CHAPTER 1

The Scope of Infant Mental Health

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Infant mental health has emerged as an increasingly important and visible clinical endeavor during the past 35 years. There are many ways to trace its origins. In the clinical realm the work of Selma Fraiberg and her colleagues in Michigan (Fraiberg, Adelman, & Shapiro, 1975) was a major early contributor, as was research in developmental psychology on the power of babies to affect their caregivers (Bell, 1968). From these beginnings, the field of infant mental health has grown dramatically both in terms of its breadth and its acceptance. In the early 21st century, the field of infant mental health stands as a broad-based, multidisciplinary, and international effort to enhance the social and emotional well-being of young children and which includes the efforts of clinicians, researchers, and policymakers.

Still, as a relatively new field, a number of questions ought to be considered. For example, how is infant mental health defined? Some have expressed puzzlement or even aversion to the term "infant mental health." The idea of an "infant," with its associations of innocence, beginnings, and hope for a better future, does not seem to fit with "mental health," and its associations of maladjustment, stigma, and major mental illness. Is it reasonable to think of infants as having mental health problems? Or does it make more sense to think about them as being at risk for problems later? There are also questions about "infant mental health" as a profession. In a multidisciplinary field how is core knowledge versus specialized knowledge determined? Are infant mental health interventions qualitatively different from mental health interventions for older children and adolescents? Finally, how is infant mental health similar to, and distinct from, other closely related multidisciplinary fields, such as developmental psychopathology?

We begin by defining infant mental health and considering its scope. We suggest that the relational framework of infant mental health distinguishes it from work with older children and adolescents. We review some of the major empirical foundations of the field, highlighting the implications of these foundations for an infant mental health perspective. Finally, we emphasize the need for comprehensive approaches to intervention and highlight some evidenced-based programs. Throughout, we emphasize the policy implications of this work.

DEFINING INFANT MENTAL HEALTH

A Steering Committee on Infant Mental Health was convened by Zero to Three and tasked with creating a definition of infant mental health. What emerged was a definition of infant mental health as a characteristic of the child. That is:

> the young child's capacity to experience, regulate, and express emotions, form close and secure relationships, and explore the environment and learn. All of these capacities will be best accomplished within the context of the caregiving environment that includes family, community, and cultural expectations for young children. Developing these capacities is synonymous with healthy social and emotional development. (Zero to Three, 2001)

This definition seems to have met with widespread acceptance by the field (Zeanah, Gleason, & Zeanah, 2008).

In addition, infant mental health can be defined as a multidisciplinary professional field of inquiry, practice, and policy, concerned with alleviating suffering and enhancing the social and emotional competence of young children. Infant mental health is multidisciplinary because the complex, interrelated nature of human development and its deviations requires expertise and conceptualizations beyond the capabilities of any particular discipline. For the same reason, it is likely that the field of infant mental health will remain pluralistic, a subspecialty within a number of different disciplines, rather than an integrated and distinct discipline itself.

A definition is also needed for what we mean by the term "infant." In pediatrics, *infant* usually refers to the first year of life. In mental health, there is a tradition that *infant* refers more broadly to the period from birth to 3 years. In this chapter, however, we use an even broader conceptualization. First, as famously declared in *From Neurons to Neighborhoods* (National Research Council and Institute of Medicine, 2000), focusing disproportionately on birth to 3 years "begins too late and ends too soon" (p. 7). Because there is considerable evidence regarding prenatal influences on many clinical problems in early childhood (see Robinson et al., 2008), we include prenatal experience in our conceptualization of infant mental health. We also extend the upper age limit from 3 to 5 or so years, because much research and many clinical programs extend somewhat beyond the first 3 years.

Beyond these definitions, several tenets regarding the clinical practice of infant mental health merit attention. These include a focus on strengths in infants and families, a relational framework for assessment and intervention, and a prevention orientation.

Infant mental health is a strengths-based discipline. This means that clinicians work to identify strengths from which to build competence and address problems. One could rightly argue that all mental health professionals ought to work from a strengths-based perspective, but it seems especially important in a field that focuses on the crucial and vulnerable beginnings of parent–child relationships. Our children are extensions of ourselves, and when they do not thrive, we experience it as a reflecting profoundly on us as parents. Nevertheless, being strengths-based does not mean ignoring liabilities (Zeanah, 1998). Clinicians must identify problems in young children and in their parents unflinchingly in order to address them effectively. Further, there is often a complex interrelationship between strengths and weaknesses, such that strengths may be obscured by weaknesses but also possibly mobilized to ameliorate weaknesses.

Infant–caregiver relationships are the primary focus of assessment and intervention efforts in infant mental health, not only because infants are so dependent upon their caregiving contexts but also because infant competence may vary widely in different relationships. Assessments in infancy always are considered a form of intervention, as they may have important impacts on both infant and family. Moreover, intervention efforts always involve prevention, because the infant is considered as constantly developing, and the infant's developmental trajectory must be attended to in addition to here-and-now adaptation. This means that there is a simultaneous focus on relieving current suffering as well as attending to future development, all through attention to primary caregiving relationships (Zeanah, Stafford, Nagle, & Rice, 2005; Zeanah, Stafford, & Zeanah, 2005; Zeanah & Zeanah, 2001).

Just as young infants engender hope for a better future in general, the field of infant

mental health strives to delineate, establish, and sustain positive developmental trajectories for young children. In all of these efforts, the empirical foundations of infant mental health have broadened and deepened in ways that have important implications for practice and policies.

EMPIRICAL FOUNDATIONS OF INFANT MENTAL HEALTH

Basic knowledge salient to infant mental health has been bolstered by research in genetics, basic neuroscience, child development, developmental psychopathology, and by studies of clinical disorders and their treatment. Investigations in these areas provide the empirical foundations of infant mental health.

Early Experiences Matter

Considerable research has documented the importance of early experiences for the developing person. Brain circuits are being established at an extremely rapid rate in the early years of life, and various experiences influence not only how brains function but also the neural architecture of how they develop. We are only just beginning to attempt to understand the details about how experiences influence brain development, but evidence in humans on this point is growing (see Sheridan & Nelson, Chapter 3, this volume).

Although mild to moderate stress can be growth promoting, so-called *toxic stress* can impair the proper development of brain circuitry, which may be especially vulnerable during early childhood (Middlebrooks & Audage, 2008). If individuals develop a lower threshold for stress, thereby becoming overly reactive to adverse experiences throughout life, both physical and mental health can be compromised (see also Rifkin-Graboi, Borelli, & Bosquet Enlow, Chapter 4, this volume). For example, in the adverse childhood experiences (ACE) study, adults receiving treatment from a health maintenance organization (HMO) were interviewed about early childhood experiences of abuse, neglect and household dysfunction. The number of childhood risk factors was linearly related to a large number of health and mental health outcomes. The more adverse experiences individuals reported having, the more likely they were to engage in risky health behaviors and to be diagnosed with disorders such as depression, alcoholism and substance abuse, heart disease, cancer, chronic pulmonary disease, obesity, and diabetes, among others (Dube, Felitti, Dong, Giles, & Anda, 2003; Feletti et al., 1998). These findings remind us that infant mental health has important implications for health as well as mental health outcomes.

A related question concerns the ways in which the timing of experiences matter, usually framed as a "sensitive period" or "critical period" hypothesis. Knudsen (2004) notes that the period during which the effects of experience on the brain are particularly strong is referred to as a *sensitive period*, whereas experiences that provide information that is crucial for normal development and alter performance permanently are known as *critical periods*. Animal literature reveals that sensitive and critical periods in brain development are evident (Knudsen, 2004).

Knudsen (2004) also notes that sensitive and critical periods are actually properties of neural circuits, though we may be most interested in how the effects of these various periods are expressed at the level of behavior. For example, Nelson et al. (2007) studied children removed from institutional care in the first 3 years of life and placed in foster families and reported increases in IQ. For children removed prior to 24 months the gains were substantial, but for those removed after 24 months, the gains were few. For a construct as complex as IQ, we would expect to find an enormous number of circuits with different sensitive or critical periods involved.

In keeping with these findings, infant mental health has the importance of infant *experience* as a core principle. Escalona (1967) anticipated this emphasis almost half a century ago when she noted that it is not infant or environmental characteristics that matter so much; rather it is the infant's *subjective experience* of the world. Indeed, developmental psychopathology has demonstrated that stabler individual differences lie initially in the infant–caregiver relationship, only later becoming a characteristic of the individual child. Further, how an individual

thinks about relationship experiences—the internal representation or working model—is crucial because the meanings an individual attributes to experiences may alter their consequences (Sroufe, 1989; Sroufe & Rutter, 2000).

For the infant mental health clinician, the task becomes nothing less than attempting to understand what an individual child's experience is and to help that child's caregivers empathically appreciate that experience. From a policy perspective, even more daunting is the challenge of attempting to extend this appreciation of an infant's experience to the level of systems, such as the child protection system or the legal system. How different the lives of infants in dire circumstances might be if these large and complex systems better appreciated and valued their experiences (Knitzer, 2000).

Essential Experiences Involve Caregiving Relationships

The importance of the contexts, or environments, in which infants grow and develop is well established. Appreciating the complexities and importance of context has enhanced our understanding of infant development and our ability to predict developmental trajectories (Sameroff & Fiese, 2000). Contexts exert their effects from within and from without, determining which experiences an infant has and how that infant perceives those experiences. One of the most distinctive features of the early years is the clear importance of the multiple interrelated contexts (infant–caregiver relationship, family, cultural, and so forth) within which infants develop. For young children, infant–caregiver relationships are the most important experience-near context for infant development and are the distinctive focus of the infant mental health field.

A considerable body of research has documented the importance of the quality of the infant–caregiver relationship and its impact on infant development (National Research Council and Institute of Medicine, 2000). In fact, although individual differences in infant characteristics are readily identifiable, they are not particularly predictive of subsequent characteristics later in development. Positive qualities in infant–parent relationships, such as warmth, attentive involvement, and sensitive resolution of distress, have been linked to more optimal social, emotional, and cognitive development (see Crockenberg & Leerkes, 2000). In addition, parents who promote the development of self-regulation and minimize problematic behavioral tendencies have children who avoid maladaptive trajectories (Degnan, Henderson, Fox, & Rubin, 2008; Gardner, Sonuga-Barke, & Sayal, 1999). Conversely, parents who have problematic relationships with their young children may increase the likelihood of maladaptive outcomes in them (Scheeringa & Zeanah, 2001).

Infant–parent relationships moderate intrinsic biological risk factors in infants (McCarton et al., 1997). That is, infants with biological difficulties, such as the complications of prematurity or adverse temperamental dispositions, have better outcomes when their caregiving environments are supportive, and they have more problematic outcomes when their caregiving environments are less supportive. Further, attachment relationships moderate the effects of prenatal stress on child fearfulness at 17 months, even after controlling for the effects of postnatal stress, as well as obstetric, social, and demographic factors (Bergman, Sarkar, Glover, & O'Connor, 2008).

Infant–parent relationships also are the conduit through which infants experience environmental risk factors (Zeanah, Boris, & Scheeringa, 1997). That is, infants experience risk factors such as poverty, maternal mental illness, and partner violence primarily through the effects of those factors on infant–parent relationships. Infants are impacted by the risk factors that characterize their caregiving environments through their specific relationship experiences. The bottom line: Relationships can buffer or exacerbate risk.

Finally, increasingly we are learning that the way in which psychopathology is expressed in young children depends on the types of relationships they have with their caregivers (Zeanah et al., 1997). Research has shown that infants, in fact, construct different types of relationships with different caregivers (Steele, Steele, & Fonagy, 1996), and they also may express symptoms in the presence of once caregiver but not with another (Zeanah, Bakshi, Boris, & Lieberman, 2000). And, there is evidence that how an

individual processes relationship experiences, through an internal working model, is importantly related to outcomes (Sroufe, 1997).

For all of the above reasons, the focus of infant mental health has been dominated by a relational approach. This means that infants are best understood, assessed, and treated in the context of their primary caregiving relationships. Or as Sroufe (1989) put it, "Most problems in the early years, while often manifest poignantly in child behavior, are best conceptualized as relationship problems" (p. 70).

Beyond the infant–caregiver dyad, we must consider infant development in the context of the entire family. Not only is infant development related to characteristics of the family considered as a whole (Minuchin, 1988), but there are important effects on development from the infants individualized relationships with various family members (Crockenberg, Lyons-Ruth, & Dickstein, 1993; Favez, Frascorola, Keren, & Fivaz-Depeursinge, Chapter 29, this volume). For example, considerable evidence indicates that the parents' marital relationship is one of the most important influences on child development (Cummings & Davies, 2002). Sibling influences on infant development are less well studied, but they are likely vitally important. Understanding family processes is a complex undertaking. Emde (1991) has pointed out, for example, that the numbers of dyadic relationships within families increases dramatically with increasing numbers of children. Whereas two parents and one child have only three dyadic relationships to consider, two parents and three children have 10 dyadic relationships, and two parents and five children have 21 dyadic relationships, and so forth. Further, an infant's relationships with various family members are influenced by various other relationships within the family. The numbers of dyadic relationships influencing individual family members increase from 3 for two parents and one child, to 45 for two parents and three children, to 210 for two parents and five children (Emde, 1991). Obviously, one could also consider other levels of complexities, such as how an infant and his or her relationships might be affected by the triadic relationship of his or her parents and another sibling. Nevertheless, these levels of complexity are rarely considered in research or even in our clinical conceptualizations.

Beyond the immediate family of the infant, still other familial influences are important, chief among which are the cultural contexts within which infants develop. Cultural beliefs and value systems define the assumptions of the group about what is important and the rules about raising children to be a certain way. Parenting beliefs, explanations, and interpretations of infant behavior are among the most important components of the cultural context of infant development (Lewis, 2000). These beliefs include sometimes subtle cultural assumptions about what facilitates infant development, the causes and amelioration of psychopathology, the roles and relevance of parenting, and many other concerns central to infant mental health. Cultures typically develop adaptively in response to larger environmental characteristics, such as the physical resources of the area in which the culture develops. Often differences among cultural belief systems can be understood within those larger contexts. In recent decades, however, technological advances have thrust different cultures together with increasing rapidity and led to intense cultural clashes, efforts at cultural coexistence, and pressures for cultural integration in the global village. All of these factors have significant implications for infant development and mental health.

The policy implications of these findings are clear and can be simply stated: Policies aimed at supporting families and other caregiving relationships, such as child care, are most likely to provide needed supports for infant development (Center on the Developing Child at Harvard University, 2007).

Supporting Developmental Trajectories

The rapidity and profundity of development in the first 3 years of life is unprecedented in the postnatal human life cycle. In a mere 36 months, infants change from totally dependent newborns to complex creatures who can come and go as they please; understand that they can share thoughts, feelings, and intentions with others; express themselves abstractly using symbols; and empathize with others (Zeanah & Zeanah, 2001). From an infant mental health perspective, this developmental continuum means not only think-

ing about where the infant is now but also where the infant has been and where the infant is going. It also requires understanding not only what capacities are emerging in the developing child but also the processes involved in establishing trajectories of development.

Risk and Protective Factors

Risk and *protective factors* impact developmental trajectories, increasing or decreasing the risks of developmental disruptions and psychopathology. These risk factors are used to define high-risk groups, such as infants born preterm, infants of depressed mothers, and infants raised in institutions. On the other hand, risk factors are neither randomly distributed nor unrelated to one another. Complexly interacting risk factors within groups are the rule rather than the exception. In other words, although intervention programs may target single risk factors, such as substance abuse, maternal depression, or early parenthood, most of the time, infants face multiple risk factors.

Studies of many types of risk factors, from mild to severe, consistently have been shown to lead to quite variable outcomes (Sroufe & Rutter, 2000). In fact, it appears that the number of risk factors rather than the nature of any one is the best predictor of outcomes (Sameroff & Fiese, 2000). For example, prenatal substance exposure is widely accepted to be a risk factor for infant development (Boris, Chapter 10, this volume). Nevertheless, Carta et al. (2001) studied the effects of prenatal exposure and environmental cumulative risks. They found that although both prenatal drug exposure and cumulative environmental risk predicted children's developmental level and rate of growth, environmental risk accounted for more variance in developmental trajectories than prenatal drug exposure. In fact, over time, the effects of environmental risk outweighed the adverse consequences of prenatal substance exposure.

Protective factors may directly reduce the effects of risk, may enhance competence, or may protect the individual against adversity (Garmezy, Masten, & Tellegen, 1984). Protective processes may operate simultaneously or successively even within the same individual in the face of different challenges and at different points in development.

As noted, the field of infant mental health has a long tradition of focusing on strengths and using strengths to minimize risks (Knitzer, 2000; Zeanah, 1998). A central concern then, for, infant mental health is how to balance the influence of risk and protective factors and their mutual effects on a child's particular situation. In addition, in the first few years of life, it appears that environmental risk and protective factors matter more than within-the-infant risk and protective factors. In the Rochester longitudinal study, for example, highly competent infants in high-risk environments fared worse in terms of competence at age 4 years than did low-competent infants in low-risk environments (Sameroff, Bartko, Baldwin, Baldwin, & Seifer, 1998). Thus, identifying, supporting, and strengthening caregiver and family strengths is a fundamental principle underlying the work of infant mental health practitioners and provides direction for policymakers interested in supporting young children.

Psychopathology May Be Evident Early

Can infants and toddlers experience or express psychopathology? The existence of psychopathology in infancy has been the source of considerable controversy in part because we are reluctant to believe that infants can experience or suffer from psychiatric disorders (Zeanah et al., 1997). Behavioral indicators of infant mental health include emotion regulation, the ability to communicate feelings to caregivers, and active exploration of the environment. These behaviors lay the groundwork for later social and emotional competence, readiness to enter school, and better academic and social performance.

One major approach to studying psychopathology in the early years is a multidisciplinary endeavor known as *developmental psychopathology*. It concerns identifying developmental trajectories and those risk and protective factors and processes that increase or decrease the probability of positive developmental outcomes. Clinical disorders may be less than fully differentiated in infancy (but see Angold & Egger, 2007, regarding preschool children). Developmental psychopathology emphasizes identification of individuals with developmental delays (development is behind where it ought to be, but the child is otherwise normal) or deviance

(development is abnormal) even before an actual disorder has emerged. Thus, preventive interventions, targeted to children with risk factors but not yet manifesting a disorder, can be developed. Finally, because there is interest in the process of how disorders develop, the field of developmental psychopathology studies the evolution of disorders over time rather than simply examining signs and symptoms at a single point in time.

Psychopathology often is characterized by the inability to change and adapt, but infants are constantly changing by developing. This means that infant problems must be distinguished from the often large range of normal variations in behavior and from transient perturbations in development. Obviously, one way to address this challenge is to follow children over time and determine whether problems persist. On the other hand, it is important to recognize that psychopathology and maladaptation may not produce static symptomatology; rather, the manifestations of problems may be different at different times in development. For example, indiscriminate behavior toward unfamiliar adults in early childhood is a predictor of serious peer relational disturbances in adolescence (Hodges & Tizard, 1989)—the continuity is in interpersonal disturbances, but they manifest differently at different ages. Lawful developmental transformation of symptomatology, known as *heterotypic continuity*, adds to the complexity of assessing psychopathology in infancy and early childhood.

For an individual child, however, risk factors are less important than the actual development and functioning of that individual child at a given time. Clinicians must determine whether a given child, at a given moment, has sufficient distress or maladaptive behavior to constitute a disorder that requires intervention. This area introduces the other approach to psychopathology in infancy, which is to consider that at least some infant problem behaviors are signs and symptoms of psychiatric disorders. Clinicians have found the use of categorical diagnostic approaches to be valuable in young children, as they allow for conceptualizing how clusters of symptoms hang together and provide clearer indicators of "caseness" than do dimensional scores of various constructs.

Though some still hesitate to describe early deviant behavior as psychopathology, rather than risk for psychopathology, there are increasingly compelling reasons to think that doing so is a useful approach. For example, most would agree that autism represents a disorder, and there are compelling indicators that autism as a disorder is evident at least as early as the second year of life (see Carr & Lord, Chapter 18, this volume). There are almost certainly neurobiological abnormalities and behavioral differences that are evident even before the second year, but the reliability of a categorical diagnosis of autism from about 2 years of age is reasonable.

New studies are beginning to show that many types of psychiatric disorders are prevalent in young children. A recent study of more than 300 two- to five-year-old children attending pediatric clinics in Durham, North Carolina found that 16% had diagnosable psychiatric disorders associated with impairment in functioning (Egger et al., 2006). This prevalence rate in nonreferred preschool children is almost identical to the 13% rate reported in older children and adolescents (Costello, Mustillo, Erkanli, Keeler, & Arnold, 2003).

There also has been progress in distinguishing transient individual differences from true psychopathology. Belden, Thomson, and Luby (2008) studied temper tantrums in healthy versus depressed and disruptive preschoolers. They found that preschoolers diagnosed with disruptive behavior disorders had more tantrums, more lasting tantrums, and more violent tantrums than other children. Preschoolers diagnosed with depression, in contrast, displayed more self-harm during tantrums than their healthy or disruptive peers. The conclusion is that children having more violent tantrums and tantrums associated with self harm require more careful monitoring and perhaps referral for assessment. In addition, separation anxiety as a disorder can be differentiated from more transient separation anxiety in 2-year-old children by the degree of impairment (Egger, 2008).

Despite all of these findings, there has been widespread dissatisfaction among clinicians about using DSM-IV-TR (American Psychiatric Association, 2000) criteria to diagnose disorders in young children. New diagnostic classifications systems have been created to provide more developmentally appropriate criteria, and also to provide a

basis for studying the construct validity of diagnoses. Zero to Three's alternative nosology has been recently updated as DC:0–3-R (Zero to Three, 2005), and is in use in many parts of the world. In addition, the Research Diagnostic Criteria for Infants and Preschoolers (American Academy of Child and Adolescent Psychiatry, 2003) was developed by clinical investigators to enhance uniformity in research efforts. Finally, the DSM-V, scheduled for publication in 2012, has an explicit goal of incorporating a developmental focus, including age-related subtypes of disorders where the evidence warrants it (Pine et al., 2008). This level of activity underscores considerable interest in psychiatric disorders in young children.

We believe that at this early stage of the science of infant mental health, both the risk and protective factor approach of developmental psychopathology and the categorical disorder approach of many clinical studies have merit and are worthy of further investigation. Each approach, in fact, may complement the other. In addition, we must concern ourselves not only with adverse outcomes but also with desired outcomes and how to achieve them. This point leads to a discussion of how best to promote healthy outcomes in infant mental health.

Social Competence and Resilience

Health is sometimes defined as the absence of disease, although increasingly researchers and clinicians are concerned with health *promotion*, that is, in enhancing individuals quality of experience. One aspect of "quality of experience" is *social competence*, the ability to adapt successfully to differing social and environmental demands. Social competence, of course, is an ongoing adaptive capacity that itself may change over time in relation to different stressors and situations. A focus on competence also reminds us that symptoms alone do not make a disorder; their functional significance for the individual also must be considered. Social competence has emerged as an increasingly important outcome in infant mental health, as well as in studies of developmental psychopathology.

A special form of social competence receiving increasing attention is *resilience*. Resilience is demonstrated by infants and young children who achieve positive outcomes despite high-risk status, who maintain competent functioning despite stressful life circumstances, and who recover from traumatic events and experiences (Masten & Coatesworth, 1998). Increasingly, it has become clear that resilience, like competence, is a multidimensional construct, and one that changes over time and context. In addition, it may be that rather than being resilient to many problems, individuals may be resilient to some stressors but not to others (Rutter, 2000).

For children in the early years, having a relationship with a caregiver who is available and responsive to their needs, able to help them navigate the demands of development over time, is likely to be the most important factor in helping them to achieve positive outcomes, maintain competent functioning under stress, and recover from traumatic experiences. Young children who have the capacity to elicit support and positive responses from others may be at an advantage in this regard (Werner & Smith, 2001). Enforcing policies that support families—especially those that have limited resources—from the time they are expecting through their child's early years is the best way to enhance young children's competent functioning (Center on the Developing Child at Harvard University, 2007).

Some Early Problems Are Enduring

As noted above, not all problem behaviors seen in the early years are transient. We turn next to consider examples of enduring qualities of at least some forms of psychopathology and consider the implication of these findings. We consider first the subsyndromal risk factor of aggression and then consider the categorical diagnosis of posttraumatic stress disorder.

Aggression

Aggression, defiance, and temper tantrums typically peak in early toddlerhood and decrease by school entry; however, some children do not show this normative decline. In the National Institute of Child Health and Human Development (NICHD) study of child care, investigators identified a cluster of children who exhibited very high levels of aggression at age 2 years and again at age 9 years (National Institute of Child Health

and Human Development Early Child Care Research Network, 2004). Family correlates of children with stable high levels of aggression included lower social class, less maternal education, reduced sensitivity to the child, harsh and punitive parenting, depressive symptoms in the parent, and parents having fewer child-centered attitudes. Similarly, in a longitudinal study of 318 children at ages 2, 4, and 5 a latent profile analysis resulted in two distinct longitudinal profiles of disruptive behavior (Degnan, Calkins, Keane, & Hill-Soderlund, 2008). One high-aggression profile was characterized by high child reactivity (children who reacted strongly and quickly to frustration) combined with highly controlling maternal behavior. Another was characterized by low child regulation (poor efforts to regulate emotions) combined with low levels of maternal control. In both of these studies, aggression is stable over time and associated with stable parental characteristics.

Aggression in young children is not without consequences. Gilliam (2005) determined that state-run pre-K programs have three times the rate of expulsion of grades K–12. The reason young children get expelled from child care centers and pre-K is almost always aggression. Longer-term consequences are also important, as aggressive school-age children may begin a path toward antisocial behavior in adolescence or adulthood (Frick & Marsee, 2006).

Posttraumatic Stress Disorder

It is well known that many adults and older children who have been severely traumatized develop posttraumatic stress disorder (PTSD), showing signs of hyperarousal, reexperiencing the trauma, avoiding reminders of the trauma, and/or numbing of responsiveness. A series of studies of young children has demonstrated that these same symptoms are apparent in infants, toddlers, and preschoolers, although their manifestations are different than in older children and adults because of obvious developmental differences (see Scheeringa, Chapter 21, this volume). In addition, two studies that have followed the course of traumatized young children indicate that signs and symptoms exhibited following a traumatic event are not transient. Scheeringa, Zeanah, Myers, and Putnam (2005) studied 62 children with mixed traumatic experiences 4 months, 16 months, and 28 months after the trauma. They found significant stability of symptoms over the 2 years, with almost no diminishment of symptoms. Meiser-Stedman, Smith, Glucksman, Yule, and Dalgleish (2008) studied 62 preschool children 2–4 weeks and 6 months after they had experienced motor vehicle accidents. They found that the diagnosis of PTSD was moderately stable over the 6-month interval, even though the initial assessment occurred before a month had passed from the accident.

Treatment studies of PTSD that include control groups also indicate a similar persistence of symptoms over time. For example, Lieberman, Van Horn, and Ippen (2005) studied the effectiveness of child–parent psychotherapy as a treatment of PTSD in young children exposed to partner violence. The comparison condition was case management, involving monthly telephone contact with the mothers as well as providing information about and referrals to, local mental health clinics. Immediately after treatment (1 year after the trauma), the group who received child–parent psychotherapy showed statistically significant improvements in child posttraumatic stress symptoms, but the group receiving case management showed no significant diminishment of signs of PTSD. These results show that young children receiving case management and sometimes referral experienced stability in their symptoms over 12 months.

Implications

These findings are selective rather than comprehensive, but they illustrate that it is no longer acceptable to assume that early-appearing symptomatology is always, or even usually, transient. Furthermore, there are reasons to believe that intervening earlier is more effective—at least for some domains of development.

Dishion and colleagues (2008) suggest three reasons why earlier intervention may be more beneficial. First, earlier interventions may target child behaviors before they take on a more serious form. In their focus on externalizing problems, they argue that noncompliant and oppositional behaviors are easier to remediate than are lying, stealing, and proactive aggression. Second, if children are younger, then parents are also

younger and may have had fewer stressful experiences and more capacity to change. Third, the sense of optimism caregivers have regarding the possibility of parent–child relationship change is much higher during their offspring's early childhood.

Knudsen and colleagues (Knudsen, Heckman, Cameron, & Shonkoff, 2006) pointed out that there is a convergence of findings from child development, neuroscience, and economic research indicating that greater return on investments are to be expected when intervening earlier. Citing studies from all three areas of research, they present compelling evidence that early intervention is more likely to be effective, providing a basis for policies that support a broad array of early childhood initiatives (see Knitzer & Lefkowitz, 2006). This point leads us to consider the kinds of early intervention that infant mental health recommends.

COMPREHENSIVE INTERVENTIONS ARE NEEDED

The goals of the infant mental health field are to reduce or eliminate suffering, to prevent adverse outcomes (school failure, delinquency, psychiatric morbidity, interpersonal isolation or conflicts, developmental delays and deviance), and to promote healthy outcomes by enhancing social competence and resilience. In order to accomplish these overarching goals, interventions must (1) enhance the ability of caregivers to nurture young children effectively, (2) ensure that families in need of additional services can obtain them, and (3) increase the ability of nonfamilial caregivers to identify, address, and prevent social–emotional problems in early childhood. The targets of intervention can be the child's behavior, the parent's behavior, or even the social context in which the child is developing, but the main focus of infant mental health is on strengthening or improving relationships as they impact the young child's development and behavior.

In Figure 1.1, we present a model of infant mental health services, based on a preventive health perspective (Mrazek & Haggerty, 1994; National Research Council and Institute of Medicine, 2000) that represents an update of a previous conceptualization (Zeanah, Stafford, Nagle, et al., 2005). Mrazek and Haggerty (1994) distinguished between prevention and treatment services. Preventive interventions aim to prevent the initial onset of a disorder, decrease causal factors and increase protective factors, and/or decrease the severity or duration of a disorder. Specifically, preventive interventions emphasize altering infant and parent behaviors and family functioning in order to preserve or restore infants to more normative developmental trajectories. For example, intrinsic infant risk factors such as difficult temperament cannot be prevented, but the adverse consequences of difficult temperament, such as the emergence of behavior problems, can be a focus of prevention efforts.

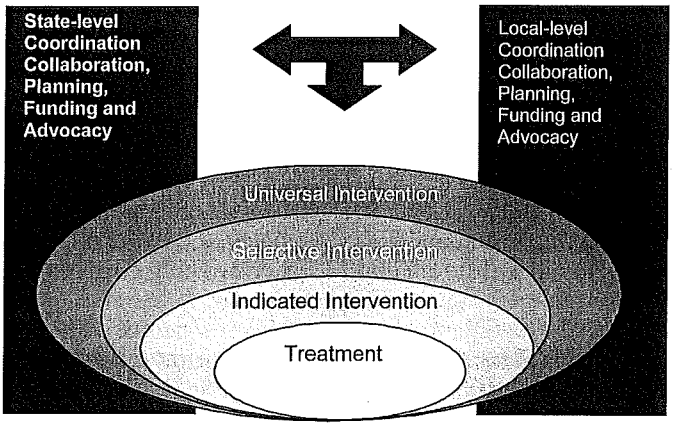

FIGURE 1.1. Continuum of services at state and local levels.

Mrazek and Haggerty (1994) divided preventive interventions into three distinct levels. *Universal preventions* are considered desirable for everyone in an eligible population; professional assistance may or may not be needed. *Selective preventions* target members of a group who have high lifetime or high imminent risk for subsequent problems. Finally, *indicated preventions* target those who manifest minimal but detectable behavioral symptoms that may later become a full-blown disorder. Treatment of existing disorders adds a fourth level to this conceptualization (see Figure 1.1).

Since infants and young children grow and develop within multiple contexts, biological, social, and relationship issues are often interrelated, and a continuum of services is needed. Infants and families may seek services at any point along the continuum or more than one point simultaneously. For example, a young child who requires treatment for trauma symptoms related to abuse or neglect may also need preventive health care; access to services for basic needs such as food, shelter, or clothing; or specialized developmental services such as speech and language or physical therapy. A child being seen for a well-child visit may be identified as having behavioral problems that warrant more intensive or specialized interventions. Thus, cross-discipline and often cross-system collaboration is essential. In fact, in the United States, major policy initiatives in infant mental health are evident in most states, supported by federal and/or state governments (Rosenthal & Kaye, 2005).

Universal Prevention

Some services are believed to be important for all infants and families, either for prevention or for health promotion purposes. These universal services seek to avert or prevent the onset of problems and/or seek to enhance social–emotional health and development. In infant mental health, approaches include education regarding normal infant health and development, increasing knowledge about what constitutes healthy parent–infant relationships, and access or referral to additional services as needed. Although most universal services are aimed at individuals or families, in some cases, a community approach is needed to ensure that basic needs such as safe housing, appropriate nutrition, and availability of health and human services are met even before other issues can be addressed.

Early child care provides one example of a universal setting for addressing infant mental health. Scarr (1998) declared that there is an international consensus about what constitutes quality child care—namely, warm, supportive interactions with adults in a safe, healthy, and stimulating environment. Considerable evidence supports her assertion. For example, the NICHD study of early child care is a prospective, longitudinal study designed to examine concurrent, long-term, and cumulative influences of variations in early child care experiences of young children. In this study, 1,364 healthy full-term newborns were recruited in 10 sites around the United States. Investigators examined what aspects of child care were important for promoting child development across a number of domains by assessing the child, the family, and the child care setting longitudinally; among child care variables, quality of care was the most important predictor of child outcomes. Quality of care is related to cognitive and language outcomes, as well as social and behavioral outcomes, in young children (National Institute of Child Health and Human Development Early Child Care Research Network, 2005). In other words, access to quality child care is a vitally important intervention for young children and should be the focus of sustained policy efforts to help achieve that goal.

An important caveat was that characteristics of the parent–child relationship were better predictor of child outcomes than any combination of child care variables (National Institute of Child Health and Human Development Early Child Care Research Network, 2006). This does not mean that child care experiences are unimportant. Rather, it emphasizes the importance of *all* caregiving relationships for young children, with special primacy for parent–child relationships.

Selective Approaches to Intervention

Some interventions are provided to families of young children who have been selected because they are "at risk" for poorer social and emotional outcomes. Some within the group may be functioning well; others

may be more obviously struggling. Interventions are presumably developed to address the risks inherent in the population, and typically, specific outcomes are monitored or measured. Selective interventions may be delivered in a variety of settings (e.g., health, mental health, educational, or social services), and there is a great range in the structure of such services, such as frequency or intensity, type of intervention provided, skills or behaviors that are targeted, and amount of monitoring or follow-up.

A notable example of a selective prevention directed at improving maternal and infant outcomes, including the reduction of abuse and neglect in a high-risk, impoverished sample, is the work of Olds, Salder, and Kitzman (2007). They pioneered the Nurse–Family Partnership (NFP), a nurse–home visitation intervention for impoverished first-time mothers. The preventive intervention begins prior to the 28th week of pregnancy and continues through the child's second birthday. Though the NFP program uses attachment theory, social learning theory, and human ecology theory to ground the work, the program evolved out of a public health rather than mental health delivery approach.

NFP has three major goals: to improve pregnancy health outcomes, to improve infant health and development outcomes, and to improve maternal life course development. Highly trained nurses use manualized guidelines to address issues related to personal health and health, quality of caregiving for the infant, maternal life course development, and social support. Special attention is given to the importance of establishing a trusting, consistent relationship between the nurse and the client, and the development of a safe, nurturing, and enriched parent–infant relationship.

Through a series of randomized controlled trials, NFP has demonstrated significant impact across a variety of maternal and infant health and social outcomes, including reduction in child maltreatment, reductions in serious accidental injuries in children, delays in subsequent pregnancies, and increased maternal employment, as well as reductions in child and maternal criminal and antisocial behaviors as long as 15 years after program completion (Olds et al., 2007). Importantly, two independent groups have shown that the program has yielded significant cost–benefit advantages (Aos, Lieb, Mayfield, Miller, & Pennucci, 2004; Karoly, Kilburn, & Cannon, 2005).

Indicated Approaches to Preventive Intervention

When subsyndromal problems are already evident in young children, indicated interventions may be applied. These interventions are aimed at preventing early manifestations of deviance from becoming clinical disorders in later development.

Insecure and especially disorganized attachments between young children and their caregivers are known to be a risk factor for subsequent psychosocial adaptation. Because sensitive and responsive parenting is associated with secure attachment, van den Boom (1994) developed an intervention designed to enhance secure attachment in infants believed to be at risk because of temperamental irritability. She delivered three home visits to low-income mothers and their 6- to 9-month-old temperamentally irritable infants. The intervention focused on increasing mothers' sensitive responsiveness to their infants' cues. Findings from a randomized trial of 100 infant–mother pairs demonstrated that when infants were 9 months old, program mothers were significantly more responsive, stimulating, and visually attentive. At 12 and 18 months old, children whose mothers received the intervention were significantly more likely to be securely attached than control children (van den Boom, 1994, 1995). These findings led Juffer, Bakermans-Kranenburg, and van IJzendoorn (2007) to develop and evaluate a promising intervention called the Video-based Intervention to Promote Positive Parenting. This intervention is targeted to dyads at risk for the adverse consequences of insecure attachment and has been shown to reduce externalizing problems in young children.

Treatment of Established Disorders

For young children who already have identifiable disorders, psychotherapeutic services aimed at alleviating suffering or repairing or remediating functioning are necessary. Most often these services are provided by mental health professionals trained in spe-

cific infant mental health assessment and intervention techniques. Treatment of already identified problems may be focused primarily on changing the infant (Benoit, Wang, & Zlotki, 2001), the parent and his or her behavior (McDonough, 2000), or the infant–parent relationship (Lieberman, Silverman, & Pawl, 2000). Stern (1995) has argued that these different forms of intervention may use different strategies and different ports of entry into the infant–parent dyad, but all are concerned with changing the relationship as a way of changing infant behavior and experience.

Treatment of established problems is concerned with current resolution of symptoms and distress but also with infants' developmental trajectories. For these reasons, infant mental health treatment is concerned simultaneously with present and future adaptation of the child.

An increasing number of treatments in infant mental health are supported empirically. Perhaps the best studied is child–parent psychotherapy. Originally pioneered by Fraiberg and colleagues (Fraiberg et al., 1975), this treatment is a manualized intervention used primarily with high-risk families that have children less than 5 years of age. Child–parent psychotherapy tries to establish links between the parents' early childhood experiences and their current feelings, perceptions, and behaviors toward their infants and young children. The therapist acts as a translator of the emotional experience of parent and child, attending carefully to the parent's stressful life circumstances and culturally derived values.

A new generation of clinician researchers has more fully developed child–parent psychotherapy, expanded its application to preschool-age children, and systematically studied its effectiveness (see Lieberman & Van Horn, Chapter 27, this volume); in fact, there are now five randomized controlled trials supporting its efficacy. Child–parent psychotherapy has been shown to be effective at (1) reducing insecure attachment behaviors in toddlers of stressed immigrant families (Lieberman, Weston, & Pawl, 1991), (2) reducing signs of PTSD in children traumatized by marital violence (Lieberman et al., 2005; Lieberman, Ippen, & Van Horn, 2006), and (3) increasing secure attachments in infants of depressed mothers (Cicchetti, Toth, & Rogosh, 1999; Toth, Rogosch, Manly, & Cicchetti, 2006) and in maltreated young children (Cicchetti, Rogosch, & Toth, 2006; Toth, Maughan, Manly, Spagnola, & Cicchetti, 2002).

Challenges of Infant Mental Health Interventions

Preventive interventions and treatment efforts in infant mental health share several challenges. First, it is important to involve families of young children and to listen and incorporate their concerns into the planning and implementation of interventions. This requires the development of a *working alliance* between parents and intervener—that is, a shared commitment to work together in the best interest of the child. The relationship between the parent and the intervener often becomes a model for the respectful and empathic way parents learn to relate to their infant.

Second, practitioners must recognize that personal, familial, ethnic, cultural, professional, and organizational values impact every aspect of interventions. These values create explicit and implicit lenses through which relationships are understood. Often, the situations faced by infants and young children evoke strong feelings in the professional. Recognizing and understanding one's own value system as well as how professional perspectives impact one's ability to understand the dyad are an ongoing challenge. Countertransference, including problems with boundaries, value judgments, and rescue fantasies, can cloud objectivity and undermine the potential for the intervention to succeed. Adequate provider training and supervision are viewed as essential precursors to developing effective interventions (see Hinshaw-Fuselier, Zeanah, & Larrieu, Chapter 33, this volume).

A third related challenge, particularly for professionals who have been taught to focus on individuals, is keeping the focus on the infant–parent relationship. The professional must pay attention not only to the behavioral interactions within the dyad, but also must appreciate the parent's emotional experience of the young child, and the young child's experience of the parent. Recognition of each of these perspectives requires a paradigm shift for most early childhood professionals,

and it requires significant training in order to fully understand and to integrate these perspectives into clinical work.

Finally, though the evidence base in infant mental health is growing, ongoing research into preventive interventions and treatments is needed. It is important to identify the components of the intervention, such as (1) the targeted recipient; (2) methods of intervention; (3) frequency, intensity, and length of services; (4) location of service delivery; and (5) type of service provider. Then it is important to link these components with anticipated, measurable outcomes (Karoly et al., 2005). Explicating these components and applying sound research methodology will enhance the evidence base and eventually will allow us in the field to identify critical elements and combination strategies that make a difference within and possibly across programs. For example, Olds and colleagues (2002) showed that nurses outperformed paraprofessionals in terms of outcomes achieved, keeping other characteristics of the NFP model constant. This finding helps justify the extra cost of using nurses to deliver services in this intervention.

There is a particular need for research that focuses on the impact of sequential preventive interventions (Mrazek & Haggerty, 1994). This area has hardly been studied at all, no doubt partly because it poses significant fiscal and logistical challenges.

In developing more refined questions in intervention research, clinicians need to work closely with researchers. Ideally, the latest research findings inform clinical practice, and clinical practice informs research designs by introducing promising approaches. The ultimate goal is for clinicians to be able to select an intervention that is best suited to address an individual child's particular problems and circumstances. Policies ensuring that families have access to individualized services will become increasingly important as our ability to match children and families with specific interventions improves.

CONCLUSIONS

The field of infant mental health emphasizes the importance of caregiving relationships as having major effects on the young child's social and emotional experience. Healthy caregiving relationships, which are embedded within multiple social and cultural contexts, promote social competence in young children, and social competence is associated with adaptive behavioral, emotional, and cognitive outcomes. The scope of infant mental health includes clinical, research, and policy efforts and encompasses the theoretical perspectives and knowledge base of multiple professional disciplines. The complexity of the problems of infants and toddlers must be matched by the comprehensiveness of our efforts to minimize their suffering and enhance their competence.

REFERENCES

American Academy of Child and Adolescent Psychiatry Task Force on Research Diagnostic Criteria: Infancy and Preschool. (2003). Research diagnostic criteria for infants and preschool children: The process and empirical support. *Journal of the American Academy of Child and Adolescent Psychiatry, 42*, 1504–1512.

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.

Angold, A., & Egger, H. L. (2007). Preschool psychopathology: Lessons for the lifespan. *Journal of Child Psychology, Psychiatry, and Allied Disciplines, 48*, 961–966.

Aos, S., Lieb, R., Mayfield, J., Miller, M., & Pennucci, A. (2004). *Benefits and costs of prevention and early intervention programs for youth.* Olympia, WA: Washington State Institute for Public Policy.

Belden, A. C., Thomson, N. R., & Luby, J. L. (2008). Temper tantrums in healthy versus depressed and disruptive preschoolers: Defining tantrum behaviors associated with clinical problems. *Journal of Pediatrics, 152*, 117–122.

Bell, R. Q. (1968). A reinterpretation of the direction of effects in studies of socialization. *Psychological Review, 75*, 81–95.

Benoit, D., Wang, E. L., & Zlotki, S. H. (2000). Discontinuation of enterostomy tube feeding by behavioral treatment in early childhood: A randomized controlled trial. *Journal of Pediatrics, 137*, 498–503.

Bergman, K., Sarkar, P., Glover, V., & O'Connor, T. G. (2008). Quality of child–parent attachment moderates the impact of antenatal stress on child fearfulness. *Journal of Child Psychology and Psychiatry, 49*, 1089–1098.

Carta, J. J., Atwater, J. B., Greenwood, C. R., McConnell, S. R., McEvoy, M. A., & Williams, R. (2001). Effects of cumulative prenatal substance exposure and environmental risks on children's developmental trajectories. *Journal of Clinical Child Psychology, 30*, 327–337.

Center on the Developing Child at Harvard University. (2007). *A science-based framework for early childhood policy using evidence to improve outcomes in learning, behavior, and health for vulnerable children.* Available online at *www.developingchild.harvard.edu.*

Cicchetti, D., Rogosch, F. A., & Toth, S. L. (2006). Fostering secure attachment in infants in maltreating families through preventive interventions. *Development and Psychopathology, 18,* 623–649.

Cicchetti, D., Toth, S. L., & Rogosch, F. A. (1999). The efficacy of toddler–parent psychotherapy to increase attachment security in offspring of depressed mothers. *Attachment and Human Development, 1,* 34–66.

Costello, E. J., Mustillo, S., Erkanli, A., Keeler, G., & Angold, A. (2003). Prevalence and development of psychiatric disorders in childhood and adolescence. *Archives of General Psychiatry, 60,* 837–844.

Crockenberg, S., & Leerkes, E. (2000). Infant social and emotional development in family context. In C. H. Zeanah, Jr. (Ed.), *Handbook of infant mental health* (2nd ed., pp. 60–90). New York: Guilford Press.

Crockenberg, S., Lyons-Ruth, K., & Dickstein, S. (1993). The family context of infant mental health: II. Infant development in multiple family relationships. In C. H. Zeanah (Ed.), *Handbook of infant mental health* (pp. 38–55). New York: Guilford Press.

Cummings, E. M., & Davies, P. T. (2002). Effects of marital conflict on children: Recent advances and emerging themes in process-oriented research. *Journal of Child Psychology and Psychiatry, 43,* 31–63.

Degnan, K. A., Calkins, S. D., Keane, S. P., & Hill-Soderlund, A. L. (2008). Profiles of disruptive behavior across early childhood: Contributions of frustration reactivity, physiological regulation, and maternal behavior. *Child Development, 79,* 1357–1376.

Degnan, K. A., Henderson, H. A., Fox, N. A., & Rubin, K. H. (2008). Predicting social wariness in middle childhood: The moderating roles of child care history, maternal personality, and maternal behavior. *Social Development, 71,* 471–487.

Dishion, T. J., Shaw, D., Connell, A., Gradner, F., Weaver, C., & Wilson, M. (2008). The family check up with high risk indigent families: Preventing problem behavior by increasing parents' positive behavior support in early childhood. *Child Development, 79,* 1395–1414.

Dube, S. R., Felitti, V. J., Dong, M., Giles, W. H., & Anda, R. F. (2003). The impact of adverse childhood experiences on health problems: Evidence from four birth cohorts dating back to 1900. *Preventive Medicine, 37,* 268–277.

Egger, H. L. (2008, November). *Assessing preschoolers with anxiety.* Paper presented at the annual meeting of the American Academy of Child and Adolescent Psychiatry, Chicago.

Egger, H. L., Erkanli, A., Keeler, G., Potts, E., Walter, B. K., & Angold, A. (2006). Test–retest reliability of the Preschool Age Psychiatric Assessment (PAPA). *Journal of the American Academy of Child and Adolescent Psychiatry, 45,* 538–549.

Emde, R. N. (1991). The wonder of our complex enterprise: Steps enabled by attachment and the effect of relationships on relationships. *Infant Mental Health Journal, 12,* 164–173.

Escalona, S. (1967). Patterns of infantile experience and the developmental process. *Psychoanalytic Study of the Child, 22,* 197–244.

Felitti, V. J., Anda, R. F., Nordenberg, D., Williams, D. F., Spitz, A. M., Edwards, V., et al. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) study. *American Journal of Preventive Medicine, 14,* 245–258.

Fraiberg, S., Adelman, B., & Shapiro, V. (1975). Ghosts in the nursery. *Journal of the American Academy of Child and Adolescent Psychiatry, 14,* 387–421.

Frick, P. J., & Marsee, M. A. (2006). Psychopathy and developmental pathways to antisocial behavior in youth. In C. J. Patrick (Ed.), *Handbook of psychopathy* (pp. 353–370). New York: Guilford Press.

Gardner, F., Sonuga-Barke, E., & Sayal, K. (1999). Parents anticipating misbehavior: An observational study of strategies parents use to prevent conflict with behavior problem children. *Journal of Child Psychology and Psychiatry, 40,* 1185–1196.

Garmezy, N., Masten, A. S., & Tellegen, A. (1984). The study of stress and competence in children: A building block for developmental psychopathology. *Child Development, 55,* 97–111.

Gilliam, W. S. (2005). *Prekindergarteners left behind: Expulsion rates in state prekindergarten systems.* New Haven, CT: The Edward Zigler Center in Child Development and Social Policy, Yale University Child Study Center. Available at *ziglercenter.yale.edu/resources/docs/National%20Prek%20Study_expulsion.pdf.*

Hodges, J., & Tizard, B. (1989). Social and family relationships of ex-institutional adolescents. *Journal of Child Psychology and Psychiatry, 30,* 77–97.

Juffer, F., Bakermans-Kranenburg, M. J., & van IJzendoorn, M. H. (2007). *Promoting positive parenting: An attachment-based intervention.* Mahwah, NJ: Erlbaum.

Karoly, L. A., Kilburn, M. R., & Cannon, J. S. (2005). *Early childhood interventions: Proven results, future promise.* Santa Monica, CA: RAND.

Knitzer, J. (2000). Early childhood mental health services: A policy and systems development perspective. In J. Shonkoff & S. Meisels (Eds.), *Handbook of early childhood intervention* (2nd ed., pp. 416–438). New York: Cambridge University Press.

Knitzer, J., & Lefkowitz, J. (2006). *Pathways to*

early school success issue: Brief No. 1. Helping the most vulnerable infants, toddlers, and their families. New York: National Center for Children in Poverty.

Knudsen, E. I. (2004). Sensitive periods in the development of the brain and behavior. *Journal of Cognitive Neuroscience, 16*, 1412–1425.

Knudsen, E. I., Heckman, J. J., Cameron, J. L., & Shonkoff, J. P. (2006). Economic, neurobiological, and behavioral perspectives on building America's future workforce. *Proceedings of the National Academy of Sciences, 103*, 10155–10162.

Lewis, M. (2000). The cultural context of infant mental health: The developmental niche of infant–caregiver relationships. In C. H. Zeanah, Jr. (Ed.), *Handbook of infant mental health* (2nd ed., pp. 91–107). New York: Guilford Press.

Lieberman, A. F., Ippen, C. G., & Van Horn, P. (2006). Child–parent psychotherapy: 6-month follow-up of a randomized controlled trial. *Journal of the American Academy of Child and Adolescent Psychiatry, 45*, 913–917.

Lieberman, A. F., Silverman, R., & Pawl, J. (2000). Infant–parent psychotherapy. In C. H. Zeanah (Ed.), *Handbook of infant mental health* (2nd ed., pp. 472–484). New York: Guilford Press.

Lieberman, A. F., Van Horn, P., & Ippen, C. G. (2005). Toward evidence-based treatment: Child–parent psychotherapy with preschoolers exposed to marital violence. *Journal of the American Academy of Child and Adolescent Psychiatry, 44*, 1241–1248.

Lieberman, A. F., Weston, D., & Pawl, J. H. (1991). Preventive intervention and outcome with anxiously attached dyads. *Child Development, 62*, 199–209.

Masten, A. S., & Coatesworth, D. J. (1998). The development of competence in favorable and unfavorable environments: Lessons from research on successful children. *American Psychologist, 53*, 205–220.

McCarton, C. M., Brooks-Gunn, J., Wallace, I. F., Bauer, C. R., Bennett, F. C., Bernbaum, J. C., et al. (1997). Results at age 8 years of early intervention for low-birth-weight premature infants: The infant health and development program. *Obstetrical and Gynecological Survey, 52*, 341–342.

McDonough, S. (2000). Interaction guidance: An approach for difficult to engage families. In C. H. Zeanah (Ed.), *Handbook of infant mental health* (2nd ed., pp. 485–493). New York: Guilford Press.

Meiser-Stedman, R., Smith, P., Glucksman, E., Yule, W., & Dalgleish, T. (2008). The posttraumatic stress disorder diagnosis in preschool- and elementary school-age children exposed to motor vehicle accidents. *American Journal of Psychiatry, 165*, 1326–1337.

Middlebrooks, J. S., & Audage, N. C. (2008). *The effects of childhood stress on health across the lifespan.* Atlanta: Centers for Disease Control and Prevention, National Center for Injury Prevention and Control.

Minuchin, P. (1988). Relationships within the family: A systems perspective on development. In R. A. Hinde & J. Stevenson-Hinde (Eds.), *Relationships within families: Mutual influences* (pp. 7–26). New York: Oxford University Press.

Mrazek, P. B., & Haggerty, R. J. (1994). *Reducing risks for mental disorders: Frontiers for preventive intervention research.* Committee on Prevention of Mental Disorders, Institute of Medicine. Washington, DC: National Academy Press.

National Institute of Child Health and Human Development Early Child Care Research Network. (2004). Trajectories of physical aggression from toddlerhood to middle childhood: Predictors, correlates and outcomes. *Monographs of the Society for Research in Child Development (Serial No. 278), 69*, 1–144.

National Institute of Child Health and Human Development Early Child Care Research Network. (2005). *Child care and child development.* New York: Guilford Press.

National Institute of Child Health and Human Development Early Child Care Research Network. (2006). Child care effect sizes for the NICHD study of early child care and youth development. *American Psychologist, 61*, 99–116.

National Research Council and Institute of Medicine. (2000). *From neurons to neighborhoods: The science of early childhood development.* Committee on Integrating the Science of Early Childhood Development (J. P. Shonkoff and D. A. Phillips, Eds.). Washington, DC: National Academy Press.

Nelson, C. A., Zeanah, C. H., Fox, N. A., Marshall, P. J., Smyke, A. T., & Guthrie, D. (2007). Cognitive recovery in socially deprived young children: The Bucharest Early Intervention Project. *Science, 318*, 1937–1940.

Olds, D. L., Robinson, J., O'Brien, R., Luckey, D. W., Pettitt, L. M., Henderson, C. R., et al. (2002). Home visiting by paraprofessionals and by nurses: A randomized, controlled trial. *Pediatrics, 110*, 486–496.

Olds, D. L., Sadler, L., & Kitzman, H. (2007). Programs for parents of infants and toddlers: Recent evidence from randomized trials. *Journal of Child Psychology and Psychiatry, 48*, 355–391.

Pine, D. S., Costello, E. J., Dahl, R., James, R., Leckman, J., Leibenluft, E., et al. (2008, March). *Increasing the developmental focus in DSM-V: Broad issues and specific potential applications in anxiety.* Paper presented at the annual meeting of the American Psychopathological Association, New York City.

Robinson, M., Oddy, W. H., Li, J., Kendall, G. E., de Klerk, N. H., Silburn, S. R., et al. (2008). Pre- and postnatal influences on preschool mental health: A large-scale cohort study. *Journal of Child Psychology and Psychiatry, 49*, 1118–1128.

Rosenthal, J., & Kaye, N. (2005). *State approaches to promoting young children's healthy mental development: A survey of Medicaid, maternal and child health, and mental health agen-*

cies. Portland, ME: National Academy for State Health Policy.

Rutter, M. (2000). Resilience reconsidered: Conceptual considerations, empirical findings, and policy implications. In J. Shonkoff & S. Meisels (Eds.), *Handbook of early childhood intervention* (2nd ed., pp. 651–682). New York: Cambridge University Press.

Sameroff, A. J., Bartko, W. T., Baldwin, A., Baldwin, C., & Seifer, R. (1998). Family and social influences on the development of competence. In M. Lewis & C. Feiring (Eds.), *Families, risk and competence* (pp. 161–186). Hillsdale, NJ: Erlbaum.

Sameroff, A. J., & Fiese, B. (2000). Models of development and developmental risk. In C. H. Zeanah (Ed.), *Handbook of infant mental health* (2nd ed., pp. 3–19). New York: Guilford Press.

Scarr, S. (1998). American child care today. *American Psychologist, 53*, 95–108.

Scheeringa, M. S., & Zeanah, C. H., Jr. (2001). A relationship perspective on PTSD in infancy. *Journal of Traumatic Stress, 14*, 799–815.

Scheeringa, M. S., Zeanah, C. H., Jr., Myers, L., & Putnam, F. W. (2005). Predictive validity in a prospective follow-up of PTSD in preschool children. *Journal of the American Academy of Child and Adolescent Psychiatry, 44*, 899–906.

Sroufe, L. A. (1989). Relationships, self and individual adaptation. In A. J. Sameroff & R. N. Emde (Eds.), *Relationship disturbances in early childhood* (pp. 70–94). New York: Basic Books.

Sroufe, L. A. (1997). Psychopathology as an outcome of development. *Development and Psychopathology, 9*, 251–268.

Sroufe, L. A., & Rutter, M. (2000). Developmental psychopathology: Concepts and challenges. *Development and Psychopathology, 12*, 265–296.

Steele, H., Steele, M., & Fonagy, P. (1996). Associations among attachment classifications of mothers, fathers, and their infants. *Child Development, 67*, 541–555.

Stern, D. N. (1995). *The motherhood constellation*. New York: Basic Books.

Toth, S. L., Maughan, A., Manly, J. T., Spagnola, M., & Cicchetti, D. (2002). The relative efficacy of two interventions in altering maltreated preschool children's representational models: Implications for attachment theory. *Development and Psychopathology, 14*, 877–908.

Toth, S. L., Rogosch, F. A., Manly, J. T., & Cicchetti, D. (2006). The efficacy of toddler–parent psychotherapy to reorganize attachment in the young offspring of mothers with major depressive disorder: A randomized preventive trial. *Journal of Consulting and Clinical Psychology, 74*, 1006–1016.

van den Boom, D. C. (1994). The influence of temperament and mothering on attachment and exploration: An experimental manipulation of sensitive responsiveness among lower-class mothers with irritable infants. *Child Development, 65*, 1457–1477.

van den Boom, D. C. (1995). Do first-year intervention effects endure?: Follow-up during toddlerhood of a sample of Dutch irritable infants. *Child Development, 66*, 1798–1816.

Werner, E. E., & Smith, R. S. (2001). *Journeys from childhood to midlife: Risk, resilience, and recovery*. Ithaca, NY: Cornell University Press.

Zeanah, C. H., Jr. (1998). Reflections on the strengths perspective. *The Signal, 6*, 12–13.

Zeanah, C. H., Jr., Bakshi, S., Boris, N. W., & Lieberman, A. (2000). Disorders of attachment. In J. Osofsky & H. Fitzgerald (Eds.), *WAIMH handbook of infant mental health* (pp. 93–122). New York: Wiley.

Zeanah, C. H., Boris, N., & Scheeringa, M. (1997). Psychopathology in infancy. *Journal of Child Psychology, Psychiatry, and Allied Disciplines, 38*, 81–99.

Zeanah, C. H., Jr., & Zeanah, P. D. (2001). Towards a definition of infant mental health. *Zero to Three, 22*, 13–20.

Zeanah, P. D., Gleason, M. M., & Zeanah, C. H., Jr. (2008). Infant mental health. In M. M. Haith & J. B. Benson (Eds.), *Encyclopedia of infant and early childhood development* (pp. 301–311). New York: Elsevier.

Zeanah, P. D., Stafford, B., Nagle, G., & Rice, T. (2005). Addressing social emotional development and infant mental health. In *Building early childhood comprehensive systems series* (Vol. 12). Los Angeles: National Center for Infant and Early Childhood Health Policy.

Zeanah, P. D., Stafford, B., & Zeanah, C. H., Jr. (2005). Clinical interventions in infant mental health: A selective review. In *Building state early childhood comprehensive systems series* (Vol. 13). Los Angeles: National Center for Infant and Early Childhood Health Policy.

Zero to Three. (2001). *Definition of infant mental health*. Washington, DC: Zero to Three Infant Mental Health Steering Committee.

Zero to Three. (2005). *Diagnostic classification of mental health and developmental disorders of infancy and early childhood, revised (DC:0–3R)*. Washington, DC: Zero to Three Press.