Development and Psychopathology, **11** (1999), 1–13
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Implications of attachment theory for developmental psychopathology

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Abstract
Bowlby's attachment theory is a theory of psychopathology as well as a theory of normal development. It contains clear and specific propositions regarding the role of early experience in developmental psychopathology, the importance of ongoing context, and the nature of the developmental process underlying pathology. In particular, Bowlby argued that adaptation is always the joint product of developmental history and current circumstances (never either alone). Early experience does not cause later pathology in a linear way; yet, it has special significance due to the complex, systemic, transactional nature of development. Prior history is part of current context, playing a role in selection, engagement, and interpretation of subsequent experience and in the use of available environmental supports. Finally, except in very extreme cases, early anxious attachment is not viewed as psychopathology itself or as a direct cause of psychopathology but as an initiator of pathways probabilistically associated with later pathology.

From its inception, attachment theory was a theory of psychopathology as well as a theory of normal development. It was concerned both with the formation and normal course of attachment relationships and the implications of atypical patterns of attachment. Bowlby's (1944) early consideration of 44 thieves revealed a consistent background of early parental privation in the lives of these young men. He reasoned that this was no mere coincidental association but, rather, had causal implications. Still, he doubted from the start that the connection was simple, direct, and linear—an environmental malignancy with an inevitable outcome. What, then, was the nature of this link? Attachment theory evolved in large part to answer this question.

What Bowlby proposed was not just a theory of outcome, but a theory of process. In the attachment trilogy and other writings he presented a very specific set of propositions regarding the way in which early experience contributed to psychological health or pathology. He began in the first volume of the trilogy (1969) by clearly dissociating his individual differences construct from causal trait constructs. Attachment referred to a pattern of organized behavior within a relationship, not a trait infants had in varying quantity (Sroufe & Fleeson, 1986; Sroufe & Waters, 1977). Attachment patterns were not immutable and not independent of subsequent experience. In Volume 2 (1973) he wrote that the development of the individual "turns at each and every stage of the journey on an interaction between the organism as it has developed up to that moment *and* the environment in which it then finds itself" (p. 364, italics added). Early experience frames, but also is transformed by, later experience. In brief, he proposed what would now be called a dynamic systems theory of psychopathology, based on a complex interaction of constituents

Preparation of this work and the research described herein were supported by a grant from the National Institute of Mental Health (MH 40864).

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https://doi.org/10.1017/S0954579499001923 Published online by Cambridge University Press

over the course of development (e.g., Sameroff, 1989).

Still, within this theory a special role for early experience in the initiation of important processes was specified. Thus, attachment theory provides a third alternative to the shadow box debate about whether early experience causes later outcomes in the manner of an immutable trait *or* bears only a coincidental association to outcome due to its link to later experience or third factors such as SES (Fox, 1997; Lamb, 1984; Lewis, 1997). The answer is, neither. *Early experience often plays a critical role in the developmental dynamic that yields pathology, but this role is dependent on a surrounding context of sustaining environmental supports*. At the same time, processes engendered in the context of early experience may influence the nature of later experience and the surrounding context itself. In this paper, core propositions from attachment theory regarding the complex relation between early experience and psychopathology will be elaborated. These include formulations concerning causation (and the interplay between the individual and context), the role of early experience, and the nature of early disturbance.

This will be primarily a conceptual paper, tracing the theoretical implications of the Bowlby/Ainsworth attachment theory for developmental psychopathology. Data presented will be for the purpose of illustrating these theoretical ideas, and will be drawn primarily from the Minnesota longitudinal parent–child study. Previously published data will not be presented in detail but will be accompanied by relevant citations. Many of these data and those of other researchers have been reviewed elsewhere (e.g., Weinfield, Sroufe, Egeland, & Carlson, in press). Data that have not been published before will be presented more completely, along with relevant statistical information. Likewise, we will be unable to review extensively topics such as representation and experience-dependent brain development, which are related to the issues pursued but are not central in this discussion. Such topics will be brought in where pertinent, and citations of recent comprehensive reviews will be provided.

Cause in Attachment Theory: Organizational Construct versus Trait

Cause is complex within attachment theory. In accord with ecological views such as those of Belsky (e.g., Belsky & Isabella, 1988) and Bronfenbrenner (1986), the child is seen as nested within a network of influences operating on many levels. Some contextual influences impact directly on the child, some indirectly through their impact on parenting. Developmental context is emphasized, because "changes in circumstances can lead to changes in interaction and therefore to changes in relationships" (Vaughn, Waters, Egeland, & Sroufe, 1979, p. 974). At the same time, the child's history of experience is a critical part of the developmental context. There is an ongoing transaction between the developing child and changing circumstances (cf. Sameroff & Chandler, 1975). The impact of current circumstances depends on the pattern of behavioral and emotional organization the child brings forward to that phase of development. Child and context are mutually transforming. While we argue below that early experience has special significance, still it " . . . cannot be *more important* than later experience, and life in a changing environment should alter the quality of a child's adaptation" (Sroufe, 1978, p. 56). The individual is the product of all of his or her experiences, not early experiences alone.

Many of Bowlby's ideas regarding the roles of prior experience and current circumstances in adaptation and in psychopathology are summarized within his concept of developmental pathways (Bowlby, 1969, 1973). Metaphorically captured by the dispersion and interconnection of tracks in a railway yard or branchings on a tree, this model embodies several key ideas (Sroufe, 1997). First, there are more lines or branches in the broad center of the larger array (there is great diversity in normality). Second, beginning on any major trunk allows a large number of possible outcomes due to subsequent branchings (multifinality). Thus, ongoing circumstances may support pursuance of potentially deviating developmental pathways or deflect the individual back toward more normal adaptation. En-

https://doi.org/10.1017/S0954579499001923 Published online by Cambridge University Press

joining a pathway even early on does not determine final outcome but only initiates a set of possibilities. *Cause is probabilistic not deterministic*. Third, the longer an outlying pathways is followed, the more unlikely becomes a return to centrality. In this theory psychopathology results from a successive series of adaptations. A pattern of anxious attachment in infancy may initiate such a process, but only if subsequent adaptations continue to represent deviation from positive functioning does psychopathology become likely. Change remains possible but, Bowlby (1973) argues, becomes quite difficult by adolescence if development has continued to go awry.

Several specific, testable hypotheses may be derived from these initial formulations: (a) At any age, current quality of care will add to early attachment history in predicting pathology, given that adaptation is always the joint product of current circumstances and early history. (b) Likewise, broader aspects of current contexts, including relationships outside of the family and stresses and challenges of the period, also will increase prediction beyond early attachment; (c) a cumulative history of maladaptation will be more pathogenic than a single early period of poor functioning, with pathology ever more likely the longer a maladaptive pathway has been followed, and (d) change itself will be predictable in light of changes in stress and/or support.

We and our colleagues have examined these hypotheses by carrying out a broad-based prospective, longitudinal study of 180 children, assessing quality of care in infancy, early childhood and adolescence, along with assessments of relationships with peers and teachers, life adversities, and social support. Based on parent, self, and teacher behavior problem checklists at age 16 (Achenbach & Edelbrock, 1986) and a clinical interview at age 17.5 years (the child form of the Schedule for Affective Disorders and Schizophrenia; K-SADS) as the sources for psychopathology outcome, regression analyses were utilized to evaluate various combinations of variables. For example, to test the hypothesis regarding the significance of cumulative adaptational history, we compared the predictive power of infant attachment alone with the predictive power of attachment plus cumulative assessments of quality of care in the preschool years. While anxious attachment in infancy by itself predicted a K-SADS psychopathology index (number and severity if past and present diagnoses; see Sroufe, 1997), those with a history of cumulative unsupportive care showed significantly more problems (13% vs. 15% of variance accounted for). In addition, we found that assessments of parent–child relationship problems at age 13 years (especially boundary dissolution and lack of emotional support or support for autonomy) and anxious attachment in infancy were more powerful than either alone, though each was significant separately (see Table 1). Likewise, ongoing assessments of peer relationship problems added to predictions of psychopathology based on attachment alone, R^2 change (2, 166) = .04, $p < .01$. Similar analyses have shown that attachment history and peer experiences in preschool or middle childhood together are better predictors of adolescent social competence than attachment alone (Englund, Levy, & Hyson, 1997; Sroufe, Egeland, & Carlson, in press).

Finally, in a number of papers we have evaluated the predictability of change. For example, in an early study we showed that quality of attachment itself changed in meaningful ways between 12 and 18 months, given changes in parental life stress (Vaughn et al., 1979). Later, Erickson, Egeland, and Sroufe (1985) showed that those with histories of anxious attachment sometimes showed fewer behavior problems than predicted in preschool. Such deflections in developmental course were best predicted by increased stability of social support for the primary caregiver.

In summary, Bowlby did not say, nor does attachment-oriented research suggest, that early anxious attachment causes later pathology. He did claim that pathology would be a joint product of early experience and ongoing support or challenge, that cumulative maladaptation would be less easily changed than early anxious attachment, and change would be predictable. Each of these propositions has been amply supported by empirical research.

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Table 1. *Hierarchical regression predicting ratings of psychopathology* (*K-SADS*) *at 17.5 years from avoidant and disorganized attachment in infancy and family relationship quality in early adolescence* (n = *120*)

Step	Independent Variables	R^2 Change	β	*B*	*T*	Overall R^2	Overall *F*	Overall *df*
1	Avoidant attachment score (12–18 months)	.07	.27	.74	3.00**	.07	8.99**	1, 119
2	Avoidant attachment score		.18	.51	2.02*			
	Disorganization rating (12–18 months)	.06	.25	.20	2.71**	.13	8.41***	2, 118
3	Avoidant attachment score		.18	.18	2.04*			
	Disorganization rating		.27	.27	3.03**			
	Relationship rating (13 years)	.05	.22	.21	2.59*	.17	8.12***	3, 117

Note: Index of psychopathology in adolescence is 7-point rating of number and severity of K-SADS diagnoses.
***$p < .001$. **$p < .01$. *$p < .05$.

In concluding this section, it is important to point out that the proposition regarding the power of cumulative adaptation does not mean that change cannot occur in adolescence or adulthood. Main, Kaplan, and Cassidy (1985) argued that the advent of formal operational thought may promote new opportunities for reflection upon, evaluation of, and integration of past experiences. Moreover, research with the Adult Attachment Interview (AAI) has uncovered numerous individuals who, despite indications of difficult life experiences, nonetheless have autonomous "states of mind" concerning attachment (so-called "earned secures"; Pearson, Cohn, Cowan, & Cowan, 1994; Phelps, Belsky, & Crnic, 1998). Clearly, some individuals have integrated very difficult experiences, and change can occur in the years of maturity.

Such late-occurring changes are not counter to Bowlby's idea that change becomes more difficult the longer the history of maladaptation. Positive changes may, in fact, not be likely in the face of continuous adversity and maladaptation from infancy through adolescence. When late changes occur, they may be built upon earlier foundations. Earned security on the AAI cannot really speak to this issue. First, the AAI was not designed to be a measure of early history, but rather as an assessment of the coherence of discourse concerning attachment (George, Kaplan, & Main, 1985; Main & Goldwyn, in press). Caution should be exercised in using it as a measure of history. There currently exists no empirical evidence as to the accuracy of reported early memories on the AAI. Second, even if veridical, which it seems likely to be to some extent, the AAI asks people to reflect on their memories from ages 5 to 12 years. At present, there is no evidence that adults have verbal access to experience from infancy. It is such preverbal experiences that Bowlby (1973) emphasized in his discussion of the enduring effects of early attachment relationships. Finally, Main (personal communication) has suggested that some number of "earned secures" may actually have had a positive initial foundation, with a secure attachment relationship in infancy, but adverse experience later in development. We will present evidence in the next section supporting the role of early foundations as supports for positive change in adolescence.

The Dynamic Role of Early Experience

Attachment theory is a structural developmental theory, wherein subsequent develop-

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ment is conceived as building upon as well as transforming what preceded (Sroufe, 1996). In this systemic, dynamic position, psychopathology is viewed as a complex, organic creation, not the simple sum of positive and negative experiences. Early experience, therefore, has special significance because it frames the child's subsequent transactions with the environment. "The child not only interprets experience, the child creates experience. As Alfred Adler has suggested, the child is both the artist and the painting" (Sroufe, 1978, p. 57). From Freud, Bowlby drew the idea of the primacy of the earliest attachment relationships as the first experiences of emotional closeness. These vital relationships represent prototypes for close relationships throughout life, especially for intimate love relationships and parenting.

Bowlby centered his own ideas on his concept of "internal working models." Children inevitably extract from their experience expectations regarding likely behavior of others and themselves in relationships. Humans cannot keep themselves from doing this. "The varied expectations of the accessibility and responsiveness of attachment figures that different individuals develop during the years of immaturity are tolerably accurate reflections of the experiences those individuals have actually had" (Bowlby, 1973, p. 202).

While simple and straightforward, this is a profound idea. It means that children approach new situations with certain preconceptions, behavioral biases, and interpretive tendencies. Thus, context, even new circumstances and new arenas, are not independent of the child's history. As we have said elsewhere,

> If because of early experience the preschooler isolates himself from the peer group, he removes himself further from positive social experiences. . . . If self-esteem and trust are established early, children may be more resilient in the face of environmental stress. They may show poor adaptation during an overwhelming crisis, but when the crisis has passed and the environment is again positive, they may respond more quickly. Even when floundering, some children may not lose their sense that they can affect the environment. . . . (Sroufe, 1978, p. 45)

Substantial research confirms the idea that children with varying attachment histories construe the environment differently. Such differences are revealed, for example, in their completions of stories with separation themes (Bretherton, Ridgeway, & Cassidy, 1990), their social pretend play (Rosenberg, 1984), their reactions to cartoons depicting potential social conflict (Suess, Grossmann, & Sroufe, 1992), their reactions to family photographs (Main, 1993), their family drawings (Fury, Carlson, & Sroufe, 1997; Main, 1993), and their memories for affective-cognitive stimuli (Belsky, Spritz, & Crnic, 1996; Rieder & Cicchetti, 1989). These studies show that those with secure histories are less likely to attribute hostile intent in ambiguous social situations or to reject stimuli portraying their parents, and more likely to bring fantasied conflicts to successful resolution and to see themselves as connected to others, especially family members.

While the emphasis here has been upon cognitive frameworks, it is fully compatible with recent writing on the formative impact of early experience for brain system development (e.g., Cicchetti & Tucker, 1994; Schore, 1994) and on early relationships as entraining basic patterns of emotional regulation (Sroufe, 1996, 1997). All of these levels of analysis are mutually supporting.

It is also the case that expectations and biases of the child often lead to and therefore are borne out by environmental reactions in a self-perpetuating manner. For example, pushing others away (even if it is at some level to avoid disappointment, see below) frequently leads in fact to the rejection that was expected. Children with histories of avoidant attachment not only expect rejection from others, they are, indeed, often rejected by them (Sroufe, 1983; Suess, Grossmann, & Sroufe, 1992). In general, individual patterns of adaptation elicit reactions from the environment that consolidate and elaborate them. The positive feedback cycles generated by malad-

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aptation are, in fact, a key part of its definition.

From the perspective of attachment theory, then, several mechanisms underlie continuity in adaptation (Sroufe, 1988). Continuity in both environmental influences (e.g., quality of care) and individual characteristics supports stability in individual functioning over time. Prior history also supports continuity in adaptation, because continuity is viewed as a transactional process involving an active self-regulating organism and the environment (Sroufe & Egeland, 1991). From this perspective, the child actively participates in constructing his or her experience. Individuals behave in ways that elicit responses from the environment that support prior adaptation, and individuals make choices that selectively engage aspects of the environment supporting a particular adaptive style. Individuals also interpret new and ambiguous situations in ways that are consistent with earlier experience.

Finally, as implied in many points above, early experiences may have special significance because of their nature. Because they are preverbal, they are not accessible to verbal recall and may be less readily modified by subsequent experience. This is the essence of Freud's idea of the "dynamic unconscious" (Loevinger, 1976). A basic sense of emotional connectedness, confidence regarding the availability of others, and feelings of self-worth may be the legacy of infancy. While such a basic orientation may, of course, be altered by later experience, it might still be reactivated in certain circumstances or in certain domains of functioning.

Specific hypotheses that may be derived from these theoretical ideas are as follows:

1. Early attachment history will have ongoing importance for later socioemotional adaptation, even after taking into account current circumstances and intermediary experiences.

2. The child's manner of engaging the environment in subsequent developmental periods will be predictable from patterns of attachment in infancy (children, in part, create their own environments).

3. Similarly, reactions of others, including those outside the family, will be predictable from infant attachment patterns.

4. Even following change, early patterns of attachment retain a potential for reactivation. There is a homeorhetic tendency (Sameroff, 1989).

5. Certain issues and certain arenas of functioning—those tapping anxiety about the availability of others or apprehension regarding emotional closeness—will be especially likely to reveal the legacy of early attachment, even during periods of generally adequate functioning.

These hypotheses are difficult to test and will require decades of longitudinal research. Often quite detailed observational data are required (especially for hypothesis 5), along with broad assessments of ongoing support and life stress. Still, beginnings have been made and some clear directions have been set.

The regression analyses described above already imply that early experience adds to later assessments in predicting outcome, because attachment remains significant after later variables are entered. This is confirmed when we enter variables in reverse chronological order with attachment last (for previously published data, see Sroufe, Egeland, & Kreutzer, 1990). For example, in predicting adolescent pathology (see above), quality of care at age 13 is significant, accounting for 4% of the variance. Nonetheless, when infant attachment history (avoidant and disorganized) is subsequently entered, it also is significant, accounting for an additional 14% of the variance. Early attachment also adds when the total prior equation includes behavior problems in grades one through six and quality of care at age 13 years (see Carlson, 1998). Similar results also are obtained when the outcome variable taps adolescent competence with peers.

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Our detailed studies of a subsample observed in nursery school, summer daycamp in middle childhood, and weekend retreats in adolescence further clarify the ongoing role of early experience (e.g., Elicker, Englund, & Sroufe, 1992; Sroufe, 1983; Sroufe, Carlson, & Shulman, 1993; Sroufe, Egeland, & Carlson, in press). Two variables that have been clearly and consistently related to anxious attachment history are isolation and dependency (hovering near and/or being involved with teachers or counselors at the expense of peer interaction). Self-isolation appears to be more frequent in those with histories of avoidant attachment; orientation toward adults is more frequent in those with resistant attachment histories.

Reactions of peers, teachers, and counselors to children with different attachment histories also have proven predictable. This may be due to the obvious dependency and lack of resourcefulness of those with resistant histories and the alienation and, at times, hostile aggressive behavior of those with avoidant histories. The strongest data here come from our preschool study where children were filmed daily over the course of the term. For example, from the films a random sample of at least 50 interactions for each child with each of the two head teachers was edited onto a tape. Coders blind to attachment history and all other data made ratings of dimensions of teacher treatment (Sroufe & Fleeson, 1988). For those children having secure histories, ratings were consistently higher on "expectations for compliance" and lower on "control" than for other groups. The resistant group was distinguished by high ratings on "control," "tolerance for rule infraction," and "nurturance" and low ratings on "expectations for compliance." The avoidant group elicited high ratings on "control" and low "warmth," "expectations," and "nurturance" ratings, and they were the only group that elicited anger. Such reactions may be seen as perpetuating the immaturity of those with resistant histories and the expectations for rejection of those with avoidant histories. The same basic picture resulted from observations in later childhood as well. In addition, peer sociometrics, and friendship selections, which were concordant for attachment history, confirmed that peer experiences also were predictable from early attachment differences (e.g., Elicker et al., 1992).

One way we showed that early experience remains available even while latent is to examine groups of children who while functioning similarly for a period are distinguished by early history. Two such groups were established during the preschool years. For both, adaptation was consistently negative across 3 assessments from 42 to 54 months, yet, members of one group had earlier histories of secure attachment. Follow-up study in elementary school revealed a rebound to significantly better functioning (fewer behavior problems) for those with secure histories (Sroufe et al., 1990). Thus, the resiliency of these children was predictable; their rebound toward positive adaptation was latent in the secure base that preceded the problems of the preschool period.

We have shown similarly that change in behavior problems from the late elementary years to adolescence is predictable from early history. To parallel and expand on the preschool study, we created groups of children who were functioning comparably in terms of behavior problems during elementary school, but who had differed in their attachment histories. A total of four groups was created, including children with stable secure histories (at 12 and 18 months) who were functioning well or poorly in middle childhood and children with stable insecure histories who were functioning well or poorly in middle childhood (based on the CBCL in Grades 1–3).[1]

1. Children were considered to be functioning well in middle childhood if they had total scores in the normative range ($T \leq 55$) on the Teacher Report Form of the Child Behavior Checklist (Achenbach & Edelbrock, 1986) for at least two of three assessments from first through third grade and also in sixth grade. Children were considered to be functioning poorly in middle childhood if they had total scores in the upper range ($T \leq 62$) for at least two of four assessments in first through third and sixth grade; sixth grade scores also had to be at least above the group mean. These criteria were established to insure consistency in behavior or adaptation across all of middle childhood.

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Behavior problem status in middle childhood was paralleled by peer competence and emotional health rankings made by teachers.

For the analyses of subsequent adolescent adaptation, the critical comparisons were between the groups of children who looked the same in middle childhood, but who differed in their early attachment status. These comparisons revealed that the groups differed in later psychopathology and competence in ways predictable from their early histories. Among the groups of children who were doing well in middle childhood, the ones with a secure attachment history had lower scores on present, $t\,(44) = 2.66$, $p < .01$, and past, $t\,(42) = 2.70$, $p < .01$, pathology indices derived from the K-SADS at age 17.5 years. They also scored significantly higher on a global rating of competence at age 19 years based on their functioning across work, school, and relationship domains, $t\,(42) = 2.91$, $p < .006$. Similarly, for those children who were functioning poorly in middle childhood, the ones with a history of secure attachment scored lower on total, $t\,(28) = -2.99$, $p = .006$, and past, $t\,(29) = 2.54$, $p = .02$, pathology on the KSADS. Thus, as suggested earlier, individuals showing positive change in adolescence, following a period of maladaptation, drew upon a more positive foundation in the infancy period.

Looking across all four groups, level of functioning in adolescence appeared to depend on both early and later experience. The children who had secure histories and who were also functioning well in middle childhood were consistently significantly higher than all other groups in their competence ratings and lower in their pathology ratings. Conversely, the children with insecure histories who had behavior problems in middle childhood were significantly lower than all other groups in adolescent competence and higher in pathology. Notably, the two groups of children with mixed histories (secure attachment and later behavior problems or insecure attachment and later positive functioning) were comparable to each other on both adolescent competence and behavior problems. A positive early foundation appeared to be a protective factor, allowing the children to rebound somewhat from a difficult middle childhood. This finding suggests some special role for early experience, as its effects appeared after a long passage of time and seemed to be as potent as later experience in predicting adolescent outcomes. At the same time, children with insecure histories were amenable to positive change, as those who were doing well in middle childhood were also functioning fairly well in adolescence.

Finally, we find that those with secure histories show less negative reaction to periods of high family stress both in middle childhood (Pianta, Egeland, & Sroufe, 1990) and in adolescence (Sroufe, Levy, & Carlson, 1998). Resilience and vulnerability are best reviewed in process terms, with foundations beginning to be laid down in the earliest years (e.g., Egeland, Carlson, & Sroufe, 1993).

Our data, and the literature in general, provide only hints regarding the hypothesis of special vulnerabilities or particular domains of impact that are the legacy of early experience. In recent studies of adolescent group functioning (including variables such as taking a leadership role, the capacity for interpersonal vulnerability, and self-reported intimacy in friendships; e.g., Englund et al., 1997; Ostoja, McCrone, Lehn, Reed, & Sroufe, 1995), we frankly were surprised at the degree of predictability of results from infant attachment assessments. At times these surpassed predictions to preschool and middle childhood. We propose that this may be due to the special capacities for emotional investment of self that are called for during adolescence that tap into early attachment experience in a way that earlier measures of competence do not. We are only now beginning to assess romantic relationships and parenting in the next generation, which will be crucial tests of attachment theory. Studies using the AAI (George, Kaplan, & Main, 1984), which has been linked to infant attachment history in some samples but not our own, are suggestive. Autonomy (security) on the AAI has been linked to the capacity to use a romantic partner as a secure base (Crowell, 1997) and to secure attachment in infants (van Ijzendoorn, 1995).

More directly pertinent to psychopathology

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would be differential vulnerability to major loss experiences. In the third volume of the trilogy, Bowlby (1980) argued that early inadequate attachment history would leave individuals vulnerable to depression in the face of such losses (see also Brown, Harris, & Bifulco, 1986). Our sample has proven too small (losses of primary caregivers too few) to test this hypothesis as yet. Frequency of unresolved losses for those who are autonomous (secure) and nonautonomous on the AAI might provide a partial test.

The Nature of Early Relationship Disturbance

Bowlby's work emphasizing the quality of early adaptation and continuity in experience provides a framework for conceptualizing early relationship disturbances and their links to psychopathology (Sroufe, 1986). From this perspective, disturbed early attachment is most profitably viewed as a marker of a beginning pathological process that probabilistically leads to later pathology (Sameroff & Emde, 1989). Thus, while in the context of extreme deprivation or maltreatment, disturbance within the child may be manifested at an early age (infancy or toddlerhood), in most cases early disturbance lies within the dyadic relationship and only gradually takes the form of enduring disturbance within the child. In our view, many disturbances of childhood may be viewed as having relational origins wherein patterns of dyadic emotion regulation in time are carried forward by the child and manifested in individual styles of coping with challenge.

Within this framework, anxious attachment patterns are viewed as dyadic regulatory patterns that maximize to the extent possible opportunities for the infant to maintain closeness (secure base behavior) in the context of unavailable or intermittently available and unresponsive caregiving. Avoidant infants maintain proximity to the caregiver (in case of extreme threat) by minimizing signals of distress and negativity that may alienate a rejecting caregiver (Main, 1981). For infants classified as resistant, heightened distress signals serve to maintain the attention of intermittently responsive caregivers. Even behavior of infants classified as disorganized (stereotypes, simultaneous approach/avoidance) enables infants to maintain proximity in the context of frightening caregiver behavior and internal conflict (Main & Hesse, 1990).

Distortions of early dyadic regulatory processes serve as prototypes for later dysregulation, markers of a process that leaves individuals vulnerable to normative stresses and the development of pathology. Early maladaptive relationship patterns are internalized and carried forward as characteristic modes of affective regulation and associated expectations, attitudes, and beliefs. Emerging developmental capacities (cognitive, linguistic, behavioral) become organized with respect to patterns of restricted regulation or emotional dysfunction (Carlson & Sroufe, 1995). With development, individuals construct more complex and elaborated types of defensive coordination.

Variations in early regulatory patterns provide the basis for differences in later strategies for coping with normative stresses, eliciting support from others and making use of internal signals (Carlson & Sroufe, 1995). For individuals for whom the caregiver has been a source of effective emotional regulation and comfort, relationships are valued. From the earliest relationship, the individual has experienced the rudiments of reciprocity, including how to receive care and respond empathically to others (Sroufe & Fleeson, 1986). The child's expectations about self and others and consequent behavior elicit feedback that supports a particular adaptive style. Under conditions of extreme stress, the child is likely to seek comfort and support with the expectation that others will be available and will to provide aid.

In contrast, individuals with histories of insecure attachment may be more likely to form relationships that are not supportive and are easily disrupted (Carlson & Sroufe, 1995). For the avoidant child, early experiences support a view of the self as isolated, unable to achieve emotional closeness, and unworthy of care. Social relationships may be viewed as alien and treated with hostility. With elevated stress, the child may fail to seek comfort from

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others, perpetuating a view of relationships as alien or hostile. For the child with a history of unpredictable or inconsistent caregiving experiences, an anxious style, in which negative emotions disrupt rather than restore relationships, inhibits the development of stable close relationships. Individual continuity in such patterns results, in part, because such nonconscious, underlying processes are no longer a part of conscious social interchange and, as a result, no longer subject to environmental feedback and revision.

For children with avoidant or resistant histories, emotions that would have facilitated affective communication and exchange are defensively modified or cut off (Carlson & Sroufe, 1995; Kobak, Ruckdeschel, & Hazan, 1994). As a result, when experiencing distress the child may fail to signal directly a need for support, become embroiled in negative emotion, and be unable to draw from potentially supportive social relationships. Moreover, for individuals with insecure attachment histories, working defensive strategies of avoidance or resistance may themselves be vulnerable to breaking down under stress (Kobak & Shaver, 1987). This is evident in low ratings of ego resiliency, inability to cope with frustration, and pervasive presence of negative affect of insecure children (Erickson et al., 1985; Sroufe, 1983). In the context of stressful life events, these children may be faced with emotional conflicts that their defensive strategy was organized to control but now are overwhelming (Carlson & Sroufe, 1995). Symptomatic forms of attachment behavior and other problems may result. Hypochondriacal reactions may serve needs for closeness or care, or suicidal behavior may represent a desire to reunite with a lost attachment figure (Bowlby, 1980). Other potential links between anxious attachment and adult disorder are described by Dozier and her colleagues (Dozier, Stovall, & Albus, in press).

For individuals with histories of extremely harsh or particularly chaotic caregiving contexts (disorganized attachment relationships), the process of regulation, the consolidation or integration of self across behavioral states and acquisition of control over modulation of states, may be disrupted (Carlson & Sroufe, 1995). (Empirically, we have found that disorganized attachment in infancy, followed by subsequent trauma, is the most potent combination for predicting dissociation in early adulthood; Ogawa, Sroufe, Weinfield, Carlson, & Egeland, 1997.) Recurring trauma in the context of inadequate or overly restrictive caregiving increases the level of arousal and need to separate or compartmentalize overwhelming affects and memories. Dissociative mechanisms that serve survival functions by providing for the automatization of behaviors, escape from reality constraints, containment of overwhelming memories or feelings, and in extreme form the assignment of painful feelings to alternate personalities are strengthened (Ludwig, 1983; Putnam, 1989). Variations in outward manifestations result from differences in individual psychological capacities, caregiving experiences, and social and cultural factors (Ludwig).

In summary, early disturbances in attachment relations, while themselves generally not best construed as psychopathology, often do lay the foundation for disturbances in developmental processes which can, indeed, lead to psychopathology. Understanding the processes wherein what begins as a relationship disturbance can in time lead to individual disorder is one of the central tasks for the field of developmental psychopathology (Sameroff & Emde, 1989).

Conclusion

Within attachment theory, psychopathology is viewed as a developmental construction, resulting from an ongoing transactive process as the evolving person successively interacts with the environment. Individual transforms environment but also is transformed by it.

In this perspective early attachment variations generally are not viewed as pathology or even as directly causing pathology. Rather, varying patterns of attachment represent "initiating conditions" in systems terms. In this regard, they do play a dynamic role in pathological development because of the way in which environmental engagement is framed

https://doi.org/10.1017/S0954579499001923 Published online by Cambridge University Press

by established tendencies and expectations. Moreover, patterns of infant–caregiver attachment and other aspects of early experience may have a special role in the developmental process via their impact on basic neurophysiological and affective regulation.

Still, anxious attachment by no means leads inevitably to psychopathology. Change remains possible at numerous points in development, although both theory and data suggest that such change is more readily accomplished early in the process or at least when there is a foundation of early support.

References

Achenbach, T., & Edelbrock, C. (1986). *Manual for The Teachers' Report Form and Teacher Version of the Child Behavior Profile*. Burlington, VT: Department of Psychiatry, University of Vermont.

Belsky, J., & Isabella, R. A. (1988). Maternal, infant, and social-contextual determinants of attachment security. In J. Belsky & T. Nezworski (Eds.), *Clinical implications of attachment* (pp. 41–94). Hillsdale, NJ: Erlbaum.

Belsky, J., Spritz, B., & Crnic, K. (1996). Infant attachment security and affective-cognitive information processing at age 3. *Psychological Science, 7*, 111–114.

Bowlby, J. (1944). Forty-four juvenile thieves: Their characters and home life. *International Journal of Psychoanalysis, 25*, 19–52 and 107–127.

Bowlby, J. (1973). *Attachment and loss: Vol. 2. Separation*. New York: Basic Books.

Bowlby, J. (1980). *Attachment and loss: Vol. 3. Loss*. New York: Basic Books.

Bowlby, J. (1982). *Attachment and loss: Vol. 1. Attachment* (2nd ed.). New York: Basic Books.

Bretherton, I., Ridgeway, D., & Cassidy, J. (1990). Assessing internal working models of the attachment relationship: An attachment story completion task for 3-year-olds. In M. T. Greenberg, D. Cicchetti, & E. M. Cummings (Eds.), *Attachment in the preschool years: Theory, research, and intervention* (pp. 273–308). Chicago: University of Chicago Press.

Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspective. *Developmental Psychology, 22*, 723–742.

Brown, G., Harris, T., & Bifulco, A. (1986). Long-term effects of early loss of parent. In M. Rutter, C. Izard, & P. Read (Eds.), *Depression in young people* (pp. 251–296). New York: Guilford Press.

Carlson, E. A. (1998). A prospective longitudinal study of attachment disorganization/disorientation. *Child Development, 69*, 1107–1128.

Carlson, E. A., & Sroufe, L. A. (1995). The contribution of attachment theory to developmental psychopathology. In D. Cicchetti & D. Cohen (Eds.), *Developmental processes and psychopathology: Vol. 1. Theoretical perspectives and methodological approaches* (pp. 581–617). New York: Cambridge University Press.

Cicchetti, D., & Tucker, D. (1994). Development and self regulatory structures of the mind. *Development and Psychopathology, 6*(4), 533–549.

Crowell J. (1997). *Current relationship representations: Relations to secure base behavior in marital interactions*. Paper presented at the biennial meeting of the Society for Research in Child Development, Washington, DC.

Dozier, M., Stovall, K. C., & Albus, K. (in press). Attachment and psychopathology in adulthood. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical implications*. New York: Guilford.

Egeland, B., Carlson, E. A., & Sroufe, L. A. (1993). Resilience as process. *Development and Psychopathology, 5*, 517–528.

Elicker, J., Englund, M., & Sroufe, L. A. (1992). Predicting peer competence and peer relationships in childhood from early parent–child relationships. In R. Parke & G. Ladd (Eds.), *Family–peer relationships: Modes of linkage* (pp. 77–106). Hillsdale, NJ: Erlbaum.

Englund, M., Levy, A., & Hyson, D. (1997). *Development of adolescent social competence: A prospective longitudinal study of family and peer contributions*. Poster session presented at the biennial meeting of the Society for Research in Child Development, Washington, DC.

Erickson, M., Egeland, B., & Sroufe, L. A. (1985). The relationship between quality of attachment and behavior problems in preschool in a high risk sample. In I. Bretherton & E. Waters (Eds.), *Growing points in attachment theory and research. Monographs of the Society for Research in Child Development, 50*(1–2, Serial No. 209), 147–186.

Fox, N. (1997). *Attachment in infants and adults: A link betwen the two?*. Paper presented at the biennial meeting of the Society for Research in Child Development, Washington, DC.

Fury, G., Carlson, E., & Sroufe, L. A. (1997). Children's representations of attachment relationships in family drawings. *Child Development, 68*, 1154–1164.

George, C., Kaplan, N., & Main, M. (1984). *Attachment interview for adults*. Unpublished manuscript, University of California, Berkeley.

Kobak, R. R., Ruckdeschel, K., & Hazan, C. (1994). From symptom to signal: An attachment view of emotion in marital therapy. In S. M. Johson & L. S. Greenberg (Eds.), *The heart of the matter* (pp. 46–71). New York: Brunner/Mazel.

Kobak, R. R., & Shaver, P. (1987, June). *Strategies for maintaining felt security: A theoretical analysis of continuity and change in styles of social adaptation*. Paper presented at the Conference in honor of John Bowlby's 80th Birthday, London, England.

Lamb, M. (1984). Fathers, mothers and childcare in the 1980s: Family influences on child development. In K. Borman, D. Quarm, & S. Gideouse (Eds.), *Woman in the workplace* (pp. 61–88). Norwood, NJ: Ablex.

https://doi.org/10.1017/S0954579499001923 Published online by Cambridge University Press

Lewis, M. (1997) *Altering fate*. New York: Guilford.
Loevinger, J. (1976). *Ego development*. San Francisco: Jossey–Bass.
Ludwig, A. M. (1983). The psychobiological functions of dissociation. *American Journal of Clinical Hypnosis, 26,* 93–99.
Main, M. (1981). Avoidance in the service of attachment: A working paper. In K. Immelmann, G. Barlow, L. Petrinovich, & M. Main (Eds.), *Behavioral development: The bielefeld interdisciplinary project* (pp. 651–693). New York: Cambridge University Press.
Main, M. (1993). Discourse, prediction, and recent studies in attachment: Implications for psychoanalysis. *Journal of the American Psychoanalytic Association, 41,* 245–260.
Main, M., & Goldwyn, R. (in press). Adult attachment scoring and classification system. In M. Main (Ed.), *Behavior and the development of representational models of attachment: Five methods of assessment*. New York: Cambridge University Press.
Main, M., & Hesse, E. (1990). Parents' unresolved traumatic experiences are related to infant disorganized attachment status: Is frightened and/or frightening parental behavior the linking mechanism? In M. T. Greenberg, D. Cicchetti, & E. M. Cummings (Eds.), *Attachment in the preschool years* (pp. 161–182). Chicago: University of Chicago Press.
Main, M., Kaplan, N., & Cassidy, J. (1985). Security in infancy, childhood, and adulthood: A move to the level of representation. In I. Bretherton & E. Waters (Eds.), *Growing points of attachment theory and research. Monographs of the Society for Research in Child Development, 50*(1–2, Serial No. 209), 66–104.
Ogawa, J., Sroufe, L. A., Weinfield, N. S., Carlson, E., & Egeland, B. (1997). Development and the fragmented self: A longitudinal sudy of dissociative symptomatology in a non-clinical sample. *Development and Psychopathology, 9,* 855–1164.
Ostoja, E., McCrone, E., Lehn, L., Reed, T., & Sroufe, L. A. (1995, March). *Representations of close relationships in adolescence: Longitudinal antecedents from infancy through childhood*. Poster presented at the biennial meeting of the Society for Research in Child Development, Indianapolis, IN.
Pearson, J. L., Cohn, D. A., Cowan, P. A., & Cowan, C. P. (1994). Earned- and continuous-security in adult attachment: Relation to depressive symptomatology and parenting style. *Development and Psychopathology, 6,* 359–373.
Phelps, J. L., Belsky, J., & Crnic, K. (1998). Earned security, daily stress, and parenting: A comparison of five alternative models. *Development and Psychopathology, 10,* 21–38.
Pianta, R., Egeland, B., & Sroufe, L. A. (1990). Maternal stress in children's development: Predictions of school outcomes and identification of protective factors. In J. E. Rolf, A. Masten, D. Cicchetti, K. Neuchterlen, & S. Weintraub (Eds.), *Risk and protective factors in the development of psychopathology* (pp. 215–235). New York: Cambridge University Press.
Putnam, F. W. (1989). *Diagnosis and treatment of multiple personality disorder*. New York: Guilford.
Rieder, C., & Cicchetti, D. (1989). Organizational perspective on cognitive functioning and cognitive-affective balance in maltreated children. *Developmental Psychology, 25*(3), 382–393.
Rosenberg, D. (1984). The quality and content of preschool fantasy play: Correlates in concurrent social-personality function and early mother–child attachment relationships. Unpublished doctoral dissertation, University of Minnesota, Minneapolis.
Sameroff, A. (1989). General systems and the regulation of development. In M. Gunnar & E. Thelen (Eds.), *Minnesota Symposia in Child Psychology* (Vol. 22, pp. 219–235). Hillsdale, NJ: Erlbaum.
Sameroff, A., & Chandler, M. (1975). Reproductive risk and the continuum of caretaking casualty. In F. D. Horowitz (Ed.), *Child development research* (Vol. 4). Chicago: University of Chicago Press.
Sameroff, A., & Emde, R. (1989). *Relationship disturbances in early childhood*. New York: Basic Books.
Schore, A. (1994). *Affect regulation and the origin of the self: The neurobiology of emotional development*. Hillsdale, NJ: Erlbaum.
Sroufe, L. A. (1978, October). Attachment and the roots of competence. *Human nature, 1,* 50–57.
Sroufe, L. A. (1983). Infant–caregiver attachment and patterns of adaptation in preschool: The roots of maladaptation and competence. In M. Perlmutter (Ed.), *Minnesota Symposia in Child Psychology* (Vol. 16, pp. 41–83). Hillsdale, NJ: Erlbaum.
Sroufe, L. A. (1986). Bowlby's contribution to psychoanalytic theory and developmental psychology. *Journal of Child Psychology and Psychiatry, 27,* 841–849.
Sroufe, L. A. (1988). The role of infant–caregiver attachment in development. In J. Belsky & T. Nezworski (Eds.), *Clinical implications of attachment* (pp. 18–38). Hillsdale, NJ: Erlbaum.
Sroufe, L. A. (1996). *Emotional development: The organization of emotional life in the early years*. New York: Cambridge University Press.
Sroufe, L. A. (1997). Psychopathology as outcome of development. *Development and Psychopathology, 9,* 251–268.
Sroufe, L. A., Carlson, E., & Shulman, S. (1993). The development of individuals in relationships: From infancy through adolescence. In D. C. Funder, R. Parke, C. Tomlinson–Keesey, & K. Widaman (Eds.), *Studying lives through time: Approaches to personality and development* (pp. 315–342). Washington, DC: American Psychological Association.
Sroufe, L. A., & Egeland, B. (1991). Illustrations of person and environment interaction from a longitudinal study. In T. Wachs & R. Plomin (Eds.), *Conceptualization and measurement of organism–environment interaction* (pp. 68–84). Washington, DC: American Psychological Association.
Sroufe, L. A., Egeland, B., & Carlson, E. A. (in press). One social world: The integrated development of parent–child and peer relationships. In W. A. Collins & B. Laursen (Eds.), *Relationships as developmental context: The 29th Minnesota symposium on child psychology*. Hillsdale, NJ: Erlbaum.
Sroufe, L. A., Egeland, B., & Kreutzer, T. (1990). The fate of early experience following developmental change: Longitudinal approaches to individual adaptation in childhood. *Child Development, 61,* 1363–1373.
Sroufe, L. A., & Fleeson, J. (1986). Attachment and the construction of relationships. In W. Hartup & Z. Rubin (Eds.), *Relationships and development*. Hillsdale, NJ: Erlbaum.
Sroufe, L. A., & Fleeson, J. (1988). The coherence of family relationships. In R. A. Hinde & J. Stevenson–

https://doi.org/10.1017/S0954579499001923 Published online by Cambridge University Press

Hinde (Eds.), *Relationships within families: Mutual influences*. Oxford: Oxford University Press, 27–47.

Sroufe, L. A., Levy, A. K., & Carlson, E. (1998, March). Resilience in adolescence: Changing the odds. Paper presented at the biennial meeting of the Society for Research on Adolescence, San Diego, CA.

Sroufe, L. A., & Waters, E. (1977). Attachment as an organizational construct. *Child Development, 48,* 1184–1199.

Suess, G. J., Grossmann, K. E., & Sroufe, L. A. (1992). Effects of infant attachment to mother and father on quality of adaptation in preschool: From dyadic to individual organization of self. *International Journal of Behavioral Development, 15*(1), 43–66.

van Ijzendoorn, M. H. (1995). Adult attachment representations, parental responsiveness, and infant attachment: A meta-analysis on the predictive validty of the adult attachment interview. *Psychological Bulletin, 117*(3), 387–403.

Vaughn, B., Waters, E., Egeland, B., & Sroufe, L. A. (1979). Individual differences in infant–mother attachment at 12 and 18 months: Stability and change in families under stress. *Child Development, 50*(4), 971–975.

Weinfield, N. S., Sroufe, L. A., Egeland, B., & Carlson, E. (in press). The nature of individual differences in infant–caregiver attachment. In P. Shaver & J. Cassidy (Eds.), *Handbook of attachment: Theory, research, and clinical implications*. New York: Guilford.

https://doi.org/10.1017/S0954579499001923 Published online by Cambridge University Press