Predicting Preschoolers’ Externalizing Behaviors From Toddler Temperament, Conflict, and Maternal Negativity

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Rarely have researchers elucidated early childhood precursors of externalizing behaviors for boys and girls from a normative sample. Toddlers (N = 104; 52 girls) were observed interacting with a same-sex peer and their mothers, and indices of conflict–aggression, emotion and behavior dysregulation, parenting, and child externalizing problems were obtained. Results indicated that boys initiated more conflictual–aggressive interactions as toddlers and had more externalizing difficulties 2 years later, yet girls’ (not boys’) conflict–aggressive initiations at age 2 were related to subsequent externalizing problems. When such initiations were controlled for, emotional–behavioral undercontrol at age 2 also independently predicted externalizing problems at age 4. Moreover, the relation between conflict–aggressive initiations at age 2 and externalizing problems at age 4 was strongest for dysregulated toddlers. Finally, the relation between age 2 conflict–aggressive initiations and age 4 externalizing problems was strongest for those toddlers who incurred high levels of maternal negativity. These findings illustrate temperament by parenting connections in the development of externalizing problems.

From early childhood onward, aggressive behavior and other forms of conduct-regulation difficulties have been shown to be stable phenomena (e.g., Cairns, Cairns, Neckerman, Gest, & Gariépy, 1988; Coie & Dodge, 1983; Olweus, 1979). Furthermore, childhood aggression has been associated with and predictive of poor academic performance, disruptive behavior at school, increased risk for school drop out, and engaging in delinquent activities (see Coie & Dodge, 1998, for a recent review). Given these findings, it is not surprising that researchers have attempted to identify the putative origins of aggression and other forms of externalizing behaviors.

Researchers who have examined the development of aggression and other forms of externalizing behavior have focused on factors such as (a) forces that are internal to the child (e.g., gender, temperament, and self-regulatory processes), (b) socialization forces that emerge within a child’s social interactions and relationships (e.g., parenting styles, attachment relationships, and peer interactions), and (c) other external forces, such as socioeconomic status and family structure. Few researchers, however, have examined how combinations of these factors collectively or interactively predict aggression and other forms of externalizing behaviors. In the present study, we examined whether observed toddler initiations of conflict and aggression, toddlers’ ability to regulate emotions and inhibit undesired behaviors, and the extent to which toddlers’ mothers interact with them in a negative fashion independently or jointly predict aggressive and conduct behavior problems by preschool age.

Drawing from the writings of Hinde (1976, 1987, 1989), we propose that externalizing problems are a product of individual, interactive, and relationship forces. For example, researchers have demonstrated links between children’s “difficult” temperament and the concurrent and subsequent presentation of externalizing problems (e.g., Bates, Pettit, Dodge, & Ridge, 1998; Rubin, Hastings, Chen, Stewart, & McNichol, 1998; Sanson, Smart, Prior, & Oberklaid, 1993; Shaw, Owens, Giovannelli, & Winslow, 2001). Interactions between parent and child, particularly those that may be characterized as authoritarian, hostile, or punitive, have been associated contemporaneously and predictively with aggression (e.g., see Rubin & Burgess, 2002, for a relevant review). In addition, the quality of the parent–child attachment relationship has been identified as a factor accounting for the subsequent demonstration of externalizing forms of behavior (e.g., Erickson, Sroufe, & Egeland, 1985; Lyons-Ruth, Alpern, & Repacholi, 1993).

Despite the existence of this research, there have been few studies of externalizing problems, specifically aggression, during the very early years of childhood. Cummings, Iannotti, and Zahn-Waxler (1989) suggested that the display of aggression and conflict initiations by toddlers could be viewed as early markers of subsequent externalizing tendencies. They found longitudinal stability for toddlers’ observed displays of physical and object-related
aggression and conflict initiations when next assessed at 5 years of age. Hay, Castle, and Davies (2000) noted that early (toddler) initiations of personal force (hitting, kicking, pushing) could precede the later display of physically aggressive behavior. They found that this was the case for girls, but not boys, across a short 6-month period. Of importance, they also found that such behavior was quite rare, occurring more than once for only 15 out of 32 toddlers.

The aforementioned studies focused on prevalence and stability of early markers of aggressive behavior. They did not, however, address notions that early physical (e.g., hits or pushes the target) and object-related (e.g., grabs object from the target) aggression may have different developmental meanings than these same forms of behavior in later childhood. Given that toddlers have relatively limited verbal repertoires, they may solve their interpersonal problems by means of aggression rather than through negotiation and compromise. Indeed, it has been consistently reported that hitting, pushing, grabbing, and other forms of aggression decrease over the years of childhood (Cairns & Cairns, 1994; Tremblay, 2000). Perhaps, then, the developmental course of aggression and other forms of externalizing behavior are best predicted by factors in addition to or other than the early display of aggressive behaviors and the initiation of interpersonal conflict.

For instance, Bates and colleagues (Bates et al., 1998) reported that dispositionally based “resistance to control” among toddlers was predictive of age 5 indices of externalizing problems. These authors also indicated that maternal negative control, an aggregate that included scolding, prohibitions, physical punishment, and restraint, predicted subsequent externalizing difficulties. Shaw and colleagues (Shaw et al., 2001) found that 5-year-olds identified as having attention deficit disorder, as well as oppositional defiant and conduct problems, had more difficult temperaments at 18 and 24 months than a nonproblem comparison group. Maternal rejection at 18 and 24 months also distinguished the above groups of children. It is important to note that the children studied by Shaw and colleagues were from a selected sample that comprised high-risk families and only boys.

Belsky, Woodworth, and Crnic (1996) found that male toddlers with the highest externalizing scores came from troubled families, within which there was much parent–child conflict and family adversity. Rubin et al. (1998) investigated individual (i.e., dysregulated temperament) and interaction factors (i.e., maternal behavior) associated contemporaneously with toddlers’ disruptive aggressive behaviors with peers. Specifically, they found that observed aggression and conflict during toddler dyadic play and maternally reported externalizing problems were significantly predicted by dysregulated temperament, but only for those children whose mothers demonstrated relatively high levels of negative dominance. For children whose mothers were not negatively controlling, the relation between emotion dysregulation and conflict–aggression was nonsignificant.

Taken together, these studies provide evidence that difficult temperament and parental negativity may conspire to promote the development of aggressive behavior (see also Loeber & Hay, 1997; Rubin & Burgess, 2002) and that this “conspiracy” may be exacerbated for those toddlers who are observed to engage in acts that inflict harm on others. Given the existence of few databases that comprise observations of toddler-initiated aggression and conflict, temperament and regulatory control, and maternal behavior, we sought to examine whether and how factors that are putatively biological in origin (e.g., temperament) and those that clearly involve socialization efforts (e.g., parenting behaviors) contribute to the prediction of aggressive behavior from the toddler to preschool period.

### Toddler Conflict and Aggression

Conflicts in toddlerhood generally occur when two children simultaneously desire access to the same object or activity (Bronson, 1981; Ross & Goldman, 1977). As such, conflicts may be described as “the incompatibility of the behavior of two children” and may be seen to occur when the action of one child meets with “protest, resistance, or retaliation from the other” (Hay & Ross, 1982, p. 107). Some have argued that dyadic conflict is both relatively normal during the toddler years and that it can serve important developmental functions (Piaget, 1932, 1959). Among 12- to 18-month-old children, for example, up to 50% of all peer interactions may involve conflict (Holmberg, 1980; Maudry & Nekula, 1939). Similarly, Rubin et al. (1998) found that over 70% of 25-month-old children participated in a conflict situation at least once in a 50-min laboratory setting. In a comparable setting, Hay and Ross (1982) observed 87% of 21-month-old toddlers engaged in at least one conflict. Thus, it appears that conflict is neither infrequent nor limited to a small percentage of toddlers.

Although it is the case that conflict is a dyadic phenomenon, there may be distinct individual differences in the extent to which toddlers initiate conflict episodes. It may also be that such differences in the initiation of conflict serve as predictive markers of future aggression. Hay and Ross (1982) found that some toddlers initiated much more conflict than others when observed in a dyadic play session with a same-age peer; however, it was the initiation of conflict and not engagement in conflict that predicted subsequent conflict initiations when the toddlers were observed in a dyad with another peer. Thus, there appeared to be stability in conflict initiations across settings and time. Cummings et al. (1989) reported that both aggressive initiations (as indexed by the first person who attempts to take objects or who attempts to assault another) and object-related aggressive acts were relatively stable from 2 to 5 years of age. Ostensibly, many of these initiations elicited subsequent conflictual interactions. In the case of the latter study, the toddlers were exposed to “background anger” as they engaged in play, and some toddlers were more affected by exposure to background anger than others. In the case of the former study, Hay and Ross suggested possible dispositional or temperamental factors to account for individual differences in conflict initiations. Perhaps, therefore, one can argue that relatively frequent initiators of conflict interactions or perpetrators of aggression in the toddler period are less able to regulate negative emotions or inhibit undesirable behaviors than those who are less likely to initiate agonistic encounters. Also, perhaps if conflict interactions and agonistic initiations are more normal for toddlers than for preschoolers and older children (e.g., Tremblay, 2000), then maybe it is the dispositionally underregulated child who is particularly at risk for the subsequent development of externalizing behaviors.
Temperament

Recently, Campbell, Shaw, and Gilliom (2000, p. 471) asked the following question: “Why do some toddlers develop from whiny and defiant 2-year-olds to more cooperative and positive 3-year-olds, whereas others become more difficult with development?” A partial answer to this question may derive from knowledge about children’s abilities to regulate demonstrations of negative affect, such as anger, and to inhibit high approach tendencies when appropriate (Fox, 1994; Goldsmith, Rieser-Danner, & Briggs, 1991). Infants and toddlers evidencing both of these characteristics are most likely to develop disruptive behaviors (Bates, Bayles, Bennett, Ridge, & Brown, 1991; Buss, Block, & Block, 1980) and to engage in social conflicts with siblings and peers (Brody, Stoneman, & Burke, 1987; Zahn-Waxler, Iannotti, Cummings, & Denham, 1990). In effect, these young children show low levels of behavioral and emotional self-control. Not only are they likely to become involved in social interactions, but they also react strongly and aversively if the interactions include frustrating or emotionally evocative events.

In the present study, two efforts were made to assess toddler temperament. First, mothers’ evaluations of their toddlers’ difficult temperaments were obtained to provide a global index of toddlers’ general behavior patterns and the extent to which they typically evidenced problems with emotion regulation. In addition, we made observations of toddlers’ displays of anger and behavioral undercontrol in laboratory situations designed to provoke frustration or that required regulatory—inhibitory control (e.g., Kochanska, Tjebkes, & Forman, 1998; Kopp, 1982). These observations were designed to provide a specific marker of the extent to which the children reacted to controlled and consistent events with dysregulated behaviors, as one of the defining qualities of emotion dysregulation and lack of behavioral control is that it should impede the accomplishment of goals within given situations (Thompson, 1994). Together, mothers’ ratings and specific observations provided a single stable and generalizable marker of emotion dysregulation and lack of regulatory control, and these indices also broadened the research extant on the relation between toddler temperament and aggression at age 4 years.

Parenting

As noted earlier, other potential factors associated with the development of social and antisocial behaviors may include experiences the child has had within significant familial relationships and interchanges. Specifically, the association between parenting behavior and children’s aggression and other forms of externalizing behaviors has received considerable attention (e.g., Bates et al., 1998; Hart, DeWolf, & Burts, 1992; Patterson, DeBaryshe, & Ramsey, 1989). Whether assessing general parenting styles (e.g., authoritative vs. authoritarian) or focusing on specific aspects of parenting (e.g., parental warmth vs. hostility), researchers have consistently found evidence linking negative parenting practices to disruptive and aggressive behavior. For example, negative parental behaviors (e.g., low warmth, high directiveness, and high physical and/or verbal punishment) have been linked to such child characteristics as social–cognitive immaturity (e.g., Dodge, Pettit, & Bates, 1994), communicative incompetence (e.g., Stafford & Bayer, 1993), and aggression–hostility (e.g., Dishion, Duncan, Eddy, Fagot, & Fetrow, 1994; Hart et al., 1992; Kuczynski & Kochanska, 1995; Rose-Krasnor, Rubin, Booth, & Coplan, 1996). In contrast, positive parenting behaviors (e.g., warmth, acceptance, positive control—guidance, inductive reasoning, and involvement) have been linked to socially competent behavior (e.g., Chen & Rubin, 1994; McGrath, Wilson, & Frassetto, 1995), lower levels of internalizing and externalizing difficulties (Booth, Rose-Krasnor, McKinnon, & Rubin, 1994; Russell & Russell, 1996), more mature cognitive processes (e.g., Hart et al., 1992; Pettit, Harrist, Bates, & Dodge, 1991), and peer acceptance (e.g., Black & Logan, 1995). Despite the wealth of data on the relation between parenting and externalizing behaviors, surprisingly little attention has been given to the associations between these variables during very early childhood—that is, between ages 2 and 4 years. Researchers have explored the parent–child attachment relationship and have reported that insecure attachment relationships are associated contemporaneously and predictively with hostility, anger, and aggressive behavior in preschool and school settings (Booth, Rose-Krasnor, & Rubin, 1991; Egeland, Pianta, & O’Brien, 1993; Lyons-Ruth, Easterbrooks, & Davidson, 1995; Sroufe, 1983). Similarly, researchers have found that negatively controlling mothers have children who evidence externalizing problems (e.g., Bates et al., 1998; Booth et al., 1994). Few researchers, however, have examined the longitudinal relation between parenting behaviors at child age 2 and subsequent externalizing behaviors at age 4. Given the importance of these years for the internalization of parental standards (Coie & Dodge, 1998), there appears to be a significant gap in our understanding of the early development of externalizing problems. Thus, the third purpose of this study was to examine the relation between parenting at age 2 years and externalizing forms of behavior at age 4.

The literature reviewed thus far is indicative of an additive or a main effects model of temperament, parenting, and child behavior, as temperament and parenting are posited to make independent contributions to child outcome. There is, however, an emergent literature supporting the notion that child outcomes of a social or antisocial nature are determined by multiple factors. Researchers have shown that parents adapt their behaviors to accommodate to the characteristics of their children, including temperament (e.g., Fish & Crockenberg, 1986; Lee & Bates, 1985; Rubin, Nelson, Hastings, & Asendorpf, 1999), behavior (e.g., Russell, 1997), age (e.g., Bates, Olson, Pettit, & Bayles, 1982; Lee & Bates, 1985; Pettit & Bates, 1984), and gender (e.g., Crockenberg, 1986; Lamb, Frodi, Hwang, Forstrom, & Corry, 1982). Furthermore, the existing research suggests that temperament and parenting interact in a meaningful way to predict variable outcomes in child behavior. For example, it has been found that maternal behavior may moderate the relation between difficult temperament and externalizing problems. Children of difficult temperament who experience authoritarian maternal behavior are more likely to demonstrate externalizing difficulties than children with difficult temperament who have less negatively controlling mothers (e.g., Bates et al., 1998; Crockenberg, 1987; Rubin et al., 1998; Sanson, Oberklaid, Pedlow, & Prior, 1991). Thus, in the present study, we examined both observed and reported negative parenting behaviors—behaviors that were punitive, intrusive, rejecting, negatively controlling, and marked by negative affect.
Sex of Child

A sex difference in the prevalence of aggressive behavior is a highly reported phenomenon. From as early as the toddler period, boys engage in more aggression and conflict than girls (see Coie & Dodge, 1998, for a review). Thus, consistent with the existing literature on sex differences in aggression, we posited that measures of age 4 aggression and externalizing behaviors would be greater for boys than girls. Whether early aggressive behavior and/or initiations of conflict are differentially stable for boys and girls and whether the predictors of preschoolers’ aggressive behavior vary for boys and girls is relatively unknown (e.g., Côté, Zoccolillo, Tremblay, Nagin, & Vitaro, 2001; Silverthorn & Frick, 1999).

Cummings and colleagues (Cummings et al., 1989) found that object-related toddler aggression and aggressive initiations were stable for boys and not girls and that the physical aggression of kindergarten boys and not girls could be predicted from earlier indices of aggression. Hay et al. (2000), in contrast, found stability in maternally rated aggression for toddler girls and not boys but nonsignificant differences in observed aggression. Rubin et al. (1998) reported that toddlers’ initiations of conflict were more frequent for boys than girls and that the association between an index of emotion dysregulation and toddler aggression was significant, but only for boys (not girls) whose mothers exhibited intrusive controlling behavior. For girls, the strongest correlate of aggressive behavior was dispositionally based emotion dysregulation. Given the mixed bag of findings with regard to sex differences in the stability of aggressive behavior and given the veritable nonexistence of longitudinal data predicting preschoolers’ aggression, we offer no hypotheses herein.

In summary, the main purpose of this investigation was to examine the longitudinal relations of temperament, initiations of conflict and aggressive behavior at age 2, and maternal negative control with maternally rated externalizing problems at age 4. This study represented a significant advance because rarely have longitudinal designs been used to assess possible predictors of externalizing forms of behavior from as early as age 2 years among both boys and girls. Another significant advance was the use of multiple means of assessing child and parent behaviors, including rating scales and observations.

We made several predictions based on existing research. First, we predicted that the following variables would each predict preschoolers’ externalizing scores: (a) sex of child (boys); (b) a high frequency of conflict initiation and aggression at age 2; (c) emotion dysregulation and poor regulatory control (the inhibition of behavior) at age 2; and (d) intrusive, dominating, and affectively cold maternal behaviors at child age 2. Second, toddlers’ observed initiations of conflict and aggression were expected to interact with maternal negativity and difficulty in self-regulation to predict age 4 externalizing difficulties. That is, for emotionally and behaviorally dysregulated toddlers and for those whose mothers demonstrated negative control, hostile affect, and punitiveness, the predictive relation between toddler conflict and aggression and preschool externalizing problems was hypothesized to be positive and significant. However, for toddlers who demonstrated regulatory control and whose mothers did not engage in behaviorally and emotionally negative parenting behaviors, the association between toddler conflict initiations and aggression and age 4 externalizing behaviors was predicted to be nonsignificant.

Method

Participants

The participants for this study were drawn from a sample comprising 108 children (54 girls) from families who lived in an urban community of approximately 250,000 in southwestern Ontario, Canada. The children and parents were first seen in the study at toddler age 2 years. Ninety-seven percent of the participants were Caucasian; 96% of the couples were married. The average age of the mothers, at child age 2 years, was 31.05 years (SD = 4.12, range = 23–41), and the average age of the fathers was 32.49 years (SD = 3.91, range = 24–43). On average, both mothers and fathers had some college education. The families had a mean score of 46.46 (SD = 10.80, range = 18–66) on the Hollingshead Social Status Index (Hollingshead, 1965).

Mothers and toddlers visited the laboratory on two occasions. The first visit took place within 3 months of each toddler’s second birthday (mean age = 24.99 months, SD = 1.08). One hundred four (52 girls) of the participants returned for a second visit. Second visits were scheduled within 12 weeks of the first session.

Approximately 2 years later, 46 boys and 42 girls who had participated in the study as toddlers (mean age = 50.98 months, SD = 1.33) visited the laboratory with their mothers for a peer quartet session. During this session, the mothers completed the Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1981), a reliable index of internalizing and externalizing problems. In the present report, the peer quartet data have been omitted. The frequency of observed aggression during a 30-min period of free play with peers was minuscule; however, this lack of aggressive behavior is unsurprising, given that the children were unfamiliar with one another.

Procedures: Age 2 (Sessions 1 and 2)

Age 2: Session 1. Detailed descriptions of the components of each dyad’s first visit to the lab that are not relevant to the current investigation have been reported elsewhere (Rubin, Hastings, Stewart, Henderson, & Chen, 1997). Each toddler–mother dyad was videotaped while interacting for approximately 50 min in a laboratory playroom during a series of structured and unstructured activities. The playroom contained one large and one small chair, a low table, and several age-appropriate toys. The toys were removed after approximately 15 min; this was followed by the presentation of the standard inhibition paradigm (e.g., Kagan, 1989). Next, the dyad completed a frustration task. The experimenter brought a large Tupperware container and a bright, attractive wind-up car into the room and demonstrated its use to the dyad. The car was then given to the mother, and she was asked to engage the child’s attention and to play together with the car for 30 s. Then, on hearing a knock at the door, the mother silently took the car, put it in the container, and sealed the lid. From earlier instructions, the mother knew she could encourage her child’s efforts to retrieve the car but should not open the container herself. After 1 min, the experimenter entered the room, took the container, and explained that she would get the car out and bring it back for the child to play with in a few minutes. (Nine toddlers were successful in retrieving the toy; for these toddlers, the container and toy were removed with the promise of returning the toy soon.) Following this, the toddler completed a compliance task (Kopp, 1982). The experimenter brought in some paper and a new box of large bright crayons. The mother sat in the large chair in one corner of the room, and the child was seated in the small chair at the table. The experimenter took the crayons from the box and placed them on the table in front of the child. Keeping her hand on the crayons and maintaining eye contact with the child, the experimenter explained that the
child could use the crayons but that she had to leave the room for 1 min and the child needed to wait for her to return before touching the crayons or starting to color. The instructions were repeated until the child nodded or verbally indicated that he or she understood. The experimenter stood, saying “Wait for me to come back,” then left the room, and returned 1 min later with all of the toys, including the wind-up car.

**Identifying children for Session 2 pairings.** Two toddler–mother dyads took part in each of the second sessions. Same-age same-sex unfamiliar toddlers were paired on the basis of their inhibition-related behavior in the first visit. In the inhibition paradigm, an unfamiliar adult entered the room three times: once with a toy truck, once with a moving robot, and once with an inflatable tunnel. The number of novel objects each toddler approached and contacted was summed (range = 0–3). Toddlers who did not approach any of the novel objects were identified as wary, whereas toddlers who approached all three were identified as not wary. All other toddlers were identified as average. Each toddler was paired with an unfamiliar average toddler for the second session, such that pairings comprised wary–average, average–average, or not wary–average children (see Rubin et al., 1998, for details).

**Age 2: Session 2.** For the second session, a large unfamiliar room was used. This room was divided in half by a large two-sided bookcase extended across two thirds of the width of the room. The first mother–child dyad was brought into the room and led to the far side of the bookshelf, where there were six toys and a large and small chair; the mother was asked to sit in the large chair. Then, the second dyad was brought to the near side of the shelves, where there were six similar but not identical toys and two chairs; again, the mother was asked to sit in the large chair. Two closed-circuit television cameras with a split-screen monitor filmed the dyads.

**Measures:**

**Coding of conflict initiations and aggression.** All coding was done from videotape. Conflict and aggressive initiations were measured with the Toddler Interaction Initiation Scale (Rubin & Stewart, 1994), an event-sampling procedure. Observers recorded each instance during which a toddler approached the play partner and initiated a prosocial (e.g., sharing a toy), stop action (e.g., telling the other toddler to end an activity or to stop a behavior), agonistic (e.g., threatening gestures), and object acquisition (e.g., trying to take a toy held by the other toddler) act. In addition, the quality of object acquisition initiation was coded as an (a) ask, point, request; (b) grab or take (instrumental aggression directed at the object); or (c) push, shove, hit, bite (instrumental aggression directed at the partner). Peers were not required to respond for the action to be counted as an initiation; initiations could be ignored, for example.

The agonistic category and the object acquisition subcategories of grabs and pushes (described above) comprised the measure of conflict and/or aggressive initiations. For each of the agonistic, grabs, and pushes categories, the number of initiations was summed across the play episodes. Correlations between each of these variables were all significant (agonistic–grabs, $r = .52, p < .01$; agonistic–pushes, $r = .36, p < .01$; pushes–grabs, $r = .39, p < .01$; all $df = 101$). Thus, an aggregate conflict-aggression initiation variable was computed by summing all observed instances of agonistic, push, and grab initiations. Interrater reliability was examined across 14 toddlers. Coders agreed that an initiation had occurred 95% of the time, and the kappa coefficient for type of initiation was .91.

**Observed regulatory control.** As in Rubin et al.’s (1998) article, an observational measure of toddlers’ regulatory or effortful control (Kochanska, Murray, & Harlan, 2000) was derived from the frustration and compliance tasks. From the former task, the number of 10-s intervals in which the child displayed angry affect (e.g., frowning, screaming) during the 1 min that the car was in the container was totaled; this formed the index of anger–frustration tolerance (low anger to high anger). From the compliance task, a latency score was calculated from the number of seconds that passed between the experimenter leaving the room and the toddler touching the crayons. Scores of zero were given to toddlers who picked up the crayons while the experimenter was still present ($n = 8$). There were also 8 toddlers who waited the full period until the experimenter’s return before beginning to color; they received scores of 1.0. All other toddlers had scores ranging from 0 to 1.0, indicating the proportion of the delay period they were able to wait before touching the crayons. This latency score formed the index for regulatory control (low to high; see also Kochanska et al., 1998; Kopp, 1982). Coder reliability was calculated across 12 dyads; percentage agreement for the anger and latency scores were 87 ($n = .81$) and 99 (mean difference = 0.4 s), respectively. The coders for these indices were not involved in the coding of toddlers’ conflict initiation and aggression in Session 2. As exact amounts of time varied slightly across dyads from the preestablished 1-min duration, each of these indices was proportionalized by length of observation; the proportionalized latency scores were then reversed so that high scores indicated shorter latencies. Finally, the proportionalized indices were standardized via $z$ transformation and aggregated to form a single index of observed undercontrol.

**Maternal ratings of emotion dysregulation.** Each mother was given a questionnaire booklet to complete at home after the second session. Included in one of the questionnaires completed by mothers was the Toddler Behavior Assessment Questionnaire (TBAQ; Goldsmith, 1988), which provided a measure of five temperamental dimensions: activity level, social fearfulness (avoidance–approach), anger proneness, pleasure expression, and interest–persistence. The TBAQ was completed at home between the two sessions. Designed for children of 16 to 36 months, the TBAQ comprises several 7-point Likert-type scales, anchored with the terms never and always, each asking how often during the last month a child has engaged in a particular behavior. Researchers have consistently reported acceptable Cronbach alpha scores for the five dimensions (Goldsmith, 1996). As in Rubin et al.’s (1998) article, scores of the dimensions of avoidance–approach and anger proneness ($\alpha = .80$ and .86, respectively) first were standardized; then, the avoidance–approach scores were reversed so that high scores reflected high approach tendencies and involvement. These two scores then were aggregated to form a parent-rated index of dysregulated temperament.

**Aggregated measure of behavioral and emotional undercontrol.** A single conceptually based index of behavioral and emotional undercontrol was formed by standardizing and aggregating the scores of the context-specific observed undercontrol and global mother-rated dysregulated temperament measures.

**Observed negative mothering.** Observations were made of each mother's behavior in the snack time episode of Session 2 using the Parental Warmth and Control Scale (Rubin & McKinnon, 1994). The coders for maternal behavior were not involved in the coding of toddler behavior in either session. Mothers’ displays of negative control and hostile affect toward their children were recorded using time-sampling procedures. The observational taxonomy was used to assess (a) hostile affect—negative instances of verbal and nonverbal behavior involving mothers’ displays of anger, irritability, annoyance, or hostility toward the child (e.g., maternal
tional intrusive behavior, the child was interrupted; the mother interrupted the child, grabbed toy from the child, or pulled child aside).

Observers rated each of the above noted maternal behaviors on a 3-point scale. Thus, maternal hostile affect was recorded in each minute as absent (rating = 0), moderate (clenching teeth, frowning, or annoyed tone of voice; rating = 1), or high (insulting, criticizing, or yelling; rating = 3). Mothers’ negative control was recorded as absent (rating = 0), moderate (verbally intrusive, distracting, or dominating joint play; rating = 2), or high (unnecessarily controlling child’s behavior, directly commanding, or physically intrusive; rating = 3). The kappa coefficients for Session 2 snack time negative control and hostile affect were .76 and .91, respectively, on the basis of 120 min of observation of nine mothers. As in Rubin et al.’s (1998) article, the measures of negative control and hostile affect in snack time were standardized and aggregated into a single measure of negative dominance.

Self-reported parenting. Each mother completed the Child-Rearing Practices Report Q-Sort (CRPR; Block, 1981). The CRPR includes 91 items describing child-rearing attitudes, values, beliefs, and behaviors written on individual cards. Mothers sorted the cards into seven piles (13 items describing child-rearing attitudes, values, beliefs, and behaviors) to what the child was doing (e.g., mother interrupted the child, grabbed toy from the child, or pulled child aside).

Procedures: Age 4

When the children were 4 years of age, they visited the laboratory with their mothers for a peer quartet play session. As noted above, this session generated very little aggressive behavior among the unfamiliar peers. As such, the outcome measure for the present report is the maternal rating of externalizing problems on the CBCL. Each mother was given a questionnaire booklet to complete in the lab and at home after the laboratory visit. The booklet included the CBCL (Achenbach & Edelbrock, 1981), a widely used measure of children’s internalizing and externalizing behavior problems. The broad-band Externalizing Behavior scale was targeted for this investigation.

Table 1

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<th>Variable</th>
<th>n</th>
<th>M</th>
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</tbody>
</table>

Note. Age 2 conflict-aggression is the square root of the total number of object-related grabs and pushes and agonistic acts during free play. Age 2 behavioral–emotional undercontrol is a composite of mother-rated anger and low fear and observed anger and frustration. Age 2 maternal negativity is an aggregate of observed hostile affect and negative control and self-reported orientations toward punishment and rejection. Age 4 externalizing problems are the maternal ratings on the Child Behavior Checklist broad-band Externalizing Problems scale. ** p < .01.

Results

Overview and Preliminary Analyses

Analyses were conducted to address the following objectives. First, we conducted t tests to examine sex differences in the prevalence of aggression at age 2 and externalizing difficulties at age 4. Second, we ran correlation analyses to examine sex differences in the stability of aggression–externalizing forms of behavior from ages 2 to 4. Finally, we used hierarchical regression analyses to examine hypotheses about (a) the additive and differential contributions of toddler conflict–aggression, behavioral–emotional undercontrol, and negative parenting (i.e., maternal hostile affect, negative control, punishment–rejection orientation) to externalizing outcomes; and (b) the moderated contribution of behavioral–emotional undercontrol and negative parenting to externalizing problems.

With respect to checking statistical assumptions, the conflict–aggression variable (total number of object-related grabs and pushes and agonistic acts during free play) was nonnormally distributed. Approximately 46% of all toddlers (n = 47) did not exhibit any object-related conflict or agonistic behaviors, another 19% exhibited only one of these behaviors, and the remainder exhibited from 2 to 21 conflict–aggressive behaviors. To yield a more normal distribution but preserve the range and variance of the variable, a square-root transformation of this variable was computed and this transformed variable was used in all analyses.

Means and standard deviations for the predictor and outcome variables are provided for the whole sample as well as separately for boys and girls in Table 1. Correlations between toddlers’ conflict–aggression, toddlers’ behavioral–emotional undercontrol, and maternal negativity and mother-rated externalizing problems are presented for the whole sample and within sex in Table 2. In terms of predictors, toddlers’ conflict–aggression (comprising observed agonistic acts and object-related grabs and pushes) and behavioral–emotional undercontrol (as measured by anger–frustration, low effortful control, and low social fear) were significantly associated in the whole sample (r = .31, p < .01), as well as within boys (r = .32, p < .05) and girls (r = .26, p < .05) separately. Maternal negativity at child age 2 (comprising hostile affect, negative control, and punishment–rejection orientation) was related to neither age 2 conflict–aggression nor behavioral–emotional undercontrol.
Sex Differences in the Prevalence and Stability of Aggression

The first question of interest concerned sex differences in the prevalence of aggression at age 2 and externalizing behaviors at age 4. This question was addressed using t-tests. As indicated in Table 1, boys exhibited significantly more conflict-aggression than did girls at age 2, t(100) = 2.73, p < .01. Mothers of sons reported their children to have significantly more externalizing problems at age 4 than did mothers of daughters, F(1, 67) = 4.14, p < .01.

The next set of analyses addressed sex differences in the stability of aggression—externalizing behaviors from age 2 to age 4. Examination of the cross-age correlations in Table 2 revealed that, for girls only, age 2 conflict-aggression was significantly correlated with age 4 maternal reports of externalizing problems (r = .34, p < .05), whereas the correlation was nonsignificant for boys (r = .15, ns).

Do Toddler Conflict–Aggression, Behavioral–Emotional Undercontrol, and Negative Parenting Predict Preschoolers’ Externalizing Problems?

Hierarchical regression analyses were conducted to examine the main hypotheses concerning the prediction of age 4 externalizing problems. Because of sample size considerations, separate analyses were first conducted to examine the individual predictive contributions of behavioral–emotional undercontrol and maternal negativity. However, analyses were also conducted that included both behavioral–emotional undercontrol and maternal negativity, and these results are presented following the separate analyses. Listwise deletion was used for all analyses; however, sample sizes differ across analyses depending on the specific predictors and outcomes. Before the interaction terms were created, the conflict variable was centered on its mean. Because behavioral–emotional undercontrol and maternal negativity were composite variables of other standardized variables, no centering was required. Sex of child was not included as a predictor or covariate because of its strong association with toddler conflict–aggression. As indicated in Table 1, boys and girls did not differ in terms of their behavioral–emotional undercontrol or the negative parenting they received at age 2.

For the analysis examining the predictive contribution of behavioral–emotional undercontrol, predictors were entered in the following order: toddler conflict–aggression, behavioral–emotional undercontrol, and the interaction of these variables. As noted in Table 3, the overall regression predicting preschoolers’ externalizing problems from toddler conflict–aggression and behavioral–emotional undercontrol was significant, F(3, 65) = 5.51, p < .01. A significant change in externalizing difficulties was attributable to age 2 conflict–aggression, F(1, 67) = 8.16, p < .01, β = .33, and behavioral–emotional undercontrol, F(1, 66) = 4.04, p < .05, β = .24. As well, after controlling for conflict–aggression and behavioral–emotional undercontrol, the interaction of these variables approached significance, F(1, 65) = 3.48, p = .06, β = .23.

The above noted interaction was probed following the recommendations of Aiken and West (1991). The regression equation was restructured to express the regression of age 4 years externalizing problems on age 2 conflict–aggression at levels of behavioral–emotional undercontrol. The values of behavioral–emotional undercontrol chosen corresponded to the mean, one standard deviation above the mean (high), and one standard deviation below the mean (low). These equations are plotted in Figure 1 to display the interaction. As expected, the strongest relation

### Table 2

<table>
<thead>
<tr>
<th>Sample and variable</th>
<th>Age 2 behavioral–emotional undercontrol</th>
<th>Age 2 maternal negativity</th>
<th>Age 4 externalizing problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole sample</td>
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<td>Age 2 conflict–aggression</td>
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<td>.12</td>
<td>.32**</td>
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<td>Age 2 behavioral–emotional undercontrol</td>
<td>.07</td>
<td>.31**</td>
<td>.14</td>
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<td>Age 2 maternal negativity</td>
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<tr>
<td>Boys only</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age 2 conflict–aggression</td>
<td>.32*</td>
<td>.14</td>
<td>.15</td>
</tr>
<tr>
<td>Age 2 behavioral–emotional undercontrol</td>
<td>.14</td>
<td>.35*</td>
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<td>Girls only</td>
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<td>Age 2 conflict–aggression</td>
<td>.26*</td>
<td>.06</td>
<td>.34*</td>
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<td>Age 2 behavioral–emotional undercontrol</td>
<td>.01</td>
<td>.26†</td>
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<tr>
<td>Age 2 maternal negativity</td>
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</tr>
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</table>

†p < .10. *p < .05. **p < .01.

### Table 3

<table>
<thead>
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<th>Predictors</th>
<th>R²</th>
<th>ΔR²</th>
<th>β</th>
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<td>.109**</td>
<td>.239**</td>
</tr>
<tr>
<td>Behavioral–emotional undercontrol</td>
<td></td>
<td>.051*</td>
<td>.236*</td>
</tr>
<tr>
<td>Conflict–Aggression × Behavioral–Emotional</td>
<td>.203**</td>
<td>.043†</td>
<td>.227†</td>
</tr>
</tbody>
</table>

†p < .10. *p < .05. **p < .01.
between age 2 conflict–aggression and age 4 externalizing problems was obtained for the children who were the most behaviorally and emotionally undercontrolled at age 2. The simple slope for the high undercontrol group was significantly different from zero (β = .42, p < .01), whereas the simple slopes for the average (mean) and low undercontrol groups were not significantly different from zero (β = .17, ns, and β = −.07, ns, respectively). As indicated by the significance level of the interaction term in the overall analysis, the simple slopes of age 4 externalizing problems on age 2 conflict–aggression tended to differ from one another as a function of the value of behavioral–emotional undercontrol. Thus, for children who were highly undercontrolled as toddlers, there was an association between conflict–aggression exhibited at age 2 and maternal reports of externalizing problems at age 4, whereas there was no relation between age 2 conflict–aggression and age 4 aggression–externalizing difficulties for children who were moderately or strongly able to control their behaviors and emotions.

For the analysis examining the predictive contribution of maternal negativity, predictors were entered in the following order: toddler conflict–aggression, maternal negativity, and the interaction of these variables. As shown in Table 4, the overall regression predicting preschoolers’ externalizing problems from toddler conflict–aggression and maternal negativity was significant, F(3, 60) = 2.80, p < .05. A significant change in observed aggression was attributable to age 2 conflict–aggression, F(1, 62) = 4.01, p < .05, β = .25. Moreover, after controlling for conflict–aggression and maternal negativity, the interaction of these variables approached significance, F(1, 60) = 3.15, p = .08, β = .23.

As with the above analysis, we probed this interaction following the recommendations of Aiken and West (1991). The regression equation was restructured to express the regression of age 4 externalizing problems on age 2 conflict–aggression at levels of maternal negativity. In this case, the values of maternal negativity were chosen to correspond to the mean, one standard deviation above the mean (high), and one standard deviation below the mean (low). These equations are plotted in Figure 2 to display the interaction. As expected, the strongest relation between age 2 conflict–aggression and age 4 externalizing problems was obtained for the children who received the highest levels of maternal negativity at age 2. The simple slope for the high maternal negativity group was significantly different from zero (β = .42, p < .01), whereas the simple slopes for the average (mean) and low maternal negativity groups were not significantly different from zero (β = .19, ns, and β = −.05, ns, respectively). As indicated by the significance level of the interaction term in the overall analysis, the simple slopes of age 4 externalizing problems on age 2 conflict–aggression tended to differ from one another as a function of the value of maternal negativity. Thus, for toddlers whose mothers were observed and report themselves as more negative in their

![Figure 1](image_url). Age 4 externalizing problems as a function of age 2 conflict–aggression at three levels of behavioral–emotional undercontrol. AGE2AGG = age 2 conflict–aggression; AGE4EXT = age 4 externalizing problems; subscripts L, M, and H refer to low, medium, and high levels of undercontrol.

<table>
<thead>
<tr>
<th>Predictors</th>
<th>R²</th>
<th>ΔR²</th>
<th>β</th>
</tr>
</thead>
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<tr>
<td>Conflict–aggression</td>
<td>.061*</td>
<td>.061*</td>
<td>.247*</td>
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<tr>
<td>Maternal negativity</td>
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<td>.126</td>
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<tr>
<td>Conflict–Aggression × Maternal Negativity</td>
<td>.123*</td>
<td>.046†</td>
<td>.228†</td>
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</table>

† p < .10. * p < .05.
parenting, there was a significant association between observed conflict–aggression exhibited at age 2 and maternal reports of externalizing problems at age 4, whereas there was no relation between age 2 and age 4 aggression–externalizing difficulties for those children who received low to moderate levels of negative parenting.

Finally, an analysis was computed to examine the predictive contribution of both behavioral–emotional undercontrol and maternal negativity. Predictors were entered as follows: toddler conflict–aggression, behavioral–emotional undercontrol, maternal negativity, and the relevant interactions of these variables. As indicated in Table 5, the overall regression predicting preschoolers’ externalizing problems was significant, $F(7, 56) = 2.15, p < .05$. A significant change in externalizing difficulties was attributable to age 2 conflict–aggression, $F(1, 62) = 4.01, p < .05$, $\beta = .25$. After controlling for conflict–aggression, behavioral–emotional undercontrol, and maternal negativity, the interaction of behavioral–emotional undercontrol and maternal negativity approached significance, $F(6, 57) = 2.43, p = .09, \beta = .25$.

As with the above analyses, we probed this interaction following the recommendations of Aiken and West (1991). The regression equation was restructured to express the regression of age 4 externalizing problems on age 2 behavioral–emotional control at levels of maternal negativity, controlling for age 2 conflict–aggression. Again, the values of maternal negativity were chosen to correspond to the mean, one standard deviation above the mean (high), and one standard deviation below the mean (low). These equations are plotted in Figure 3 to display the interaction. As expected, the strongest relation between age 2 behavioral–emotional control and age 4 externalizing problems was obtained

![Figure 2. Age 4 externalizing problems as a function of age 2 conflict–aggression at three levels of maternal negativity (Mat Neg). AGE2AGG = age 2 conflict–aggression; AGE4EXT = age 4 externalizing problems; subscripts L, M, and H refer to low, medium, and high levels of maternal negativity.](image)

### Table 5

<table>
<thead>
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<th>Predictors</th>
<th>$R^2$</th>
<th>$\Delta R^2$</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
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<td>Conflict–aggression</td>
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<td>.061*</td>
<td>.247*</td>
</tr>
<tr>
<td>Behavioral–emotional undercontrol</td>
<td>.098*</td>
<td>.038</td>
<td>.199</td>
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<tr>
<td>Maternal negativity</td>
<td>.115†</td>
<td>.016</td>
<td>.128</td>
</tr>
<tr>
<td>Conflict–aggression × Behavioral–emotional undercontrol</td>
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<td>.140</td>
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<tr>
<td>Conflict–aggression × Maternal Negativity</td>
<td>.163†</td>
<td>.033</td>
<td>.198</td>
</tr>
<tr>
<td>Behavioral–emotional undercontrol × Maternal Negativity</td>
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<td>.041†</td>
<td>.254†</td>
</tr>
<tr>
<td>Conflict–aggression × Behavioral–emotional undercontrol × Maternal Negativity</td>
<td>.212†</td>
<td>.008</td>
<td>.135</td>
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</table>

$\dagger p < .10$. * $p < .05$. 

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for the children who received the highest levels of maternal neg-ativity at age 2. The simple slopes for the high and average (mean) maternal negativity groups were significantly different from zero ($\beta = 0.65, p < 0.05$, and $\beta = 0.28, p < 0.05$, respectively), whereas the simple slope for the low maternal negativity group was not significantly different from zero ($\beta = -0.09, \text{ns}$). As indicated by the significance level of the interaction term in the overall analysis, the simple slopes of age 4 externalizing problems on age 2 behavioral–emotional undercontrol tended to differ from one another as a function of the value of maternal negativity. Thus, for toddlers whose mothers were observed and reported themselves as more negative in their parenting, there was an association between age 2 behavioral–emotional undercontrol and maternal reports of externalizing problems at age 4, and this relation was particularly strong for those children who received the highest levels of negative parenting.

Discussion

Evidence from this investigation supports the contention that considering different levels of social complexity, in this case the individual and interaction levels and the interrelations between these levels, may provide researchers with a better understanding of the antecedents of behavioral risks than considering any single level of complexity alone (e.g., Hinde, 1987). In the present study, toddlers’ dispositional characteristics (temperament), the frequency with which they initiated conflictual and aggressive interaction, and the quality of parent–child interactions (maternal behaviors and parenting styles) were considered together as precursors to the development of an externalizing profile. We attempted to demonstrate that child behavioral patterns that typically have been found highly stable, such as aggression, might prove malleable in early childhood, given both dispositional characteristics and socialization experiences. Indeed, the data presented herein did indicate that such individual child characteristics as emotional and behavioral regulation, in conjunction with maternal negativity, moderated the longitudinal relations between toddlers’ observed frequencies of conflict and aggressive initiations and subsequent preschool externalizing problems.

Before proceeding to our examination of the putative antecedents of an externalizing pattern, we begin with a brief discussion of sex differences in the prevalence and stability of such behaviors. In keeping with the literature on aggression (e.g., Zahn-Waxler et al., 1990), we found marked sex differences in the extent to which children manifested conflict–aggression at age 2 and externalizing problems at age 4. Male toddlers exhibited significantly higher frequencies of conflict initiations and aggressive behaviors, such as proactively taking objects away from an unfamiliar peer or pushing, shoving, or hitting the other play partner, than did female toddlers. Moreover, 4-year-old boys were rated as having more externalizing problems than same-age girls. The findings that boys engaged in more instrumental and physical aggression and that they had more externalizing problems than girls at this young age is consistent with other studies on younger and older aggressive children (see Coie & Dodge, 1998, for an extensive discussion). In a relative sense, however, our results are more consistent with the studies of older children than of toddlers because few gender differences under the age of 3 years have been documented (see Keenan & Shaw, 1997).

Findings corroborated prior research that shows aggression is a moderately stable social interaction phenomenon from the toddler to preschool period (Cummings et al., 1989). Children who were aggressive as toddlers also tended to be aggressive as preschoolers. Although aggression in the whole sample appeared to be a moderately stable phenomenon from the toddler to preschool period, the relation between age 2 aggression and age 4 externalizing problems was significant and stronger for girls than for boys (see Figure 3. Age 4 externalizing problems as a function of age 2 behavioral–emotional undercontrol at three levels of maternal negativity (Mat Neg). $\text{AGE2DYSR} =$ behavioral–emotional undercontrol at age 2; $\text{AGE4EXT} =$ age 4 externalizing problems; subscripts L, M, and H refer to low, medium, and high levels of maternal negativity.)
also Hay et al., 2000, for a similar finding). For girls, the best predictor of age 4 externalizing problems was the demonstration of peer conflict initiations and aggressive behavior at age 2. Although it is more atypical for toddler girls to engage in conflict, perhaps those girls who do engage in conflict, especially in a setting that one might expect would suppress behavioral misconduct (an unfamiliar playroom with unfamiliar people), are more deviant than boys who engage in similar behaviors in the same setting. Although the overall incidence of aggression is lower for girls than boys, aggression is possibly more stable among girls who actually display it; certainly additional research on this topic is necessary.

As a second contribution, findings from this study elucidate whether conflict and aggressive initiations are predictive of subsequent aggression and conduct problems during the preschool period. Although toddlers often engage in conflictual interactions as a normal part of development, the concern lies in the nature and frequency of such interactions. Initiating threatening gestures, grabbing, biting, and hitting is different from being the recipient or participant in such interactions. Our results supported the viewpoint that the frequency of conflict initiations and aggressive behaviors would predict externalizing problems 2 years hence.

Behavioral and emotional undercontrol also independently predicted externalizing difficulties. There were no sex differences in emotion dysregulation at age 2, as boys and girls did not differ regarding levels of behavioral-emotional undercontrol. The present longitudinal findings, though, derived from children younger than samples in prior studies. Furthermore, the magnitude of the correlations between age 2 undercontrol and age 4 externalizing problems did not differ for boys and girls. Together, these data support previous reports that dysregulated children are more aggressive than those who are better able to regulate their emotions or inhibit undesirable behaviors when necessary (Denham, McKinley, Couchoud, & Holt, 1990; Eisenberg et al., 1997).

Although these results are consistent with an additive model of maladjustment, a statistical trend also emerged consistent with a moderator model of maladjustment. The primary finding suggested that beyond the independent contributions of dysregulated temperament and the display of early conflict initiations and aggressive behavior, the combination of these characteristics in early childhood bodes poorly for subsequent adjustment. Consequentially, only for those toddlers who were least able to regulate their behaviors and emotions, a significant relation existed between toddler conflict-aggression and preschool-age externalizing difficulties. The same was not true for those toddlers whose emotional and behavioral regulatory skills were average or above average.

As a third contribution, the contention that the type of parenting experience would play a role in the development of an externalizing profile was upheld. For toddlers who incurred high levels of maternal negativity, the relation between age 2 aggression and age 4 externalizing problems was significant and stronger than the nonsignificant relations found for toddlers who experienced low to average levels of maternal negativity. Thus, changes in the development of externalizing problems at age 4 was a function of individual child temperament and parenting styles occurring in the toddler period. Indeed, for toddlers who incurred high levels of maternal negativity, there was a greater likelihood that their behavioral-emotional undercontrol would lead to externalizing difficulties.

Therefore, parent-child interactions colored by hostility, rejection, and intrusion were more likely to place young children, already prone to conflict initiations and aggression, on a trajectory toward externalizing outcomes. This finding supports previous theorizing and research on the connection between aggression and parenting (see Rubin & Burgess, 2002, for a review). However, caution is warranted in interpretation where the interactions were statistical trends (possibly because of sample size). Whether aggressive behavior at age 2 leads to the continuation of aggression and development of other externalizing problems by age 4 might be contingent on children’s parenting experiences.

It appears that a pathway toward externalizing difficulties is partially dependent on variation in individual child characteristics and interactive styles present in toddlerhood as well as in parenting experiences. The precursors to such a pathway include a high frequency of conflict initiations and other aggressive behaviors, poor regulation of behaviors and emotions, and maternal hostility, intrusive control, and punitive orientation or parenting style. One might speculate that dispositional characteristics come to predict parenting practices that reinforce or exacerbate problems associated with these characteristics. Rubin et al. (1999) recently reported that although early temperamentally based behavioral inhibition predicted maternal and paternal behavior 2 years hence, the reverse was not true. Thus, a transactional model of aggression might begin with a dysregulated child temperament setting the course for parental reactions that may ultimately lead children to follow a developmental trajectory of either an aggressive or nonaggressive profile, depending on parenting style and other factors. Dysregulated children whose parents provide little support and warmth and provide instead hostility and negative control may become aggressive, whereas dysregulated toddlers whose parents respond with warmth, sensitivity, and guidance may avoid the trajectory to aggressive behavior.

Overall, this longitudinal investigation illustrates the collective importance of individual and social interaction risk factors and the interaction of temperament and parenting. Also notable and different from prior studies in this area, our case is made with a low-risk sample of children drawn from a normative community sample with little economic hardship or parental psychopathology, rather than with high-risk or clinic-referred populations, and data were gathered using several sources and methodologies. Thus, the findings herein make important contributions to knowledge about individual and social risk trajectories and potential risk factors in the development of externalizing problems. Only with similar developmental models, which consider individual and social environment factors, can the development of psychopathology (in this case, risk for the externalizing-type pattern) be fully understood.

References


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