
CHAPTER 17

Attachment in Middle Childhood

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Research on children's attachments in middle childhood is a relatively new area of inquiry. The first chapter on the topic appeared in the second edition of the *Handbook of Attachment* (Kerns, 2008). The goals of the present chapter are to provide an update on what we know about attachment in middle childhood (7–12 years of age) and to highlight areas in need of further study. Several themes are highlighted. First, we now have a greater understanding of the key features of attachment in middle childhood. Second, there continue to be clear differences in opinion regarding how to conceptualize and measure attachment in this age period, and still surprisingly thin data on the validity of attachment assessments for this period. Finally, as in other developmental periods, attachment is related to parenting and to children's social, emotional, and cognitive development. Following the elaboration of these themes, we conclude with several recommendations for future research.

THE NATURE OF ATTACHMENT IN MIDDLE CHILDHOOD

The developmental period of middle childhood can be distinguished from both early childhood and adolescence. In early childhood, children's social worlds are largely oriented around and shaped by family members. Even if young children spend substantial time outside the home (e.g., in day care), parents are clearly the primary social figures in children's lives, and they often function not only as attachment figures but also as teachers and playmates. In middle childhood, children's social worlds expand: They may spend significant time away from parents, and parents may have less control and influence over the environments and social contacts children experience. Entrance to formal schooling places new demands on children and provides an important context for mastery or failure experiences. Peers take on greater salience, and by middle childhood children have a clear preference for peers rather than parents as playmates (Kerns, Tomich, &

Kim, 2006; Seibert & Kerns, 2009). Children become more self-reliant and assume greater responsibility for their behavior both at home and at school. There are also important advances in metacognition, memory, and cognitive flexibility; greater self-awareness, more consideration of psychological traits, and enhanced understanding of others; and a greater capacity to regulate emotions (Raikes & Thompson, 2005). Children also begin to undergo the physical changes associated with puberty (Richardson, 2005). Middle childhood can also be distinguished from adolescence; during the latter period, children gain increasing independence (autonomy from parents, greater decision-making authority). For example, there may be a normative shift toward greater avoidance or a more dismissing attitude toward parental attachments between later middle childhood and early adolescence (Ammaniti, van IJzendoorn, Speranza, & Tambelli, 2000), and there is an emergence of attachments, including romantic ones, to peers in late adolescence (see Allen & Tan, Chapter xx, this volume).

We believe there are four defining features of attachment in middle childhood. First, Bowlby (1987; cited in Ainsworth, 1990), suggested the goal of the attachment system changes from *proximity* to the attachment figure in early childhood to *the availability of* the attachment figure in middle childhood. Thus, in contrast to preschoolers, a boy or girl in middle childhood is content with longer separations and increased distance from the attachment figure, as long as he or she knows that it is possible to make contact with the figure (e.g., by telephone) and to reunite with the figure if needed (e.g., following an injury to the child). These changes probably occur partly because of a child's increased self-regulation, and partly because of parents' and children's expectations regarding greater child autonomy. These expectations may in turn be influenced by requirements for children to spend more time away from parents (e.g., because of school attendance and other formal activities, such as clubs and sports). Although children report relying less frequently on attachment figures as they get older (Kerns et al., 2006; Lieberman, Doyle, & Markiewicz, 1999), two longitudinal studies suggest that children's perceptions of caregiver availability and security actually increase in middle childhood (Kerns et al., 2006, Study 2; Verscheueren & Marcoen, 2005) .

A second defining feature is that parents are the principal attachment figures for children in middle childhood. When asked about situations likely to invoke the need for an attachment figure (e.g., times when a child is afraid or sad, or specific situations like separation from home), even 11- to 12-year-old children show a strong preference for parents over peers (Kerns et al., 2006; Kobak, Rosenthal, & Serwik, 2005; Seibert & Kerns, 2009). Interview studies reveal that children report going to parents in a range of situations, including when they are ill, feeling scared, coping with separation from or loss of an attachment figure or pet, and when they are distressed about a social conflict or have performed poorly at school or in sports (Kerns & Seibert, in press; Vandevivere, Braet, & Bosmans, in press). Children do spend substantial time with peers, and peers are clearly preferred over parents for companionship (Kerns et al, 2006; Seibert & Kerns,

2009). Children may report going to siblings, grandparents, teachers, and peers in situations where contact with an attachment figure would be expected (e.g., child is sad or ill), but these nonparental figures typically play a secondary role and are more likely to be approached when parents are not immediately available (Seibert & Kerns, 2009). Mayseless (2005) has proposed that the use of peers as temporary attachment figures facilitates the transition to investment in peer relationships that is likely to occur in adolescence.

A third characteristic of attachment in middle childhood is a shift toward greater co-regulation of secure base contact between the child and a parental figure. Bowlby (1973) proposed that a fourth phase of attachment, the goal-corrected partnership, emerges sometime after age 3, when a child is better able to understand a parent's desires, communications, and decisions, and is able to take these into consideration when developing plans and goals. Waters, Kondo-Ikemura, Posada, and Richters (1991) proposed that this shift in attachment may emerge later, during middle childhood, which they termed the emergence of a supervisory partnership. They suggested that parents may assume responsibility for maintaining contact with the child at younger ages, but in middle childhood the child increasingly takes responsibility for communicating with the attachment figure (e.g., informing him or her of the child's whereabouts and changes in plans). Consistent with this suggestion is evidence that securely attached children are better about checking in and communicating with parents about their activities and whereabouts (Kerns, Aspelmeier, Gentzler, & Grabill, 2001). Another aspect of co-regulation is that children and their parents may jointly work together to solve the child's problems, as a way to prepare a child to be able to cope better on his or her own (Cobb, 1996; Kerns, Brumariu, Seibert, 2011). Thus, by the end of middle childhood the attachment between child and parent can be viewed as a collaborative alliance whereby the child is still relying on the stronger, wiser parental figure but is also beginning to use the parent as a resource rather than relying on the parent to solve the child's problems.

Finally, in middle childhood attachment figures continue to function both as *safe havens* in times of distress and as *secure bases* that support a child's exploration. This might seem like an obvious restatement of the secure base construct, but at older ages attachment assessments tend to focus primarily on the safe haven function of attachments (e.g., asking a child what he or she does when upset). By middle childhood, as children's worlds expand, attachment figures also provide support for exploration (e.g., promoting confidence in tackling challenges, showing confidence in the child's abilities). Hence, a marker of secure attachment is the ability of parent-child dyads to coordinate and balance needs for care with needs for exploration (Cobb, 1996; Grossmann, Grossmann, & Kindler, 2005; Kerns, Mathews, Koehn, Williams, & Siener, 2014). Further, consistent with studies of preschoolers (Bretherton, 2010), there is some evidence that mothers provide relatively more safe haven support and fathers provide relatively more secure base support to children in late middle childhood and early adolescence (Kerns et al., 2014).

MEASURING ATTACHMENT IN MIDDLE CHILDHOOD

Due to space limitations, this chapter does not present a thorough review of measurement issues and specific measures of attachment in middle childhood (see Kerns & Seibert, in press, for a comprehensive review). Nevertheless, the topic deserves comment, to aid readers in evaluating the literature discussed here. Unlike younger age periods, when observational assessments of specific attachments (e.g., to mothers) are universally used, for studies of middle childhood there is currently no dominant conceptual or methodological approach.

Although some studies have used observational assessments of attachment with children 6 – 8 years of age (e.g., Bureau & Moss, 2010), the vast majority of studies in middle childhood employ what can broadly be termed representational measures of attachment. Children develop cognitive (working) models of themselves in relation to their attachment figures, based on their experiences with their primary attachment figures (Bowlby (1969/1982). Working models have often been conceptualized as schemas or scripts that capture relationship rules (see Bretherton, Chapter XX, this volume). Given the decline in the frequency and intensity of attachment behaviors in middle childhood, along with the child's enhanced coping abilities, most studies in middle childhood assess attachment representations rather than a child's secure base behavior toward a caregiver. Representational measures require obtaining reports from the child. There are three important distinctions among these measures. Some measures (e.g., script measures, story stems, autobiographical interviews) require scoring by an outsider who considers not only what the child says but how the information is presented (e.g., whether the narrative is coherent), whereas others (questionnaires) are based on the child's direct reporting about experiences with attachment figures. The former are thought to capture both conscious and unconscious representations, whereas the latter capture only conscious representations. As might be expected, the overlap between these two types of measures is modest (Granot & Mayseless, 2001; Kerns, Tomich, Aspelmeier, & Contreras, 2000; Kerns, Abraham, Schlegelmilch, & Morgan, 2007; Kerns et al, 2011a; Psouni & Apetroaia, 2014). A second important distinction concerns whether the measures are intended to assess the quality of a specific attachment relationship (e.g., to mother) or more general representations. Relationship-specific measures include separation-reunion measures (Main, Kaplan, & Cassidy, 1985; Moss, Bureau, Beliveau, Zdebik, & Lepine, 2009), story stem interviews (Granot & Mayseless, 2001; Kerns et al, 2011a), ratings of parent safe haven and secure base support from autobiographical interviews (Kerns et al, 2014), and questionnaires (Brenning, Soenens, Braet, & Bosmans, 2011; Kerns et al, 2001). Measures of general attachment representations include script story assessments (Psouni & Apetroaia, 2014) and autobiographical interviews that focus on narrative coherence (e.g., Child Attachment Interview; Schmueli-Goetz, Target, Fonagy, & Datta, 2008; Friends and Family Interview; Kriss, Steele, & Steele, 2012). A third distinction is that some

measures assess variations in security, whereas others are designed to assess both secure and specific insecure patterns of attachment.

The diversity of measures, and of the conceptualizations of attachment inherent in the measures, is both a strength and a weakness. On the positive side, multiple measures can be advantageous: With a single measure, there is always a concern that one is studying the measure rather than the underlying construct. The use of multiple measures allows for more thorough assessment of a construct by more broadly sampling the relevant domain. In a new field, it can be helpful to have more than one approach, because some may ultimately prove to have greater validity than others. By using different measures, the field avoids prematurely relying on a single approach. Unfortunately, several complications can arise when investigators adopt a wide range of approaches. Most measures are closely tied to the secure-base and safe-haven constructs, but in a few cases assessments of “attachment” appear to tap other aspects of parent–child relationships (e.g., alienation or social support). Measures that assess global qualities such as social support may fail to be context-sensitive; the mother of a securely attached child would presumably be more sensitive than a mother of an avoidantly attached child to a child’s distress cues, but there is no theoretical reason to expect that a mother of an avoidantly attached child would be unsupportive of her child’s academic goals or shared interests (in fact, nonsocial activities might be a focus of interaction and could function to allow maintenance of the relationship without emotional engagement). Finally, a number of new measures have been published since the last edition of this handbook, but most have generated only limited validity data, with the focus so far on testing how a new measure correlates with child adjustment rather than examining how it is related to observational assessments of parenting or even to other measures of attachment (Kerns & Seibert, in press).

What the field needs now is not new representational measures, but studies that can shed light on which of the current approaches provide the best assessments. Needed are basic studies that examine the degree to which different measures of either specific relationships or general representations converge with each other; studies of the degree of overlap between relationship-specific and representational measures, which could shed light on how general representations are constructed; and careful consideration of both convergent and discriminant validity of measures. Evidence of convergent validity should include a demonstration that a measure of attachment is associated with the quality of care a child experiences, not just the child’s adjustment. As more studies are conducted, meta-analysis could be used to examine the relative magnitude of the correlates of different measures or measurement approaches. Finally, there are some observational procedures that assess attachment behavior in middle childhood. For example, separation- reunion procedures have been developed for 6 – 8 year-olds to assess attachment patterns and forms of attachment disorganization (Bureau & Moss, 2010; Easterbrooks, Bureau, & Lyons-Ruth, 2012; see chapter by Solomon & George, xx, this volume

for a detailed discussion), and efforts are under way to develop assessments for 10 to 12 year-olds based on parent-child interactions during discussion tasks (e.g., Brumariu, Kerns, Bureau, & Lyons-Ruth, 2014; Cobb, 1976). In the present chapter, we have included only studies in which attachment constructs were clearly measured and have excluded studies that employed questionnaire measures of perceived parenting (e.g., parental acceptance) or single-item questionnaires. We included studies based on questionnaire, interview, or observational measures, although due to space constraints we do not separate findings by measurement approach.

CONTINUITY AND CHANGE IN ATTACHMENT IN MIDDLE CHILDHOOD

In the absence of disruptions in the quality of caregiving or the loss of attachment figures, one would expect at least moderate continuity in the quality of attachment over time (Fraley, 2002; Pinquart, Feussner, & Abnert, 2013). Several studies have evaluated whether attachment is stable within the middle childhood period (ages 7 to 12 years), examining intervals ranging from 1 month to 3 years. Most studies find evidence for stability, although there is substantial variability in the magnitude of the estimates (Granot & Mayseless, 2001; Kerns et al., 2000; Kerns, Schlegelmich, Morgan, & Abraham, 2005; Schmueli-Goetz et al, 2008; Verschueren & Marcoen, 2005). Ammaniti and colleagues (2000) found substantial stability in attachment from ages 10 to 14 years, and Grossmann et al. (2005) found evidence of continuity from middle childhood to early adulthood. By contrast, studies that examined whether behavioral measures of secure attachment in infancy or early childhood predict representational measures of secure attachment in middle childhood have been mixed (no association: Ammaniti, Speranza, & Fedele, 2005; Aviezier, Sagi, Resnick, & Gini, 2002; Bohlin, Hagekull, & Rydell, 2000; evidence for an association: Dubois-Comtois, Cyr, & Moss, 2011; Grossmann, Grossmann, Fremmer-Bombik, Kindler, Schuerer-Englisch, & Zimmermann, 2002; Grossmann et al, 2005).

It should also be noted that some studies of stability have related early behavioral measures of specific attachments (e.g., the Strange Situation) to later representational measures of general attachment representations. In addition to differences in methods, weak associations might be expected if the latter are based on experiences in multiple attachment relationships. Longitudinal, multi-method studies are needed to examine stability both within and across measurement approaches (i.e., observational and representational; relationship-specific and general measures). The substantial variation in stability estimates suggests that change is also occurring for many children during these years, and that the 8–10 age period may be a time of reorganization in children's models of relationships (e.g., advances in social comparison abilities may lead children to change their evaluations of their attachment figures). Thus, studies examining factors that may account for both continuity and change are warranted.

ASSOCIATIONS WITH PARENTING

One of the strong claims derived from attachment theory is that sensitive and responsive care provided by an attachment figure promotes the development of a secure relationship with that caregiver. Studies of young children have documented an association between maternal sensitivity and secure attachment (Thompson, Chapter xx, this volume). A few studies have examined how attachment is related to parenting for children ages 7–12 years. One set of studies examined secure attachment in relation to global parenting qualities and found that more securely attached children reported greater perceived acceptance by parents (Bosmans, Braet, Koster, & Raedt, 2009; Kerns et al., 2011a). Such children also tend to have parents who report a greater willingness to serve as a secure base (Kerns, Klepac, & Cole, 1996, Study 2; Kerns et al., 2000). Secure attachment is also associated with observer ratings of maternal acceptance and positive affect (Dubois-Comtois et al., 2011; Kerns et al., 2011a; Scott, Riskman, Woolgar, Humayun, & O'Connor, 2011). In middle childhood, parents not only need to be responsive and available, but to act in ways that support the development of the child's autonomy (Cobb, 1996). Secure attachment is also associated with children's perceptions of parents as supporting autonomy and exerting low psychological control (Bosmans et al., 2009; Kerns et al., 2011a), and with observer ratings of low levels of psychological control (Kerns et al., 2011a).

A second set of studies examined attachment and specific parenting practices. More securely attached children were more cooperative in monitoring situations and had parents who were more knowledgeable about (more closely monitored) their children (Kerns et al., 2001; Scott et al., 2011). Attachment is also related to parental emotion socialization, in that parents of more securely attached children report less punitive reactions to child displays of distress (Cummings, George, Koss, & Davies, 2013), express less negative emotion when discussing their child (Scott et al., 2011), and endorse an emotion coaching (rather than a dismissing) meta-emotion philosophy (Chen, Lin, & Lu, 2012).

Some studies have examined associations between parenting and specific forms of insecurity. Children who reported more avoidant coping with mothers perceived their parents to exhibit lower levels of involvement, support, and monitoring of their activities (Karavasilis, Doyle, & Markiewicz, 2003; Yungler, Corby, & Perry, 2005). Children who scored higher on preoccupied coping also reported higher levels of psychological control from their mothers in one study (Yungler et al., 2005), but not another (Karavasilis et al., 2003). These studies used child questionnaires to assess both parenting and attachment. In another study, avoidant coping was associated negatively with mothers' and fathers' reports of willingness to serve as a secure base (Kerns et al., 2000). Studies using observational assessments find that securely attached children's mothers show the most supportive parenting, whereas disorganized children's mothers show the most problematic parenting, with fewer distinctive associations for ambivalent and avoidant attachment (Kerns et al., 2000; Kerns et al., 2011a; Dubois-Comtois et al., 2011; Scott et al., 2011). In addition, Green, Stanley, and Peters (2007) found

that mothers of disorganized children were high on measures of “expressed emotion” (which generally involved negative or unpleasant emotion).

In summary, although the data are limited in comparison to younger age periods, secure attachment in middle childhood is related to sensitive, responsive, and accepting parenting as well as to greater support for autonomy and low use of psychological control. Relatively few studies have included observational assessments of parenting or focused on parenting correlates of the insecure attachment patterns. Parents of children in middle childhood face many important tasks other than fostering security (e.g., encouraging independence, mastery, politeness, and conformity to rules), but studies are just beginning to examine how attachment is related to specific parenting practices. In addition, there has been little consideration of how attachment might moderate the influence of parenting practices, as has been examined at younger ages (e.g., Kochanska, Barry, Stellern, & O’Bleness, 2009), or whether attachment and parenting are uniquely related to child adjustment (Scott et al, 2011). Important tasks for future research include investigating these questions, as well as considering how the broader family system interfaces with child-parent attachments (see, for example, work on attachment and marital conflict, e.g., Davies, Harold, Goeke-Morey, & Cummings, 2002).

ASSOCIATIONS WITH COGNITIVE, SOCIAL, AND EMOTIONAL DEVELOPMENT

An important finding at younger ages is that the formation of a secure attachment to a parent is associated with greater cognitive, emotional, and social competence (see Thompson, Chapter XX, this volume), and studies have also investigated these links in middle childhood (ages 7–12 years). In one kind of study, assessments of attachment in infancy or preschool have been used to predict children’s competence in middle childhood. These studies, reviewed elsewhere (Fearon, Bakermans-Kranenburg, Lapsley, & Roisman, 2010; Groh, Roisman, van IJzendoorn, Bakermans-Kranenburg, & Fearon, 2012; Groh et al, 2014; Madigan, Atkinson, Laurin, & Benoit, 2013; Pallini, Baiocco, Schneider, Madigan, & Atkinson, 2014; Schneider, Atkinson, & Tardif, 2001; West, Mathews, & Kerns, 2013; see also Thompson, Chapter xx, and DeKlyen & Greensberg, Chapter xx, both this volume), show that attachment early in life is associated with greater social, emotional, and cognitive competence and fewer behavior problems in middle childhood. The typical strategy in these studies is to measure attachment in the first few years but not again in middle childhood. Thus, the studies show the predictive significance of early attachment, although there is ambiguity in the interpretation of the findings. They could demonstrate that early attachment per se is important for later development, or given that attachment is moderately stable (Fraley, 2002; Pinquart et al., 2013), they could imply that associations between early attachment and later outcomes are mediated by middle childhood attachment. Due to study designs used to date, these two possibilities cannot be

distinguished, which indicates the importance of including assessments of attachment in middle childhood.

The following literature review focuses on studies in which both attachment and competence were assessed within middle childhood, and they show that in middle childhood attachment is related in theoretically meaningful ways to children's cognitive, social, and emotional adjustment. Measures of child functioning have included observations of child behavior, maternal reports, teacher reports, and child self-reports. A few studies relied solely on child questionnaires to measure both attachment and child functioning (mostly in the self-concept or behavior problems domains).

Associations with Cognitive Development and School Adaptation

Does the quality of attachment have implications for a child's cognitive competence and cognitive performance? The available data provide strong evidence for a link between secure attachment and a child's school attitudes and classroom behaviors. Studies show that more securely attached children report greater perceived academic competence and mastery motivation (Bacro, 2012; Diener, Isabella, Behunin, & Wong, 2008; Duchesne & Larose, 2007; Kerns et al., 1996, Study 1; Moss & St.-Laurent, 2001); moreover, they are rated by teachers as showing better classroom adjustment in such areas as participation or academic skills (Aviezer et al, 2002; Diener et al., 2008; Easterbrooks & Abeles, 2000; Easterbrooks, Davidson, & Chazan, 1993; Granot & Mayselless, 2001; Jacobsen & Hofmann, 1997; Kerns et al., 2000). These links have been documented in both longitudinal and cross-sectional studies, using a variety of attachment measures. Other studies have examined how attachment is related to measures of cognitive performance such as achievement test scores and IQ tests. Here the data are more mixed (see West et al., 2013, for a review). Some studies have found that secure attachment is not related to IQ scores, grade point averages, or achievement test performance (Dubois-Comtois et al, 2011; Granot & Mayselless, 2001; Kerns et al., 1996, Study 1; Moss & St.-Laurent, 2001; Schmueli-Goetz et al, 2008; see Avezier et al., 2002 and Barco, 2012 for mixed evidence), whereas other studies have found that secure attachment is associated with higher scores on IQ or logic tests (Easterbrooks et al., 1993; Jacobsen, Edelstein, & Hoffmann, 1994; Jacobsen & Hofmann, 1997). In some samples, insecure-controlling or disorganized children have been found to have the lowest school grades or performance on tests of cognitive skills (Jacobsen et al., 1994; Moss & St.-Laurent, 2001), suggesting that this group may be especially at risk for problems in cognitive development.

A newer direction in this area involves exploring mechanisms that could explain *why* attachment is related to school attitudes, performance, or IQ. It is possible that the presence of a secure base directly fosters enthusiasm and exploration of the school environment, by providing children with the support and self-confidence needed to tackle challenges. It is also possible that associations between attachment and school outcomes are mediated (best explained) by parenting practices. For example, Moss, St.-Laurent, Dubois-Comtois, and Cyr (2005) found that the link between disorganized

attachment and school performance could be explained by the quality of children's collaborative interactions with their caregivers. Other studies suggest that associations between early secure attachment and later school performance or IQ might be due to the quality of teaching assistance parents provide (O'Connor & McCartney, 2007; West et al, 2013; see Williford, Carter, & Pianta, XX). Child characteristics such as self-regulation and a cooperative orientation to school demands are other factors that have been shown to help explain why early attachment is related to later grades or IQ (O'Connor & McCartney, 2007; West et al, 2013).

Associations with Self-Concept and Social Information Processing

Bowlby (1973) proposed that children who experience responsive and sensitive care are likely to view themselves as worthy of others' affection. In addition, children who form secure attachments are thought to possess a balanced self-view, being able to acknowledge personal limitations (Cassidy, 1988). This leads to the expectation that securely attached children will hold positive but realistic self-views. In several studies of 8- to 12-year-olds, children who reported more secure attachments to parents also reported higher self-esteem (Cassidy, Ziv, Mehta, & Feeney, 2003; Doyle, Markiewicz, Brengden, Lieberman, & Voss, 2000; Kerns, Klepac, & Cole, 1996, Study 1; Sharpe et al., 1998; Verschueren & Marcoen, 2002, 2005; Yunger et al., 2005) or social self-efficacy (Coleman, 2003, for child-father but not child-mother attachment). Secure attachment is also associated with fewer weight concerns, a more positive body image, and more adaptive beliefs and behaviors regarding eating (Goossens, Braet, Bosmans, & Decaluwe, 2011; Goossens, Braet, van Durme, Decaluwe, & Bosmans, 2012; Sharpe et al., 1998). These studies are limited in that both attachment and self-concept were measured with self-report questionnaires, which may overestimate the link between the two. In addition, these studies all tested the hypothesis that secure attachment would be related to higher self-esteem, yet children with an avoidant attachment may provide overly positive reports (Borelli, David, Corwley, Snaevely, & Mayes, 2013; Cassidy, 1988). Thus, studies that assess self-worth on a positivity dimension may not be well suited to testing the hypothesis that securely attached children have a positive but *balanced* view of the self. These problems can be reduced by employing independent assessments of attachment and self-concept. More securely attached children were rated by teachers as higher in self-confidence (Jacobsen & Hofmann, (1997), had more positive self-views as assessed with a puppet interview (Clark & Symons, 2009), and showed greater access to self-evaluations (i.e., they discussed the self spontaneously and easily; Easterbrooks & Abeles, 2000), although in two studies interview or observational measures of attachment were not related to child reports of self-esteem (Bohlin et al., 2000; Easterbrooks & Abeles, 2000).

One reason why more securely attached children are hypothesized to maintain positive self-views is that they are thought to process social information in a positively biased way. Research evaluating this hypothesis has accelerated in

the last few years. One set of studies examined social information processing in the context of social problem solving. In two studies, securely attached children have shown a positive bias in their attributions about others (Bauminger & Kimhi-Kind, 2008; Clark & Symons, 2009) but not in a third (Granot & Mayselless, 2012). More securely attached children generated more prosocial solutions (Bauminger & Kimhi-Kind, 2008; Granot & Mayselless, 2012). Another set of studies examined attention and memory biases in relation to attachment. Cassidy and colleagues (2003) found that more secure 11- to 14-year-olds were more likely to attend selectively to positive information about themselves. Two studies by Bosmans and colleagues (Bosmans et al., 2009; Bosmans, De Raedt, Braet, 2007) examined how preferential attention to pictures of their mothers was related to children's attachment. The two studies showed that insecurely attached children focused their attention more narrowly on their mothers, which was interpreted as showing decreased exploration during the task. Another study showed that insecurely attached children were more likely to show biased (increased) recall of negative information about their mothers (Dujardin, Bosmans, Braet, & Goossens, in press).

In summary, although there are some inconsistent findings, for the most part the literature in middle childhood shows that more securely attached children hold positive but balanced views of the self, show a positive bias in the way they interpret others' actions, and generate more prosocial solutions to peer problems. Most studies in this area have focused on the correlates of security, so it is not clear if children with different insecure attachment patterns can be differentiated in their self-esteem and social information processing approach.

Associations with Emotion Regulation and Personality

Emotion regulation is an integral aspect of attachment. By definition, emotional distress is addressed effectively in the secure parent-child dyad, with mitigation of distress (i.e., return of positive mood) and the child's return to exploration of the environment. Furthermore, it is hypothesized that securely attached children internalize effective ways to cope with stress and are consequently resilient when coping with problems, even in the absence of the caregiver (Kerns et al, 2007; Sroufe, 1983). By contrast, security of attachment is not hypothesized to be associated strongly with measures of temperament such as emotionality (Vaughn, Bost, & van IJzendoorn, Chapter XX, this volume).

In contrast to the situation when the previous edition of this handbook was published, there are now several studies that have investigated links between attachment and emotion in middle childhood. Studies that focus on mood or the experience of specific emotion states have found that more securely attached children report more positive and less negative mood in daily interactions (Abraham & Kerns, 2013; Kerns et al., 2007) and higher positive emotion on a trait measure of affect (Borelli, Crowley, David, Sbarra, Anderson, & Mayes, 2010). The emotional experience of

homesickness, by contrast, has not been consistently related to individual differences in attachment (Kerns, Brumariu, & Abraham, 2008; Thurber & Sigman, 1998; Thurber, Sigman, Weisz, & Schmidt, 1999). Securely attached children do report greater awareness of their emotional states (Brumariu, Kerns, & Seibert, 2012). Recent studies have also tested whether securely attached children show more adaptive patterns of emotion regulation, finding that more securely attached children use more constructive coping strategies, such as seeking support from others or problem solving (Abraham & Kerns, 2013; Colle & Del Giudice, 2011; Contreras, Kerns, Weimer, Gentzler, & Tomich, 2000; Gaylord-Harden, Taylor, Campbell, Kesselring, & Grant, 2009; Kerns et al., 2007; Psouni & Apetroaia, 2014). One study found that avoidance was linked with emotion suppression, whereas ambivalence was linked with emotion dysregulation (Brenning, Soenens, Braet, & Bosmans, 2012). In the one study of coping that examined all four attachment patterns (secure, avoidant, ambivalent, disorganized), only disorganization was related to coping, with disorganized children being less likely to use active coping strategies and more often catastrophizing when things went wrong (Brumariu et al, 2012). Finally, two studies examined attachment in relation to physiological indicators of emotion regulation. Borelli et al. (2010) found that more securely attached children showed a stronger reaction followed by quicker recovery when presented with an aversive stimulus. Gillisen, Bakersman-Kranenburg, van IJzendoorn, and Linting (2008) found that children who were securely attached showed lower electrodermal reactivity during a social stressor task, and this effect was accentuated for children who also had long alleles for a serotonin transporter gene (5-HTT).

Other studies have examined how attachment is related to personality or temperament. Surprisingly, one study found that secure attachment was not related to ego resilience (Easterbrooks & Abeles, 2000), although other studies suggest that securely attached children can better tolerate frustration and show better emotion control (Kerns et al, 2007; Schmueli-Goetz et al, 2008). Chen and Chang (2012) found that insecurely attached children were more likely to use coercive strategies to control resources. Studies have found no association between attachment and temperament in middle childhood when the latter was measured as extraversion (Jacobsen & Hofmann, 1997) or difficult temperament/negative emotionality (Chen, 2012; Contreras et al., 2000), with mixed evidence for behavioral inhibition/shyness (Brumariu & Kerns, 2010; Borelli et al., 2010).

Collectively, the emerging literature suggests that more securely attached children use more adaptive emotion regulation strategies and experience more positive and less negative mood states. One limitation is that most studies have examined attachment in relation to trait-like patterns of affect and emotion regulation, and thus we know relatively little about attachment and emotion as assessed in real time (for exceptions, see Borelli et al, 2010, and Gillisen et al., 2008), when it is possible to capture the dynamics of emotion (e.g. recovery following a stressor). There are also few studies that examine whether specific forms of insecure attachment (e.g., avoidance) are associated with distinct emotion profiles, as

Cassidy (1994) and Sroufe (1983) have suggested (exceptions would be Brenning et al., 2012; Brumariu et al., 2012; Borelli et al., 2010). Finally, given the evidence that attachment is linked with emotional competence, it would be worth exploring whether emotion regulation mediates associations between attachment and other aspects of adjustment (for examples in the domain of internalizing symptoms, see Brumariu et al., 2012; Brumariu & Kerns, 2013; Brenning et al., 2012).

Associations with Peer Relationships and Peer Competence

One of the most extensively investigated questions in middle childhood is whether attachment predicts the quality of children's peer relationships. There are several reasons for expecting an association between the two. The development of a secure attachment may foster greater exploration, including exploration of peer relationships (Kerns, 1996). In addition, children who form secure attachments to caregivers may show greater interest in and motivation for engaging with other social partners (Sroufe, Egeland, & Carlson, 1999), and may learn socially competent interaction styles from responsive caregivers (Kerns et al., 1996). Also, more securely attached children may develop more adaptive emotion regulation capacities, which are especially important for peer relationships in middle childhood when there is an emphasis on controlling one's emotions with peers (Contreras et al., 2000). Meta-analyses, based mostly on studies with younger children, showed that attachment is related to friendship and to social behavior or popularity with peers (Groh et al., 2014; Pallini et al., 2014; Schneider et al., 2001). The review below is more selective than the meta-analyses, as it includes only studies of children in middle childhood, but it is more expansive than some meta-analyses that included only studies using behavioral measures of attachment.

In the friendship domain, investigators have examined whether attachment is related to the quantity and quality of children's friendships. Evidence for a link between attachment and the number of children's friendships is mixed (Kerns et al., 1996, Study 1; Lieberman et al., 1999). By contrast, studies consistently find that attachment is related to the quality of children's friendships, as indexed by measures of support, companionship, responsiveness, and conflict (Howes & Tonyan, 2000; Kerns et al., 1996, Study 2; Lieberman et al., 1999; see Abraham & Kerns, 2013, associations for positive friendship quality but not conflict). A second group of studies have examined whether children who form secure attachments to caregivers are more popular (more highly accepted) by their peers. Five studies found that children more securely attached to their mothers were better liked and less likely to be rejected by their peers (Barcons, Abrines, Brun, Sartini, Fumado, & Marre, 2012; Bohlin et al., 2000; Chen, 2012; Granot & Mayseless, 2001; Kerns et al., 1996, Study 1). However, two studies found an association between secure attachment and peer popularity for child-father, but not child-mother attachment (Verschueren & Marcoen, 2002, 2005), and another study found no association between peer

popularity and attachment to mothers or to fathers (Lieberman et al., 1999). Thus, while the evidence is somewhat mixed, overall it appears that secure attachment is associated with greater peer popularity.

A final group of studies examined secure child-mother attachment and global ratings of peer competence or observational measures of competent peer interactions. Securely attached children showed greater social engagement and participation with peers (Bohlin et al., 2000; Chen, 2012; Yunger et al., 2005), reported fewer difficulties with peers (Cummings et al. 2013), and were rated higher by parents, teachers, or camp counselors on measures of peer competence (Abraham & Kerns, 2013; Barcons, Abrines, Brun, Sartini, Fumado, & Marre, 2014; Contreras et al., 2000; see Easterbrooks & Abeles, 2000, for contrary evidence).

In summary, there is substantial evidence for an association between secure attachment and peer relationships, especially when the *quality* of children's relationships and social behavior is the focus. These associations have been found in studies using a variety of measures of both attachment and peer relationships. In their review of the link between attachment and peer relationships, Schneider and colleagues (2001) concluded that there is not a strong need for additional studies documenting an association between the two. This conclusion also seems to apply to the study of attachment and peer relationships in middle childhood. Rather, we need more studies aimed at explaining why this link is found (e.g., Abraham & Kerns, 2013; Contreras et al., 2000; McElwain, Booth-LaForce, Lansford, Wu, & Dyer, 2008), as well as studies that consider how attachment and peer relationships jointly and uniquely influence children's social development (e.g., Sroufe et al., 1999).

We also note that most studies have focused on the peer correlates of secure attachment and have not examined whether specific insecure attachment patterns are associated with specific peer deficits in middle childhood. Some differences between preschoolers with secure, ambivalent, and avoidant attachments were hypothesized and found in the Minnesota longitudinal project (Sroufe, 1983). In one follow-up study of the Minnesota sample into middle childhood, ambivalent children were found to be least efficacious in their peer relations, whereas avoidant children were the most isolated from peers (Shulman, Elicker, & Sroufe, 1994). Three more recent studies have examined insecure attachment patterns and the specificity of peer difficulties. These studies, which unlike the Minnesota studies included disorganized children as a separate group, suggest that both avoidant and disorganized children show the most problems with peers in middle childhood, particularly in the areas of exclusion or aggression (Granot & Mayseless, 2001; Jacobvitz & Hazen, 1999; Siebert & Kerns, in press). Ambivalent children showed few peer difficulties (Granot & Mayseless, 2001; Seibert & Kerns, in press). Clearly, research in this area has only just begun to test the specificity hypothesis.

Associations with Behavior Problems and Clinical Symptoms

A secure attachment provides a healthy foundation for development, whereas an insecure attachment to one's primary attachment figures is likely to be associated with difficulties in personality development and in some cases clinical symptoms (see DeKlyen & Greenberg, Chapter XX, this volume). It is therefore not surprising that one of the most frequently investigated topics in middle childhood is whether attachment is related to signs of psychopathology. Almost all of the studies measure clinical symptoms (e.g., externalizing problems) rather than clinical diagnoses. In this section we focus on studies published since the last edition of this handbook.

As was found in the last review (Kerns, 2008), recent studies show that attachment security is linked to lower levels of externalizing problems in middle childhood (Cummings et al, 2013; Scott et al, 2011). Lyons-Ruth (1996) proposed that disorganized attachment might be the insecure attachment pattern most clearly related to externalizing problems, but evidence for this idea is mixed (Granot & Mayseless, 2001; Jacobsen & Hofmann, 1997; Moss et al., 2009; Scholtens, Rydell, Bohlin, & Thorell, 2014). Interestingly, attention and thought difficulties have been linked to both secure attachment (Abrines, Barcons, Marre, Brun, Fornieles & Fumado, 2012) and disorganized attachment (Borelli et al., 2010; Green et al., 2007; Scholtens et al., 2014; Thorell, Rydell, & Bohlin, 2012).

Studies published since the last edition of the handbook also show that securely attached children experience lower levels of internalizing problems (Brumariu & Kerns, 2010a; Kerns, Brumariu, & Seibert, 2011a; Kerns, Siener, & Brumariu, 2011b). Other studies have examined whether specific forms of insecurity are differentially related to internalizing problems. Although there has been speculation that internalizing problems are most likely to be related to ambivalent or preoccupied attachment (Sroufe, Egeland, Carlson, & Collins, 2005; Younger et al., 2005), studies have shown measures of internalizing problems to correlate with self-report measures of both avoidance (Brenning et al., 2011, 2012) and ambivalent/preoccupied attachment (Brenning et al., 2011, 2012; Brumariu & Kerns, 2008). Conceptually, there has been little discussion of why disorganization would be related to internalizing problems. We suggest that the lack of a clear strategy to cope with distress and the associated profound emotion dysregulation, combined with feelings of helplessness and vulnerability in the face of frightening situations, may lead disorganized children to experience anxiety and depression (Brumariu et al, 2012; Brumariu, Obsuth, & Lyons-Ruth, 2013). In studies that assessed disorganization, which utilize representational measures of attachment, disorganized attachment was related to internalizing symptoms (Borelli, David, Crowley, & Mayes, 2010; Brumariu & Kerns, 2010a; Brumariu et al., 2012; Moss et al., 2009).

In summary, children who form a secure attachment to their mothers are less likely to experience clinical symptoms in middle childhood, including conduct and attention problems and internalizing symptoms. There are virtually no data on child-father attachment and children's adjustment, as studies have either assessed only child-mother attachment or have aggregated child-mother and child-father attachment measures (see Cummings et al., 2013, for an exception). It is difficult

to draw conclusions regarding whether specific insecure patterns place children at risk for specific types of clinical symptom, partly because different studies included different insecure groups, for both conceptual and methodological reasons. Some clinically focused studies looked only at security and disorganization (e.g., Borelli et al, 2010). Other studies used questionnaires, which can assess avoidance and ambivalence (preoccupation) but are unable to assess disorganization. Existing meta-analyses do not decisively answer questions about relations of attachment to clinical symptoms in middle childhood (Kerns & Brumariu, 2014). Some meta-analyses included only studies that used behavioral measures of attachment (Fearon et al., 2010; Groh et al., 2012; Madigan et al., 2013), and as a consequence the studies included were mostly with children under the age of 8. It is unclear if those findings will generalize to older ages because some clinical symptoms (e.g., depression, social anxiety) do not typically emerge until late middle childhood or adolescence. A meta-analysis of attachment and anxiety did include a broad age range (Colonnesi et al., 2011), but a large number of the included studies had only questionnaire data for attachment, and disorganization was not examined. Further, it is important to note that studies of attachment and clinical diagnosis are largely absent from the literature.

Finally, it is important to keep in mind that attachment is likely to be only one of many factors that influence the development of psychopathology, and thus it is not surprising that, when considered in isolation, attachment is only modestly related to signs of psychopathology. Even when attachment predicts psychopathology, it is almost a certainty that other factors (such as genes, poverty, abuse, and peer relationships) are also involved, and indeed attachment is often not the strongest predictor of adjustment. One direction for future research is to study attachment along with other known risk factors to examine the relative importance of attachment for psychopathology. For example, recent studies show that attachment is related to anxiety, even after controlling for temperament. Emerging evidence with rodents and young children demonstrates epigenetic consequences of early social interaction, particularly with mothers, with implications for brain development, behavior, and mental health (e.g., Champagne, 2010). An exciting future direction is to investigate epigenetic modifications linked specifically with attachment in middle childhood. Similarly, another direction is to test models that include additional factors that may mediate or explain the links between attachment and clinical symptoms (e.g., Brumariu & Kerns, 2010b; Kerns & Brumariu, 2014).

CONCLUSIONS AND FUTURE DIRECTIONS

This review reveals there has been an acceleration of research on attachment in middle childhood. Progress has been made in characterizing the nature of attachment in middle childhood. A variety of attachment measures have been developed which await further validation. Research on attachment and parenting highlights the need to expand beyond the earlier

focus on sensitivity as the only or even the main aspect of parenting that may contribute to the development and maintenance of attachment at older ages, identifying other constructs such as psychological control and support for autonomy as important at this age. Finally, substantial evidence has accrued showing that, similar to what has been found at younger ages, secure attachment in middle childhood is associated with greater social, emotional, and cognitive competence and less clinical symptomatology.

While there has been substantial progress, a continuing limitation in the literature is that it often seems to be driven mainly by a desire to retest old findings and questions in a new age period, rather than to take the developmental context of middle childhood into account. Some examples of how a developmental perspective could inform future work include answering the following questions: What are the important transformations in child-parent attachment in middle childhood, and what individual or contextual factors help parents and children negotiate these changes? Although there has been attention to how the manifestation of avoidance, ambivalence, and disorganization may change in early childhood, we know very little about how these patterns may change in middle childhood. What are the most developmentally salient challenges in middle childhood, and is secure attachment most strongly linked to these? There has been speculation regarding gender differences in attachment that may emerge during middle childhood, with girls tending toward ambivalence and boys tending toward avoidance, driven partly by biological changes (Del Giudice, 2009), but to our knowledge there have been few tests of these ideas (see Bakermans-Kranenburg, & van IJzendoorn, 2009, for mixed evidence). Children are beginning to spend more time away from parents; how do these experiences with peers or other adults affect a child's attachments to his or her parents? When are children able to integrate representations of different relationships into a general representation, and is the timetable for when this occurs affected by experiential factors?

Although at one time there was a lack of attachment measures for middle childhood, the current problem is that there are many measures, most of which have not been very extensively validated (Kerns & Seibert, in press). More attention needs to be paid to validation of measures, including studies examining overlap among measures and associations with parenting. Investigators need to consider their choice of measures carefully, making sure that the chosen measure captures the construct of interest. Self-report questionnaires have been used to assess children's perceptions of attachment, and although their use should not be ruled out a priori, it is important to recognize their limitations, especially when they are correlated only with other questionnaires completed by the children. The most common approach is to examine the correlates of secure attachment, with some studies examining attachment disorganization. There is actually very little evidence for distinctive correlates of avoidant and ambivalent attachment in middle childhood. Is it that our measures are not adequately capturing these patterns at older ages? Is it that avoidant and ambivalent children are mostly coping

adequately at this age, and only disorganized children are failing to show healthy adaptation? As of now, we simply do not know.

Our review shows that there is now substantial evidence that child-mother attachment is related to children's school adaptation, peer relationships, emotion regulation, social information processing, and internalizing and externalizing symptoms. There is not a strong need for additional studies designed solely to document these bivariate associations, but there are a number of questions still to address. Studies are just beginning to examine specific mechanisms that might account for the documented associations. There could also be greater consideration of factors that might moderate the links between attachment and child adaptation. Another challenge for the field is to understand how attachment and other aspects of social experience operate together to influence children's social development. We need more studies that place attachment within a broader context, considering multiple influences (e.g., Sroufe et al., 2005).

Finally, the vast majority of studies have focused on mother-child attachment with American or European children growing up in traditional family structures (households headed by one or two parents). An important direction for future research to consider is the nature and role of attachment in a variety of circumstances. For example, there may be cultures in which children rely on several "principal" attachment figures that include extended relatives as well as parents. We know of no studies in middle childhood that have examined attachments for children who have little contact with their parents.

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