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ABSTRACT

The Relation between Parent-Child Attachment, Child-Rearing Behaviors, and Aggression in Childhood and Adolescence

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This paper reviews studies of the link between aggression and two family factors: attachment and parenting behavior. Children with a history or presence of avoidant or disorganized attachment are likely to exhibit more aggression. Lack of parental warmth and use of power-assertive discipline are positively associated with aggression.

Attachment and parenting have their unique contributions to aggression. Specifically, the role of parental control is addressed in several studies. The patterns of results are generally stable across toddlers, preschoolers, school-aged children and adolescents. Boys are influenced more strongly by the father’s parenting practices and girls by the mother’s. Attachment also influences boys and girls to different extents. These results provide support to early theories and also have novel implications for improving extant theories and for prevention and intervention of child aggression.
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The Relation between Parent-Child Attachment, Child-Rearing Behaviors, and Aggression in Childhood and Adolescence

Introduction

Although it is generally accepted that abnormal levels of aggression have their roots, at least partially, in one’s early years of life, the understanding of the exact pathway from a neonate to a disruptive toddler, to an aggressive preschooler and elementary-school student, and eventually to an adolescent criminal can be complicated. First, not all young children who display a lot of aggression carry this pattern into later years or become juvenile offenders; also, not all aggression in adolescents is foreshadowed by early hostile behavior. Second, seldom is there a single factor that is sufficient and necessary to set the stage for later aggression. Instead, certain configurations of specific factors may be the underlying prerequisite for aggressive behavior. Therefore, many contributing antecedents in different domains must be identified and studied either separately or in combination to understand pathways leading to aggression. Indeed, over decades of research, the emergence, persistence, and escalation of aggression have been linked to a number of temperamental, emotional, cognitive, interpersonal and family contributors (for a review, see Loeber & Hay, 1997). For most people, the family is the first domain in which children learn to interact with others, and their parents are the earliest communicators with them, the earliest respondents to their requests, and the primary protectors in case of distress or danger. As
a result, the role of family in the development of aggression is seen to be one of the earliest and most substantial factors and has drawn a great amount of attention in research.

Children play a particularly important part in two family factors that are of particular importance: parent-child attachment (for a review see Van IJzendoorn, 1997) and child rearing practices (i.e., parenting. For a review see Rubin & Burgess, 2002). Children exhibit attachment behaviors that reflect the perceived attitudes and responsiveness of the primary caregiver, and children also influence the caregivers’ behaviors. Child rearing behaviors are directly perceived, interpreted and evaluated by the child and then influence the child’s thoughts and behaviors. Research suggests that both are significant predictors of aggression (as reviewed below). It is worth asking what roles attachment and parenting behavior play, and how they interact with other determinants as a whole system to influence aggressive outcomes in the child.

In this paper I review studies since the 1970s on the relation between attachment, parenting behavior and aggression in childhood and adolescence. The aim is to answer three questions: first, to what extent and in which way are attachment style and parenting style related to child and adolescent aggression; second, how do attachment and parenting have differential effects on aggressive behavior in boys and girls, respectively; and, third, at which stages of life and in which groups of people do attachment and parenting have the strongest influence on the development of aggression. Although aggression takes a variety of forms, physical aggression towards other people is the focus of this review, and, thus, relational aggression, vandalism and some other forms will not be considered because these forms of anti-social behavior are often directed to different targets than
those related to physical aggression, and they may have different developmental origins (Casas, Weigel, Crick, Ostrov, Woods, Jansen Yeh et al., 2006).
Attachment and Child Rearing Behavior as Predictors and Contemporary Correlates of Aggression

Attachment predicts ongoing and later aggression

The majority of attachment-related studies adopt the classification method developed by Ainsworth, Blehar, Waters and Wall (1978). For children before preschool age, the Strange Situation (Ainsworth et al., 1978), or its modifications, is mostly used to assess attachment security, whereas for older children the assessment procedure varies, though in most cases questionnaires based on the strange situation are used. Child attachment types are categorized into a secure and two insecure ones: anxious-avoidant and anxious-resistant (also named anxious-ambivalent). The latter two insecure types are collapsed in some reports. This classification system is primarily based upon the infant’s response towards the caregiver on the reunions that follow the separations as described below. Secure attachment is characterized by active attempts to regain proximity, to seek and maintain physical contact with the caregiver, and being comforted by the caregiver after distress. Anxious-avoidant attachment is reflected by avoidance of the caregiver and by remaining occupied with toys. Anxious-resistant attachment is manifested by anger and difficulty in being settled by the caregiver on reunion, despite apparent attempts by the child to seek proximity and contact. More recently some studies included a fourth category of attachment, named “disorganized/disoriented” by Main and Solomon (1986).
This category is characterized by inconsistent or self-contradictory behaviors on reunion, e.g., “approaching parent with head averted” (Main & Cassidy, 1988).

Many studies have found that a history or presence of avoidant attachment style accounts for aggressive behaviors in toddlerhood, childhood and adolescence. By studying same-gender dyads of children, Troy and Sroufe (1987) were some of the first to empirically reveal the relationship between attachment history in toddlerhood and verbal and physical bullying behavior at preschool age. They first assessed mother-child attachment at 12 and 18 months of age, and coded it as anxious-avoidant, secure or anxious-resistant. Then when the children were 4 to 5 years old, the experimenters observed the playing behaviors of the dyads in lab settings. Three findings delineated a clear pattern of predictive relationship. First, a child who had an anxious-avoidant attachment would victimize the partner if and only if the partner had experienced an insecure (avoidant or resistant) attachment. Second, a child with an anxious-resistant attachment history would not victimize the other but would be victimized by one who had an anxious-avoidant attachment. Third, one who had a secure attachment with her or his mother would neither victimize the other nor become victimized during playing. These findings suggested that secure attachment not only prevented the emergence of aggression but also served as a protective factor against being victimized. Additionally, the study has its unique significance in terms of methodology because it was one of the few extant studies so far during which experimenters directly observed and coded child aggressive behavior associated with attachment history. The major drawbacks of this study were that the sample size was small, only categorical data were collected, and only non-parametric tests were used.
Many researchers have used different methods and expanded the findings to various ages and on different measures of aggression. Some studies measured aggressive behaviors quantitatively and conducted group comparison. An early study by Lewis, Feiring, McGuffog and Jaskir (1984) found that boys at age 6 who were avoidantly attached to their mothers at age 1 had higher scores on aggression than securely attached peers. In an older sample, Roelofs, Meesters, ter Huurne, Bamelis, and Muris (2006) observed high scores of aggression in children of mid to late elementary school age who were insecurely attached to their mothers and fathers in the mean time, compared to those with secure parental attachment. Some other studies also created scores on attachment, instead of using categorical classification. Renken, Egeland, Marvinney, Mangelsdorf and Sroufe (1989) found that a quasi-continuous score on avoidant attachment towards the mother measured in toddlerhood was positively related to boys’ aggression in early elementary school years. Similarly, Dallaire and Weinraub (2007) in a multiple regression study reported a significant negative relationship between attachment security at 36 months and teacher-reported aggression at first grade.

Whereas most studies have found avoidant attachment style to be a reliable correlate of aggression, disorganized attachment has been suggested to be the least secure style, and researchers have found that children with disorganized attachment are at even higher risk of developing aggressive or disruptive behavior, though the category itself is not very clearly defined yet. Lyons-Ruth, Alpern and Repacholi (1993) indicated a high possibility that children classified as disorganized in mother-child attachment at 18 months were later reported to be hostile to peers in preschool. Using a continuous measure of aggression, Lyons-Ruth and others also reported that a comparable sample
with a history of disorganized attachment had higher teacher- and mother-reported scores on aggression later at age 7 than control groups with a record of secure or avoidant attachment (Lyons-Ruth, Easterbrooks & Cibelli, 1997). In a clinical sample of preschoolers with oppositional defiant disorder (OCD) and a non-clinical control group, Greenberg, Speltz, DeKlyen an Endriga (1991) found a similar but concurrent relationship that oppositional children were more likely to show a disorganized pattern of attachment. Shaw, Owens, Vondra and Keenan (1996) reported that children at age 5 who had disorganized attachment at 12 months were the most likely to display disruptive behaviors also at home.

Slightly different from the dynamics of aggression associated with avoidant attachment, the relationship between disorganized attachment and the manifestation of aggressive behavior may become established only by the late preschool period. In a longitudinal study from 24 to 54 months of age, Keller, Spieker and Gilchrist (2005) reported that in home settings, avoidant attachment is significantly associated with greater likelihood of highly disruptive problem trajectory, but as opposed to prediction, the likelihood of a problem trajectory in children with disorganized attachment was actually similar to that of the whole sample. To explain this inconsistency, they proposed that patterns of disruptive behavior associated with avoidant and disorganized attachment might have different origins. Despite the lack of influence of disorganized attachment on aggressive behavior described above, it remains possible that disorganized attachment, like avoidant type, is associated with a measurable bias to interpreting others’ intentions as hostile or the tendency to choose an aggressive method as early as toddlerhood.
Although these findings contribute to understanding the nature of disorganized attachment and its role in the development of aggression, as well as to designing prevention and intervention programs, they should be interpreted with caution. First, disorganized attachment is usually observed in high-risk families, such as those with low income or including an adolescent mother; therefore, other risk factors may be confounded or correlated with attachment in the prediction of aggression. Second, to date, no study has used a parametric or regression method to study disorganized attachment. Thus, the role of disorganized attachment would be illustrated in greater depth by comparing disorganized sample with other groups on a continuous measure of aggression, or regressing a score of aggression to the score of attachment disorganization.

These results on child-parent attachment are consistent with Bowlby’s (1973) theory of internal working models. Early interactive experience, especially parent-child interaction, provides the basis for one to form and moderate core expectations about the worthiness and likability of oneself and the responsiveness and support of significant others. These models of self and others work as guidance for further interactive behaviors in family and in other situations. In this way, a child will extrapolate early experience with parents to estimate the availability and friendliness of other people, to interpret the intentions (particularly if they are ambiguous) of them, and to select the way he or she reacts. As a result, one who has been securely attached to the primary caregiver will assume that the environment is safe, that he or she is beloved and competent and that others are attentive and friendly. Subsequently, he or she is predicted to respond in a non-aggressive, pro-social way. In contrast, one who has suffered insecure-avoidant attachment is prejudicially guided by the beliefs that others are hostile, social
relationships are distressful, and he or she is useless and unworthy of care. Holding these distorted assumptions, one tends to interpret ambiguous or even benign behavior as hostile. As a result, the person, almost defensively, responds in an aggressive manner.

When one starts preschool, and interpersonal connection with peers becomes an important part of life, problematic behaviors associated with insecure attachment lead to peer rejection, which is perceived and subsequently strengthens their biased models of others. Lack of peer acceptance finally results in more anger, frustration and use of aggression. These results can be observed as soon as children attend preschool and then school, and can generally persist through adolescence.

Studies reviewed in this article suggest that early attachment is predictive of aggressive behavior at all ages between two years and adulthood. This is of practical significance because once children who are at risk for aggressive behavior are identified, prevention can be introduced to them before the onset of non-age-normative aggression. Prevention of aggression has been shown to be possible as early as in the first year of school (Kamps, Kravits, Rauch, Kamps & Chung, 2000).

**Attachment as a distinguishing factor that interacts with other adversities**

Although there is little debate about whether attachment is reliably predictive of aggression, the specific role that it plays in the development of aggression is less known. Most researchers agree that attachment is neither sufficient nor necessary by itself to evoke aggressive behavior. Rather, it comes into play as a risk factor that co-acts with other psychosocial factors. In other words, one function of secure attachment is to help the child be more resistant to the impact of other factors related to the development of aggression. In accordance with its role, generally, attachment security has greater
influence on aggression in high-risk children than in low-risk counterparts. Studies have found that secure attachment protects children against aggressive or hostile behavior and that insecure attachment potentiates it. Lyons-Ruth et al. (1997) found that in children with mildly lagged mental development, disorganized attachment with their mothers at 18 months predicted higher scores on teacher- and mother-reported aggressive behavior at age 7. Keller et al. (2005) reported that in preschoolers who exhibited high levels of negative affect and low self-regulation at 12 months, attachment security measured at this time distinguished the probability of displaying atypical patterns of aggressive behaviors. Those who had a history of avoidant attachment were more likely to be a member of the high-problem group.

In contrast, attachment is generally not so useful as a predictor of aggression in samples from low-risk populations, in terms of socioeconomic and demographic variables. For example, no significant difference was observed in aggressiveness between toddlers who were securely and who were insecurely attached to their mothers (Fagot and Kavanagh, 1990). In older children and early adolescents, Harachi, Fleming, White, Ensminger, Abbott, Catalano et al. (2006) failed to draw a relationship between attachment and developmental trajectory of aggression. However, in a sample of preschoolers mostly from middle to upper middle-income families (Casas et al., 2006), it was found that mother-reported insecure attachment score was correlated with aggression for girls.

As reviewed in the later sections, the role of attachment is analogous to one of the switches in a circuit. A child draws images of the self and others based on the attachment that she or he has experienced. Next, it is indicated that attachment shapes the child’s
perception of intentions of people in the close environment. However, there is no evidence that attachment directly influences one’s attitudes towards aggression, or selection among aggressive and non-aggressive responses. Therefore, being insecurely attached does not close all switches that are necessary to start the “flow of electricity” and turn on aggression. Self-esteem, attitudes towards aggression and response selection are determined by a number of other factors besides attachment. As a result, when other determinants, such as parental criminality, family stress and temperament are strong enough, aggression begins as the predicted outcome of the absence of attachment security.

Another noticeable fact is that the development of aggression does not necessarily require a history or presence of insecure attachment. For example, oppositional defiant disorder (ODD) was also present in some securely attached preschoolers (Greenberg et al., 1991; Greenberg, Speltz, Deklyen & Jones, 2001). As reviewed by Reebye (2005), several pathways to aggression with origins in infancy or early childhood were proposed. Apart from attachment relationships, neurobiological factors, exposure to violence, degree of mastery of self-regulation techniques and parenting practices were all potential contributors to aggression. Not all these factors can be understood in the framework of internal working models. Although in many cases these factors are correlated with attachment score or classification (Finzi, Ram, Har-Even, Shnit & Weizman, 2001), they each do have unique effects on aggression. The relationship between parenting behavior and aggression is reviewed in the next section.

Perceived and internalized parenting behavior: factors of warmth and control or demandingness
Baumrind (1967, 1971) proposed a two-dimensional model of parenting styles based on two most important aspects: responsiveness and demandingness. Four parenting styles were defined by her and others: authoritarian, authoritative, neglectful and indulgent (Maccoby & Martin, 1983). The first two styles are both characterized by high demandingness. However, authoritative parents are highly responsive to their children; whereas authoritarian parents usually disregard their children’s needs. The latter two styles are characterized by low demandingness. Indulgent parents are very responsive to their children; whereas neglectful parents provide little support. Although not all studies of the relationship between child aggression and parenting behavior adopt this classification method or any of its revised forms, almost all studies utilize the concepts of parental warmth or responsiveness and control or demandingness. The concept of warmth is slightly different from that of responsiveness in that warmth represents the affective aspect of responsiveness, apart from the cognitive aspect. Either scores on the dimensions or a categorical classification of parenting style is used to study the relationship between parenting behavior and outcome in children.

In preschoolers, Casas et al. (2006) found that mother’s permissiveness was positively related to mother-reported aggression in girls, and mother’s authoritativeness was negatively related to this outcome. Similar results were also obtained on a sample of an Asian cultural background. Chen, Dong and Zhou (1997) studied second graders in China and reported that teacher-reported aggression was predicted by higher score on concurrent authoritarian parenting but lower score on authoritative parenting. Based on these studies, authoritarian style is associated with the highest levels of aggression, and authoritative style predicts the lowest.
However, in recent years, several studies with certain ethnic groups did yield results that posed challenge to the widely accepted idea that authoritative parenting was always the optimum one in minimizing child aggression. Based on a study on teenagers in Spain, García and Gracia (2009) suggested that authoritative and indulgent styles of parenting were associated with equally low scores of self-reported hostility and aggression. A more surprising pattern of results was reported by Yaman, Mesman, van IJzendoorn and Bakermans-Kranenburg (2010), obtained in Turkish immigrants in the Netherlands. Mother’s score on authoritative parenting had no effect on mother-reported toddler’s aggression in the whole sample. Further analysis indicated that for children with easy temperament, authoritative parenting was positively associated with aggression. Nevertheless, as expected, for children with difficult temperament, authoritative parenting was negatively associated with aggression. This was the only example so far in which aggression was positively predicted by authoritative parenting. García and Gracia (2009) explained that their results reflected the emphasis on egalitarianism in a horizontally collectivistic society such as Spain. The results of Yaman et al. (2010) could be understood in several ways. First, it was the only study in the present review that focused on a homogenous minority immigrant sample. Both their ethnicity and the process of assimilation into a new culture may be associated with values on socialization that are substantially different from those in typical Western and Asian countries. Second, this pattern of results has not been replicated in other age groups. It is possible that the seemingly positive contribution of authoritative parenting to aggression will diminish in one year, or it may even be associated with a long-term negative contribution to aggression in the future. Third, parenting style was assessed in a problem-solving task,
rather than in daily environments. Therefore, the possibility that mothers who appeared authoritative in the assessment were actually indulgent to their children must be considered. Nevertheless, these results caution researchers that the relationship between rearing and aggression could be more complicated than what can be drawn from most studies.

The relationship between child rearing and aggression could be studied in greater depth by creating measures on warmth and control separately, in addition to studying the two in conjunction with each other. While it is commonly believed that consistently, properly exhibited warmth is associated with less aggression, a most debated issue is how parental control is related to aggressive thoughts and behavior. The first possibility is that coercive control serves as a forceful suppressor of emerging aggression and prevents further aggression by punishing children for being aggressive. The second possibility is that, another method to control children, i.e., inductive control, helps relieve children’s anger and anxiety, improves their psychological adjustment, and provides a positive template for problem solving. Inductive control is characterized as follows: parents encourage children to explore independently within the limits that they have explicitly placed; they teach children correct ways to regulate their feelings; when children break the rules, they explain clearly the aim of the punishment before they use it; and it is used for teaching purpose; These nurturing processes are expected to be associated with less aggression. In contrast, coercive control leads to more hostility and aggression rather than eliminating them.

Many studies yielded findings that could help formulate an answer to the question above, although so far it has not been completely answered. In toddlers, Brook, Zheng,
Whiteman, and Brook (2001) found that coercive control and psychological control through guilt from both the mother and the father were positively related to mother-reported aggressive behavior toward peers. Similarly, in a Chinese sample, a predictive relationship was found (Chen, Wang, Chen and Liu, 2002). Power-assertive mothering style on toddlers was positively associated with aggressive behavior observed two years later in peer play. In primary-school-aged children, higher perceived maternal control predicted more teacher-reported aggressive behavior, while higher perceived maternal support was associated with less aggression (Gomez, Gomez, DeMello and Tallent, 2001).

Additionally, literature illustrates in depth the influence of parental warmth on child social competence. Renken et al. (1989) observed mothers guiding children of preschool age through tasks and found that lack of emotional supportiveness predicted later aggressive behavior in early elementary school. Hostile parenting, which is usually characterized by impatience, anger and disapproval toward the child, was found to be positively associated with aggressive behavior in all age groups from 4 to 11 (Branningan, Gemmell, Pavalin & Wade, 2002).

At first look, it might be confusing when two patterns of results are taken together. First, parental control is often found to be positively associated with aggression. Second, permissive parenting behavior is believed to be positively related to aggression, whereas authoritative parenting, its counterpart with tighter control, is negatively related to aggression. To understand the role of control in the development of aggression, methods of control must be taken into account. Authoritative parents frequently perform inductive techniques, and in contrast, authoritarian parents resort to the use of power-assertive control (Chen et al., 1997). Generally, parental control that is executed in a power-
assertive way is positively associated with aggression in children, while controlling through induction is negatively associated with aggression.

Among parenting styles, the most exceptionally harmful example is abusive parenting, which is usually characterized by frequent use of physical discipline that can cause injury in victims. Herrenkohl and Russo (2001) reported that maternal use of physical discipline at school age was related to ongoing teacher-reported aggressive behavior in children. Similarly, in a study by Rogosch and Cicchetti (1994), teachers rated physically abused children significantly higher on an externalizing behavior scale than they did non-maltreated controls.

Extant evidence indicates that the role of parenting behavior in the dynamics of aggression may be more than just a risk factor. Hostile or impatient parenting on the child is supposed to be either a direct or an indirect cause to aggression. This hypothesis was supported by the finding that toddlers who had experienced hostile maternal behavior exhibited heightened levels of aggressive behavior, either from families under stress or not (George and Main, 1979). Hostile or abusive maternal behavior had an effect on aggressive behavior, regardless of other potential factors. However, even though parenting behavior and child aggression are believed to be in a causal relationship, the direction of causation is under debate, as it remains possible that parents use power-assertive discipline in response to aggressive behavior of children that must be suppressed, but aggression persists as discipline fails to suppress it, or that parents refuse to express warmth as a sign of disapproval of child aggression. This question has been addressed in a recent longitudinal study by Sheehan and Watson (2008). Baseline aggression level of children predicted and led to increased physical parental punishment.
from the parents a year later. However, the increased parental punishment led to further increases in child aggression over time in a vicious downward spiral.

Similar to attachment, early parenting behavior shapes the way a child perceives himself or herself. Warm, inductive and attentive parenting behaviors seem to make the child believe that he or she is a valuable figure and is worth love and help, and in contrast, harsh, power-assertive and neglectful parenting behaviors seem to inform the child that he or she is disliked and hopeless and others are not responsive and helpful. Moreover, as young children tend to imitate things they observe, parenting style is also supposed to be a template of the child’s later behaviors, exhibited both inside and outside the family. Therefore, it is not difficult to understand that rearing history may influence one’s aggressive behavior. In all, it is generally accepted that children who have experienced a stable, authoritative parenting style are the least likely to develop aggressive attitudes and behaviors. After breaking down parenting styles to theorized dimensions, it is clear that higher warmth or responsiveness is associated with less aggression, but the role of control is more controversial with methodological and cultural variability.

**Synthetic effects of attachment and child-rearing**

Both attachment and parenting behavior are important indicators of the quality of parent-child relationships. They reflect how well the parents meet the needs of the child and how the child perceives the parents. The behavioral dimension of attachment is instantiated by the support offered by the caregiver in stressful situations. In fact, parenting style is usually correlated with attachment style. Egeland and Sroufe (1981) reported that a greater proportion of children who received excellent parental care displayed secure attachment than the proportion of those who were maltreated. Finzi et al.
(2001) reported that avoidant attachment style was characteristic of abused children, and that resistant attachment style was characteristic of neglected subjects. As a result, attachment and parenting behavior can be theoretically linked to each other in a unified framework and are measured and can be analyzed in a unified design in many studies (Casas et al., 2006; Renken et al., 1989; Roelofs et al., 2006).

It should be noted that parenting behavior may play a unique role in addition to that of attachment in the development of aggression. As reported in a multiple regression study by Roelofs et al. (2006), parental rejection contributed to the prediction of aggression in children aged 9 to 12 years, above and beyond the contribution of attachment. Renken et al. (1989) found that after controlling for attachment style in the first two years of life, maternal hostility at 42 months was a significant predictor to teacher-reported aggression in early primary school. Greenberg et al. (2001) showed that punitive parenting had its unique contribution to the prediction of oppositional defiant disorder in preschool boys. This may be because parenting behavior includes a factor, parental control, which is rarely utilized in the framework or operationalization of attachment.

**Mediators between attachment, parenting behavior and aggression**

The mechanisms of how attachment and parenting behavior influence concurrent or later aggression are believed to be complicated and remain barely revealed. Despite this insufficiency, some studies have identified mediator variables in the association between attachment, parenting and aggression. Marcus and Kramer (2001) reported that in children aged 3 to 8 years, pro-social orientation, a factor of social competence, mediated the effect of mother-child attachment on mother-reported aggressive behavior.
Other mediators have been found in older samples. Simons, Paternite and Shore (2001) found that in 6th Graders, social cognition (perception of others’ intentions) and self-esteem mediated the effect of concurrent attachment with their mothers on their self-reported aggressive response selection to given scenarios. In clinic-referred children aged 9 to 11 years, social cognition, along with aggressive response selection, was also found to mediate the effects of perceived maternal control and support on teacher-reported aggression (Gomez et al., 2001). Eliot and Cornell (2009) showed that attitudes toward the use of aggressive response mediated the relationship between insecure attachment to parents and bullying behavior and self- and peer-reported bullying behavior in 6th Graders.

These results support Bowlby’s (1973) theory of internal working models. First, it is indicated through statistical methods that attachment indirectly influences the exhibition of aggression by shaping one’s social cognition. These findings lend support to the hypothesis that a set of expectations on how to judge others’ intentions and how to react to them are constructed and consolidated through interaction with one’s views of the caregiver. Second, the findings complement Bowlby’s theory by suggesting that the selection of an aggressive response is a separate step that bridges perception of hostility and acting-out, as it has been reported that social cognition mediates the effects of attachment on response selection before the sequence of steps finally reaches aggressive behavior (Simons et al., 2001). The selection between aggressive and non-aggressive responses may reflect one’s attitudes toward aggressive behavior, which may in turn result from modeling of power-assertive parenting practices or physical abuse that one has experienced or observed. Still, these results remain to be replicated in children.
younger than school age or in early school age, therefore to reveal at which period social cognition and attitudes toward aggression begin to mediate the association between quality of child-parent relationship and aggression. As response selection is a downstream step in the attachment- and child-rearing-related pathway to aggression, it is possible that, in the case of insecure attachment that are difficult to change, social intervention could focus on helping children come to prefer non-aggressive solutions to perceived threat.

**Clinic and court-referred samples**

Although most studies to date focused on normal samples, a few examined subjects in clinical or criminal statuses. Those are usually considered extreme cases that need special support and intervention. As early as preschool age, insecure attachment, punitive parenting and physical abuse were shown to correlate with parent-reported aggression, and they were suggested to increase the risk for oppositional defiant disorder, especially if there was adversity in family ecology or vulnerability in child developmental characteristics (Greenberg et al., 1991; Greenberg et al., 2001). Similar results were obtained in older participants. Ooi, Ang, Fung, Wong and Cai (2006) showed that in boys in Grades 2 to 6 with diagnosed disruptive behavioral disorders, parent-reported quality of child-parent attachment correlated with concurrent parent-rated aggression. In another sample of similar age, perceived maternal control and support were found to predict aggression, measured one year later, in children with teacher-reported behavioral disorders. Maternal control contributed positively to aggression, while maternal support reduced aggression (Gomez et al., 2001). Butler, Fearon, Atkinson and Parker (2007) studied young offenders aged 12 to 16, mostly males, who were charged with robbery,
assault and other delinquent offenses and were ordered to take psychiatric assessment. They found that one dimension of child-parent attachment, alienation, was a significant predictor of self-reported antisocial behavior. These results imply the following: first, attachment potentiates disruptive disorder; second, a sense of intimaey, or de-alienation, is possibly the most protective dimension of attachment for adolescents; third, even in disordered children and adolescent offenders, attachment and parenting style predict severity of aggression; fourth, the role of insecure attachment as a risk factor is substantiated since it results in a greater increase in the likelihood of disorder when other risk factors are present. Future directions include whether insecure attachment and harsh parenting increase the risk for criminality and whether robbery, assault and other more serious forms of aggression, rather than overall aggressive behavior, are associated with attachment in minors.

While these studies provide support for models that assume a causal relationship between harsh, uncaring and under-involved parenting as cause and aggressive behavior as consequence, it is still unclear whether there is indeed such a causal relationship or if the direction is actually reversed. A possible partial solution, as Brannigan et al. (2002) suggested, is to collect data on parents’ attitudes towards child rearing and behaviors that reflect family functioning before the birth of their first child.

**Differential effects on boys and girls**

One of the most commonly agreed-upon gender differences is that boys are more vulnerable to risk factors that potentiate pre-adulthood aggression (for a review, see Ribeaud & Eisner, 2010). Specifically, a number of studies addressed differential effects of parental factors on the development of aggression in boys and girls. Roelofs et al.
(2006) reported that in children aged 9 to 12 years, child-reported maternal rejection predicted teacher-reported aggression in girls and paternal rejection predicted aggression in boys. Chen et al. (1997) studied second graders in China and yielded two gender-specific findings on aggression: first, mother’s authoritative rearing was associated negatively with teacher-reported aggression for girls, but not for boys; second, father’s authoritarian rearing style was associated positively with aggression in both sexes, but the effect size was greater for boys. Hence, a possibility is that in terms of the development of aggression, a child is more sensitive to the parenting behavior from the parent of the same gender. It may be girls rather than boys that are actually more strongly influenced by parenting factors in home settings. Of course, this may have been an artifact of the studies reviewed here in which mothers were almost always the primary caregivers.

The following studies have also shed light on the interaction between attachment and gender on the development of aggression. In preschoolers, a strong relationship between attachment and aggression in girls was found, compared to a still significant but generally weaker relationship in boys (LaFreniere & Sroufe, 1985). In a more recent study on preschoolers by Casas et al. (2006), evidence was found that physical aggression displayed in girls was correlated with insecure attachment with their mothers, but the correlation was not significant for boys. However, Renken et al. (1989) found evidence that in early elementary students, attachment classification recorded at 18 months was a stronger predictor of teacher-reported aggression in boys than in girls. In fact, they did not find a significant relationship between attachment in infancy and aggression in early school age among girls. Similarly, results by Cohn (1990) revealed that during the first semester of school, boys who displayed insecure attachment behavior assessed in the past
summer were perceived by peers to be more aggressive than their securely attached counterparts, but attachment security was not associated with aggression in girls of the same age. Yet in another study, although attachment at 1 year predicted some behavior problems at 6 years in boys, including depression, withdrawal and delinquency, in neither sex was attachment significantly related to later aggressive behavior (Lewis et al., 1984).

A recent meta-analytic study by Fearon, Bakermans-Kranenburg, van IJzendoorn, Lapsley and Roisman (2010) showed that attachment security was more firmly associated with externalizing problems in boys than in girls, but if the scope of measures is narrowed down to aggression only, there does not seem to be an unanimous pattern of results. Based on the few studies reviewed above, a possibility is that the interaction between attachment and gender on aggression is further moderated by age. It can be assumed that before and at preschool age, variation in attachment security accounts for more variation in aggression for girls than for boys (Casas et al., 2006; LaFreniere & Sroufe, 1985), but by school age this gender difference either disappears (Lewis et al., 1984) or is reversed (Cohn, 1990; Renken et al., 1989). To explain the mechanisms underlying such a gender difference, Fearon et al. (2010) proposed that different behavioral processes are differently evident in a given context, and are weighted differently by a given rater.

**Time points when parental factors are critical**

Generally, child-rearing and attachment each play an important role in the development of psychological adjustment of children at all times from childhood through adolescence. As reviewed above, stable and secure attachment style and consistently expressed parental warmth and parental control through an inductive style are associated
with the best outcomes. However, the quality of attachment and parenting behaviors did change for some subjects, especially those from families with low income (Egeland & Sroufe, 1981). This fact raises a question: whether improved child-parent relationships at a later time can rescue the negative effects that defective relationship had on the child earlier, with aggression as the outcome. Although this question has not been answered directly, three studies have indicated that there are indeed some time points at which parental factors have substantial effects on the development of aggression in children, and in contrast, at some other time points parental factors may have a weaker influence. Herrenkohl and Russo (2001) assessed parenting behavior in two waves, when the children were 1.5 years to 6 years old, and later when they were 6 years to 11 years old, respectively. They used teacher-reported aggression at school during the second data wave as the outcome. They found that mother-reported use of physical discipline assessed at school age and harshness of mother-child interaction at preschool age were significantly positively related to aggression at school age, but the same predictors measured at the other time, mother-reported use of physical discipline assessed at preschool age and harshness of mother-child interaction at school age, did not account for aggression at school age. Dallaire and Weinraub (2007) found that attachment measured at 36 months predicted teacher-reported aggression at the first grade, but attachment recorded at 15 months was not associated with the same indicator. Renken et al. (1989) reported that mother’s negative affect shown in teaching tasks at 24 months was not associated with teacher-reported child aggression during the first three years of school, but the same predictor measured at 42 months had an association with that outcome. These results can be understood as a case in which children are more sensitive to parental
factors at some time points. This assumption may be associated with the development of the neural system, which consistently prunes itself during childhood, and, as a result, its sensitivity to different environmental factors either increases or decreases over time.
Summary

Based on the articles reviewed above, a record of attachment and parenting behaviors that a prototypical aggressive child, named AC, has experienced can be created. In regards to attachment to the primary caregiver, AC was assessed with the Strange Situation (Ainsworth et al., 1978) at 18 or 36 months, which clearly showed the presence of anxious-avoidant attachment. If abnormal aggressive behavior was not observed in AC until late preschool age, disorganized attachment, by the definition from Main and Solomon (1986), may also be seen in the assessment instead of avoidant attachment. Alternatively, the attachment of AC was assessed at late preschool age or early school age, with similar results indicating an insecure attachment. In terms of parenting behaviors, AC’s parents not only failed to give AC sufficient warmth but also relied on power-assertive control. The parents probably often expressed impatience, anger and frustration towards AC in close interaction. AC might have been subjected to frequent use of physical discipline. If AC is a boy, paternal rejection is more likely to be on record than maternal rejection, and vice versa.

Extant studies have provided strong support for an association between earlier or concurrent insecure attachment and high levels of physical aggression in children. However, though Bowlby’s (1973) theory of internal working models assumed a causal relationship between one’s earlier attachment and later aggression, no direct evidence has been found in support of the existence or direction of this causation. One reason is that it
is ethically impossible to adopt a randomized or matched experimental design to study the link between insecure attachment and aggression. As a result, more longitudinal research is needed. Additionally, studies suggest that insecure attachment may not be a direct cause of aggression but more likely a cause of high vulnerability to the risk of developing problematic behavior. These data indicate that attachment is predictive of aggression only in the presence of certain other risk factors.

Parenting behaviors may work in a similar way to that of attachment to influence the development of aggression in children. A parent-child relation that reflects patience, responsiveness and respect towards the child is associated with optimal outcomes in social behavior, and vice versa. The association between parental control and childhood aggression depends greatly on the nature of control. Power-assertive control is associated with anti-social behavior; whereas inductive control is associated with pro-social behavior. Alternatively or complementally, they may serve as a direct template for children’s behaviors, as seen in the fact that physically abused children are highly likely to be physically aggressive.
References


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