unique information about the child [39]. Thus maternal and examiner ratings of child disruptive behavior were aggregated in this study to take advantage of diverse information. However, to address the possibility that maternal versus examiner ratings of child disruptive behavior were differentially associated with other study variables, we also estimated separate models by informant of child behavior at 24 months in addition to the model with the composite score.

Maternal negative control—During the lab visit at 18 and 24 months, mother-child dyads engaged in a 5-minute clean-up task where mothers were instructed to ask their child to put the toys in a basket. As parents often find compliance situations challenging, the clean-up task provided an apt context in which to observe variability in parents' negative behavior toward their children. The clean-up task was videotaped and coded using the Early Parenting Coding System (EPCS; [40]). Maternal negative control was measured with two molecular codes and one global code. The molecular codes represented the duration (in seconds) of each behavior: *negative physical* (forcing or restricting the child's movement, physical punishment, or verbal threat of physical punishment; $\kappa = .67$) and *critical statement* (verbal statement prohibiting the child from doing something or criticizing the child's behavior or character; $\kappa = .75$). The global code of intrusiveness (unnecessary commands, physical manipulation or restriction of the child, or preventing child from attempting tasks by doing it for the child; $\kappa = .70$) was rated from 1 (*not at all*) to 4 (*intrusive*) after the coders watched the whole of the task. A composite score for maternal negative control was created by standardizing and averaging the three codes at 18 months ($\alpha = .68$) and 24 months ($\alpha = .72$).

Demographic control variables—At the 18-month assessment, mothers provided information on maternal education (in years), family income (per month), and child ethnicity (0 = *majority*; 1 = *minority*). These variables were included in the analysis as covariates.

Analysis plan

Following preliminary analyses, bidirectional and interactive effects of child negative behavior and maternal negative behavior between the ages of 18 and 24 months were examined simultaneously in a path model. Specifically, child disruptive behavior at 24 months and maternal negative control at 24 months were each regressed onto child negative emotionality at 18 months, maternal negative control at 18 months, and an interaction term between child negative emotionality and maternal negative control at 18 months. All predictor variables were centered, and the interaction term was computed by multiplying

child negative emotionality by maternal negative control scores. If the interaction term was significant, it was probed using the simple slopes procedure by estimating the effects of the predictor on the outcome at 1 *SD* above and below the mean on the moderator variable [41]. Additionally, because of a low cross-informant convergence on child behavior at 24 months, separate models were performed for maternal versus examiner ratings of child disruptive behavior in addition to the model with the composite score (i.e., the mean of maternal and examiner data) to compare the results. In all analyses, demographic covariates (i.e., maternal education, family income, and child ethnicity) were included to control for their effects on child and maternal behavior. For all models in this study, Mplus 7 with the full-information maximum likelihood estimation (FIML) was used [42]. The FIML accommodates missing data by using all available data for each parameter and has shown to be a superior method by many criteria compared to other missing data methods [43]. Model fit was tested with multiple indices. Nonsignificant chi-squares, Root Mean Square Error of Approximation (RMSEA) values below .05 and the Comparative Fit Index (CFI) value above .90 indicate good model fit [44].

Results

Descriptive statistics and bivariate correlations of study variables are presented in Table 1. Results indicated that the study variables each followed a normal distribution with the skewness ranging from $-.24$ to $.53$. Bivariate correlations revealed that, within construct, measures of child and parent behavior demonstrated significant associations across informant (i.e., maternal and observed) and time (i.e., 18 and 24 months), except that maternal and observed child disruptive behavior at 24 months were not significantly correlated. Associations between child negative behavior and parent negative behavior varied depending on the specific construct and method of assessment. Demographic factors were significantly correlated with some child and parent behavior, providing empirical support for the need to incorporate them in subsequent analyses.

The path model testing bidirectional and interactive effects of children and parents in toddlerhood demonstrated acceptable fit: $\chi^2(3) = 6.29, p = .10, CFI = .95, RMSEA = .06$. Results for this model are presented in Figure 1. Parent effects on child behavior (i.e., pathways to child disruptive behavior at 24 months) and child effects on parent behavior (i.e., pathways to maternal negative control at 24 months) are described separately for convenience of discussion. As for predictors of child behavior, child negative emotionality at 18 months significantly predicted child disruptive behavior at 24 months controlling for the effects of sociodemographic factors ($\beta = .23, p < .001$), indicating that children who had higher levels of negative emotionality in the beginning of toddlerhood were more likely to display higher levels of disruptive behavior 6 months later. Maternal negative control at 18 months was not significantly related to child disruptive behavior at 24 months ($\beta = -.04, ns$). However, the interaction between child negative emotionality and maternal negative control at 18 months was significantly associated with child disruptive behavior at 24 months ($\beta = .13, p < .05$). Results of the simple slopes indicated that the continuity in children's negative behavior (i.e., child negative emotionality at 18 months $\rightarrow$ child disruptive behavior at 24 months) was moderated by levels of maternal negative control at 18 months (Figure 2). Specifically, child higher levels of negative emotionality significantly predicted child

disruptive behavior only for children whose mothers engaged in high levels of negative control ($\beta = .36, p < .001$). There was no significant association between children's negative emotionality and disruptive behavior whose mothers showed low levels of negative control ($\beta = .13, ns$). The path model explained 10% of the variance in toddlers' disruptive behavior at 24 months.

As described in the analysis plan, separate models were estimated for maternal versus examiner ratings in addition to the model for the composite score of child disruptive behavior at 24 months. Based on the levels of p -values, results were similar across models with a few exceptions. In the model using only examiner ratings of child disruptive behavior at 24 months, the main effect of child negative emotionality at 18 months ($\beta = .13, p < .05$) was weaker than in the model using the composite score. Additionally, in the model using only maternal ratings of child disruptive behavior at 24 months, the interactive term was nonsignificant ($\beta = .06, ns$).

Results also supported child effects on parent behavior as indicated by significant pathways to maternal negative control at 24 months. Maternal negative control was modestly stable from age 18 to 24 months ($\beta = .29, p < .001$). Child negative emotionality at 18 months significantly predicted maternal negative control at 24 months controlling for demographic factors and earlier levels of maternal negative control ($\beta = -.12, p < .05$). This effect was in the unexpected direction such that higher levels of child negative emotionality at 18 months were predictive of *lower* levels of maternal negative control at 24 months. Unlike for child disruptive behavior at 24 months, the interaction term did not significantly predict maternal negative control at 24 months ($\beta = .05, ns$). The path model explained 11% of the variability in maternal negative control at 24 months.

Discussion

The goal of this study was to investigate the emergence of parent-child coercive processes by examining how mothers and children independently and interactively contribute to each other's negative behavior between the ages of 18 and 24 months in a sample of low-income families. Evidence for both parent effects and child effects were found, providing support for the transactional model of child development. Specifically, boys who had higher levels of negative emotionality at 18 months were more likely to display higher levels of disruptive behavior at 24 months, particularly if their mothers used more negative control strategies to facilitate their child's compliance. Moreover, child negative emotionality predicted changes in maternal negative control over the period of 6 months in an unexpected direction, such that mothers whose children showed higher levels of negative emotionality *decreased* their negative control from 18 to 24 months. The findings were still evident after accounting for variability in sociodemographic characteristics (i.e., maternal education, family income, and child ethnicity).

Parent-child bidirectional and interactive effects

Our findings suggest that it may be important to consider both additive and interactive effects when examining bidirectional processes between parents and children. Interestingly, interactive effects were only evident for parent effects, such that the continuity of child

negative behavior (i.e., child negative emotionality at 18 months predicting child disruptive behavior at 24 months) was more pronounced for children whose mothers had showed higher levels of negative control at 18 months. This is consistent with earlier studies that have found children with both child and parent risk factors to be most likely to develop problem behavior [30, 31]. However, it is also noteworthy that in a study utilizing a similar design to our study, significant findings regarding interactive effects were found only for positive parent behavior but not negative parent behavior [31]. Specifically, in Calkins' (2002) study, children who displayed higher levels of aversive behavior at 18 months and had mothers who engaged in lower levels of positive guidance at 18 months showed higher levels of venting behavior at 24 months. No significant findings were reported for maternal negative control. There might be several reasons for the discrepant findings. One explanation is that prior studies, including Calkins (2002), have typically used smaller, middle-income samples, which could have restricted the range of negative parent behavior, limiting the power to detect the effects of negative parenting on child outcomes. It should also be noted that the construct of child aversive behavior in the Calkins' (2002) study was broader, including not only child frustration (similar to the construct of negative emotionality in this study) but also disruptive behavior (e.g., defiance). It is possible that parents may perceive and respond to children's emotional distress versus acting out behavior differently, which could account for the discrepant findings between studies.

Perhaps the most interesting finding of this study was the directionality of the significant child effect, as higher levels of child negative emotionality at 18 months were associated with *decreases* in maternal negative control from 18 to 24 months. This was unexpected, as we had hypothesized that mothers would respond to their more difficult child by increasing their use of harsh discipline. Our findings are also inconsistent with earlier studies that have demonstrated that higher levels of child negative behavior lead to increases in parent negative behavior (e.g., [25]). Interestingly and partially consistent with the current findings, in a study of low-income toddlers, higher levels of child distress reactivity at 12 months predicted declines in maternal supportive parenting at 24 months but not increases in maternal harsh parenting [24]. Thus parents may respond to early difficult child behavior by reducing their positive strategies rather than increasing their negative strategies. However, the fact that maternal negative control significantly decreased in response to child negative emotionality in this study remains surprising.

One explanation is that mothers may have become frustrated with their difficult toddler and reduced their attempts (even negative) to control their child's misbehavior. Indeed, mothers of aggressive toddlers have been found to use not only more overreactive discipline (e.g., negative control) but also more lax discipline as well in comparison to mothers of nonaggressive toddlers [45]. This is also consistent with Patterson's (1982) model in which mothers may inadvertently reinforce children's misbehavior by giving in to their requests. Yet another possibility is that parents may initially respond to their child's difficult behavior by increasing positive efforts, as illustrated by declines in their negative control [23]. If this were the case, it implies that the coercive cycle between parents and children may actually emerge after the age of 2 years. Thus toddlerhood may not only be a period of vulnerability

but resiliency when parents may be more motivated to be flexible and try alternative strategies to effectively manage their child's negativity.

Limitations, future directions, and conclusions

This study has a few limitations to note. Firstly, participants were predominantly European American and African American boys of urban, low-income families. Therefore, the findings may not generalize to other populations. For example, based on prior findings suggesting that parents may treat girls and boys differently (e.g., more harsh and controlling with boys; [46]) and girls may be less vulnerable to the impact of adverse parenting [8, 25]), an interesting question for future research would be whether the dynamics of parent-child coercion might differ for girls. Secondly, although we focused on the second year of the child's life because of our interest in examining the potential genesis of coercion between children and parents, these processes likely continue and exacerbate over time. Thus, the findings need to be replicated and extended beyond the toddler period to find out if there might be a particular period in which parent effects or child effects are most prominent. Such information would be useful for deciding the optimal method and timing of intervention to address coercive processes. Thirdly, child and parent behavior in this study were somewhat narrowly defined, as we focused only on specific types of child negative behavior that were thought to be more developmentally salient and parents' negatively controlling behavior. Incorporating more diverse child aversive behavior and positive parenting in future research would help explain discrepant findings between studies (cf. [31]), pinpoint the reason for our surprising finding that mothers responded to their child's negative emotionality by decreasing their negative control, and ultimately contribute to a richer understanding of early parent-child coercive processes. Lastly, this study does not address the ultimate origin of parent-child coercive transactions. Although we proposed that either parents or children may initiate the process, this study should be taken as only a "slice" of a transactional process. A genetically-informed study or an adoption design might offer more direct evidence about the genesis of reciprocal effects between parents and children.

Nevertheless, the present investigation represents an initial effort to reveal the complexity in the emergence of the parent-child coercive cycle by considering both bidirectional and interactive effects between toddlers and their mothers. Consistent with transactional models of child development, the results suggest that we may attain more refined knowledge by examining how parents and children may alone or in combination affect each other's negative behavior. This study also raises a possibility that, at least for toddler boys, parent effects and child effects may not be symmetrical in terms of the direction of effects and the presence of additive versus interactive effects. Our findings highlight the importance of intervening early to promote parenting and to further support parents' efforts in raising a difficult child. Based on the implications of early parent-child coercion for later child outcomes, understanding its emergence in early toddlerhood continues to be a critical venue of research.

Summary

The goal of this study was to investigate how parents and children contribute to mutually coercive dynamics during toddlerhood in the context of the child's first acts of willful defiance and the parent's first disciplinary attempts. To this aim, we examined bidirectional and interactive effects between child and maternal negative behavior in 310 low-income, ethnically diverse boys. This study also reflected an effort to overcome limitations of past research by using a multi-method, multi-informant, longitudinal approach and testing bidirectional and interactive effects simultaneously in a path model. Results provided evidence for both parent effects and child effects. Specifically, maternal negative control at 18 months amplified the relation between child negative emotionality at 18 months and disruptive behavior at 24 months. Additionally, child negative emotionality at 18 months predicted decreases in maternal negative control from 18 to 24 months. Findings are consistent with a transactional framework that highlights reciprocal associations between children and parents over time.

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Figure 1.

Bidirectional and interactive effects of children and mothers in toddlerhood

Note. Standardized coefficients are presented. NE = negative emotionality; NC = negative control. $* p < .05$, $*** p < .001$

Figure 2. Two-way interaction between child negative emotionality and maternal negative control at 18 months predicting child disruptive behavior at 24 months

Table 1

Descriptive statistics and bivariate correlations

Variables	M	SD	1	2	3	4	5	6	7	8	9
<i>Demographic factors</i>											
1. Maternal education	12.57	1.52	--								
2. Family income (per month)	1054.08	644.31	.28**	--							
3. Child ethnicity	--	--	-.03	-.31**	--						
<i>Child negative emotionality (18 months)</i>											
4. Observed	0.04	3.48	-.07	-.03	-.15**	--					
5. Maternal report on ICQ	23.31	6.49	-.02	-.08	.01	.27**	--				
6. Maternal report on TBC	12.57	4.61	-.03	-.10	.02	.26**	.59**	--			
<i>Child disruptive behavior (18 months)</i>											
7. Observed	4.23	1.66	-.13*	-.13*	.08	.04	.21**	.12	--		
8. Maternal report	7.10	3.02	.01	-.08	-.05	.06	.31**	.38**	.11	--	
<i>Maternal negative control (18 and 24 months)</i>											
9. Observed at 18 months	.00	2.34	-.06	-.17**	.13*	-.10	.05	.03	-.05	-.04	--
10. Observed at 24 months	.01	2.35	-.04	-.03	.09	-.09	-.10	-.13*	-.14*	.06	.29**

Note. For child ethnicity, 0 = *majority*, 1 = *minority*; ICQ = Infant Characteristics Questionnaire; TBC = Toddler Behavior Checklist

* $p < .05$,

** $p < .01$