

ENHANCING EARLY ATTACHMENTS

Duke Series in Child Development and Public Policy

Kenneth A. Dodge and Martha Putallaz, *Editors*

Aggression, Antisocial Behavior, and Violence
among Girls: A Developmental Perspective
Martha Putallaz and Karen L. Bierman, Editors

Enhancing Early Attachments:
Theory, Research, Intervention, and Policy
*Lisa J. Berlin, Yair Ziv, Lisa Amaya-Jackson,
and Mark T. Greenberg, Editors*

Enhancing Early Attachments

*Theory, Research,
Intervention, and Policy*

Edited by

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*To our children—Dana, Hannah, Katie,
Martin, Ryan, Samantha, and Shira*

About the Editors

Lisa J. Berlin, PhD, is a Research Scientist at the Center for Child and Family Policy at Duke University. Her work focuses on early development and programs and policies for young children and their families; she is especially concerned with child abuse prevention. Dr. Berlin served as a member of the national evaluation team for the Early Head Start Research and Evaluation Project, a multisite, longitudinal, randomized evaluation of approximately 3,000 low-income families. Currently she is directing two studies, with funding from the National Institute of Mental Health, addressing the intergenerational transmission of problematic parenting. Dr. Berlin is also an investigator with the Durham Family Initiative, a multidisciplinary, communitywide child abuse prevention initiative in Durham, North Carolina.

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Series Editors' Note

This volume is the second in the Duke Series in Child Development and Public Policy, an ongoing collection of edited volumes that address the translation of research in child development to contemporary issues in public policy. The goal of the series is to bring cutting-edge research and theory in the vibrant field of child development to bear on problems facing children and families in contemporary society.

Inspiration for this series grew out of interactions among faculty members at the Duke Center for Child and Family Policy in the Terry Sanford Institute of Public Policy and the Duke Department of Psychology: Social and Health Sciences. With generous support from the Duke Provost's Initiative in the Social Sciences, we began to plan an annual series of working conferences, each of which would lead to an edited volume.

Each conference brings together scholars from diverse disciplines, along with a participant audience of over 100 scientists, students, policymakers, and practitioners, who wrestle with a problem in contemporary society. Because each conference is defined by a broad current problem or issue, scholars are forced to depart from their silos of disciplinary-based theories and methods in order to address the practice and policy issues that are germane to the particular problem. The solutions to vexing contemporary problems require the best efforts of multiple disciplines working together. The first conference and volume addressed the growing problem of aggressive and antisocial behavior in girls and proved very successful.

The current volume represents the work of the second conference, on the topic of interventions to address dysfunction in the infant-parent attachment relationship. Attachment theory has inspired a huge number of empirical research studies in early social development over the past 50

years, but only recently has this field mounted systematic interventions that are designed to enhance the quality of the relationship between the infant and his or her caregivers. Several of these interventions bring excitement and hope for families in distress, and this volume attempts to bring attention to their promise. These interventions are being applied in a variety of settings, including Early Head Start, nurse-practitioner home-visiting programs, child trauma treatment settings, foster care, and community prevention programs. The public policy issues of financing, screening and triage, and standards of care loom large, and they are addressed here.

Not all of the interventions that are proliferating are based in the sound translation of theory and empirical developmental research, however. The contemporary public policy relevance of this field has been heightened over the past 5 years by reports of so-called “rebirthing interventions” that were purportedly based on attachment theory. These interventions involve immersing a child in horrifying, life-threatening situations. Several tragic deaths have been reported, and so one major purpose of this volume is to distinguish the science from the pseudoscience of attachment theory-based intervention.

This volume brings together for the first time a concise overview of the theory that has guided the development of these interventions, their application in several key contexts, the empirical evidence regarding efficacy in initial trials and effectiveness in real-world settings, and the policy issues that must be navigated to bring this promise to standard practice in the community.

Like the first volume in the series, this conference and volume have been the product of a partnership between Duke University and Pennsylvania State University. At Duke, Lisa Berlin, Research Scientist at the Center for Child and Family Policy, took the lead in creating a vision for the conference and in assembling a team of collaborators. She is the inspiration for this volume. She was joined by Lisa Amaya-Jackson, clinician extraordinaire, Associate Professor of Psychiatry, and Associate Director of the National Center for Child Traumatic Stress. They received expert counsel and collaboration from Mark Greenberg, the Bennett Endowed Chair in Prevention Research at Pennsylvania State University and a long-standing expert scholar in attachment theory and research. The final member of the editorial team is Yair Ziv, Senior Study Director in the Child and Family Study Group at Westat, whose emerging research on attachment theory and intervention is helping to shape the next generation.

Financial support for this conference has been provided by the Duke Provost's Initiative in the Social Sciences and the Consortium on Children, Families, and Youth at Pennsylvania State University. We are

grateful to Duke Provost Peter Lange and to Karen Bierman, Distinguished Professor of Psychology at Pennsylvania State University, for her guidance and financial support.

As this volume goes to press, several additional conferences and volumes are at various stages of completion. Each follows the model of a partnership between scholars at Duke University and another university, and each brings together leading scholars with practitioners and policy-makers to address timely issues. Upcoming volume topics include diversity in African American family life, the problem of deviant peer contagion in adolescent groups and interventions, cultural influences on parenting practices, and novel approaches to the prevention of depression in adolescents. The fun has just begun.

KENNETH A. DODGE, PHD
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Preface

“There is no finer investment for any community than putting milk into babies,” proclaimed Winston Churchill in a 1943 radio broadcast (James, 1974, p. 8507). More than 60 years later and an ocean away, “putting milk into babies,” both literally and figuratively, is an increasingly prominent goal of U.S. mental health practitioners, community-based service providers, and policymakers (e.g., National Research Council and Institute of Medicine, 2000). The current extraordinary focus on early child development is in large part a response to an explosion of recent research illustrating the importance of children’s earliest years for their later development (see National Research Council and Institute of Medicine, 2000, for a review). This research highlights the importance of children’s early development and particularly the importance of children’s relationships with their first caregivers. Supportive early child–caregiver relationships pave the way for children’s subsequent development, especially in terms of their social skills and mental health. At the opposite end of the spectrum, early childhood abuse results in acute physical injuries and exacts far-reaching costs in victims’ mental illness and the continued perpetration of violence. Moreover, the earlier in children’s lives that maltreatment occurs, the more likely it is to recur, and the greater the physical, psychological, and social costs. The traumatic effects of children’s exposure to interpersonal violence are also an increasing concern.

Enhancing early child–caregiver relationships and preventing family violence have become key goals of mental health practitioners working with young children and their families, and of community-based programs designed to support early child and family development, such as the Healthy Families program for families at risk of child maltreatment. Enhancing early relationships has also become a more pressing goal for national policymakers. For example, the 1994 federal Advisory Com-

mittee on Services for Families with Infants and Toddlers, which helped form the Early Head Start program for low-income infants and toddlers, emphasized the need for services to support child–caregiver relationships during the first 3 years of life. The Early Head Start Research and Evaluation Project has since confirmed that enhancing early child–caregiver relationships is a key goal of Early Head Start programs, and a key mechanism underlying the program’s positive effects on child development (Love et al., 2002). In addition, two separate federal laws, CAPTA (the Child Abuse Prevention and Treatment Act) and IDEA (the Individuals with Disabilities Education Act), have just recently been amended to mandate that children under age 3 with substantiated child abuse or neglect, and children under age 5 with substantiated trauma due to exposure to family violence, be referred for public early intervention services. This landmark legislation not only recognizes the urgent mental health needs that child maltreatment and exposure to family violence trigger but also will require significant reorganizations on the parts of public mental health, early education, and child protective systems to provide early intervention services to young victims of attachment-related traumas. The field of interventions to enhance early attachments can and should facilitate these efforts.

There are currently more than 400 Healthy Families programs and more than 700 Early Head Start programs throughout the United States. Yet while emphasizing the importance of early attachments and perhaps even succeeding in enhancing early attachments, most of these programs’ “attachment” services are not explicitly theory based, research based, or even implemented or documented in such a way as to allow for rigorous evaluation. This is a problem, especially from a policy perspective. Today, when early child development is an active item on the policymaking agenda, is a crucial time to bring science to bear on program and policy development as they pertain to supporting early child–caregiver relationships. Ultimately, programs that support early child–caregiver relationships must be theoretically grounded, evidence based, rigorously evaluated, faithful to a defined program model, and deliverable on a large scale in a sustainable and cost-effective manner.

Attachment theory and research offer powerful tools for achieving these goals. Attachment theory and research have fueled key findings about early child development and spurred the creation of interventions to enhance early child–caregiver relationships. Although best known as the originator of attachment theory, John Bowlby was also a practicing psychiatrist. He developed attachment theory in response to questions inspired by his own clinical work. Ironically, it took almost 50 years from the time of Bowlby’s first writings for attachment theory to be systematically applied to therapeutic programs for young children and fam-

ilies (Belsky & Nezworski, 1988; Bowlby, 1988). In the late 1980s, Bowlby published *A Secure Base*, a collection of earlier lectures laying out the fundamentals of attachment theory and research and offering a series of explicit suggestions for therapists. At about the same time, the first generation of interventions designed to enhance early attachments was initiated.

Since the late 1980s, attachment interventions have proliferated in various settings across the United States and abroad. These services are delivered as part of an array of social or mental health services, or as services in and of themselves, or as both. They are delivered in the context of dyadic or family therapies for early relationship problems, early childhood disorders, or maternal mental health or substance abuse problems; and within community-based programs to promote early child and family development and/or to prevent child maltreatment. Although the proliferation of attachment-based interventions reflects scientific advances, the field as a whole lacks order and systemization, especially in terms of the use of evidence-based protocols. Rather, the field is characterized by many different programs operating independently of one another, with only preliminary research on program effectiveness. Further confusion has been created by the use of the term “attachment therapies” to describe pseudoscientific interventions that are not based on attachment theory or research and that have resulted in tragic outcomes for children, including at least six documented child fatalities. These interventions include “holding therapies” involving the reenactment of the child’s emergence from the womb, with the horrific outcome of the child’s suffocation. Some of these therapies receive government financial reimbursement.

In sum, interventions to enhance early attachments offer a highly promising avenue toward supporting early child development on the whole. The current policymaking climate as well as the current state of the field of attachment intervention make it a critical time to take stock of the field, to identify pressing questions and issues, and to apply what is learned to program and policy development, as well as to research. We developed this volume to pursue these tasks.

The seeds of this volume were planted in the fall of 2003, at a conference held at Duke University. The conference was supported by four generous cosponsors: the Duke University Center for Child and Family Policy, through a grant from the A. L. Mailman Family Foundation; the Duke University Department of Psychology: Social and Health Sciences; the Children, Youth, and Families Consortium of the Pennsylvania State University, of which Mark Greenberg is associate director; and the UCLA–Duke University National Center for Child Traumatic Stress, funded by the Substance Abuse and Mental Health Services Administra-

tion, to coordinate the 54-site National Child Traumatic Stress Network (NCTSN). The conference speakers, who then wrote chapters for this volume, reflect an interdisciplinary and international set of cutting-edge practitioners and scholars. Lisa Amaya-Jackson, Lisa J. Berlin, Alicia F. Lieberman, Geoffrey Nagle, Frank W. Putnam, and Charles H. Zeanah are members of the NCTSN, reflecting increasing convergence among the fields of attachment, trauma, and child mental health.

The volume consists of two principal sections and a set of integrative commentaries. The first section centers on the theoretical and empirical bases for interventions to enhance early attachments. In Chapter 1, Lisa J. Berlin takes stock of the field of interventions to enhance early attachments. She systematically reviews a selection of programs designed to enhance early attachments and then offers a set of recommendations for program development and evaluation, geared especially toward understanding “What works for whom?” Chapter 2, by Jude Cassidy and her colleagues, draws on a new study to address several critical questions concerning the antecedents of child–caregiver attachment: What makes a child securely or insecurely attached? What are the essential elements of services designed to support attachment security? What do researchers need to study to further elucidate these issues? In Chapter 3, Yair Ziv stresses the importance of integrating paradigms and findings from attachment interventions into attachment theory and research; not only do theory and research inform interventions, he argues, but also interventions shape and refine theory and research. Ziv describes findings from a number of contemporary studies to highlight ways in which theory, research, and intervention can and should work synergistically. In Chapter 4, Frank W. Putnam draws on findings from animal research and studies of maltreated and traumatized children to illustrate the neurobiological underpinnings of child–caregiver attachment, and the biological and behavioral consequences of disrupted attachments. He then draws out some implications for practice and policy. Chapter 5, by Alicia F. Lieberman and Lisa Amaya-Jackson, focuses on traumatized children. The authors draw on theory, research, and poignant case material to argue convincingly for greater integration of attachment theory, methods, and interventions into child trauma treatment, and for greater integration of child trauma assessments and treatments into attachment interventions.

The volume’s second section showcases a set of programs concerned with enhancing early attachments and the policy linkages of several of these programs. Reflecting the diversity of the field, some of these programs focus principally on enhancing early attachments, whereas in other programs enhancing attachment is one component of many. All of the programs are designed for mothers and children considered to be at

risk, yet the programs' definitions of what constitutes "risk" vary considerably. At the same time, the authors of these chapters are well aware of one another's work, and their participation in the conference that preceded this book led many to include thoughtful discussions of their programs in the context of the field as a whole, and in relation to some of the questions raised in the first section of this volume (e.g., What are the essential elements of services to support attachment security? Can the neurological sequelae of disrupted attachments be reversed? How do services for enhancing early attachment fit into the current policy agenda?).

In Chapter 6, Glen Cooper, Kent Hoffman, Bert Powell, and Robert Marvin present their latest work on a key attachment intervention that is one of the fastest growing attachment interventions today, and that is seen, in whole or in part, in many of the other programs presented in this volume: the Circle of Security intervention. In Chapter 7, Arietta Slade, Lois S. Sadler, and Linda C. Mayes describe a recently initiated program, "Minding the Baby." Minding the Baby is both comprehensive, drawing on components of nurse home visiting and infant mental health practice, and focused, with parents' "reflective functioning" viewed as a key intervention target and agent of change.

Chapters 8 and 9 describe interventions for children who have experienced serious attachment disruptions. Both of these chapters present programs that not only offer promise for children with disrupted attachments but also speak to fundamental issues in attachment theory and research, such as the extent to which a child can form an attachment to a caregiver after experiencing severe deprivation during infancy. In Chapter 8, Mary Dozier, Oliver Lindhiem, and John P. Ackerman describe the "Attachment and Biobehavioral Catch-Up" (ABC) program for foster infants and their caregivers. In Chapter 9, Charles H. Zeanah and Anna T. Smyke present two programs, one in New Orleans, Louisiana, and one in Bucharest, Romania, the goals of which include the (re)establishment of attachment relationships and the reduction of attachment disturbances in maltreated and institutionalized young children.

Chapters 10, 11, and 12 describe programs in which enhancing attachment is one component of many. Each of these programs is at least partially publicly funded; all are highly policy relevant. In Chapter 10, David L. Olds describes his preeminent preventive intervention, the Nurse-Family Partnership (NFP), which is based in part on attachment theory and research. Although the NFP does not focus principally on enhancing attachments, its partial roots in attachment and its outstandingly positive outcomes, including parenting and child abuse outcomes, make it important to consider in this volume. Similarly, in Chapter 11, Susan Spieker, Dana Nelson, Michelle DeKlyen, and Fredi Staerkel present outcomes related to an attachment-focused protocol, the Parent-

Child Communication Coaching Program (PCCCCP), embedded within an Early Head Start program. Again, although not an attachment intervention per se, Early Head Start is based in part on attachment theory and research and serves over 70,000 low-income U.S. infants and toddlers today. Thus, the extent to which an explicit attachment protocol might add value to this major public program and/or underlie program effects is extremely important to understand. Chapter 12 continues the theme of understanding attachment-relevant programs, especially within the policy context. Written by Geoffrey Nagle and Joan Wightkin, this chapter tells the story of the implementation, expansion, and garnering of Medicaid dollars for the Nurse–Family Partnership program in the state of Louisiana.

The final section of the volume consists of three integrative commentaries. The first, by Marinus van IJzendoorn, Marian J. Bakermans-Kranenburg, and Femmie Juffer, draws on a series of meta-analyses to highlight the benefits of short-term, narrowly focused attachment interventions. The second commentary, by Thomas G. O'Connor and Wendy J. Nilsen, discusses some problems and solutions related to the translation of attachment theory and research methods into program and policy development, broadly writ. In the third and final commentary, Mark T. Greenberg synthesizes questions and issues across the chapters of this volume, arguing for the use of prevention science models and public health approaches in implementing and understanding future attachment interventions in the contexts of larger health, social service, and early education systems.

The editors owe debts of gratitude to many people who helped make this volume what it is, and better. First, this volume reflects the hard work of its many busy contributors. We thank them all for their excellent work and their careful responsiveness to our editorial input along the way. We owe a special thanks to Jude Cassidy, who, in addition to contributing a chapter, participated in the early planning and organization of the conference and volume, generously offering helpful suggestions, tough questions, and generally good ideas. Our colleagues in the attachment working group at the Center for Child and Family Health–North Carolina also deserve thanks for helping to raise many of the questions and concerns that this project came to address. We thank Kenneth Dodge and Martha Putallaz for their spearheading of the support of the Duke Series in Child Development and Public Policy for this project, and for much valuable input along the way. We thank Robert Pynoos and John Fairbank, codirectors of the National Center for Child Traumatic Stress, for their continued support of this project, and the many NCTSN attendees of the conference who, along with the other conference participants, posed questions and comments that helped

shape the authors' translations from presentation to chapter. We thank Barbara Pollock and Lynda Harrison of the Center for Child and Family Policy for outstanding administrative support. And we thank Rochelle Serwator of The Guilford Press for being the most helpful and gracious editor a volume could have.

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PART I

THEORETICAL AND
RESEARCH BASES
FOR INTERVENTIONS
TO ENHANCE
EARLY ATTACHMENTS

Interventions to Enhance Early Attachments

The State of the Field Today

Lisa J. Berlin

The past 15 years have witnessed the burgeoning of intervention programs that explicitly aim to enhance early child–parent attachments. These programs vary widely in terms of the participants they serve, the services they provide, and the rigor with which they have been evaluated. Perhaps because of the great variety of programs, a unified sense of program findings has been difficult to achieve. Efforts to review and synthesize program results have yielded disparate conclusions about how best to conduct interventions to enhance early attachments (Bakermans-Kranenburg, van IJzendoorn, & Juffer, 2003; Egeland, Weinfield, Bosquet, & Cheng, 2000; van IJzendoorn, 1995). For example, a recent meta-analysis is entitled “Less Is More,” reflecting the authors’ emphasis on the benefits of short-term practical interventions to enhance early attachments (Bakermans-Kranenburg et al., 2003). A recent review chapter, however, argues that “more is better” (Egeland et al., 2000, p. 79)—that comprehensive and intensive programs hold the most promise for enhancing early attachments.

This chapter takes stock of the field of interventions to enhance early attachments and aims to clarify the state of the field today. The chapter begins with a review of the implications of attachment theory and research for interventions to enhance early attachments. Next, a selection of programs designed to enhance early attachments is reviewed.

Finally, a synthesis and set of recommendations for program development and evaluation are offered.

THE IMPLICATIONS OF ATTACHMENT THEORY AND RESEARCH FOR INTERVENTIONS TO ENHANCE EARLY ATTACHMENTS

The “Transmission Model” of Internal Working Models, Parenting, and Child–Parent Attachment

Internal Working Models of Attachment

Attachment theory and research emphasize the contribution of the parent to the quality of the child–parent relationship (Ainsworth, Blehar, Waters, & Wall, 1978; Berlin & Cassidy, 2000; Bowlby, 1973, 1980, 1982; van IJzendoorn, 1995). These contributions have been widely discussed and investigated, and have been integrated into a “transmission model” (van IJzendoorn, 1995), depicted schematically in Figure 1.1. According to the transmission model, parenting behaviors contribute directly to the quality of the child–parent attachment and are largely driven by the parent’s “internal working models” of attachment.

Parents’ internal working models are hypothesized to drive parenting behaviors and the quality of the child–parent attachment by guiding the parents’ interpretations of and responses to their children’s needs (Main, 1990). A sensitive supportive parent is expected to be open to the full range of her or his child’s needs, and to respond contingently to these needs (Ainsworth et al., 1978). An insensitive, less supportive parent is characterized by distortion and misrepresentation of the child’s needs, and by selective responsiveness to the child’s various bids. The

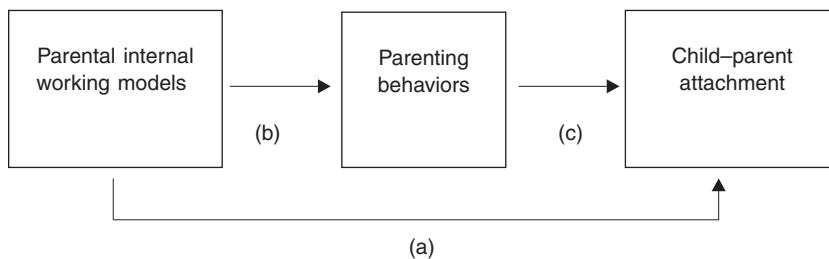


FIGURE 1.1. The “transmission model”: proposed associations between parental internal working models, parenting behaviors, and quality of the child–parent attachment.

ideal outcome is a “secure” child–parent attachment characterized by the child’s internal working model of the parent as a “secure base from which to explore” (Ainsworth, 1963). Thus, the parent’s internal working models are thought to guide parenting behaviors, which in turn shape the security of the child’s attachment to the parent.

Measures of Parents’ Internal Working Models, Parenting Behaviors, and Child–Parent Attachment

The vast majority of the research on the associations among internal working models, parenting behaviors, and child–parent attachment has used the two “gold standard” assessments of adult and child attachment: the Adult Attachment Interview (AAI; George, Kaplan, & Main, 1985) and the Strange Situation procedure (Ainsworth et al., 1978). In addition to the AAI and the Strange Situation, the most compelling studies of the associations among internal working models, parenting behaviors, and child–parent attachment have drawn on observational assessments of parenting behaviors that focus on parental “sensitivity” and the extent to which the parent serves as a secure base for her or his child. Key sensitive and supportive parenting behaviors include taking the child’s perspective, accurately perceiving the child’s bids, or signals, and appropriately and promptly responding to these bids (Ainsworth et al., 1978). According to the theory, a sensitive parent provides care and nurturing in response to the child’s bids for comfort, and facilitates independent forays in response to the child’s bids to explore. Moreover, it is the parent’s balancing of the provision of a “safe haven” (to which to return) with the provision of a “secure base” *according to the child’s needs* that directly fosters security in the child.

Testing the Transmission Model

A series of meta-analyses conducted by van IJzendoorn and his colleagues have been especially helpful for understanding the links among parents’ internal working models, parenting behaviors, and child–parent attachment (De Wolff & van IJzendoorn, 1997; van IJzendoorn, 1995). A 1995 meta-analysis examining attachment data from approximately 850 parent–child dyads revealed a robust association between parents’ internal working models of attachment (AAI classifications) and their infants’ attachment to them (Strange Situation classifications) (van IJzendoorn, 1995; see Figure 1.1, path *a*). Another meta-analysis of data from 400 dyads found a strong association between parents’ working models and observations of their sensitive, warm, and supportive parenting behaviors (van IJzendoorn, 1995; see Figure 1.1, path *b*). A third

meta-analysis of over 4,000 infant–mother pairs indicated a moderately strong association between mothers’ sensitive caregiving behaviors and their infants’ attachment to them (De Wolff & van IJzendoorn, 1997; see also Berlin & Cassidy, 2000; see Figure 1.1, path *c*).

Although there is strong support for the direct links among parents’ internal working models, parenting behaviors, and child attachment, the hypothesis that parenting behaviors mediate the link between parents’ working models and child attachment is not well supported. In his 1995 meta-analysis, van IJzendoorn tested this mediated path (Figure 1.1 as a whole). Surprisingly, parenting behavior accounted for a relatively small proportion of the association between parental working models and child attachment security. The data did not support the model whereby parenting behaviors serve as the principal linking mechanism between parents’ working models of attachment and their children’s attachment to them. This “transmission gap” emerged again in a more recent study of 60 dyads (Pederson, Gleason, Moran, & Bento, 1998).

There are several plausible explanations for the transmission gap (e.g., inadequate theory, inadequate parenting measures), many of which are currently under investigation (e.g., Cassidy et al., Chapter 2, this volume; Jaffe, Beebe, Feldstein, Crown, & Jasnow, 2001; Slade, Grienemberger, Bernbach, Levy, & Locker, in press). For the purposes of considering the implications of this work for interventions to enhance early attachments, the relevant points are these: (1) both parental internal working models and parenting behaviors predict child–parent attachment; (2) there is a stronger prediction from working models than from parenting behaviors; and (3) parenting behaviors explain only some of the association between representational models and child attachment.

The Transmission Model in Context

In addition to the limitations imposed by the transmission gap, the exclusive focus of the transmission model on attachment processes may limit its explanatory power. In keeping with Bronfenbrenner’s (1979) ecological approach to human development, a consideration of the transmission model *in context*, and in conjunction with other factors shown to influence child and family development, is important (Belsky, 1999a; Belsky, Rosenberger, & Crnic, 1995). A number of studies have in fact linked factors such as family stress, parental mental health, marital quality, social support, and child health to parents’ internal working models, parenting behaviors, and/or child–parent attachment. Overall, the findings of these studies support and complement the transmission model, by illustrating predominantly *indirect* effects of other factors on attachment, through internal working model or parenting (see Belsky,

1999a; Belsky et al., 1995; Berlin & Cassidy, 1999, for reviews). For example, one study found that prenatal marital quality predicted mothers' role satisfaction, which, in turn, forecast both maternal sensitivity and infant–mother attachment (Isabella, 1994).

What is less clear, however, are the relative contributions of these other factors and the different ways in which they interact with parents' internal working models and parenting behaviors. Further research is required to elucidate the transmission model in context and its implications for intervention, especially with regard to the breadth and intensity of services (i.e., whether and/or when “less is more” or “more is better”). For example, if future studies can delineate the interactions among parental depression, working models, and parenting behaviors, future interventions can be tailored accordingly (e.g., specific treatments for depression may be required). Further research should include carefully controlled efficacy trials based on the transmission model. With this goal in mind, the next section presents the implications of the transmission model for interventions to enhance early attachments. Recommendations for further research on the transmission model in context are offered in the final section of this chapter.

Interventions to Enhance Early Attachments: Three Therapeutic Tasks

A consideration of the transmission model and the transmission gap, and a review of Bowlby's (1988) suggestions for therapists, suggest that interventions designed to enhance early attachments implement three specific theory- and research-based therapeutic tasks (Berlin & Cassidy, 2001). The first two tasks concern intervention targets, specifically, (1) the parent's internal working models and (2) parenting behaviors. In light of the stronger association between internal working models and child–parent attachment than between parenting behaviors and child–parent attachment, it is suggested here that internal working models take precedence as an intervention target. The third task concerns intervention process, specifically that the therapist, or intervenor, serve as a “secure base” for the parent (Bowlby, 1988) so that the parent's secure attachment to the therapist becomes the key agent of therapeutic change.

With respect to the first task, targeting the parent's internal working models means helping the parent gain insight into her or his representations, especially in close relationships and/or emotionally laden situations. Bowlby argued that this insight is most effectively gained through discussion of the parent's early family relationships, current close relationships, and the influences of early relationships on current ones: “As a rule, information from the two sources is recovered as a chain in which

information from the present . . . alternates with information from the past, with each link leading on to the next” (Bowlby, 1988, p. 71; see also Fraiberg, 1980, for an almost verbatim argument). Thus, it is especially by raising people’s awareness of their own working models, and of the influence of these models on their current behaviors, that tenacious ineffectual patterns can be reversed. According to Bowlby, the intervenor must help the parent understand the connections between early and later relationships and the extent to which strategies developed in early relationships facilitate or undermine the achievement of current relationship goals. Only then can the parent begin to modify her or his behaviors, and, ultimately, her or his working models—to “change her [or his] mind” (Vaughan, 1997).

The second key task for interventions to enhance early attachment centers on directly enhancing parenting. Although many parenting or “parent-training” programs exist, enhancing parenting according to attachment theory and research means helping the parent interpret her or his child’s needs as accurately as possible, respond contingently, and, ultimately, to serve as a secure base from which the child may explore his or her world. The therapist can help the parent understand how her or his own behaviors can satisfy as well as thwart the child’s needs. As demonstrated by the Circle of Security Project (see Cooper, Hoffman, Powell, & Marvin, Chapter 6, this volume; Marvin, Cooper, Hoffman, & Powell, 2002), it can be especially useful to teach parents the concept of the secure base. Parents’ two principal and complementary parenting tasks are then defined as providing closeness and comfort in response to their child’s proximity seeking, and as facilitating autonomy in response to the child’s bids to explore. When a child needs closeness and comfort from the parent, especially in times of distress, the task of the parent is to accept and acknowledge the child’s distress, comfort the child until he or she feels better, and help him or her return to play (exploration). When a child demonstrates interest in exploring and mastering his or her environment, the task of the parent is to facilitate this exploration by letting the child go, helping only when necessary, and celebrating his or her independent accomplishments.

According to Bowlby and others, the achievement of the first two therapeutic tasks outlined here will depend on the quality of the relationship between the intervenor and the parent—in particular, the extent to which the intervenor serves as a secure base from which the parent can mentally explore her or his self and her or his relationship with her or his child. Bowlby (1980, 1988) purported that new attachments are one of the factors most likely to alter internal working models. Thus, parents’ insights into their own histories, especially their most painful moments, are most likely to emerge in the context of a supportive thera-

peutic relationship, as are parents' fledgling attempts at new parenting behaviors. More recently, Lieberman has argued convincingly that in working with parents of infants, the therapist must serve not only as a secure base but also as a model of empathic and supportive behavior (Lieberman, 1991; Lieberman & Pawl, 1993). In the therapist's care, Lieberman states, "parents learn, often for the first time, ways of relating that are characterized by mutuality and caring. . . . Because of its power to change negative expectations and create a new and more trusting experience . . . the therapeutic relationship can be regarded as a corrective attachment experience" (Lieberman & Zeanah, 1999, p. 558; see also Lieberman, 1991; Lieberman & Pawl, 1993).

In sum, according to attachment theory and research, enhancing early child-parent attachments will be most likely to occur within an empathic and supportive relationship between the therapist and the parent in which the therapist models the types of behaviors that she or he is encouraging in the parent. Furthermore, the therapist can help the parent consider the roots of her or his insensitive behaviors and the extent to which these behaviors arise from the parent's own defensiveness (i.e., insecure working models). Armed with greater understanding and supported by the therapist's continual encouragement, the parent can test new parenting behaviors, and eventually can begin to create new working models. Ultimately, this therapeutic work must be understood in context, that is, in conjunction with factors such as family stress and parental mental health, and with respect to how treatments for these other factors might work in conjunction with attachment-focused treatments.

INTERVENTIONS TO ENHANCE EARLY ATTACHMENTS: A SELECTIVE REVIEW

In 2000, Egeland and his colleagues reviewed 15 intervention programs that "sought to promote secure attachment" (Egeland et al., 2000, p. 45). They examined four types of programs: (1) those designed to enhance parental sensitivity; (2) those designed to change parents' internal working models; (3) those designed to provide and enhance parents' social support; and (4) those designed to enhance mothers' mental health and well-being. Overall, Egeland and his colleagues describe these programs as having had "marginal success in promoting secure attachment" (Egeland et al., 2000, p. 67). No one type of program stood out as more effective than another, although Egeland and his colleagues argue against programs that focus exclusively on enhancing sensitivity: "With a few notable exceptions . . . it appears that improving maternal sensitivity may not be enough to change the quality of the attachment" (Egeland et

al., 2000, p. 67). Egeland and his colleagues suggest that interventions to enhance early attachments must address internal working models as well as parenting behaviors through “lengthy, intensive, and carefully timed” services (Egeland et al., 2000, p. 70). Egeland and his colleagues also argue for the precise tailoring of intervention services to meet the specific needs of participants. Egeland and his colleagues suggest that more limited services can be a good match for relatively low-risk parents. They also argue more broadly for increasingly comprehensive and intensive interventions in which services to enhance attachments begin early (during pregnancy), last a long time, deliver a strong “dose,” and are linked to other services (e.g., for mental health and drug treatment) for the principal caregiver and other family members. In short, Egeland and his colleagues argue that “more is better” (Egeland et al., 2000, p. 79), especially for multirisk families. This conclusion stands in contrast to the title of a recent meta-analysis of attachment interventions: “Less Is More” (Bakermans-Kranenburg et al., 2003).

Bakermans-Kranenburg and her colleagues conducted a meta-analysis of 29 interventions, including 13 of the 15 programs reviewed by Egeland and colleagues (2000). The meta-analyzed interventions included a total of 1,503 participants. Following Egeland and colleagues, Bakermans-Kranenburg and colleagues identified four types of programs: (1) those designed to enhance parental sensitivity; (2) those designed to change parents’ internal working models; (3) those designed to provide and enhance parents’ social support; and (4) those targeting any combination of these. The meta-analysis indicated a modest but significant effect on attachment ($d = 0.19$). When the meta-analysis was restricted to studies using the “gold standard” Strange Situation as an outcome assessment, however, the effect on attachment was not statistically significant. In an analysis of program type, interventions focusing exclusively on enhancing parental sensitivity stood out as the one type of intervention to show a significant effect on child attachment ($d = 0.39$). Moreover, the studies with large effects for sensitivity (d ’s > 0.40) also showed the largest effects on attachment ($d = 0.45$). Again in contrast to Egeland and colleagues’ recommendations, secondary meta-analyses highlighted short-term (16 sessions or fewer) parenting (sensitivity) interventions and interventions starting later (after the age of 6 months) as the most effective programs, even for the 971 families classified as “multiproblem.” The authors concluded that “less broad interventions that only focus on sensitive maternal behavior appear rather successful in improving insensitive parenting as well as infant attachment insecurity” (Bakermans-Kranenburg et al., 2003, p. 208).

An initial effort to elucidate the apparently disparate conclusions drawn by two sets of eminent scientists and their colleagues led to a

close examination of the programs they reviewed. Both reviews examined a wide range of studies, including randomized trials as well as nonrandomized evaluations, and (in the meta-analysis) published and unpublished reports. And, as already described, both reviews included programs targeting parental sensitivity, internal working models, and social support, although Egeland and his colleagues describe the social support categorization as “arbitrary” (2000, p. 53) because the “social support” programs included a mix of different kinds of supports and services. The social support category makes it difficult to assess the extent to which these interventions were based on the transmission model. To see if the application of a more stringent set of selection criteria could help clarify the field, a review of a subset of the interventions examined by Egeland and colleagues (2000) and Bakermans-Kranenburg and colleagues (2003) was undertaken.

A subset of the intervention studies expected to have the most rigorous findings was selected. Fourteen studies met the following criteria: (1) they were published; (2) the interventions explicitly aimed to enhance child–parent attachment; (3) the interventions were evaluated with a random assignment design in which at least one treatment group was compared to a no-treatment control group; (4) the intervention implemented at least one of the three therapeutic tasks (as outlined earlier) by the time the target child was 1 year old, the age by which infants are believed to have developed an organized “attachment behavioral system” (Bowlby, 1982); and (5) the evaluation examined the quality of child–parent attachment as an intervention outcome. Table 1.1 provides an integrated list of the 24 studies analyzed by Bakermans-Kranenburg and colleagues (2003) and the 15 studies reviewed by Egeland and colleagues (2000), and the extent to which these studies met the first three selection criteria just outlined.¹

Table 1.2 summarizes the 14 intervention studies reviewed here in terms of the number and characteristics of the participants; the type, timing, and duration of the services delivered; the way(s) in which the three theory- and research-based therapeutic tasks were implemented; the measure(s) of child–parent attachment used; the results of the intervention in terms of attachment outcomes and extent to which the therapeutic task(s) were achieved; and, last, the extent to which the achievement of these tasks actually promoted a secure child–parent attachment (i.e., a mediated transmission model).²

With respect to the implementation and assessment of the three therapeutic tasks, as indicated in Table 1.2, six of the 14 interventions focused exclusively on enhancing parenting behaviors (sensitivity), six targeted parental internal working models (nonexclusively), and five implemented all three therapeutic tasks. Ten of the 14 studies measured the

TABLE 1.1. Synopsis of Selection of Interventions to Enhance Early Attachments

Study	Published?	Did treatment explicitly aim to enhance attachment?	Random assignment with no-treatment control group?
Anisfeld et al. (1990) ^a	Yes	Yes	Yes
Bakermans-Kranenburg et al. (1998) ^a	Yes	Yes	Yes
Barnard et al. (1988)	Yes	No	No
Barnett et al. (1987) ^a	Yes	Yes	Yes
Beckwith (1988) ^a	Yes	Yes	Yes
Cicchetti et al. (1999) ^a	Yes	Yes	Yes
Cohen et al. (1999)	Yes	Yes	No
Cooper & Murray (1997) ^a	Yes	Yes	Yes
Egeland & Erickson (1990, 1993) ^a	Yes	Yes	Yes
Gelfand et al. (1996)	Yes	No	No
Gowen & Nebrig (1995)	No	Yes	Not specified
Heinicke et al. (1999, 2000, 2001) ^a	Yes	Yes	Yes
Jacobson & Frye (1991) ^a	Yes	Yes	Yes
Juffer, Hoksbergen, et al. (1997) ^a	Yes	Yes	Yes
Juffer, Rosenboom, et al. (1997); Juffer et al., (in press) ^a	Yes	Yes	Yes
Krupka (1995)	No	NA	NA
Lambermon & van IJzendoorn (1989)	Yes	Yes	No
Lieberman et al. (1991) ^a	Yes	Yes	Yes
Lyons-Ruth et al. (1990) ^a	Yes	Yes	No
Meij (1992)	No	NA	NA
Osofsky et al. (1988)	Yes	Yes	No
Robert-Tissot et al. (1996)	Yes	Yes	No
Rosenboom (1994)	No	NA	NA
Sajaneimi et al. (2001)	Yes	Yes	Yes
van den Boom (1994, 1995) ^a	Yes	Yes	Yes
Wijnroks (1994)	No	NA	NA

^aIntervention selected for review.

extent to which at least one of the therapeutic tasks implemented were achieved. The only studies that included outcome assessments on *all* of the therapeutic tasks that were implemented, however, were four studies that implemented only one task, enhancing parental sensitivity. In 1999, Lieberman and Zeanah noted that “no single investigation to date has simultaneously assessed maternal representations, maternal sensitivity,

and infant representations (i.e., Strange Situation classifications) before and after intervention” (p. 571). This is still the case. Moreover, not one study tested a mediated transmission model whereby enhancing internal working models or parenting led to an enhanced attachment. In short, this review indicates that attachment theory and research have not been comprehensively applied to the design and evaluation of interventions to enhance early attachments.

With respect to the success of the 14 programs reviewed, as indicated in Table 1.2, six of the 14 interventions reviewed here (43%) resulted in a greater proportion of securely attached children in the treatment group.^{3,4} Given the preeminence of the Strange Situation assessment of attachment, the success rate of the studies that used the Strange Situation as an outcome assessment was examined and found to be 36% (four of 11 studies, excluding three studies that relied exclusively on the Attachment Q-Sort as an attachment outcome assessment [Cicchetti, Toth, & Rogosch, 1999; Jacobson & Frye, 1991; Lieberman, Weston, & Pawl, 1991]). Thus, in a parallel to the Bakermans-Kranenburg and colleagues’ (2003) analysis, the present review implies less success within Strange Situation studies. Finally, no one program model or approach stood out as more or less promising. In short, when focusing on attachment security, per se, as an outcome, the findings of this review indicate a modest to moderately successful field, perhaps somewhere between “marginally successful” (Egeland et al., 2000, p. 67) and “rather successful” (Bakermans-Kranenburg et al., 2000, p. 208).

Given the relative newness of the field, however, other definitions of success might also be considered. A look at the extent to which the therapeutic tasks undertaken by each of these programs were achieved indicates that, of the 10 programs that assessed outcomes in terms of their therapeutic tasks, all succeeded in achieving at least one task. In all of these cases, this success either referred to or included enhancing parenting, typically maternal sensitivity or some aspect thereof. Enhancing maternal sensitivity can be considered an important achievement in and of itself, not just because of the empirical connections between sensitivity and attachment, but also because, in many nonattachment studies, maternal sensitivity is associated with children’s social competence and cognitive development (e.g., Bornstein & Tamis-LeMonda, 1989; NICHD Early Child Care Research Network, 1999, 2001). In the present review, counting success as either enhancing attachment *or* maternal sensitivity results in a success rate of 100% (12 of 12 programs).

In sum, a selective review of 14 interventions to enhance early attachments has illustrated the moderate success of these programs according to the criterion of increasing the proportion of securely attached children, and the overwhelming success of these programs according to

TABLE 1.2. A Summary of Selected Interventions to Enhance Early Attachments

Study, participants, brief description of treatment	Therapeutic tasks implemented			Measures		Results	
	Task 1: Parent's IWMs	Task 2: Parenting/ sensitivity	Task 3: Intervenor as secure base	Attachment	Others: Tasks 1–3 Fidelity, dose, process	Attachment	Others: Tasks 1–3 Mediation or moderation effects
Anisfeld et al. (1990) N = 49 low-SES inner-city Ms and their newborns Tx: Requested daily use of a Snuggli and no use of infant seat from birth to 13 mo		(Indirect) Snuggli to increase physical proximity, contact availability		13 mo: Strange Situation	3.5 mo: M vocal responsivity, sensitivity 2 mo and 13 mo: Product use	T > C %secure	T > C M vocal responsivity but not sensitivity T > C %secure, net of M responsivity “High” Snuggli use not significantly related to attachment
Bakermans-Kranenburg et al. (1998) N = 30 lower-middle-class Ms and their firstborns, all Ms insecure according to AAI-“tentative” classifications Tx: 4 HVs between 7 and 10 mo 2 Tx groups: Video or video + discussion	Discussions about Ms early attachment experiences and influence on parenting	Written information about sensitive parenting and personal video feedback		13 mo: Strange Situation	13 mo: M sensitivity	Group 1 = Group 2 = C %secure	Group 1 = Group 2 > C M sensitivity
Barnett et al. (1987) N = 134 “highly anxious” middle-class Ms and their infants 2 Tx groups: Professional support or lay support from 0 to 12 mo		Professional group: Encouraged M responsiveness to infant cues		13 mo: Strange Situation (not videotaped; scored from transcripts)	Posttest anxiety	Group 1 = Group 2 = C %secure	Security not related to decrease in anxiety during Tx period

Beckwith (1988) N = 92 low-income Ms and their sick preterm infants Tx: Supportive intervenor from 0–13 mo	Ongoing parenting advice, input	Trusting, supportive relationship, emotional availability	13 and 20 mo: Strange Situation	1 and 9 mo: Dyadic involvement and reciprocal interaction 13 mo: M emotional stability, developmental expectations	13 and 20 mo: T = C %secure T > C dyadic involvement, reciprocal interaction T > C M emotional stability, realistic developmental expectations
Cicchetti et al. (1999) N = 108 middle- and upper-SES Ms (<i>n</i> = 63 depressed) and their toddlers (mean age 20 mo) Tx: toddler-parent psychotherapy from 20 to 36 mo, mean = 46 dyadic sessions	Discussions about Ms early attachment experiences and influence on parenting	“Corrective emotional experience”	13 and 20 mo: M-sorted AQS; Attachment Q-Scales	Treatment fidelity and dose	T > C %secure (AQS)
Cooper & Murray (1997) N = 194 Ms with PPD and their newborns Tx: Weekly HVs from 8 to 18 wk 3 Tx groups: Brief M-baby psychotherapy, CBT with IG, nondirective counseling	M-baby psychotherapy group: Focus on Ms representation of her infant CBT/IG group: Examining patterns of thinking about infant and mothering	CBT/IG group: Modeling and reinforcement focusing on M-infant interaction	18 mo: Strange Situation	8 and 18 wk: M-infant engagement 9 and 18 mo: Infant behavior problems; relationship problems 9 and 18 mo: M’s engagement, sensitivity, responsiveness	Group 1 = Group 2 = Group 3 = C M-infant engagement Group 1 = Group 2 = Group 3 < C relationship problems at 9 but not 18 mo Group 1 = Group 2 = Group 3 < C infant behavior problems at 18 but not 9 mo Group 1 = Group 2 = Group 3 < C M PPD

(continued)

TABLE 1.2. A Summary of Selected Interventions to Enhance Early Attachments (*continued*)

Study, participants, brief description of treatment	Therapeutic tasks implemented			Measures		Results	
	Task 1: Parent's IWMs	Task 2: Parenting/ sensitivity	Task 3: Intervenor as secure base	Attachment	Others: Tasks 1-3 Fidelity, dose, process	Attachment	Others: Tasks 1-3 Mediation or moderation effects
Egeland & Erickson (1990, 1993) N = 154 poor, high-risk pregnant women/Ms and their firstborns Tx: Biweekly HVs and group meetings from second trimester to 12 mo	Discussions about Ms early attachment experiences and influence on parenting	Assisting Ms in sensitive responsiveness	"... via a trusting relationship with a primary service provider"	13 and 19 mo: Strange Situation	13 mo: M sensitivity, responsiveness, availability 13 and 20 mo: M knowledge of infant development, depression and anxiety, life skills, HOME 2 groups based on "level of participation" (dose)	13 mo: T < C %secure 20 mo: T = C %secure	13 and 19 mo: T < C %secure, regardless of dose T > C M sensitivity, responsiveness, availability T > C M knowledge of infant development, depression and anxiety, life skills, HOME
Heinicke et al. (1999, 2000, 2001) N = 64 high-risk pregnant women/Ms and their firstborns Tx: Weekly M-infant group from 3 to 15 mo, mean attendance = 17 groups Weekly HVs from second trimester to 12 mo, biweekly until 24 mo	Defining and resolving internal and external "adaptation"	Focus on M understanding and effectively responding to infant's needs	Primary focus on stable, trustworthy relationship between M and intervenor	14 mo: Strange Situation, M-sorted AQS 24 mo: Child's "secure response to separation"	1-24 mo: Extensive demographic and psychosocial assessments, including 6, 12, and 24 mo: M responsiveness Dose, process notes, "M's use of the intervention" questionnaire with scales for "Positive connection to the intervenor." "Ability to work with the intervenor"	T > C %secure T > C AQS Attachment Security T > C child "secure response to separation"	12 and 24 mo: T > C M responsiveness T < C M intrusiveness, punitiveness "Ability to work with the intervenor" related to M responsiveness

Jacobson & Frye (1991) N = 46 poor pregnant women/Ms and their firstborns Tx: Weekly HVs by a volunteer lay coach from end of second trimester to 2–3 mo, monthly until 12 mo	“... close personal relationship between mother and coach”	14 mo: Observer-sorted AQS	13 mo: HOME	T > C AQS Attachment Ratings (but not Criterion Sort)	T = C HOME
Juffer, Hoksbergen, et al. (1997) N = 90 first-time M and their interracial adopted infants Tx: HVs between 6 and 12 mo 2 Tx groups: Book (2 HVs) or book + video (5 HVs)	Book group: Written information about sensitive parenting Video group: Same written information + personal video feedback on M–infant interaction	12 mo: Strange Situation	12 mo: M sensitivity and cooperation during free play	Group 2 > C = Group 1 %secure	Group 2 > C = Group 1 on M cooperation
Juffer, Rosenboom, et al. (1997); Juffer et al. (in press) N = 40 biological Ms (of other children) and their interracial adopted infants Tx: HVs between 6 and 12 mo 2 Tx groups: Book (2 HVs) or book + video (5 HVs)	Book group: Written information about sensitive parenting Video group: Same written information + personal video feedback on M–infant interaction	12 mo: Strange Situation	6 and 12 mo: M sensitive responsiveness	Group 1 = Group 2 = C %secure	12 mo: Group 2 > C = Group 1 on M sensitive responsiveness, controlling for 6-mo M sensitive responsiveness

(continued)

TABLE 1.2. A Summary of Selected Interventions to Enhance Early Attachments (*continued*)

Study, participants, brief description of treatment	Therapeutic tasks implemented			Measures		Results	
	Task 1: Parent's IWMs	Task 2: Parenting/ sensitivity	Task 3: Intervenor as secure base	Attachment	Others: Tasks 1–3 Fidelity, dose, process	Attachment	Others: Tasks 1–3 Mediation or moderation effects
Lieberman et al. (1991) N = 100 low-SES, Spanish-speaking Ms and their insecurely attached infants (according to 12-mo Strange Situation) Tx: Unstructured, weekly, home-based infant–parent psychotherapy from 12–24 mo	Intervenor sought to “alleviate psychological conflicts,” in Ms and change their “internal experience”	Intervenor provided developmental information related to quality of attachment	“Corrective attachment experience”	24 mo: Intervenor-sorted AQS “Goal-corrected partnership” observed during laboratory reunion Child attachment behaviors (avoidance, resistance, anger)	M empathy, initiation of interaction, involvement, affect, childrearing attitudes “Level of Therapeutic Process Scale”	T = C AQS Attachment Security T > C goal-corrected Partnership T < C child anger, avoidance	T > C M empathy, initiation Level of therapeutic process related to AQS Attachment Security, goal-corrected partnership; child avoidance; M empathy, initiation, involvement
Sajaneimi et al. (2001) N = 100 Ms and their extremely low-birthweight infants Tx: Weekly occupational therapy HVs from 6 to 12 mo, mean = 20 HVs		Focus on reading the infant's cues and responding accordingly		4 yr: Preschool Assessment of Attachment		T = C %secure T < C % “atypical” patterns of attachment	

van den Boom (1994, 1995) N = 100 low-SES Ms and their firstborn temperamentally irritable infants, according to NBAS Tx: 3 HVs between 6 and 9 mo	“Skill-based treatment” focusing on sensitive responsiveness to infant’s cues	12 and 18 mo: Strange Situation 42 mo: Observer- sorted AQS 42 mo—home: Child security, reliance on M, initiation of interaction 42 mo— laboratory: Child affect toward and dependence on M; child behaviors with unfamiliar peer	9 mo: M responsiveness, stimulation, visual attention, control 18 mo: M sensitivity, acceptance, cooperation, accessibility 24 mo—home: M responsiveness, visual contact, attention, control 24 mo—laboratory: child-M problem solving; M teaching, responsiveness, support, off-task sensitivity, monitoring, uninvolvement 42 mo—home: M responsiveness, assistance 42 mo— laboratory: M support, structure	12 and 18 mo: T > C %secure 42 mo: T = C AQS, T > C child security in the home	9 mo: T > C M responsiveness, stimulation, visual attention, control 18 mo: T > C M sensitivity, acceptance, cooperation, accessibility 24 mo: T > C M responsiveness during problem solving, off- task sensitivity (only) 42 mo: T > C M responsiveness, assistance 42 mo: T > C cooperation with unfamiliar peer and peer’s contact seeking 42 mo: 12-mo attachment mediated Tx effects on some M behaviors and child’s peer interaction
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Note. IWM, internal working model; T, treatment group; C, control group; SES, socioeconomic status; M, mother; Tx, treatment; AAI, Adult Attachment Interview; HV, home visit; AQS, Attachment Q-Sort; PPD, postpartum depression; CBT, cognitive-behavioral therapy; IG, interaction guidance; HOME, Home Observation Measure of the Environment; NBAS, Neonatal Behavioral Assessment Scale.

the criterion of achieving at least one specifically targeted (and measured) therapeutic task. This review also suggests, at least according to the published research on strictly randomized interventions to enhance early attachments, that the field of interventions to enhance early attachments cannot yet offer a definitive answer to whether “less” or “more” is a more effective treatment strategy. Moreover, it is most likely that this is not an “either/or” proposition: given that participants come to treatment with widely varying characteristics and needs, it is most likely that “less is more” *and* “more is better” because “less is more” for some, whereas “more is better” for others.

The question of which participants need less and which need more (i.e., “What works for whom?”) is one that pertains to many types of early intervention programs (Barnard, 1998; Beckwith, 2000; Berlin, O’Neal, & Brooks-Gunn, 1998; Olds et al., 1997; see also Greenberg, Commentary 3, this volume), and one that requires greater attention to and understanding of the transmission model in context. Four sets of recommendations for advancing the field of interventions to enhance early attachment, especially through considering what works for whom, are proposed next.

INTERVENTIONS TO ENHANCE EARLY ATTACHMENTS: RECOMMENDATIONS FOR PROGRAM DESIGN, IMPLEMENTATION, AND EVALUATION

Different Interventions for Different People

The field needs more research using carefully designed programs that implement one or more of the three therapeutic tasks with participants of varying characteristics. Identifying and studying participants who vary with respect to key attachment processes should be especially valuable. For example, in Lieberman and her colleagues’ (1991) study, the authors assessed child–parent attachment when the target children were 12 months old and then provided services to those classified as insecurely attached. In Bakermans-Kranenburg and her colleagues’ (1998) investigation, the authors administered AAIs to new mothers and then provided services to those classified as insecure (based on “tentative” classifications; see Bakermans-Kranenburg et al., 1998). In addition, several recent studies have reported associations between adults’ AAI classifications and their responses to different types of psychotherapy or intervention (e.g., Bosquet & Egeland, 2001; Dozier & Sepulveda, 2004; Fonagy et al., 1996; Kofmacher, Adam, Ogawa, & Egeland, 1997). Finally, a number of recent articles have noted the importance of recog-

nizing attachment-related characteristics that make mothers difficult to engage in attachment interventions (Beckwith, 1988; Heinicke et al., 2000; Spieker, Solchany, McKenna, DeKlyen, & Barnard, 2000). Thus, assessing and evaluating participants' attachment statuses, as well as their varying personal qualities and varying ecological circumstances, can help programs determine what types of treatment approaches might be more or less effective, and for whom.

Understanding the Role of Attachment Interventions within Broad-Based Child Development Programs

It will be especially valuable to study the next generation of interventions to enhance early attachments within broad-based early child and family development programs like Olds's Nurse–Family Partnership (Olds et al., 1997; Olds, Chapter 10, this volume), and Early Head Start (Love et al., 2002; see Spieker, Nelson, DeKlyen, & Staerke, Chapter 11, this volume). Both of these programs have demonstrated success in enhancing parenting and child development and have been widely implemented and/or replicated. Both programs receive public funds. Early Head Start is wholly federally funded. The Nurse–Family Partnership, which was developed in the course of three randomized trials, now exists in over 250 U.S. counties. In all of these counties, local program operations are covered by one or more sources of public funds (e.g., Medicaid, Temporary Assistance for Needy Families, Maternal and Child Health block grants, tobacco settlement dollars, general revenues, crime prevention or child abuse prevention funds; D. Olds, personal communication, April 2004; see also Nagle & Wightkin, Chapter 12, this volume). The Nurse–Family Partnership, though based in part on attachment theory, also was designed according to the belief that attachment theory “provided an insufficient foundation for guiding the development of an intervention for low-income parents, or those for whom parenting is complicated by stressors external to the parent–child dyad” (Olds, Chapter 10, this volume). Yet it remains an empirical question whether a theoretically grounded and evidence-based attachment protocol might add value to this important program.

Similarly, the federal Early Head Start program was designed in part by a federally convened Advisory Committee on Services for Families with Infants and Toddlers. This advisory committee explicitly recommended that supporting the development of infant–parent relationships become a key goal of Early Head Start programs (U.S. Department of Health and Human Services, 1994). Enhancing early relationships has in fact been identified as a key goal of the first wave of Early Head Start

programs (Kisker et al., 1999). Enhanced parenting has been identified as a key mechanism underlying the program's positive effects on Early Head Start children's cognitive and social development (Love et al., 2002). To what extent might a theoretically grounded and evidence-based attachment protocol add value to this important program? Spieker and her colleagues (Spieker et al., Chapter 11, this volume) have taken a thoughtful first step toward addressing this question by examining pilot attachment-oriented services within an Early Head Start program. More such efforts are sorely needed.

Further Research on the Transmission Model in Context

The question of "What works for whom?" can also be informed by further basic research on the transmission model in context. As described earlier, the field needs more research on the relative contributions of other (contextual) factors and the different ways in which they interact with parents' internal working models and parenting behaviors. Two possibilities are discussed here. First, as illustrated by Belsky and his colleagues (1995), it can be helpful to think about these interactions in terms of the balance of risk and protective factors. For example, it may be that neither family poverty nor stress alone can make a mother with secure internal working models behave insensitively toward her child, but that family poverty and stress together undermine maternal sensitivity.

A second possibility to consider is that parents are differentially susceptible to attachment-related influences, perhaps as a function of their own internal working models, or perhaps not at all (Belsky, 1997, 1999b, 2005; Berlin & Cassidy, 1999). For example, in one intriguing study, the effects of marital quality were moderated by mothers' current working models: mothers' self-reported marital quality correlated positively with children's attachment security, but only for mothers classified as insecure according to the AAI (Das Eiden, Teti, & Corns, 1995). Thus, perhaps for secure mothers, current state of mind drives marital quality, sensitive parenting, and child attachment, whereas for insecure mothers, current state of mind with respect to attachment is more malleable and open to the influence of the current marriage. These possibilities are neither exhaustive nor mutually exclusive, and both carry implications for intervention. In particular, it will be increasingly important to consider the extent to which and ways in which intervening at the level of other (contextual) factors may help enhance early attachments (see Cassidy et al., Chapter 2, and Greenberg, Commentary 3, this volume, for further discussion).

Understanding Bidirectional and Synergistic Intervention Effects

It is important to consider bidirectional and synergistic intervention effects. Specifically, perhaps an enhanced child–parent attachment can serve as an agent of broader change, not just in terms of child development in the long term, but also in terms of contemporaneous contextual factors. For example, enhancing child–parent attachment, may, through changes in the parent’s internal working models, enhance factors such as parental mental health and life skills, which may in turn enhance more distal factors such as family income. Bidirectional effects such as these were tested in the studies conducted by Barnett and her colleagues (Barnett, Blignault, Holmes, Payne, & Parker, 1987) and by Cooper and Murray (1997), albeit with no definitive findings (see also Gelfand, Teti, Seiner, & Jameson, 1996). Further research along these lines is required. Thus, although Egeland and his colleagues suggest that “[high-risk parents] are often dealing with multiple challenges and barriers in their own lives that need to be addressed *before* they can devote themselves to improving their relationships with their infants” (Egeland et al., 2000, p. 71; emphasis added), it is suggested here that improving infant–mother relationships be more systematically considered as a vehicle for dealing with such multiple challenges.

More Rigorous and Precise Program Evaluation

Greater rigor and precision in the evaluation of interventions to enhance early attachments is required. First, it is proposed here that randomized trials with at least one treatment group compared to a no-treatment control group become an “industry standard.” Second, interventions to enhance early attachments need to measure the processes (internal working models, parenting, intervenor–parent relationship) that they purport to change. Interventions to enhance early attachments also need to measure treatment fidelity, the “dose” received by intervention participants, and the quality of that dose (e.g., not only how many home visits a mother completed, but also the extent to which she was genuinely engaged in the work of the home visits; see Barnard, 1998; Beckwith, 2000; Berlin et al., 1998). Third, attachment interventions need to measure the extent to which any and all of these processes mediate or moderate the effect of program participation on child–parent attachment.

Among the studies reviewed here, Cicchetti and his colleagues (1999) measured both treatment fidelity and dose but did not analyze either as a mediator of program effectiveness. Egeland and Erickson (1993) also measured intervention dose (program participants’ “level of

participation”), but found no measurable impact. Lieberman and colleagues (1991) measured “level of therapeutic process,” and Heinicke and his colleagues (1999, 2000) measured “mother’s use of the intervention.” Lieberman and colleagues report associations between level of therapeutic process and attachment security, the dyad’s “goal-corrected partnership,” child avoidance, and maternal empathy, initiation, and involvement. Heinicke and colleagues (2000) report an association between mothers’ “ability to work with the intervenor” and maternal responsiveness. These findings, although not strictly mediational, illustrate the promise of measuring and analyzing intervention quality, especially in terms of participants’ engagement. As discussed above, to the extent that this engagement reflects parents’ preintervention internal working models, it will be important for future programs to assess parental working models during and after treatment.

It is important to note that a sample of at least 200 participants (100 intervention and 100 control participants) is required for mediational analyses to detect small effects (explaining 2% of the variance) with 69% power, and medium effects (explaining 13% of the variance) with 100% power (Mackinnon, Lockwood, Hoffman, West, & Sheets, 2002). None of the interventions reviewed here included 200 or more participants. Only one came close, with an *N* of 194 (Cooper & Murray, 1997). Six of the studies had between 100 and 154 participants. The remaining seven studies had fewer than 100 participants. Larger sample sizes will permit rigorous tests of mediation. Another benefit of larger sample sizes will be the examination of the different types of insecure attachments. To date, although attachment theory and research illustrate quite different precursors, sequelae, and behavioral profiles of insecure-avoidant, insecure-resistant, and insecure-disorganized children, most of the attachment intervention studies have combined insecure participants for lack of statistical power.

Last, interventions to enhance early attachments need to specify the criteria for their success. It is proposed here that child-parent attachment be included as an outcome assessment. Moreover, the Strange Situation is widely viewed as the most robust assessment of child-parent attachment available, and it should be seriously considered for measuring attachment outcomes whenever possible. Of course, the Strange Situation is not without limitations. First, although it is used with confidence with children between the ages of 12 and 20 months, and although it has been used with older children, the use of the Strange Situation with children older than 20 months has raised numerous validity questions (Grossmann, Grossmann, & Zimmermann, 1999; Solomon & George, 1999). To the extent to which the Strange Situation loses validity for the assessment of children over 20 months of age, intervention and assess-

ment periods will be similarly constrained. Twenty months might not be enough time in which to deliver a strong intervention and see its effects. Second, the Strange Situation yields categorical classifications, which may not be sufficiently nuanced to detect subtle yet important treatment effects. Strange Situation classifications can, however, be transformed into continuous scores. And treatment effects on Strange Situation outcomes can also be examined in terms of organized versus disorganized attachment, a distinction that is arguably quite important vis-à-vis intervention (see, e.g., Bakermans-Kranenburg, van IJzendoorn, & Juffer, 2004). Thus, the Strange Situation is suggested here as the measure of first choice for examining attachment intervention outcomes.

Ideally, Strange Situations will be used in conjunction with other attachment assessments, such as the Attachment Q-Sort (AQS; Waters & Deane, 1985; Waters, Vaughn, Posada, & Kondo-Ikemura, 1995). The AQS yields continuous scores, and it can be especially useful for examining attachment outcomes beyond infancy, particularly if an objective sorter completes the AQS (van IJzendoorn, Vereijken, Bakermans-Kranenburg, & Riksen-Walraven, 2004). Having both Strange Situation and AQS data will allow researchers to compare the treatment effects measured by both. Both Bakermans-Kranenburg and her colleagues' (2003) analysis and the present review illustrated less success in attachment interventions evaluated according to Strange Situation classifications than in those evaluated according to the AQS. It is uncertain, however, whether this is the case because the Strange Situation classifications are appropriately stringent or because they are insufficiently sensitive.

SUMMARY

Considered developmentally, the field of interventions to enhance early attachments might be viewed as an adolescent. Formally initiated about 15 years ago (Belsky & Nezworski, 1988), the field has taken important first steps in generating a wide variety of intervention programs. Yet, as with a teenager struggling to define his or her identity, the field of attachment interventions is struggling to understand exactly what it has wrought so far, and what next steps to take. This chapter was designed in part to clarify two disparate interpretations of the state of the field (Bakermans-Kranenburg et al., 2003; Egeland et al., 2000). It began with a discussion of the implications of attachment theory and research for interventions to enhance early attachments, which in turn led to the delineation of three specific therapeutic tasks. Next it presented a selective review of programs designed to enhance early attachments, based in

part on the extent to which the 14 programs reviewed implemented and achieved these three therapeutic tasks. This review indicated these programs to be modestly to moderately successful, a characterization that reflects a middle ground between the two prior interpretations. This review also revealed a number of ways in which attachment theory and research can be more comprehensively applied to the design and evaluation of interventions to enhance early attachments, especially in terms of addressing the question of “What works for whom?” Four sets of recommendations designed to help the field address this question have been put forth. These recommendations have been offered according to the tenets of developmental psychopathology, whereby the study of healthy development informs both the study and treatment of unhealthy development, and vice versa (Sroufe & Rutter, 1984). With respect to early attachment interventions, the ultimate goal is to elucidate how attachments develop and how they can be enhanced when their healthy development is at risk.

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NOTES

1. Although Bakermans-Kranenburg and her colleagues meta-analyzed 29 interventions, these interventions were contained in 24 studies, five of which contrasted two or more interventions.
2. In Anisfeld and her colleagues' (Anisfeld, Casper, Nozyce, & Cunningham, 1990) Snugli study, the intervention consisted of giving mothers a soft baby carrier to use with their newborns, with the expectation that increased physical proximity and contact would increase maternal availability and sensitivity. This study requires cautious interpretation because the control group was given plastic infant seats and asked not to use any soft baby carriers. The intervention group was also asked not to use any infant seats. This group assignment procedure may have resulted in magnifying the differences between the intervention and the control groups. The results of Barnett and colleagues' (1987) Australian study must be interpreted with caution also, in this case because the only assessment of attachment used was a nonvideotaped Strange Situation procedure, a highly unstandard version of this assessment. Last, in Heinicke and his colleagues' (1999) study, the control group participants were not completely without treatment because they were offered “pediatric follow-up” services. These services included developmental evaluations, feedback on the evaluations, and referrals to other services as needed. Given that there were, however, no home visits or mother–infant group services (which were received by the treatment group), and no efforts made to address any aspects of parenting or attachment in the control group, this study was included in the present review.

3. In some cases “treatment group” refers to one of two treatment groups examined or to a composite treatment group that combined two or more treatment groups.
4. Given the concerns raised earlier, this success rate was also calculated for the group of 12 interventions, excluding Anisfeld and colleagues (1990) and Barnett and colleagues (1987), which resulted in five of 12 interventions (42%) with a greater proportion of securely attached children in the treatment group. Excluding these two studies, thus, did not appreciably change the success rate.

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CHAPTER 2

Examination of the Precursors of Infant Attachment Security

*Implications for Early Intervention
and Intervention Research*

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Even though the practice and study of enhancing early attachments can involve considerable disagreement, one notion typically generates consensus: If the goal is to promote secure infant attachment, it is helpful to understand the multiple and complex precursors of individual differences in infant attachment quality. The goal of this chapter is twofold. First, we describe the First Year Project, a pilot research project in which we set out to examine these precursors. Second, we discuss the implications of our preliminary research observations for early intervention and intervention research. We underscore that we are in the early stages of this project and that this chapter reflects our current thinking about issues that should be considered. Our thinking may well change when we have gathered additional data.

THE FIRST YEAR PROJECT: EXAMINING THE PRECURSORS OF QUALITY OF INFANT ATTACHMENT

Theoretical Background to the First Year Project: The “Transmission Gap”

A cornerstone of attachment theory is that a mother’s sensitively responsive behavior is an important contributor to the quality of her infant’s attachment to her (Ainsworth, 1982; Ainsworth, Blehar, Waters, & Wall, 1978). Thus, when a mother is consistently sensitively responsive to her infant’s needs, the infant is expected to become securely attached to her. Of equal theoretical importance is the notion that an important determinant of maternal behavior is the mother’s own attachment-related mental representations. A secure mother is expected to be open to the full range of her child’s needs and to respond in a way that establishes the parent as a “secure base” from which the child can explore (Ainsworth et al., 1978; Bowlby, 1988). These two theoretical notions together form the intergenerational transmission model depicted in Figure 2.1.

Considerable research has examined the theoretically based pathways of parental representations to parental behavior to infant attachment, and consistent empirical evidence has emerged for all three of the proposed direct links. These data have been summarized in a series of meta-analyses. A robust link between parental attachment representations and infant attachment (Figure 2.1, path *a*) has been established in a

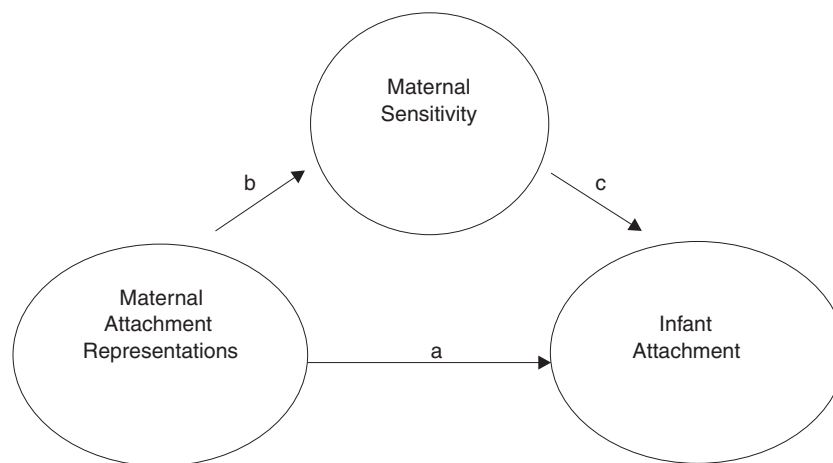


FIGURE 2.1. Path model for the relations among maternal attachment representations, maternal sensitivity, and infant attachment.

meta-analysis examining 661 parent–infant dyads (van IJzendoorn, 1995). The link between parent attachment representations and parental behavior (Figure 2.1, path *b*) was also found to be strong in a meta-analysis that reviewed 389 dyads (van IJzendoorn, 1995). The largest body of research is that examining the link between parental behavior and infant attachment. In a meta-analysis of over 4,000 infant–mother pairs, De Wolff and van IJzendoorn (1997) found a moderately strong association between mothers’ sensitive caregiving behaviors and their infants’ attachment to them (Figure 2.1, path *c*).

Although clear support exists for the proposed direct connections among parental representations, parenting behavior, and infant attachment, little support exists for the hypothesis that parenting behavior mediates the link between parental state of mind and child attachment. Van IJzendoorn’s (1995) meta-analytic test of this mediated model (Figure 2.1 as a whole) revealed that parenting behavior accounted for a relatively small proportion of the association between parent and infant attachment. The data did not support the theoretical model whereby parenting behaviors serve as a major linking mechanism between parental attachment representations and their infant’s attachment to them (see also Pederson, Gleason, Moran, & Bento, 1998, for similar findings in a subsequent study of 68 dyads). Thus, these findings leave the field with a clear theoretically based mediational model for which there is some evidence; yet there also seems to be a direct path from parental representations to infant attachment that is not accounted for by parenting; the perplexing “transmission gap” (van IJzendoorn, 1995). Understanding how these influences on infant attachment work (Figure 2.1, paths *a* and *c*) is important both to researchers interested in intergenerational transmission and to interveners interested in change.

Methodology of the First Year Project

In June 2002, a group of researchers and clinicians with both basic science and intervention interests set out to examine the model depicted in Figure 2.1, focusing first on gaining a better understanding of the ways that maternal behavior, and maternal sensitivity in particular, predicts infant attachment (Figure 2.1, path *c*). One line of thinking about why the research evidence for the link between maternal sensitivity and infant attachment is so modest relates to measurement of sensitivity. We set out with the belief that as particularly experienced observers steeped for years in attachment research we could improve this measurement of sensitivity.

So far, we have observed 18 infant–mother dyads (approximately one per month) who are control-group participants in a larger study of

irritable firstborn infants from lower-middle-income families in the Washington, DC, area. Fourteen of the 18 infants (78%) are racial or ethnic minority group members. Newborn irritability was assessed with Brazelton's (1973) Neonatal Behavioral Assessment Scale during the infant's first few weeks of life. We use this sample as a matter of convenience: the larger study from which participants are drawn provides much available data. We do not know the ways in which the temperamental, economic, ethnic, and cultural characteristics of the sample influence what we observe. Patterns in the data might well differ in another sample. In fact, there is evidence that the connections between maternal behavior and infant attachment are generally weaker in low-socioeconomic-status families (De Wolff & van IJzendoorn, 1997).

Our working procedure is as follows: Each month, each team member works independently, blind to any information about the mother or her infant. Each of us reviews videotapes made during the infant's first year and makes written assessments of maternal behavior, infant behavior, and dyadic interaction. We view videotapes made of infants and mothers in two contexts: the home and the laboratory. Our first observations occur during a 1-hour laboratory visit when infants are 4.5 months old. During the visit, infants and mothers participate in a series of standard interaction and temperament tasks. Tasks are designed, in collaboration with Dr. Cynthia Stifter, to tap infant response to novelty, infant response to frustration, and infant-mother social interaction. Tasks are drawn largely from the Laboratory Temperament Assessment Battery (Lab-TAB; Goldsmith & Rothbart, 1999) and include an arm-restraint task, a robot-dog approach, a still-face procedure, a dress/undress task, and a 10-minute infant-mother free-play session with toys. Mothers are told that they can do whatever they would like to do to soothe their baby if he or she becomes distressed. We also observe infants and mothers during the intervals between tasks. Our second observations occur during three 30-minute home visits made when infants are 7, 8, and 9 months old. During the home visits, mothers are asked to go about their normal daily routine, and, as much as possible, to ignore the noninteracting female videotaper. Visits typically include such activities as feeding the infant, bathing and dressing the infant, cooking, playing, folding laundry, talking on the telephone, and watching television.

After repeated viewings of all videotapes, team members make independent assessments of maternal sensitivity and predictions about the infant's attachment classification. Team members base their assessments of maternal sensitivity on Ainsworth's conceptualization of sensitivity, including sensitivity-insensitivity to the baby's signals and communications (accuracy of perception of cues, as well as appropriateness and

promptness of response), acceptance–rejection of the baby, cooperation–interference with the baby’s autonomy, and maternal accessibility–ignoring behaviors (Ainsworth et al., 1978). Team members do not *quantitatively* code the mothers’ behavior on each of these dimensions of sensitivity, but they do *qualitatively* track the mothers’ interactive behavior with the infant over time with respect to these dimensions of sensitivity. Written notes describe in qualitative terms the nature of the interaction and the team members’ inferences of what the baby might be feeling and learning about the mother and the self during these interactions with the mother.

Team members make predictions about each infant’s expected attachment classification based on an overall assessment of the degree of sensitivity the baby experienced with the mother, as well as the type of learning experiences the infant can be inferred to have had, given the mother’s behavior and the messages communicated in her behavior. We base our predictions on the operating assumption that the baby senses how the mother feels when he or she explores and when his or her attachment system is activated, and that we will see the baby’s behavioral response to these maternal feelings in subsequent attachment assessments (i.e., in the Strange Situation). The mother can be viewed as nonconsciously “training” the baby in the first year to refrain from behavior that makes her uncomfortable (i.e., teaching the baby to cooperate with her). The mother may indicate preferences to the baby such as “Don’t need me” or “Don’t get too far away from me” or “Don’t get upset.” We look for indications of this training. This training that the mother nonconsciously provides the child through her behavioral and emotional reactions to her baby is thought to build the child’s working model of attachment, and thus lays the foundation for the expectations the child has concerning his or her relationship with the mother. Our goal is to use our qualitative understanding of the mother’s interaction with the baby to predict, first, what the infant is learning from the mother and, second, how the infant is likely to behave in the Strange Situation based on what he or she has learned over time from the mother.

Only after making attachment classification predictions do we read the mother’s Adult Attachment Interview (AAI; George, Kaplan, & Main [1984/1985/1996] conducted at the 4.5-month laboratory visit). We next view the 12- and 18-month Strange Situation assessments of infant attachment security that have been coded by separate blind coders. We then meet for a 2-hour discussion of each dyad. Clearly, this procedure is very slow and labor-intensive.

After engaging in this procedure with the first 18 cases, we used our qualitative notes about the mothers’ behavior to classify each mother as

either globally sensitive or globally insensitive. We did not believe that mothers needed to be perfectly sensitive and attuned to their infants in order to be categorized as sensitive. Our categorization of mothers as sensitive or insensitive reflected the behavior that characterized the mother the majority of the time. Thus, a mother could show considerable insensitivity yet be placed in the sensitive group if sensitivity predominated. Qualitative notes on the mothers in the sensitive group indicated notable insensitivity.

We remain in the early stages of this project, and our comments are based on very few babies. We underscore the speculative nature of this initial thinking.

Preliminary Observations

Even though we are in the very early stages of the project, we have learned much from our initial cases. Table 2.1 shows the connection between maternal sensitivity classification and infant 12-month attachment classification. Of the nine infants who were classified as insecure at 12 months, five were classified as avoidant, three as disorganized–avoidant, and one as disorganized–ambivalent. Attachment classification at 12 months was selected because we wanted to observe the attachment assessment closest in time to the observed mother–baby interactions (which occurred between 4.5 and 9 months).

The labeling of so few mothers as sensitive was unexpected, given the rather moderate level of sensitivity required for assignment to the sensitive group. We draw no conclusions about the frequency of maternal sensitivity in the larger sample based on these few cases. This proportion may change as we observe more dyads. We note that the proportion of babies classified as secure at 12 months (50%) is consistent with that found in comparable samples (Spieker & Booth, 1988). Moreover, the 67% match of sensitive/secure and insensitive/insecure indicates that

TABLE 2.1. Cross-Tabulation of Maternal Sensitivity by Infant Security

Maternal sensitivity	Security classification	
	Secure	Insecure
Sensitive	a (<i>n</i> = 3)	b (<i>n</i> = 0)
Insensitive	c (<i>n</i> = 6)	d (<i>n</i> = 9)

even in this small sample a connection between maternal sensitivity and infant attachment does emerge.

Attachment theory's prediction that sensitive mothering contributes to attachment security and insensitive mothering contributes to attachment insecurity (Ainsworth, 1982; Bowlby, 1988) would be represented in the schematic of Table 2.1 by cells a and d. Yet the moderate effect size for the connection between sensitivity and security ($r = .24$, corresponding to $d = 0.50$) reported in the De Wolff and van IJzendoorn meta-analysis (1997) would suggest that some dyads must fall in cells b and/or c. One might reasonably expect that the cases that fail to support theoretically predicted patterns would fall equally into cell b and cell c—with some sensitive mothers having insecure babies and some insensitive mothers having secure babies.

Observations from our initial set of 18 dyads, however, reveal that with the use of a dichotomous measure of global sensitivity, the error of prediction results because of the presence of mothers who behave insensitively but who nonetheless have babies who are securely attached to them (i.e., dyads who fall into cell c of Table 2.1). We did not observe any cases of sensitive mothers with insecurely attached babies (Table 2.1, cell b). Certainly, some researchers may find dyads in which mothers who obtain high scores on sensitivity have insecurely attached infants. We wondered if it may be these mothers (those in Table 2.1, cell b) who could account for some of the true error of measurement of sensitivity. In our sample, we observed some mothers who for a 10-minute free-play segment in the lab received relatively high sensitivity scores for that segment. These mothers might play with their infants in a fairly nurturing, nonintrusive way. Yet when we examined maternal behavior across all the contexts that we had, both in the home and in the lab, clear shortcomings in the mothers of babies who became insecure were evident, particularly in response to the infants' distress. For example, one mother would have received at least moderately high scores on sensitivity if we had only examined the 10-minute free-play period, during which time the play included a pleasant shared game of rolling a ball back and forth. However, in other segments of the lab and home visits, the mother was observed responding with frightening behavior to her infant's distress or bids for closeness. Thus, we have observed at firsthand that it is difficult to use a single observational context with confidence that a mother's caregiving capacities are fully captured. The De Wolff and van IJzendoorn (1997) meta-analysis found that simply increasing the amount of time during which observations of sensitivity were made did not improve the capacity to predict infant attachment from maternal sensitivity, and likewise that it did not matter whether observations were made in the lab or in the home. Our observations led us to agree that it is not

enough to simply watch the mother and baby for longer periods of time. Rather, observation of the mother and infant across a variety of situations in both the home and the lab, including opportunities to view mothers' responses both to distress and exploration, provided a fuller picture of the mothers' caregiving repertoire than did observations of any single segment or situational context.

There is much consensus among our team members that, even though measurement of sensitivity is a complex issue, the placement of dyads into cell c of Table 2.1 is unlikely to be accounted for by incorrect measurement of sensitivity. Though our dichotomous classification of mothers as sensitive or insensitive was based on a rough estimate of the degree to which sensitivity versus insensitivity predominated in the mother's behavior toward her baby, it was evident that some mothers of secure infants behave in ways that observers using a wide range of coding perspectives would consider notably insensitive. We all found it difficult to imagine how, if attachment theory's core tenets are correct, the mother of a securely attached baby could behave in such insensitive ways. We now believe that mothers of securely attached babies can, in fact, behave with striking insensitivity. We were surprised by our findings, which prompted considerable discussion about how much insensitivity can precede infant security.

Our preliminary observations lead us to believe that the baby can tolerate some maternal insensitivity and nonetheless be secure when two conditions are met. First, something else (positive) must be happening within the relationship. In our research meetings, we continue to grapple with identifying this positive interactive component. Our current focus is on the way that the mother communicates a fundamental willingness to serve as a secure base. This thinking is discussed in the following section of this chapter. Second, our observations suggest that certain negative behaviors must not be present: frightening behavior, extremely cold and hostile behavior, or consistent interference with the infant's attempts to self-soothe. Any mother who exhibited these behaviors had an infant who was insecurely attached to her.

Our observations have led us to adjust our thinking to believe that although sensitivity is important, insensitivity as typically measured is not antithetical to security. In sum, we now believe that global sensitivity as typically measured may never be found to be more than moderately linked to security, and may not account for the connection between maternal representations and infant security. We agree with the conclusions that Pederson and his colleagues (1998) reached following their own study of maternal sensitivity and attachment: "The results of the present study . . . suggest that further attempts to bridge the transmission gap should focus on the development of descriptions that are capable of cap-

turing aspects of the infant–mother interaction beyond those encompassed by the traditional notion of sensitivity” (p. 931).

Secure-Base Use and Secure-Base Provision

What aspects of maternal behavior, other than those encompassed by the traditional notion of sensitivity, contribute to infant attachment security and could be accounting for the connection between maternal attachment representations and infant attachment security (shown in Figure 2.1)?

We began our thinking by considering precisely what infant behaviors must be present in the Strange Situation for a classification of secure attachment: the baby has to use the mother as a secure base from which to explore. That is, on reunion, the baby must do two things. First, the baby has to approach the mother (or at least interact with her across a distance), sufficiently convinced that approach will not be rejected. This is the attachment component of what Ainsworth (Ainsworth, Bell, & Stayton, 1971) called “the attachment–exploration balance.” Second, the baby, when calm, must explore. We hypothesized that in order to be able to approach the mother on reunion and explore when calm, the baby needs to have had a set of experiences with the mother in which the baby has learned from the mother that both sides of the “attachment–exploration balance” are acceptable; that neither attachment nor exploration makes the mother exceedingly uncomfortable or tense; that both are negotiable. *Moreover, we hypothesized that maternal secure-base provision is evident when the mother is “comfortable enough” with the baby’s exploratory behavior and willing to support it, and when she is “comfortable enough” with the baby’s attachment behavior and willing to support it, so that the baby has experiences, even in the face of insensitivity, of the mother as a secure base.*

Throughout our work on the First Year Project, we have relied on observations of sensitive/insensitive maternal behavior as traditionally defined. Yet we came to wonder whether the different aspects of maternal insensitivity could be viewed as different risk factors, and we struggled to understand which of these (singly and in combination) would have the greatest impact on the development of attachment (see Thompson & Raikes, 2003, for parallel thinking in relation to a broader set of risk factors). Our observations have led us to believe that not all aspects of insensitivity are equally influential on the baby’s sense of the mother as a secure base. What we are thinking about as central to maternal secure-base provision hinges on whether, in the end, the mother’s behavior allows the infant enough satisfactory secure-base experience related to both parts of the “attachment–exploration balance” so that he or she

can move comfortably between attachment and exploration. In the remainder of this section, we provide examples of maternal secure-base provision both when the infant's attachment system is activated and when the infant's exploratory system is activated. We describe maternal behaviors that we found to be important as well as those we found to be unimportant for predicting security. We then explore the potential application of the notion of secure-base provision to the problem of a lower than expected correlation between maternal sensitivity and attachment. Later, we explain how the concepts of maternal sensitivity and secure-base provision relate to each other, and discuss the implications of infant temperament for secure-base provision.

The first pattern of maternal behavior that we speculate may relate to the infant's sense of the mother as a secure base relates to times when the infant's attachment system is activated. It appeared that an important difference between insensitive mothers whose babies became secure and insensitive mothers whose babies became insecure was that the former managed to respond to the baby's attachment behavior in the end. Even though these mothers were engaging initially in a great deal of rejecting insensitive behavior, at some point the mothers would relent and allow the baby to come in for contact if the baby persisted; the baby's needs for contact or for comfort were finally met to some degree, even if only briefly, and not wholeheartedly. It appeared to us that as long as mothers responded, in the end, to the infant's attachment behavior, even if there were many insensitive moments along the way (and with none of the negative behaviors cited earlier: frightening behavior, intense hostility, or consistent interference with the infant's attempts to self-soothe), the baby would be secure. In contrast, the mothers of insecure infants tended to be continuously rejecting, and not responsive, even in the end. We found it useful to ask: Even if the baby has to work hard, can his or her signals finally get through? Moreover, we observed a different pattern in other mothers of insecure infants who can also be considered as failing to provide the infant with secure-base experiences. These mothers showed warm responses at times, but nevertheless ultimately failed to respond to distress, thereby communicating their unwillingness to provide a secure base. For example, one mother initially offered cuddling when the baby was not in distress but offered a toy if the baby cried, communicating a willingness to engage in physical contact only as long as the child's attachment system was not activated. Another mother consistently offered soothing words while simultaneously keeping the infant held away and/or turned out from her body during intense distress such that the infant did not experience the emotional regulation that front-to-front contact would have allowed (see Haft & Slade, 1989, and Escher-Graeb & Grossmann, 1983, for similar descriptions). Thus, for both

patterns of maternal behavior, it is as if the infant pays relatively little attention to the initial maternal behavior, instead focusing more on the mother's final response to distress. In other words, a baby may discount much of what a coder might consider *insensitive*—as long as a response to activation of the attachment system comes in the end; and a baby may discount much of what a coder might consider *sensitive*—unless those behaviors serve as a response to activation of the infant's attachment system.

We also considered maternal secure-base provision when infants were exploring. We were initially struck by our observations that mothers can engage in a great deal of intrusive behavior while the baby is exploring with minimal effects on the infant's security of attachment at 12 months. We came to hypothesize that some aspects of maternal insensitivity during infant exploration are more detrimental to the infant's use of the mother as a secure base than are others. There may be a number of factors that impede mothers' ability to sensitively match their responses to their infants' needs during exploration. For example, a mother may intrude on the child's play because she wants to teach the baby, she is entranced by the toys herself, or she is concerned that the infant's mouthing of toys is unsanitary. It may be that intrusive, insensitive behavior that merely interrupts the baby's thoughts or attention and refocuses the baby on some other activity has some other negative consequences for the child, but that such behavior does not make the child believe the mother will be unavailable when needed. If this is true, the child should not develop an insecure attachment. Importantly, such reasons for intruding on infant play do not involve activation of the infant's attachment system.

Our observations led us to conclude that intrusive maternal behavior that is not followed by activation of the infant's attachment may be unrelated to attachment security. We began to speculate about whether intrusive maternal behavior that *does* result in the activation of the infant's attachment system might be related to insecurity. We note that we rarely observed examples of maternal intrusion into play that created conditions in which the child's attachment system would become activated. Because of our limited observations, the hypothesis we present concerning maternal secure-base provision while the infant is exploring is more speculative than the previous hypothesis we presented regarding maternal secure-base provision when the infant's attachment system is activated.¹ Our current hypothesis is that only when the mother's insensitive intrusion in play is an attempt to activate the infant's attachment system (i.e., when the mother is uncomfortable with the infant's attachment system not being activated) will the infant experience the mother as failing to provide a secure base during exploration. For example, the

mother may frequently gesture with outstretched hands that she is concerned that the infant is hurt (when this is not the case), show a facial expression of concern while the baby explores, and ask “What’s wrong?” when the infant looks fine. Our thinking is that when a mother insensitively intrudes in this way, the infant senses the mother’s wish that the infant activate his or her attachment system; interactions of this sort leave the infant little experience of the comfortable movement between attachment and exploration evident in the Strange Situation behavior of secure infants.

Secure-Base Provision: Implications for an Important Question

Our thinking about secure-base provision can address a question related to the “transmission gap” that has been vexing the field of attachment research: Why has the correlation between maternal sensitivity and attachment security been found to be lower than expected (De Wolff & van IJzendoorn, 1997)? We believe that our observations in the First Year Project can shed some light on this important question, and we propose that a focus on secure-base provision may provide a potential solution to the dilemma, producing a higher correlation with attachment security than does sensitivity.

Our observations thus far have suggested to us two reasons for possible attenuation of the correlation between maternal sensitivity and infant attachment security. First, we observed that mothers with similar sensitivity scores can have infants with different attachment classifications. As an example, consider a comparison of two cases discussed earlier. One mother was rejecting and insensitive when her infant was in distress, but finally relented, picked up the infant, and offered comfort. A second mother, on the other hand, played affectionately and sensitively with her baby until he cried, and then offered him a toy. The first infant was securely attached at 12 months, whereas the second was insecurely attached. To the extent that a coding system bases the sensitivity score on an average of the amount of matching of maternal behavior to infant cues, the system will fail to capture the difference between these two mothers. Both mothers show some sensitivity and a fair bit of insensitivity, so their average sensitivity scores would be similar. The correlation between sensitivity and attachment will thus be relatively low because although the mothers have similar sensitivity scores, the infants vary in terms of attachment security/insecurity.

If, however, the notion of secure-base provision is used instead, the differing patterns of sensitivity and insensitivity shown by the two mothers would be noted. The first mother provided a secure base because she finally allowed the infant to be comforted in response to attachment

cues. The second mother, on the other hand, though apparently sensitive at first, in the end rejected the infant's bid for attachment, and thus did not provide a secure base. Based on the secure-base framework, the infants would be expected to vary in attachment despite their mothers' similar scores on sensitivity because the infants varied on whether or not they were provided a secure base. In this case, an analysis of secure-base provision would provide better prediction of attachment security than would one based on maternal sensitivity.

A possible second reason for the relatively modest correlation between sensitivity and attachment security relates to our observation that mothers may differ on sensitivity, yet nonetheless have infants with the same attachment classification. As an example, consider two mothers whose infants were securely attached at 12 months. One mother showed high levels of sensitivity throughout all observation periods. Another mother showed high levels of insensitivity (including negative attributions about the baby, frequent refusals to respond to the baby, and roughness in handling), yet she tended to relent at times when her baby persisted and allow the baby to receive the comfort he wanted. The sensitivity scores for these mothers would be quite different, though both mothers' infants were securely attached at 12 months. Once again, the correlation between sensitivity and attachment would be low. If the notion of secure-base provision were invoked, however, an examination of both mothers' behaviors would reveal that each mother provided a secure base, at least minimally. We believe that both mothers' secure-base provision is what allowed both infants to develop a secure attachment. This example illustrates how gradations in sensitivity, though they reflect real differences in maternal behavior, can be irrelevant to the prediction of attachment security. In fact, inclusion in a correlational model of fine gradations of sensitivity that lack predictive power will reduce the strength of the association between sensitivity and attachment. The notion of secure-base provision allows us to collapse gradations of sensitivity scores based on whether mothers provided a secure base or not. In other words, we focus only on the final result (Did the mother provide a secure base?), rather than on the level of sensitivity that the mother exhibited prior to her ultimate response to the infant's attachment bids. We propose that it may be the provision of a secure base itself that predicts security, rather than the style with which the mother provides (or fails to provide) a secure base. Because some forms of sensitivity/insensitivity appear to be ignored by the baby (and thus should be ignored by coders interested in better predicting security), a framework that includes secure-base provision can help us to understand which maternal behaviors can be ignored and which behaviors are crucial for prediction.

Clarification of the relations between the notions of maternal sensi-

tivity and secure-base provision is important. Secure-base provision clearly has maternal sensitivity as its starting point: in analyzing secure-base provision, we examine the same discrete maternal behaviors considered in scoring sensitivity. We propose, however, that the notion of secure-base provision involves looking at sensitive and insensitive behaviors using an organizing filter. This organizing filter allows us to sort through the observed sensitive and insensitive behaviors in order to examine patterns of behavior, rather than taking an average of the degree of sensitivity and insensitivity. The central question that guides the application of this organizing filter has been discussed earlier, namely: Is the mother able to meet her child's needs when the attachment system is activated and is she able to allow her child to explore by refraining from attempts to activate the child's attachment system during exploration? Discrete behaviors typically considered to be sensitive or insensitive that do not bear directly on answering this question may be filtered out. These sensitive or insensitive behaviors are thus ignored when attempting to predict infant attachment security from maternal behavior. Because we are proposing that certain maternal behaviors can be ignored, it may appear that we are simply suggesting that a lower level of sensitivity will lead to security than had been expected. This is not the case. Rather, we speculate that it is the extent to which a specific pattern of sensitivity and insensitivity leads to secure-base provision that best predicts attachment security.

Our observations of variations in the extent to which the baby has to "work" to obtain a response from the mother led us to pay particular attention to the contribution of the infant. When we observe 4-month-olds in the Lab-TAB assessment tasks, we see considerable temperamental variation: robust babies, active babies, laid-back babies, frail babies, irritable babies, sociable babies. Certainly these different babies react to mothering in different ways. A converging body of research suggests no main effect of temperament on attachment security (Mangelsdorf, Gunnar, Kestenbaum, Lang, & Andreas, 1990; Seifer, Schiller, Saner, Resnick, & Riordin, 1996; Sroufe, 1985; see Vaughn & Bost, 1999, for a review). There may be some temperamental characteristics that are particularly difficult to measure, just as there are aspects of maternal behavior that are difficult to measure. There may be temperamental variation in infants' capacities to continue to attempt to use the mother as a secure base when met with insensitivity. Perhaps there is a temperamental component to how much insensitivity the infant can tolerate without needing to develop a protective stance linked to insecurity. Moreover, temperament may serve as a moderator of the connection between sensitivity and security, such that maternal insensitivity is more likely to contribute to insecurity in babies with particular temperamental characteristics

(e.g., babies with poor regulatory capacities, highly reactive babies) than in other babies. Belsky, Hsieh, and Crnic (1998) found evidence for infants' differential susceptibility to rearing experiences depending upon aspects of infant temperament. We are continuing to track this temperamental variation and to consider its role, yet we remain uncertain about how it relates to attachment security. As our project continues, we keep in mind Luthar and Cicchetti's (2000) argument that consideration of the neurobiological framework within which relationships occur will have important implications for intervention.

In sum, our preliminary thinking is that the infant's perception of maternal secure-base provision may be more predictive of later infant attachment quality than discrete sensitive and insensitive maternal behaviors. We have attempted to describe how the concepts of maternal sensitivity and secure-base provision relate to each other. Our model clearly needs greater behavioral specificity; we are working to develop markers that a mother has minimally met her infant's attachment needs while we simultaneously consider infant temperamental contributions. A mother's willingness to serve as a secure base must be communicated to her baby through her behavior. When the child's attachment system is activated, does the mother understand and respond to the child's needs in a way that allows termination of attachment system activation? Is the mother at least minimally responsive to the child's bids for interaction, contact, or comfort? Does the mother refrain from behavior that might contribute to activation of the infant's attachment system when he or she is instead interested in exploring? We continue to seek ways to distinguish among mothers who are eagerly supportive in response to their child's secure-base needs, mothers who are reluctant respondents to these needs, and those who are actively blocking. There are of course many forms that reluctance and blocking can take, and we are trying to better understand these forms. Our current thinking is that even when mothers are reluctant participants in some aspects of secure-base provision, the infant will experience the mother as a secure base if the mother is eventually sufficiently responsive.

IMPLICATIONS FOR INTERVENTIONS TO ENHANCE EARLY ATTACHMENTS

What are the implications of our preliminary observations for interventions to enhance early attachments?

Our observations that infant security can emerge in the face of substantial maternal insensitivity, which mesh with the meta-analytic findings of only a moderately strong correlation between sensitivity and se-

curity (De Wolff & van IJzendoorn, 1997), lead us to wonder whether intervention directed solely at improving sensitivity, without attention to those elements crucial to secure-base provision, might be problematic, given a goal of increasing security. Intervention aimed only at increasing sensitivity may be limited either because it is unnecessary for insensitive mothers whose babies would be secure anyway, or because the intervention increases maternal sensitivity in only limited contexts. Our observations suggest that increasing mothers' sensitivity in some limited contexts may not affect their ability to provide a secure base and might not lead to greater security.

The failure of several studies to increase infants' security even when increasing maternal sensitivity (see Bakermans-Kranenburg, van IJzendoorn, & Juffer, 2003, for a review) may be better understood by considering the distinction between maternal sensitivity and secure-base provision. An intervention can be designed to train mothers to be sensitive in certain ways, in certain contexts. For example, an intervention that focuses on sensitivity during play may include teaching the mother not to be intrusive in play, to show positive affect, and to follow the baby's lead. Even if some mothers show increased sensitivity during a brief, postintervention free-play assessment, our observations suggest that such change may not affect attachment. Similarly, if the goal is to help the mother to be more sensitively responsive by picking up her crying infant, intervention may help achieve this goal, and then the mother will appear more sensitive, particularly if the sensitivity assessment focuses on responsiveness to crying. Yet if the mother's prior reluctance to pick up the baby reflects a fundamental desire to limit activation of the baby's attachment system, she will likely find other ways to limit such activation. She will signal her wish to the baby in many ways that are difficult to perceive in limited observations. She may pick up the baby yet relinquish contact before he or she is fully soothed or she may pick up the baby with tense movements that preclude calm soothing. The baby will recognize the mother's signals, the baby will know of her discomfort, and the baby's cooperation with the mother's wishes will be evident in an insecure attachment classification. Teaching the mother to engage in specific sensitive behaviors in specific contexts may be considered evidence for improved sensitivity in a postintervention assessment focused on those behaviors, yet fail to yield an increased likelihood of infant security if maternal secure-base provision is not enhanced.

When the aim of intervention is the promotion of infant security (i.e., infant use of the mother as a secure base), researchers should consider whether intervention should be aimed at helping the mother *serve* as a secure base. Such a framework has three components, and incorporates attention to both behavior and representations. First, the interven-

tion should facilitate the mother's understanding of what a secure base is, and of what her particular baby, with his or her particular temperamental style, needs from her. The mother needs observational skills not only to recognize her baby's needs, but also skills to recognize when she has successfully served as a secure base. This entails helping the mother recognize and understand the baby's needs in relation to both attachment and exploration: that comforting a distressed baby will help rather than hinder a baby's development (i.e., it will not "spoil" a baby), and that a baby thrives when allowed the pleasures of exploration without intrusive control. Moreover, helping mothers understand the *link* between attachment and exploration—that the baby's confidence in the mother's availability helps the baby explore—can also be useful. Many intervention approaches contain these important components (e.g., Cooper, Hoffman, Powell, & Marvin, Chapter 6, this volume; Egeland, Weinfeld, Bosquet, & Cheng, 2000; Lieberman, Weston, & Pawl, 1991; van den Boom, 1994).

Second, the intervention should help the mother know *how* to be able to respond behaviorally. For instance, once the mother understands that calming a distressed infant is a helpful response, she needs to know how to adjust her responses to match her infant's temperament so that he or she can experience her as a secure base. Some interventions, for instance, help mothers understand that simple, slow, rhythmic movements with soft vocalizations, as opposed to boisterous jostling or vigorous attempts at distraction with toys, can be effective ways of soothing (e.g., Cooper et al., Chapter 6, this volume; van den Boom, 1994). It also can be helpful for the mother to have opportunities to practice these behaviors in the context of the intervention.

And third, the intervention should examine what stands in the way of maternal secure-base provision. Although a wide range of factors (e.g., recent maternal loss or trauma, depression/mental illness) can interfere with secure-base provision, we focus here on the mother's motivation to serve as a secure base. The mother will want to serve as a secure base only if it feels "comfortable enough," and the mother does not find the prospect so anxiety-provoking that she simply cannot respond, even though she knows it would help her baby. The intervener should explore what may be making the mother uncomfortable with responding to her infant's needs. Sometimes, of course, it is the intervener's perception, and not the mother's perception, that the mother experiences discomfort with some aspect of secure-base provision.

Attempts to help a mother feel "comfortable enough" will benefit from flexibility in the choice of approach, given that different approaches will work better with different dyads. A change in maternal be-

havior and a subsequent experience of having interactions with the infant go more smoothly may increase a mother's comfort with particular aspects of secure-base provision. Especially if a mother is unwilling to acknowledge any discomfort with secure-base provision, such a behavioral approach may be most useful. Moreover, as Egeland and his colleagues (2000) have noted, mothers whose infants offer particular challenges may be quite comfortable with accepting suggestions about changes in behavior that might help them manage these difficult situations (e.g., mothers of irritable infants; see van den Boom, 1994). Other mothers can be helped by being given the opportunity to talk about their discomfort, explore the sources of this discomfort, and discuss how this discomfort influences their behavior. To the extent that an intervention can provide a mother with some skills for real-time processing (i.e., skills for tracking her discomfort with particular aspects of secure-base provision, and for regulating her emotions so that she can provide a secure base at least some of the time), the mother's capacity for secure-base provision should be enhanced.

We do not intend to suggest that there are aspects of maternal insensitivity that uniformly should be ignored during intervention. Even if the baby discounts much insensitive maternal behavior in relation to use of the mother as a secure base, this does not mean that maternal sensitivity has no effect on the relationship, on models of self and other, or on personality development. It is easy to imagine ways in which maternal sensitivity, both when the infant's attachment system is activated and when he or she is exploring, fosters not only social and personality development, but also a variety of additional aspects of functioning such as emotion regulation and cognitive development. Certainly there is much converging evidence that maternal sensitivity plays an important role in children's lives (Belsky & Pasco Fearon, 2002; NICHD Early Child Care Research Network, 2001a, 2001b, 2002, 2004a, 2004b). Yet our observations lead us to speculate that *if the goal is promoting secure attachment, intervention should focus first on secure-base provision*. Thus, if resources are limited, some aspects of maternal behavior may be more crucial targets of intervention than others. For instance, it may be that insensitive intrusiveness during nonstressful play should be a focus of intervention principally when the intrusiveness serves to activate the infant's attachment system. Moreover, a focus on secure-base provision may help when thinking about termination plans: at a minimum, before termination, interveners may want to consider whether a mother's capacities for secure-base provision have been enhanced. If, for instance, a mother has learned to respond to activation of the infant's attachment system and to refrain from needlessly contributing to such activation

herself, and can do this most of the time, she may be able—even in the context of some insensitivity—to provide a secure base sufficient for her infant to be securely attached to her.

Attention to the mother's past attachment experiences may prove useful in some cases. Bowlby (1988) noted that therapeutic attention to the past is useful only to the extent that it helps an individual make sense of present feelings and behavior. Although therapeutic progress can be made without considering the influence of the past, it may be that when it is possible to make such links, the mother's current feelings and behavior can be set in a richer context. In relation to the influence of the past, Bowlby quoted Freud (1909): "A thing which has not been understood inevitably reappears; like an unladen ghost, it cannot rest until the mystery has been resolved and the spell broken." The value that arises in making links with the past may emerge in part because, at the very least, it may help improve the mother's representations of herself. Understanding the past may reduce her confusion about why she behaves as she does. With such understanding, the mother may come to feel that she behaves as she does for a reason (often, a reason that at one time made very good sense), and such knowledge may give her a coherence that in some major way can be calming and reassuring. Understanding herself, and feeling understood by the intervener, may help her better respond to her baby. Moreover, the experience of remembering and discussing with a supportive intervener the painful affect that accompanied a difficult childhood may, in turn, help increase the mother's greater empathy for her own infant (Cassidy, 2004; Fraiberg, Adelson, & Shapiro, 1974; Lieberman & Pawl, 1993).

One question that arises concerns whether exploration of past trauma may actually have a negative impact on secure-base provision, at least for a time. This is an empirical question that our observations cannot address. It is possible that exploration of maternal trauma could result in a mother's feeling less comfortable with her infant's attachment needs or less able to refrain from attempting to activate the infant's attachment system during exploration—particularly if her own attachment system is activated by the rigors of exploring the trauma. It may be necessary to titrate the intensity of intervention in order to avoid negative impact on secure-base provision.

In sum, for a baby to use the mother as a secure base, intervention should help the mother to feel "comfortable enough" as a secure base. To help the mother gain greater capacity for and comfort with serving as a secure base, it will help to (1) make sure the mother knows what is needed and knows how to respond, and (2) explore whether anything makes the mother uncomfortable about specific aspects of secure-base provision. In other words, the mother may benefit both from the provi-

sion of tools to understand her baby and from tools to understand her own response to her baby. Such a process links the mother's feelings to her behavior, in the context of the baby's needs. At least in theory, this should improve the mother's secure-base provision, which should improve the baby's secure-base use, which should be reflected in a secure attachment classification.

IMPLICATIONS FOR INTERVENTION RESEARCH

Thus far we have discussed potential implications of observations from the First Year Project for intervention with mothers and infants. Our observations also have implications for intervention research. The central question is whether interventions that target maternal secure-base provision result in greater security for infants. Other intervention research questions that so far have emerged from the First Year Project observations can be roughly categorized into three types, though there are clearly relations among these: (1) questions about how to measure secure-base provision, (2) questions concerning which components of intervention best bring about change in secure-base provision, and (3) questions about intervener factors that may have some bearing on intervention process and outcome.

Measurement of Secure-Base Provision

If the goal is to test whether an intervention that targets secure-base provision is effective in promoting security for infants, then it is important to ascertain first whether the intervention actually brings about change in secure-base provision. In order to assess whether an intervention improves mothers' secure-base provision, valid and reliable measures of secure-base provision must be developed. It will be important to develop ways of measuring maternal comfort/discomfort with allowing the infant to move as needed between exploration and attachment. Currently, researchers from several labs are working to develop methods for measuring aspects of secure-base provision. In our own lab, we are developing a system for coding mothers' secure-base provision in the context of infant distress episodes (Woodhouse, Boldebuck, & Cassidy, 2004). Also, as stated earlier, the First Year Project Working Group continues to work toward identifying behavioral indicators of secure-base provision, that is, the specific behaviors through which mothers communicate their willingness to serve as a secure base, despite other insensitive maternal behavior. A current focus of this ongoing project is to identify positive maternal behaviors that may serve as a buffer against otherwise insensi-

tive behavior. Much work remains to be done to identify quantifiable aspects of mothers' secure-base provision and to develop appropriate measures.

Intervention Components and Change in Secure-Base Provision

Which components of the intervention contribute most to change in secure-base provision? The answer to this question may vary depending on the particular dyads being served by the intervention. As discussed in the section on implications for intervention, a number of approaches may be valid ways to influence mothers' secure-base provision. The intervener may ask mothers to make behavioral changes, which then contribute to increases in mothers' comfort with both infants' exploration and attachment needs. The intervener may ask a mother to reflect upon past experiences in order to gain insight into how these experiences impact her current comfort with the baby moving as needed between exploration and attachment, and in order to help a mother to make changes based on this new understanding. The intervener may focus on helping mothers to develop greater immediate awareness about their internal experiences while mothering, and assist mothers in finding ways to regulate in-the-moment affect that bears on mothers' capacity to offer themselves as a secure base. Of course, these approaches may be integrated, and, in fact, many programs currently provide interventions using multiple levels as needed (e.g., Cooper et al., Chapter 6, this volume; Egeland et al., 2000; Lieberman et al., 1991; van den Boom, 1994). Research, however, could provide clearer guidance about decision rules that interveners could use in choosing intervention components for particular types of mother–infant dyads. Hypotheses about when and with which mothers particular components would be most useful could be tested using manualized treatments that delineate decision-making processes for selecting intervention components. As an example, research could identify cues from mothers that would indicate that a behavioral approach would be more engaging and more effective than would an insight-oriented approach (or vice versa). Guidelines about how to decide when and with which mothers to emphasize either a behavioral- or an insight-oriented approach may help to promote more effective intervention. Expert clinicians may make these decisions intuitively in the moment based on their empathy, experience, and training. Research, however, can help to codify how master clinicians make their decisions about treatment. These decision rules could then be useful in training new interveners or in the process of expanding a pilot intervention.

Another research question concerning potentially useful compo-

nents of intervention emerged from our observations that certain negative maternal behaviors were always associated with insecure attachment. Infants appeared resilient in the face of a great deal of insensitivity, except when these negative behaviors (frightening behavior, extremely cold or hostile behavior, and consistent interference with infant self-soothing) were present. Should these negative behaviors be a particular focus of intervention? If we can diminish these behaviors, will the baby be more resilient in the face of insensitivity? If so, what would be the best ways to approach changing these behaviors in a way that is not shaming to the mothers and invites their engagement in the process of change? Do we need to help mothers understand the roots of this behavior, help them understand how it might feel to the baby, or help them find other ways to cope with their own feelings that contribute to the behaviors? Several interventions attend to at least some of these negative behaviors, and view change in these areas as indications of successful intervention (e.g., Cooper et al., Chapter 6, this volume; Egeland et al., 2000; Lieberman et al., 1991). Research, however, can help to determine which approaches work best with particular mothers in changing negative behaviors. For example, it may be possible to reduce frightening behavior in some mothers without explicitly addressing the frightening behavior *per se*. With these mothers, frightening behavior may be reduced simply through increasing the mothers' empathy and comfort with their children's movement between attachment and exploration. In other cases, however, it may be important to consider nonshaming ways of addressing the frightening behavior itself and to explore the role of fright in the mothers' own lives. How does an intervener decide which approach to take with a particular mother? Research could help identify decision rules, based on cues from the mother, that allow interveners to deal most efficiently and effectively with the issue of frightening behavior in different types of mothers. These data-based decision rules could then be useful to intervention planners and trainers.

Intervener Factors and Intervention Process and Outcome

One often-neglected area of research is investigation of intervener factors that may have some bearing on intervention process and outcome. Researchers sometimes consider the professional qualifications necessary for an intervener to be effective (e.g., nurse vs. paraprofessional intervener; Olds et al., 2002). The personal qualities of the intervener, however, have rarely been considered. One notable exception from the adult attachment literature includes the work of Dozier and her colleagues (e.g., Dozier, Cue, & Barnett, 1994; Tyrrell & Dozier, 1997), who have

examined the effects of clinicians' attachment strategies on treatment. If we believe that in order to change mothers' secure-base provision we need to change how comfortable the mother is with the child's exploration and attachment behaviors, then it might make a difference how comfortable interveners are with facing the mother's emotions as she explores the experiences from her past (and present) that contribute to her discomfort. Moreover, are there ways in which the relationship with the intervener, in addition to the specific techniques employed by a particular intervention, help to foster greater secure-base provision? For example, if the intervener is comfortable enough exploring negative affect, will this capacity help mothers become comfortable enough to explore negative affect/negative past experiences that interfere with secure-base provision? Will we find different outcomes based on how comfortable interveners are with the negative emotions mothers are facing? Little intervention research has focused on intervener capacities. There are intriguing exceptions. For example, Korfmacher, Kitzman, and Olds (1998) found that mothers' ratings of intervener empathy interacted with mothers' psychological resources to predict mothers' empathy toward their own children: mothers with higher levels of psychological resources (e.g., intelligence, mental health, coping skills, and self-efficacy) were more empathic to their own children when the nurse interveners were judged as more empathic. This may be a promising area of research. Psychotherapy research has begun to consider the effects of the relationship with the therapist (Norcross, 2002) on process and outcome, but more such research in the area of infant interventions could be helpful in developing our understanding of the mother-intervener relationship and its bearing on intervention outcomes (see Berlin, O'Neal, & Brooks-Gunn, 1998).

CONCLUDING REMARKS

Our observations are based on very few mother-infant dyads. We underscore how preliminary our propositions are, and how we view our project as work in progress. In this chapter, we have outlined areas in which we need further understanding. We believe that the crux of our work now centers on identification of what aspects of maternal behavior, in the context of insensitivity, contribute to the child's use of the mother as a secure base and to a subsequent secure attachment classification. We are trying to understand what differentiates the insensitive mothers whose babies become secure from the insensitive mothers whose babies become insecure (i.e., what differentiates cells c and d in Table 2.1). Our basic propositions may change with further observations. Here, we set

forth our early observations and thinking with the hope that these might be useful to the thinking of others. Our thinking should not be viewed as containing strong conclusions.

In particular, we want to clarify that we are not suggesting that maternal sensitivity has few implications for children's development. In fact, we interpret our own observations of these 18 dyads (which reveal that 67% fall into the categories indicating an association between sensitivity and attachment) as supportive of the important role of sensitivity; our working belief, at least for economically stressed families (and this may be a crucial qualifier), is that the moderate connection between maternal sensitivity and infant attachment is not a function of measurement error but reflective of a situation in which "sensitivity plays an important but not exclusive role in the emergence of attachment security" (De Wolff & van IJzendoorn, 1997, p. 586).

The core of our current thinking boils down to this: if the goal is to have the baby use the mother as a secure base, then intervention should focus on helping the mother serve as a secure base, even in the presence of some maternal insensitivity. In 2000, Waters and Cummings, when proposing an agenda for the field in the new millennium, urged that the secure-base concept be kept "at center stage in attachment theory and research" (p. 164). We share a belief in the importance of this focus, and propose that attempts at intervention similarly may be advanced by renewed attention to the core concepts of secure-base use and secure-base provision.

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NOTE

1. A further speculation: The paucity of examples of intrusiveness of the sort that contributes to activation of the infant's attachment system may relate to the fact that most of the insecure infants we observed were classified as avoidant rather than as ambivalent at 12 months. It may be ambivalent, rather than avoidant, infants whose mothers tend to intrude on play in such a way that the infant's attachment system becomes activated.

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Attachment-Based Intervention Programs

Implications for Attachment Theory and Research

Yair Ziv

In this chapter, *attachment-based interventions* are defined as interventions that stem from attachment theory. These interventions use attachment theory as their guideline and follow the principles of the theory in their practice. For example, Bowlby (1988) suggested that the pathway to change in attachment behavior depends on the reality-based characteristics of internal working models of attachment. It is therefore likely that attachment-based interventions will focus at least some of their intervention efforts on the caregiver's representational level. In this chapter, I discuss attachment-based intervention from a researcher's perspective, with the objective of improving the quality of attachment research and maximizing the predictive validity of attachment theory. Thus, the chapter focuses on the contributions of attachment-based intervention (including attachment-based psychotherapies) to attachment theory and research. This is different from most available literature on the links between attachment theory and interventions, which have mainly focused on ways in which attachment theory and research can be applied to the therapeutic process (e.g., Biringen, 1994; Schwartz & Pollard, 2004a; Slade, 1999).

The chapter is divided into three sections. The first section provides a historical view of the connections between attachment theory and clin-

ical practice. This background illuminates how the implementation and analysis of interventions can facilitate more collaborative links among theory, research, and practice. The second section highlights specific gains expected for attachment theory and research from the implementation and analysis of attachment-based interventions and the clinical thinking that is associated with them. This section is supplemented by descriptions of current initiatives that exemplify the integrative thinking I advocate in this chapter. The third section discusses the question of the intensity of attachment interventions (Bakermans-Kranenburg, van IJzendoorn, & Juffer, 2003; Egeland, Weinfield, Bosquet, & Cheng, 2000; see also Berlin, Chapter 1, and van IJzendoorn, Bakermans-Kranenburg, & Juffer, Commentary 1, this volume) and its implications for future research. This discussion illustrates the type of intellectual and theoretical growth that can occur from the simultaneous consideration of theory, research, and practice.

ATTACHMENT THEORY AND CLINICAL PRACTICE: HISTORICAL BACKGROUND

For a theory of socioemotional development such as attachment theory, the clinical effectiveness of attachment-based interventions in modifying attachment-related behaviors must be considered a critical test of the theory. Because attachment theory asserts that the child's attachment security is determined by the extent to which the attachment figure provides a secure base, the theory ought to demonstrate an ability to support interventions that are effective in altering attachment-related behaviors.

It is therefore interesting that until recently the number of clinical protocols that used attachment theory as their theoretical framework and guide for intervention was rather limited (Erickson, Korfmacher, & Egeland, 1992; Lieberman & Zeanah, 1999; O'Connor & Zeanah, 2003a). This is surprising because the theory grew out of Bowlby's own clinical work (with delinquent youth and children separated from their parents) and Bowlby himself expected his theory to become influential among therapists (Bowlby, 1988; Holmes, 1993; Steele, 2003).

The limited use of attachment theory among clinicians can be attributed at least in part to the rejection of attachment theory by most sectors of the psychoanalysis community when the theory was first introduced (Fonagy, 1999). Attachment theory was viewed as too mechanistic and nondynamic, and Bowlby himself was perceived as a reductionist because of what was mistakenly viewed in psychoanalytic circles as his insistence on observed behaviors at the expense of full recognition of multifaceted representational functioning (Fonagy, 1999) and his re-

jection of drive theory (Slade, 1999). Bowlby himself contributed to this controversy by counterattacking psychoanalysis, segregating attachment theory from psychoanalysis, and ignoring similarities between attachment theory and psychoanalysis (Fonagy, 1999).

Bowlby (and Ainsworth) also preferred to focus on the empirical confirmation of the theory. Bowlby made no references to guidelines for intervention work in the three *Attachment and Loss* volumes (Bowlby, 1969/1982, 1973, 1980), and it was not until 1988 before he published his thoughts regarding the clinical applications of the theory (Bowlby, 1988). In later references, Bowlby candidly admitted that his abandonment of the clinical aspects of the theory occurred partly because of his own feelings of incompetence as a therapist (Holmes, 1993), which may have resulted in part from his unique ethological view of the development of emotional relationships and the lack of a protocol that could accurately reflect these views.

Paradoxically, this state of affairs might have determined the fate of attachment theory, which has become a major scientific theory of socioemotional development with one of the broadest, most profound lines of research in modern psychology in general and arguably the deepest lines of research in the field of socioemotional development (Cassidy & Shaver, 1999). However, this also led to a situation in which attachment theory was not nearly as clinically applied as theories with much less robust empirical support. This scenario has somewhat changed in recent years as more and more practitioners began to implement attachment theory ideas in their psychotherapeutic work (e.g., Emde, 1988; Fonagy et al., 1996; Lieberman, 1996; Lyons-Ruth, 1991; Slade, 1996; see also Schwartz & Pollard, 2004a).

The relatively unenthusiastic view toward attachment theory among some practitioners might have also resulted in the mistaken association between attachment theory and a group of child therapy practices known as “holding therapies” and also sometimes described as “attachment therapies.” These therapies are characterized by forced restraint of the treated child by the therapist(s) and by a deliberate attempt to induce stress in the patient in order to make him or her relive attachment-related anxieties (Lieberman & Zeanah, 1999; O’Connor & Zeanah, 2003a; see also O’Connor & Nilsen, Commentary 2, this volume).

Attachment scholars (Boris, 2003; O’Connor & Zeanah, 2003a) justifiably criticized holding therapies as “being incompatible with the ethos of attachment theory” (Steele, 2003, p. 219), and as misinterpreting the essence of attachment theory by producing therapies that contradict Bowlby’s concept of the therapist as a secure base (Boris, 2003; Lieberman & Zeanah, 1999).

The false association between holding therapies and attachment theory has been discussed in depth elsewhere (see O’Connor & Zeanah,

2003b; O'Connor & Nilsen, Commentary 2, this volume). In this chapter they are mentioned only to argue that it is possible that what led some to claim that their therapies are based on attachment theory and others to associate attachment theory with holding therapies is related in part to the fact that attachment theory is not widely accessible to clinicians. Consequently, among some practitioners, the term *attachment* is not restricted to the child's relationship with a specific attachment figure, but instead is a very broad description of the child's current behaviors regardless of the relationship context (Nilsen, 2003). It is likely, however, that as more attachment theory-based, rigorously tested interventions and psychotherapies are introduced and published, more practitioners will become familiar with attachment theory's concepts. This familiarity should prove beneficial because attachment theory is in a position to offer clinicians valuable insights into the dynamics of caregiver-child relationships, their formation, and their normal and pathogenic development. Moreover, clinical use of the empirical findings of attachment research could facilitate understanding as to where to focus interventions, how to carry them out, and how to evaluate their efficacy (Lieberman & Zeanah, 1999; Lieberman & Amaya-Jackson, Chapter 5, this volume).

What is also important to recognize is that attachment theory and research can benefit from the teachings of interventions and clinical practice as much as interventions can benefit from the teachings of attachment theory and research. The next section highlights some specific ways in which attachment-based interventions can contribute to the development and refinement of attachment theory and research.

CONTRIBUTIONS OF ATTACHMENT-BASED INTERVENTIONS TO ATTACHMENT THEORY AND RESEARCH

This section focuses on three contributions that are central to the advancement of attachment theory. The first is the contribution afforded by interventions studies using experimental research designs. The second is the contribution of clinical thinking, which is the groundwork of intervention work, to the improvement of attachment measures. The third is the contribution of this clinical thinking to the refinement of some of the definitions of attachment-related behaviors.

Contributions from Experimental Research Studies

From a purely methodological perspective, an experimental research design in which a phenomenon is tested before and after being manipu-

lated is superior to a correlational research design, because the former can yield causal conclusions whereas the latter cannot. Cross-sectional research designs can produce only correlational conclusions, and even longitudinal research designs cannot produce causal inferences because longitudinal changes can always be attributed to unknown third variables. Unfortunately, attachment research is dominated by nonexperimental investigations even though the most central premises from attachment theory (such as the link between the caregiver's behavior and the child's attachment security) are defined in causal terms (Aber, Belsky, Slade, & Crnic, 1999; Bakermans-Kranenburg et al., 2003). Consequently, attachment researchers' findings are usually tempered by limitations in their research designs.

Thus, the practical advantage of a random-assignment evaluation of an attachment intervention—in which a group of participants are randomly assigned into treatment and control groups, and are evaluated before and after treatment on a variety of attachment-related measures—is considerable. These evaluations help bring attachment theory to a higher level of description and explanation. For example, a well-designed attachment-based intervention program that focuses on ways to increase maternal secure-base provision in the treatment group (in methodological terms, in which the independent variable is manipulated), could claim causality between maternal secure-base provision and infant's attachment security if after (but not before) the intervention (1) the treatment group shows enhanced levels of secure-base provision compared to controls, and (2) a significantly higher proportion of infants' security is observed in the treatment group as compared to controls.

In this respect, it is no wonder that one of the most cited attachment studies is van den Boom's (1994) random assignment intervention study that used a short-term intervention with mothers of irritable infants and found a remarkable impact on infant attachment security 3 months after the intervention (66% secure infants in the intervention group vs. 22% secure infants in the control group). The striking success of this intervention program may have hinged on the fact that these infants' irritability meant that they were more influenced by changes in their mothers' behavior than nonirritable infants would have been (Belsky, 1997; Ziv & Cassidy, 2002) and to possible limitations in the design of van den Boom's study (such as the fact that the person who implemented the intervention was also the principal investigator; see Bakermans-Kranenburg et al., 2003). Nonetheless, van den Boom's causal inferences regarding the link between maternal sensitivity and infants' attachment security made her study a milestone in the history of attachment research. This study is an excellent example of the ways in which intervention studies can serve as scientific experiments and can upgrade the scientific basis of attachment theory.

It should be noted that, in some cases, the use of a no-treatment control group could be perceived as ethically problematic or is virtually impossible because of logistic issues. Although intervention programs with no control group were rightly determined as seriously flawed in terms of their research design (Bakermans-Kranenburg et al., 2003; van IJzendoorn et al., Commentary 1, this volume), some circumstances may necessitate scientific compromises when considering the best interests of the clients. For example, in an attachment-based intervention program currently conducted with a very-high-risk population in the city of Baltimore,¹ no randomized control group is used. This is a prison diversion program involving women who were arrested during the third trimester of their pregnancies. In this program, the women are allowed to keep their babies with them throughout their prison term. Pregnant inmates who are not part of the intervention program are not allowed to keep their babies with them once they are born. The consequence for being assigned to a control group was therefore not being able to keep the baby for the term of punishment. In these circumstances, when the researcher cannot assure equality between the treatment and control groups in all variables but the treatment, the use of a control group becomes somewhat ineffective because the differences between the mothers in the treatment group (who get to raise their baby) and mothers in the control group (who have no connection to their baby during incarceration) are hard to negotiate. In this program, therefore, all eligible women are assigned into the treatment group as long as the program can accommodate them.

Finally, it should also be noted that although the implementation of experimental designs is desirable, it is also problematic in the sense that attachment behaviors are extremely hard to control (Greenberg, 2003). This is because the behavior subjected to intervention is not constant. That is, not all mothers start with the same level of secure-base provision behavior and not all children start with the same level of security. Hence, the starting point of all participants is not as equal as necessary for a pure experimental design.

Contributions of Clinical Thinking to Refining Attachment Measures and Reducing Measurement Error

A notable strength of attachment research is the robustness of its measures, particularly the two most prominent and most frequently used measures: the Strange Situation procedure for the measurement of attachment security in infancy (Ainsworth, Blehar, Waters, & Wall, 1978; Ainsworth & Wittig, 1969), and the Adult Attachment Interview (AAI; George, Kaplan, & Main, 1996) for the measurement of state of mind with respect to attachment in adolescents and adults. Both measures

have long been considered the most valid measures of attachment relationships for the respective age group they cover (Hesse, 1999; Solomon & George, 1999).

Whereas the limitations of the Strange Situation have been extensively discussed (Clarke-Stewart, Goossens, & Allhusen, 2001; Lamb, Thompson, Garner, & Charnov, 1985; Seifer & Schiller, 1995; Seifer, Schiller, Saner, Resnick, & Riordan, 1996), it is still considered by many attachment researchers to be the “gold standard” for the assessment of attachment relationships in infancy (Solomon & George, 1999). More often than not, the Strange Situation is used in studies as the only measurement of attachment, and thus is the sole source of information regarding infants’ attachment security (Clarke-Stewart et al., 2001). However, Strange Situation classifications are typically only modestly linked to various expected correlates, especially maternal sensitivity (see De Wolff & van IJzendoorn, 1997). Attachment researchers have sometimes been reluctant to explore the possibility that links between Strange Situation classifications and expected correlates of attachment security (particularly maternal sensitivity) are modest because of limitations in the measure, and not in the theory (Belsky, 1999). It is possible that the Strange Situation has become somewhat of a two-edged sword for attachment research: on the one hand, the measure is good enough to continuously support valid predictions, on the other hand, these predictions are modest at best, and thus possibly delay the development of the theory.

The notion that the Strange Situation classifications do not represent a full spectrum of attachment behaviors is not new to attachment research. In fact, this notion has led to changes in the coding of the procedure and to the development of classifications of previously unidentified attachment behaviors (i.e., the disorganized/disoriented classification; Main & Solomon, 1986, 1990). But even after the substantial additions to the Strange Situation’s coding procedures, there are considerable limitations to the coding manual. It is not uncommon to find cases for which the existing coding guidelines fail to establish a satisfactory classification. For example, some infants may be classified as secure because they show no avoidance or resistance behaviors as defined by the Strange Situation’s coding manual. On the other hand, the same infants may not show behaviors that clearly indicate secure attachment. Other infants may be classified as avoidant because they show no evident stress in the separation episode, and ignore their mothers in the reunion episode for an appreciable time, enough for a high avoidance score. However, the same infants may show proximity and ease in the presence of the mothers in other parts of the procedure.

These examples raise the possibility that, in some cases, the Strange Situation classifications may not reflect children’s actual attachment re-

lationship with their attachment figures. This suggests in turn that a revision to the Strange Situation coding manual is worthy of exploring. This process of exploration could benefit from the case-specific point of view that typically characterizes the individual therapeutic process.

An example of an effort that involves case-specific exploration of research participants is described by Cassidy and her colleagues (Cassidy et al., Chapter 2, this volume). The First Year Project involves a team of researchers working in cooperation with a team of clinicians to evaluate specific research participants in reference to attachment theory's predictions. The group focuses on specific cases and tries to infer from each case to the theory. The group explores every dyad methodically through videotapes following the mother–infant dyad, from the baby's fourth through 12th month. Based on these observations, each team member predicts the Strange Situation classification of the child at 12 and 18 months and the AAI classification of the mother (when the infant is 5 months old). This kind of collaborative work, in which a cross-disciplinary team works to examine the predictions of the theory through the behaviors of specific dyads, is unique, and could eventually lead to the refinement of definitions of coded behaviors in both the Strange Situation and the AAI.

The work of Zeanah and Smyke (Chapter 9, this volume) exemplifies an effort to rethink Strange Situation classifications through observations of severely deprived institutionalized children. Zeanah and his colleagues have developed a new scale for assessing the degree to which children exhibit fully developed attachment behaviors during the Strange Situation. The Continuum of Attachment is a scale in which only the highest score (5) represents the presence of a traditional (secure, avoidant, resistant, or disorganized) pattern of attachment. All the other scores on the continuum represent behaviors that are unique to children with an attachment disorder. This work represents the ability of clinical observations to identify behaviors previously undefined within the Strange Situation coding protocol.

Contribution of Clinical Thinking to Understanding Attachment-Related Behaviors

A theory that strives to maintain a high level of scientific impact should be dynamic, ever changing, and adjusting in light of new evidence contradicting or supporting its main premises. Attachment theory has already shown in the past its adaptability and dynamic nature in instances such as the identification of the disorganized pattern (Main & Solomon, 1986, 1990) and the increased focus on representational processes and narratives in children (e.g., Bretherton, Ridgeway, & Cassidy, 1990; Cassidy, 1988; Verschueren, Marcoen, & Schoefs, 1996) and adults

(e.g., Fonagy, Steele, Steele, & Target, 1997; Oppenheim & Koren-Karie, 2002). A constant interchange between research and practice in which both contribute continuously to a productive exchange is an excellent way to refine attachment theory.

The work presented in other chapters of this volume portrays some excellent examples of these interchanges. The work of Slade and her colleagues (Slade, Sadler, & Mayes, Chapter 7, this volume), which draws upon the work of Fonagy and colleagues (Fonagy, Steele, & Steele, 1991; Fonagy et al., 1997), is an example of the ways in which clinical practice can enrich the theory. The concept of “reflective functioning” describes an essential human capacity to interpret behavior in light of underlying mental states or intentions (Fonagy et al., 1997). High reflective functioning suggests reflection about and understanding of dyadic processes and the ability to change dyadic behavior based on this reflection. This notion was born in a clinical setting and was influenced by observations of processes between therapists and clients (i.e., their reflective dialogue). This concept has been adapted into attachment theory and consequently has increased the explanatory power of the theory.

The Circle of Security Project (Marvin, Cooper, Hoffman, & Powell, 2002; see also Cooper, Hoffman, Powell, & Marvin, Chapter 6, this volume) is another example of how clinical thinking can help refine understanding of attachment-related behaviors. The need to explain the theory to clients, as part of the intervention process, prompted the Circle of Security Project to create a “user-friendly” manual of attachment theory and some of its key concepts (such as safe haven and secure base). This user-friendly manual is very helpful for clinicians in their attempts to assess the areas in which the client most needs intervention. The Circle of Security Project’s refreshing presentation of the theory could also be of major help to researchers in their attempts to create research questions. The idea of the Circle of Security as a symbol of areas of needs (for the infant) and areas of struggle (for the attachment figure) is simply and clearly defined, and therefore could easily help inform research questions. The Circle of Security work also combines attachment theory with related theories such as object relations theory (Cooper et al., Chapter 6, this volume). The application of insights from other theories may also prove helpful and promote a new path of development for attachment theory.

In addition, given the relatively modest links between sensitivity and attachment, it is important to consider that traditional definitions of caregiver’s sensitivity are not broad enough to capture the full range of parental behaviors anteceding attachment security (Goldberg, Grusec, & Jenkins, 1999). Clinical observations of parent–child interactions may inform the attachment field about more accurate definitions of *attach-*

ment-related sensitive behavior. For example, in the First Year Project described earlier, it was fairly clear from the early stages of the group's work that maternal sensitivity *as traditionally defined* was not a strong correlate of attachment security. Drawing heavily on clinical expertise and clinical approaches (i.e., intensive reviews of individuals' standardized case materials), the group is currently in the process of trying to redefine the kinds of maternal behaviors that more accurately predict infants' attachment security (Cassidy et al., Chapter 2, this volume).

The recent work of Mary Dozier and her colleagues (Dozier, Cue, & Barnett, 1994; Tyrrel, Dozier, Teague, & Fallot, 1999) may also help refine the definition of sensitivity. Dozier and her colleagues observed that clinicians and clients who were mismatched in terms of states of mind with respect to attachment (e.g., dismissing clients with preoccupied clinicians) often achieved better therapeutic outcomes than clinicians and clients with matching states of mind. Based on these observations, Dozier (2003) suggested that interventions in mismatched client-therapist dyads are effective because they are "nonsensitive" and "noncomplementary" to the client's behavior. Being nonsensitive, Dozier argued, is sometimes necessary for a successful intervention. In the same vein, being nonsensitive (on the part of the attachment figure), namely, behaving in a noncomplementary way, is sometimes necessary to promote attachment security—for example, through processes of rupture and "reparation" when brief instances of dyssynchrony occur within the dyad, and actually provide opportunities to increase synchrony (Biringen, Emde, & Pipp-Siegel, 1997). Increased understanding of the caregiver's ability to behave in noncomplementary ways toward the child *when such behavior is necessary* could be useful in the effort to refine understanding of the behaviors that promote attachment security (Biringen et al., 1997).

These are examples of ways in which clinical observations of attachment behaviors could lead to refinements and redefinitions of these behaviors for purposes of research and theory development. The empirical evidence that we have thus far (e.g., DeWolff & van IJzendoorn, 1997) suggests that these refinements will be valuable and may increase the predictive validity of the theory and its major concepts.

"LESS IS MORE" VERSUS "MORE IS BETTER": THE QUESTION OF INTERVENTION INTENSITY AND ITS IMPLICATIONS FOR ATTACHMENT THEORY AND RESEARCH

The intensity of attachment interventions has recently become a major area of discussion for attachment scholars (Bakermans-Kranenburg et

al., 2003; Berlin, Chapter 1, this volume; Egeland et al., 2000; van IJzendoorn et al., Commentary 1, this volume). This discussion is the product of the ability to analyze intervention studies and an example of the fruitful discussion made possible by this analysis. The most detailed, methodical, and complete meta-analytic investigation of sensitivity and attachment interventions in early childhood was performed by Bakermans-Kranenburg and her colleagues (2003). They identified 70 studies evaluating 88 different interventions designed to affect either parental sensitivity or infant/child attachment and compared these interventions on the basis of their focus, number of sessions, samples, and more. At the conclusion of their meta-analysis, Bakermans-Kranenburg and colleagues asserted that “interventions with a clear focus and a modest number of sessions are preferable” (Bakermans-Kranenburg et al., 2003, p. 212).

Yet Bakermans-Kranenburg and colleagues (2003) also acknowledged that their conclusions are rather different from the common perspective regarding the most effective way to conduct early interventions, especially among attachment theorists and researchers who also perform interventions. Egeland and colleagues (2000), for example, reached a different conclusion based on their review of attachment-based interventions. According to Egeland and colleagues, attachment-based interventions that start as early as possible, provide the most comprehensive support, are longer, and have the most sessions are the most effective in changing unfavorable attachment-related behaviors, particularly for high-risk participants. It is also evident from other chapters in the present volume that a number of contemporary attachment-based interventions tend to adopt the approach advocated by Egeland and colleagues rather than the approach advocated by Bakermans-Kranenburg and colleagues.

One reason for the different conclusions portrayed above might be related to the characteristics of the populations targeted by the interventions. When discussing the effectiveness of attachment-based interventions, one should bear in mind that from a pure research perspective (i.e., a perspective that wants to maximize the chances for changes in the treatment group compared to the control group), high-risk populations might not be the optimal populations for the evaluation of normative postintervention outcomes such as attachment security and maternal sensitivity. Although there is little doubt that these are the populations that have the most urgent need for intervention, the chances of obtaining significant and immediate positive changes in normative behaviors (of both the caregiver and the child) in high-risk samples are probably smaller than in samples that are less at risk. Indeed, the meta-analysis showed that interventions for multiproblem populations had the least impressive effects on the examined outcome behaviors (Bakermans-Kranenburg et al., 2003).

Nonetheless, most published attachment-based intervention programs have been implemented in high-risk and even multirisk populations (Bakermans-Kranenburg et al., 2003). These populations include low socioeconomic status (SES) families, single adolescent mothers, preterm infants, mentally retarded infants, foster families, and others. Almost half of the intervention studies examined in the meta-analysis had samples with at least two defined risk factors. Most of these interventions had smaller effect sizes than the overall effect sizes. On the other hand, only seven out of the 70 studies evaluated in the meta-analysis included populations with no specifically defined risks. All of these programs focused only on parental sensitivity and included no attachment security measurements. Only one of these seven low-risk programs did not find any intervention effect on sensitivity (Koniak-Griffin, Ludington-Hoe, & Verzemnieks, 1995). The six other interventions established medium-to-high effect sizes on sensitivity (d 's ranging from 0.63 to 1.60). Although Bakermans-Kranenburg and colleagues (2003) did not examine this group individually, these effect sizes seem considerably higher than the overall effect size for sensitivity ($d = 0.33$).

Bakermans-Kranenburg and colleagues (2003) recommend that their conclusions should be viewed cautiously in the sense that some outcomes of long-term, comprehensive interventions might be affected by a "sleeper effect." In other words, some positive changes that might support the effectiveness of the program might be absent at the time of the postintervention outcomes measurement, but may appear later. This is an important point, one with significant implications for studies aiming to measure the effectiveness of attachment-based interventions. This is also related to the point raised earlier regarding the use of normative measurements as pre- and postintervention evaluations. Especially in high-risk families, it is likely that positive changes, if any, may not appear in the immediate period following intervention. Hence, studies that wish to evaluate the effectiveness of interventions in such populations should also plan for delayed postevaluations.

One should also contemplate the possibility that the effectiveness of highly focused interventions may hinge on the phenomenon known as "teaching to the test." Bakermans-Kranenburg and colleagues (2003) mentioned that in some of the studies in their meta-analysis, the focus of the intervention was closely related to the outcome measure (e.g., Black & Teti, 1997). In these cases there is a concern that there are no broad implications for the behavior learned in the intervention process except for the success in the specific test (i.e., the postintervention assessment).

As comprehensive as the meta-analytic work of Bakermans-Kranenburg and colleagues (2003) is, it cannot adequately address all the concerns

raised above. Although meta-analytic work is a powerful source of information regarding the validity of theoretically hypothesized links, caution is needed in evaluating meta-analytic conclusions without first critically examining the included studies (Klein, 2000). This is especially true when (1) the full complexity of the suggested link investigated in the meta-analysis is not yet completely understood, and (2) there are differences among the evaluated studies in terms of their controls, randomization, and samples (Klein, 2000). Bakermans-Kranenburg and colleagues made an extensive effort to control for these variables, but differences between studies included in the analysis seem, in some cases, to be quite large.

We should also ask ourselves whether we are in a stage where we can definitely identify the goals (such as achieving attachment security) of attachment-based interventions and, in the same vein, whether the immediate achievement of maternal sensitivity and attachment security is a fair and reasonable expectation of interventions that intervene with multiple-risk samples? I suggest that normative outcomes such as the attainment of attachment security are not the most adequate goals for all attachment-based interventions, at least not immediately after the intervention and especially not for multirisk populations. It might very well be that for some intervention programs, a sign of immediate success would be the reduction of disorganized attachment (D) (see Bakermans-Kranenburg, van IJzendoorn, & Juffer, in press, for recent D intervention meta-analysis results). For other interventions, specifically for children diagnosed with attachment disorder (see O'Connor & Zeanah, 2003b), the mere establishment of any attachment between the child and his or her primary caregiver may be a positive treatment outcome. Thus, the goals of attachment-based interventions should be determined specifically for each intervention, after considering the type of sample being targeted.

The “less is more” versus the “more is better” question can only be resolved through more intervention research. This fruitful discussion is already affecting the level of dialogue within the attachment field and will certainly affect the design of future attachment-based intervention studies. It will come as no surprise if these future studies find that both Bakermans-Kranenburg and her colleagues’ conclusions and Egeland and his colleagues’ conclusions are both valid, but for different population groups. The former may be particularly valid (as already suggested in the meta-analysis) in cases where a specific and focused risk could be identified in the targeted population for intervention, or in low-risk populations. Egeland and colleagues’ conclusions may be particularly valid in multirisk populations and in populations where secure attachments are at especially high risk.

SUMMARY

This chapter discusses the ways in which the implementation and evaluation of attachment-based interventions could have a considerable impact on attachment theory and research. Because of the complexity of this implementation, and because of some historical reasons discussed earlier, attachment research took a path of basic research for more than three decades with limited interaction with clinical practice. This has led to the use of mainly correlational research designs in the study of attachment relationships, yet these designs have considerable limitations in terms of causal explanations of links among attachment-related behaviors. A successful combination of attachment-based intervention and attachment research promises to elevate attachment research to a higher level of explanatory power. It will also keep attachment theory closer to practitioners who should become a more central audience for attachment theory.

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NOTE

1. This intervention program is called “Tamar’s Children” and is headed by Dr. Andrea Karfgin of the Maryland Mental Hygiene Administration and funded by the Substance Abuse and Mental Health Services Administration and the State of Maryland. The attachment components in this comprehensive intervention program are based on the Circle of Security protocol. A number of contributors to this volume are also involved in this program (i.e., Cassidy, Cooper, Hoffman, Marvin, Powell, and Ziv).

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The Developmental Neurobiology of Disrupted Attachment

*Lessons from Animal Models
and Child Abuse Research*

Frank W. Putnam

Primed by his clinical observations of the intense distress experienced by children separated from their parents and drawing on ideas from ethology and evolutionary biology, John Bowlby postulated that humans, like other species, were predisposed to seek and sustain relationships that satisfied an intrinsic need for security (Bretherton, 1992). This attachment bond served the important biological function of ensuring the child's protection, thereby contributing to the survival of the individual and the species. Bowlby proposed that the infant's bond with his mother is mediated by species-characteristic behavior patterns that have a biological basis akin to that of mating behavior or other instinctual responses (Bowlby, 1958).

In the past few decades, two broad lines of research have shed light on the neurobiological components of the attachment response. Carefully controlled animal studies of disruptions in maternal–infant bonds have elucidated the biological complexity of these relationships and the lifelong consequences of their disturbance. Clinical studies of maltreated children have brought home the neurobiological consequences of child abuse and its long-term behavioral sequelae. This chapter first reviews the neurobiology of maternal stress and disruptions in the maternal–infant bond in animal models with an emphasis on dysregulation of the

hypothalamic–pituitary–adrenal (HPA) axis, impaired brain development, and dysfunctional maternal and social behavior. I then examine similar biological and behavioral data from clinical research with maltreated and traumatized children. These examples illustrate the neurobiological underpinning of the infant–maternal attachment system and the biological and behavioral consequences of its disruption.

ANIMAL MODELS

Multiple animal experimental models exist that facilitate investigation of the effects of disrupting the maternal–infant bond. These include extensive rodent studies and a rich literature of primate studies beginning with the well-known early reports by Harry Harlow and colleagues of infant monkeys raised with various sham “mothers” (Suomi, Collins, Harlow, & Ruppenthal, 1976). A full review of relevant animal studies is beyond the scope of this chapter. Here the focus is on studies demonstrating effects on the HPA axis and brain development that can be compared with some of the recent research on the effects of child maltreatment.

Rat Models

Rodent models of the effects of maternal–infant separation and other stressors have produced some of the most elegant research relating behavior to biology and vice versa. These models have outlined many of the basic pathways linking stressors with their biobehavioral consequences and have firmly established that even normal variations in maternal behavior can have profound impacts on subsequent stress reactivity in adulthood. These studies have also shown that interventions such as human handling can mitigate some of the effects of prior stressors or protect against the effects of subsequent stressors. Much of the work cited below originated in the laboratories of Paul Plotsky at Emory University in Atlanta and of Michael Meaney at McGill University in Montreal.

Among the most important findings of research with rat models is the fact that relatively simple early life stressors can produce long-term changes in a number of key neuroendocrine systems that modulate behavior. For example, in the first 2 weeks of life, separations from the mother produce elevations of corticosteroids that are proportional to the duration of the separation (Anisman, Zaharia, Meaney, & Merali, 1998). When the maternal–infant separation exceeds 3 hours, a permanent change may occur that increases a rat’s reactivity to future stressors

(e.g., restraint, novel environment). Animals exposed to repeated prolonged maternal separation show significantly increased plasma adrenocorticotrophic hormone (ACTH) and corticosterone responses to subsequent stressors, whereas animals exposed to short (15-minute) separations subsequently reduce their plasma ACTH and corticosterone in response to stress (Francis, Caldji, Champagne, Plotsky, & Meaney, 1999). Thus the long-term effects of separation vary dramatically depending on its duration. Short-term separations decrease an animal's subsequent response to stressors, whereas long-term separations exaggerate the animal's stress response.

Individual animals vary, however, in how much they are affected by separation and subsequent stressors. Study of the sources of these individual differences has proven very productive in identifying factors that mitigate or exacerbate the effects of maternal separation and other experimental early life stressors. Some studies indicate that gender is an important factor. For example, McCormick, Smythe, Sharma, and Meaney (1995) found that prenatally stressed females and males exhibited significantly different responses to a restraint stressor relative to gender-matched controls. The females had a significantly increased plasma corticosterone response, whereas the males had a significantly decreased response (McCormick et al., 1995). Not surprisingly, studies with different strains of rats have established that genetic differences are an important source of variation (Anisman et al., 1998).

Another, and perhaps initially unexpected, source of variance in individual stress response proved to be normal differences in maternal care (Champagne, Francis, Mar, & Meaney, 2003). Rat mothers vary along a normal continuum in the amount of licking and grooming (L/G) that they do with their pups. A mother's propensity to lick and groom her pups is stable across litters. It is therefore possible to compare pups from mothers at the high end with those from mothers at the low end of the L/G continuum. Importantly, the amount of L/G does not correlate with the amount of time that the mother spends with her offspring, which does not differ between high and low L/G mothers.

Offspring of high and low L/G mothers vary significantly along numerous parameters in terms of their responses to stress and interventions. This myriad of differences is well summarized in a paper by Francis and Meaney (1999). Many of these differences involve the HPA axis, particularly the first step in the activation of the HPA stress response through the synthesis and excretion of corticotropin-releasing factor/hormone (CRF/CRH). The hypothalamic mediation of the stress response appears to be a critical early step in the translation of environmental stressors into biological responses.

The relationship of normal variations in maternal behavior, particu-

larly the amount of L/G, has been shown to regulate the development of endocrine and emotional and cognitive responses to stress in rat offspring. Offspring who receive high levels of L/G are less fearful and more maternal than those receiving low levels. Examining the brains of offspring from high and low L/G mothers, Francis, Young, Meaney, and Insel (2002) found gender differences in the expression of oxytocin and vasopressin receptors. Males had increased vasopressin expression in the amygdala, while females had increased oxytocin receptor expression (Francis et al., 2002). Thus, similar to findings in the stressor research, it has been found that normal variations in maternal care can interact with gender in unique ways.

Perhaps more surprising was the discovery that the transmission of individual differences in maternal care, including L/G behaviors, across generations could be accounted for by a behavioral mechanism rather than a genetic one (Francis & Meaney, 1999). In this model, high levels of maternal stressors (e.g., deprivation, high predation, etc.) lead to reduced levels of maternal care, which in turn influence the offsprings' neural development in ways that alter stress reactivity and maternal behavior, and thus affect the maternal care that her offspring provides to their pups. Indeed, maternal care appears to have a profound influence on the brain development of rat pups. For example, offspring of high L/G mothers show increased expression of neural growth factors, specific receptors, and cholinergic innervation of the hippocampus, which correlates with improved spatial learning and memory (Liu, Diorio, Day, Francis, & Meaney, 2000). Offspring of low L/G mothers are more likely to have increased hippocampal cell death (apoptosis) (Weaver, Grant, & Meaney, 2002).

A variety of interventions have been shown to reverse or mitigate the effects of early stressors or variations in maternal behaviors (Bredy, Humpartzoomian, Cain, & Meaney, 2003; Caldji, Diorio, & Meaney, 2000; Champagne et al., 2003; Francis & Meaney, 1999). Gentle human handling of rat pups before or after a stressor can reduce reactivity to subsequent stressors (Anisman et al., 1998). Postnatal handling increases hippocampal glucocorticoid receptor density but not mineralocorticoid receptors (O'Donnell, Larocque, Seckl, & Meaney, 1994). Environmental enrichment (e.g., an interconnected burrow system with "toys") versus standard laboratory caging offsets some of the deficits associated with low levels of maternal L/G behavior (Bredy et al., 2003). Antidepressants also appear to restore some of the HPA deficits associated with stress and age (McEwen, de Leon, Lupien, & Meaney, 1999; Rowe et al., 1997; Yau, Olsson, Morris, Meaney, & Seckl, 1995). Finally, cross-fostering studies in which offspring of low L/G mothers raised by high L/G mothers are less fearful than are offspring of high L/G mothers raised by low L/G mothers show the powerful behavioral nature of these effects

(Caldji et al., 2000). The at least partial reversibility of many of the effects of maternal separation or low L/G behaviors holds important implications for interventions with maltreated or maternally deprived children.

Primate Models

Many people are familiar with the early experiments of Harry Harlow at the University of Wisconsin Primate Laboratory. He separated infant monkeys from their mothers and raised them with a substitute, or “surrogate,” mother made of either wire or wood covered with terry cloth. In some experiments, a nipple was present and the baby could receive nourishment from the surrogate. Babies consistently choose the cloth over the wire “mother,” even when the latter included a nipple to suckle. Later in life, these animals exhibited bizarre behaviors including stereotypic clutching themselves and rocking and excessive and inappropriate aggression. Their sexual behavior was dysfunctional and the females were indifferent or abusive toward their own offspring including killing them in some instances. These initial experiments excited interest (and later condemnation from animal rights groups) in primate models of maternal–infant relationships and have since been extended by scores of laboratories around the world.

Although technically more difficult, expensive, and subject to public controversy, primate models of maternal–infant bonding provide a much richer perspective from which to view the neurobiology/behavior of mother–child attachment. In primates, socialization of the infant is far more complex than it is in rats, and therefore effects from the disruption of the maternal–infant bond are apparent across a range of core social interactions. The developmental course of primates is more like our own, with stages of infancy, childhood, adolescence, and adulthood that include roughly similar developmental challenges. This allows for “stage-salient” psychobiological responses to be compared across differences in maternal–child bonding. In addition, primates—like humans—develop peer attachments, which have their own neurobehavioral dynamics. Primate colonies have complex social structures, which means that social “success” or “failure” at various ages and in various domains can be measured. Finally, primate psychopathology can be more readily analogized with human psychopathology including models of alcoholism and substance abuse, impulsivity and aggression, and child maltreatment.

Primate models of maternal–infant disruption find dysregulation in the same stress–response systems identified in rat models. The HPA findings across different studies are, however, more complex and are sometimes confounded by differences in primate species, laboratory procedures, and rearing conditions (Shannon, Champoux, & Suomi, 1998).

Primate models of attachment often use two or more of three basic rearing conditions: surrogate rearing—as in the Harlow experiments; peer rearing, in which a group of maternally separated infants are placed together, providing opportunities for mutual interactions; and mother-reared infants, with the mothers sometimes subject to experimental or naturally occurring stressors. In general, surrogate-reared infants are the most compromised, followed by peer-reared infants, who do better socially but remain more susceptible to stressors.

Comparing mother-reared rhesus monkeys with peer-reared animals, Suomi (1996) found numerous significant differences in blood chemistry, activity profiles, and adrenocortical, neurochemical, and behavioral responses to a brief separation. When both rearing groups were moved into a common social group, many of the differences diminished or disappeared as long as the animals were with a familiar social group. If, however, the animals were challenged with a brief separation from their social group, the peer-reared monkeys exhibited more extreme behavioral disruptions, greater physical arousal, and increased HPA axis reactivity (Suomi, 1996). When placed into new social groups, peer-reared monkeys had more social problems including less ability to form relationships, more spontaneous and reactive aggression, and lower social status than mother-reared monkeys. In addition, peer-reared females were more likely to be inadequate mothers, and peer-reared males were more likely to be expelled from the social group. The peer-reared animals also consumed higher levels of alcohol solutions made available on an ad lib basis. Thus, the lifelong patterns of increased stress reactivity and dysfunctional behavior associated with maternal–infant disruptions in rat models are also present in primate models and give rise to a variety of dysfunctional responses to stress.

Some particularly intriguing primate findings on stress reactivity and brain development emerge from the work of Westergaard and colleagues (Westergaard, Byrne, & Suomi, 2000; Westergaard, Champoux, & Suomi, 2001; Westergaard, Chavanne, Lussier, Suomi, & Higley, 2000; Westergaard, Lussier, Suomi, & Higley, 2001). In several primate species, Westergaard and colleagues find a significant correlation between cortisol levels, stress reactivity, and propensity for right- or left-handedness. Infants with lower levels of cortisol show a developmental propensity for right-handedness that is associated with significantly lower stress reactivity. Infant monkeys with higher levels of cortisol are more likely to be left-handed and to have higher stress reactivity. They interpret these data as indicating an early developmental influence of stress reactivity on the emergence of hemispheric specialization for manual control during the first year of life (Westergaard, Champoux, et al., 2001).

Perhaps the most important insight to emerge from primate models

of disrupted rearing and environmental stress is a greater recognition of the importance of gene–environment ($G \times E$) interactions in the development of aberrant behaviors (Gunzerath & Goldman, 2003). Barr and colleagues (2003) argue that primate models are particularly useful for understanding $G \times E$ interactions in the development of personality psychopathology. Most personality psychopathology revolves around social interactions, which—of all laboratory animals—are most closely mirrored in the social structures of primates. Second, primates are genetically most closely related to humans and therefore gene-coding variations are more likely to be meaningfully related to human gene activity. Finally, the rearing environments of primates can be tightly controlled, allowing experimental manipulations that are unethical in humans. Much of the future research with primate models of maternal–infant bonding is likely to focus on the role of environmental factors in the expression or repression of specific genes at different points in development. These studies should help us understand why risk for psychiatric disorders is not identical between individuals with similar genetic backgrounds, but instead varies according to life experiences, of which maternal–infant interactions are the most critical.

In summary, animal models of disrupted maternal–infant bonding have provided many insights into alterations of psychobiological stress responses. Once developed, many of these alterations prove to be life-long, although interventions or environmental enrichment can mitigate some of the negative effects. In addition to basic stressors such as infant–maternal separation, normally occurring variations in maternal care also prove to be important, leading to significant differences between animals raised at the high and low ends of this continuum. Primate models, a closer analog to human interactions, demonstrate the enormous social and developmental effects of early separation. There can be differential gender and genetic manifestation of these effects. $G \times E$ interactions add to the complexity of understanding the genetic contributions to final outcomes. The hypothalamus appears to be important in the initiation of stressor responses. Many of the immediate biological stress–response effects activated by maternal–infant separation or other early stressors appear to alter the subsequent development of the brain in ways that we are only beginning to appreciate.

THE NEUROBIOLOGY OF MALTREATMENT

Overview of Child Maltreatment Outcomes

Child maltreatment, by its very nature, can be expected to cause significant disruptions in the caretaker–child relationship. In approximately

70% of cases at least one parent is the perpetrator. In cases involving extrafamilial abuse, victims often still feel betrayed by a parent's failure to protect them. Indeed, incest victims often report greater anger with their mothers than with their fathers. Given this level of rupture in the normal parent-child attachment relationship, the psychological and biological effects are likely to be profound. Supporting this hypothesis, research with incest victims has found that the closer the relationship between the child and the perpetrator, the greater the behavioral and psychiatric problems (Trickett, Reiffman, Horowitz, & Putnam, 1997).

A second factor consistently related to increased psychopathology is the age at which the abuse was initiated and the number of developmental transitions through which the abuse continues (Trickett et al., 1997). Earlier ages of onset and longer durations are correlated with greater psychopathology—suggesting the existence of early developmental sensitive periods when stressor effects are magnified. The number of different kinds of abuse and adversity are also correlated with greater psychopathology. The series of Adverse Child Experiences (ACEs) studies jointly conducted by Kasier Permanente and the Centers for Disease Control have consistently found a graded relationship between the number of ACEs and levels of psychopathology in adulthood (Felitti et al., 1998). As is often the case in studies of cumulative risk factors, individuals with four or more ACEs had significantly more psychopathology than those with fewer than four, indicating that there is often a breaking point after which protective factors lose their potency and a large percentage of affected individuals succumb.

A range of adult psychiatric conditions are clinically associated with child abuse. These include the DSM disorders of major depression, borderline personality disorder, somatization disorder, substance abuse disorders, posttraumatic stress disorder, dissociative identity disorder, and bulimia nervosa (Putnam, 2003). At first these associations were based primarily on findings of high rates of retrospectively reported maltreatment in clinical samples. More recently these findings have been replicated in large community samples both in the United States and abroad (e.g., Beitchman et al., 1992; Bifulco, Brown, & Adler, 1991; Ernst, Angst, & Foldenyi, 1993; Fergusson, Horwood, Lynskey, 1996; Mullen, Martin, Anderson, Romans, & Herbison, 1993; Polusny & Follette, 1995; Ussher & Dewberry, 1995).

To examine one example in more depth, major depression and dysthymia have been associated with sexual abuse in numerous studies (e.g., see reviews by Beitchman et al., 1992; Polusny & Follette, 1995; and Neumann, Houskamp, Pollock, & Briere, 1996). Lifetime prevalence of major depression in women with a history of childhood sexual abuse is typically three to five times more common than in women with-

out such a history. Controlling for child sexual abuse reduces or eliminates the differences in depression prevalence rates between females and males (Fergusson, Swain-Campbell, & Horwood, 2002; Whiffen & Clark, 1997). General population studies of children and adolescents have now also strongly linked abuse with depression. For example, in a birth cohort study of 1,000 New Zealand children, Fergusson and colleagues (1996) found that compared to nonabused children, children with histories of noncontact sexual abuse or contact nonintercourse sexual abuse had an increased odds ratio of 4.6 for major depression. The odds ratio increased to 8.1 for major depression and 11.8 for a suicide attempt in subjects reporting intercourse (Fergusson et al., 1996).

Studies also correlate histories of child maltreatment with aggression, crime, and violence (Widom, 1989). Sexual abuse has been specifically linked to prostitution and sexual crimes (Widom & Ames, 1994). Additional social costs include the role of maltreatment in increasing risk for HIV and AIDS. A history of childhood sexual and/or physical abuse is the single greatest risk factor for HIV high-risk behaviors, specifically, promiscuity and use of intravenous drugs in adolescents (Brown, Lourie, Zlotnick, & Cohn, 2000; Cunningham, Stiffman, Dore, & Earls, 1994).

The ACE studies have established strong associations between adverse childhood experiences and smoking, unintended pregnancy, sexually transmitted diseases, male involvement with teen pregnancy, attempted suicide, alcoholism, and illicit drug use (Dube, Felitti, Dong, Giles, & Anda, 2003). These relationships have remained essentially constant across the generations spanning the 20th century (Dube et al., 2003). Largely as a result of these high levels of health-risk behaviors, maltreatment victims have significantly increased rates of cancer, heart disease, lung disease, liver disease, and diabetes (Felitti et al., 1998). The discovery of the serious medical consequences of child maltreatment has led some to identify child maltreatment as a leading public health problem (Harris, Putnam, & Fairbank, 2004).

Hypothalamic–Pituitary–Adrenal Axis Dysregulation

Figure 4.1 is a schematic of the HPA-axis response to stress and trauma. Environmental stressors are experienced by the organism through cortical pathways that act at the level of the hypothalamus to increase secretion of CRH. CRH travels via the portal circulation from the hypothalamus to the anterior lobe of the pituitary, where it stimulates the secretion of ACTH into the bloodstream. Circulating ACTH then stimulates the adrenal cortex to secrete glucocorticoids, which take the form of cortisol in humans. Cortisol in humans and equivalent glucocorticoids in ani-

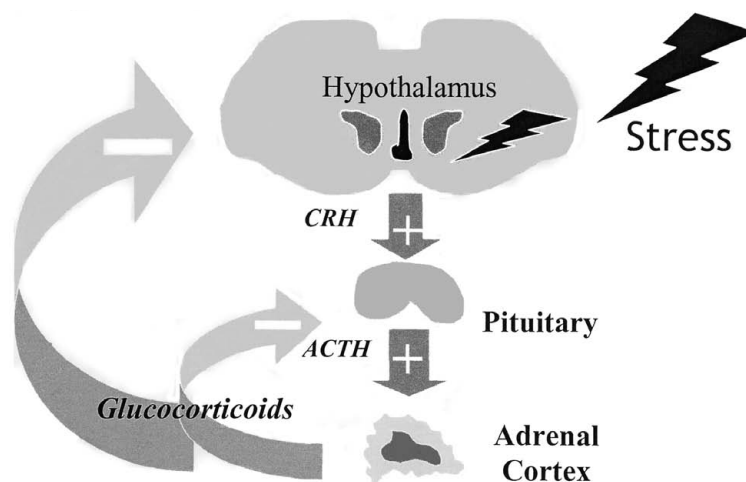


FIGURE 4.1. Hypothalamic–pituitary–adrenal (HPA) axis response to stressors.

mals mobilize bodily stress responses including mobilization and increased synthesis of glucose for energy, inhibition of the growth and reproductive systems, and containment of inflammatory or injury responses. Increasing blood levels of glucocorticoids then feed back to receptors in both the hypothalamus and the pituitary glands to decrease the secretion of CRH and ACTH. This negative feedback acts to prevent levels of CRH and cortisol from reaching damaging levels. Research has shown, however, that chronically increased levels of CRH and/or cortisol can cause long-term damage to certain brain regions (see below).

Systematic observations of the effects of stress on the human HPA axis date to the pioneering work of John Mason and colleagues first at Walter Reed Army Medical Center and subsequently at Yale University in the late 1960s and early 1970s. Research paradigms developed by Mason were applied to Vietnam veterans with posttraumatic stress disorder (PTSD), initiating an important body of research that continues to yield critical data (Mason, Kosten, Southwick, & Giller, 1990; Yehuda, 2002). As other sources of PTSD (e.g., adult sexual assault victims) were investigated, some interesting differences appeared. These differences have led to a more complex picture of the effects of stress on the human HPA axis, which continues to be clarified as increasingly sophisticated research methods are employed. The growing body of research on the effects of stress on the HPA axis in children and adolescents is now adding a developmental perspective.

Adult Studies of the Hypothalamic–Pituitary–Adrenal Axis

Research by Mason and others has, in general, found that acutely stressed adults have increased levels of cortisol that are correlated with the severity of the stressor (Chrousos & Gold, 1992). Indeed, in some studies, the amount of cortisol secreted is used as an index of the degree of stress experienced. However, the first major finding emerging from the studies of Vietnam veterans was that subjects with PTSD had significantly lower basal levels (i.e., hypocortisolism) than matched subjects, even after controlling for combat exposure (Yehuda, 2002). Paradoxically, hypocortisolemic subjects often had high levels of CRH measured in their cerebrospinal fluid (CSF) (Baker et al., 1999). Normally, higher CRH levels would be expected to stimulate increased cortisol production (see Figure 4.1). The most commonly accepted hypothesis, put forth by Rachel Yehuda (1997), is that there is increased negative feedback sensitivity in the HPA axis of PTSD victims, which shuts down cortisol production even in the presence of higher levels of CRH. However, others argue that the hypocortisolism of PTSD victims is a result of decreased adrenocortical responsiveness rather than of increased negative feedback (Kanter et al., 2001).

Research with adults with PTSD who also have histories of child abuse, however, introduces some interesting twists. While working with acute rape victims, Heidi Resnick and colleagues found that women with histories of child abuse had significantly lower levels of cortisol measured in the emergency room than women without such histories. Indeed, rape victims without a child abuse history usually have significantly elevated levels of cortisol that correlate with the severity of their sexual assault—as most stress models would predict. However, it is the victims with both a child abuse history and a low cortisol level who were the most likely to develop PTSD as a result of the rape (Resnick, Yehuda, Pitman, & Foy, 1995). Similar findings have also been reported for motor vehicle accident victims (Delahanty, Raimonde, & Spoonster, 2000).

Despite their low levels of basal cortisol, women with histories of child abuse showed greater HPA-axis reactivity to laboratory stressors (Heim et al., 2000; Heim, Newport, Bonsall, Miller, & Nemeroff, 2001). Compared to age-matched controls, women with histories of child maltreatment exhibited a sixfold greater ACTH response to an experimental stressor (Heim et al., 2001). This suggests that, similar to the animal research findings, early-life traumatic experiences can permanently increase reactivity of the human HPA axis to subsequent stressors. This altered biological stress reactivity is believed by many investigators to

increase susceptibility to physical and mental illnesses (Heim et al., 2000; Putnam & Trickett 1997; Yehuda, 2002).

The transition from initial high levels of cortisol in the context of an acute stressor to subsequent low basal cortisol levels has only been traced in a single case study. Using monthly morning salivary cortisol levels, Kellner, Yehuda, Arlt, Wiedemann, and Agargun (2002) followed a patient with chronic PTSD for 2 years. The initially high levels decreased dramatically 3 months after the traumatic event and showed an inverse relationship with fluctuating but gradually improving PTSD symptoms. Although this clinical course is congruent with what many researchers hypothesize, longitudinal research with representative samples is necessary to trace the transformation of the HPA-axis response in chronic PTSD.

Child and Adolescent Studies

The research literature on neurobiological effects of stress and trauma in children is far less developed and sophisticated than that for adults (for reviews, see De Bellis & Putnam, 1994; Heim & Nemeroff, 2001; Teicher, Andersen, Polcari, Anderson, & Navalta, 2002). In part, this is due to the much smaller biological research base available for child research and, in part, to the thorny ethical issues involved in working with traumatized children (Putnam, 1996; Putnam, Liss, & Landsverk, 1996). Studies with mixed samples of different ages and types of stress indicate that the normal circadian rhythm of cortisol is disturbed (Carlson & Earls, 1997; Goenjian et al., 1996; Hart, Gunnar, & Cicchetti, 1996).

There is also emerging data linking maternal stressors with alterations in their child's cortisol levels (Lupien, King, Meaney, & McEwen, 2000). Children from lower socioeconomic levels have significantly higher cortisol levels than those from higher socioeconomic levels—an environmental effect that is apparent by age 6 years and becomes maximal around age 10 years. After controlling for family income, Lupien and colleagues (2000) found a relationship between a child's cortisol level and the mother's symptoms of depression. Maternal stress during infancy appears to sensitize a child's HPA axis to later stressors (Essex, Klein, Cho, & Kalin, 2002). Maternal depression, in particular, appears to increase cortisol levels, which is correlated with behavior problems and mental health symptoms in first grade.

Studies with maltreatment samples have yielded heterogeneous results. Research with the Trickett and Putnam longitudinal sample of sexually abused girls found higher levels of cortisol than controls (De Bellis

et al., 1994; De Bellis & Putnam, 1994; Putnam & Trickett, 1997). Indeed, directly stimulating the HPA axis with an infusion of CRH produced significantly less secretion of ACTH (see Figure 4.1) compared with controls, but equal levels of plasma cortisol and higher levels of 24-hour urinary cortisol (De Bellis et al., 1994). This ACTH “blunting” suggests that the abused girls had down-regulated their ACTH response to CRH, but still secrete more cortisol per unit of ACTH. Another study by De Bellis and colleagues (1999) replicated the finding of increased urinary cortisol in children and adolescents with PTSD.

In contrast, King, Mandansky, King, Fletcher, and Brewer (2001) found significantly lower levels of morning cortisol in sexually abused girls ages 5–7 years compared with age-, socioeconomic status-, and race-matched controls. Working in a daycamp setting, Cicchetti and Rogosch (2001) did not find overall circadian differences between maltreated and demographically similar control school-age children, but they did find significant differences among subgroups based on the types of maltreatment they had experienced. Children with both physical and sexual abuse histories had significantly higher morning cortisol, while physically abused children had lower morning salivary cortisol relative to controls. Working with children with PTSD (mean age 10.7 years), Carrion and colleagues (2002) found higher levels of salivary cortisol compared with age- and gender-matched controls. Interestingly, there was a significant gender effect, with PTSD girls exhibiting higher levels than PTSD boys. Thus the results of research to date with children parallel those of animal models, indicating that there is a complex interaction among type of stressor, age of stressor onset, gender, socioeconomic and other environmental effects, and HPA response.

Stressor Effects on Brain Development

Decades of animal research on the effects of cortisol and other adrenal steroids secreted during stress on brain development and function have raised questions about these potential effects in humans (Sapolsky, 2000). A number of human disorders (e.g., Cushing’s syndrome and depression) are characterized by elevated cortisol levels. In animals, high levels of glucocorticoids are associated with significant damage to the hippocampus, a brain region critical for learning and memory and filled with glucocorticoid receptors. Whether the glucocorticoids are the directly damaging agents or are responsible for triggering another destructive mechanism leading to the loss of hippocampal cells is a matter of debate (Sapolsky, 2000). The complete absence of glucocorticoids through adrenalectomy, however, is equally damaging, leading to the death of

many hippocampal neurons, illustrating the delicate balance between too much and too little glucocorticoid stimulation.

Brain-imaging studies of adults with Cushings' syndrome or major depression have found that hypercortisolism is associated with hippocampal atrophy, with more severe atrophy correlated with higher cortisol levels (Sapolsky, 2000). Normalization of the cortisol level through treatment does not appear to resolve the brain atrophy, suggesting that these changes may be permanent. Brain-imaging studies of adults with histories of child abuse similarly find evidence of hippocampal atrophy (Bremner et al., 1997; Stein, Koverola, Hanna, Torchia, & McClarty, 1997). In these and other studies, hippocampal damage has been associated with problems with memory and cognitive performance (Bremner, 2001). Bremner (2001) argues that the evidence indicates that both the brain atrophy and cognitive problems are specific to trauma and PTSD and are not related to confounding factors such as drug or alcohol abuse, as some critics contend.

The work of Michael De Bellis and colleagues comprises the major neuroimaging research with children and adolescents on the effects of trauma and PTSD on brain development (De Bellis et al., 1999). They compared 44 maltreated children and adolescents meeting criteria for PTSD with 61 matched controls on anatomical magnetic resonance imaging (MRI) brain scans and comprehensive neuropsychiatric measures. Subjects with PTSD had smaller overall brains with atrophy most prominent in the corpus callosum, a massive fiber tract that connects the two sides of the brain. The degree of brain atrophy was positively correlated with the duration of the abuse. Males showed greater effects than females. PTSD and dissociative symptoms were significantly correlated with measures of brain volume loss. However, there was no evidence of hippocampal atrophy as reported in adults with child abuse histories. Teicher and colleagues (1997) also report evidence of callosal abnormalities, with the greatest effects in physically abused children, but no evidence of hippocampal atrophy. Abnormalities of the corpus callosum have been associated with antisocial behaviors (Raine et al., 2003). Currently, research is investigating the reversibility of these changes in children as well as the effects of neglect on brain development (M.D. De Bellis, personal communication, October 2003).

In summary, child abuse and neglect is most frequently inflicted by primary caretakers and in such cases necessarily distorts and disrupts normal parent-child attachment structures. Research suggests that the closer the perpetrator's relationship with the child, the greater the psychiatric problems. An earlier age of onset is also correlated with greater problems. One of the major adult outcomes of child abuse and neglect is a dramatically increased risk for major depression. In addition, many of

the other psychiatric outcomes indicate that behavioral and biological dysregulation is a major long-term consequence of child maltreatment. To date, research on the HPA axis provides the best examples of neurobiological dysregulation associated with maltreatment. There are a number of salient parallels between the observations of animal maternal–infant stressor studies and the neuroendocrine responses of adults with histories of child maltreatment and maltreated children. Both hypo- and hypercortisol responses are observed, as are long-term alterations in levels of reactivity to new stressors. The level of heterogeneity in HPA-axis responses mirrors the range of responses reported in animal studies. The social behavioral abnormalities seen in primate studies resemble some of the behavior problems seen in humans. Preliminary research indicates that maltreatment has detrimental effects on brain development, which occurs over a protracted period in human development.

CONCLUSIONS

In aggregate, research on the effects of stress and disruption on the neurobiology of the mother–infant attachment response conclusively demonstrates that early adverse experiences can have lifelong effects on subsequent responses to stressors. Maternal stress is clearly communicated to the infant and can be as detrimental as direct stress. For any given stressor, there are gender, age-of-onset, duration, environmental, and genetic effects, which complicate predictions about the degree and direction of the stressor effect. Certain interventions can partially offset the negative impact of early stressors, although no interventions are completely restorative.

The more complex an organism's social structure, the greater the range of effects and the greater negative impact that they have on the individual's success. Stressors and disruptions of the maternal bond early in infancy shape the organism's own caretaking behaviors, thus transducing their impact across generations. Our recognition of the profound and often lifelong effects of early environmental stressors dictates that we develop programs at the public health scale to prevent these experiences from occurring to infants and children. Programs that promote healthy parenting and prevent child abuse, such as the Nurse–Family Partnership, do work (Olds et al., 1998), although there remains considerable room for improvement. Our emerging understanding of the costs and consequences of early adverse experiences indicate that significant reductions in child maltreatment would pay enormous benefits in improved physical and mental health to large segments of our society.

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Reciprocal Influences of Attachment and Trauma

Using a Dual Lens in the Assessment and Treatment of Infants, Toddlers, and Preschoolers

Alicia F. Lieberman and Lisa Amaya-Jackson

Traumatized young children suffer the shattering of their developmentally based expectation that their attachment figure will protect them from pain and damage (Freud, 1926/1959). This shattering of the “protective shield” provided by the parents in the course of normative development may occur regardless of the nature of the trauma—that is, whether the stressor consists of violence perpetrated by the parents themselves or whether it is the product of impersonal forces such as car accidents, near drownings, intrusive medical procedures, natural disasters, or other sources of overwhelming fear and pain for the child (Lieberman, 2004b; Pynoos, Steinberg, & Piacenti, 1999). The reciprocal influences between quality of attachment and the impact of trauma on development are topics in urgent need of clinical and research attention because the transactional processes between attachment and trauma have profound implications for the child’s developmental course. We propose that infants, toddlers, and preschoolers presenting with clinical problems or participating in research studies of high-risk families should be systematically assessed both for the quality of their primary interpersonal relationships and for their exposure to the range of traumatic stressors that occur in infancy and early childhood. A “dual lens” on

trauma and attachment will help to identify the protective and aggravating processes that link these two major influences on the young child's developmental course and inform approaches to therapeutic intervention.

From the perspective of small children, there are no such things as "accidents." Their egocentric organization of causality (Piaget, 1958) leads them to think of their own actions, thoughts, and desires as the reasons that events affecting them occur. When their attachment figures are punitive or unresponsive, young children attribute such parental behavior to their own qualities of being unlovable and undeserving of protective care (Bowlby, 1969/1982, 1983). Similarly, when a catastrophic event happens to them or to a loved one, they tend to interpret it as punishment for their own bad thoughts or behavior. The idiosyncratic, self-referential logic prevalent in infancy and early childhood has immense but often unrecognized effects on the symptom profile of young children, prompting pioneer child psychoanalyst Selma Fraiberg (1959) to label the first 5 years of life "the magic years."

Children's perceptions of their parents' availability to protect them—the building blocks of secure attachments—play a pivotal role in countering these developmentally appropriate but potentially emotionally damaging misconceptions. The parent's sensitive responsiveness to the child's needs supports the child's developmental progress both in normative conditions and under conditions of stress, which points to the importance of using a developmental ecological framework to understand both the impact of traumatic stressors on children and the conditions that foster recovery (Ainsworth, Blehar, Waters, & Wall, 1978; Cicchetti & Lynch, 1993; Pynoos & Steinberg, 2004). Different caregiving strategies may be more adaptive in terms of their protective value depending on the array of risk factors faced by the child and the family. For example, children of HIV-infected parents living in violent neighborhoods showed better functioning when their parents scored high on a measure of overprotection, suggesting that efforts to understand the characteristics of sensitive and effective parenting need to take into account the ecological circumstances of the child and the family (Lester, Rotheram-Borus, & Ward, 2003).

DEFINING TRAUMA: IMPACT ON EARLY FUNCTIONING

The text revision of the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV-TR) describes traumatic stressors as events

involving direct personal experience of an event that involves actual or threatened death or serious injury, or other threat to one's physical integrity; or witnessing an event that involves death, injury, or a threat to the physical integrity of another person; or learning about unexpected or violent death, serious harm, or threat of death or injury experienced by a family member or other close associate. (American Psychiatric Association, 2000, p. 463; see Table 5.1)

Although this definition has been used both with adults and with children, it has not been fully adopted with the developmental needs of young children in mind. For infants, toddlers, and preschoolers, a traumatic stressor may involve threat not only to the *physical* but also to the *psychological* integrity of the child or a person close to the child. For example, prolonged separation from the mother figure, although not representing a threat to life or physical integrity, has been documented as triggering intense and lasting distress in infancy and early childhood, evoking behavioral responses consistent with current conceptualizations of traumatic stress reactions (Bowlby, 1983).

In response to the need for a developmentally appropriate definition of trauma and its sequelae for young children, the Diagnostic Classification of Mental Health and Developmental Disorders of Infancy and Early Childhood (DC: 0–3) adopted a definition that describes a traumatic stressor as “direct experience, witnessing, or confrontation with an event or events that involve actual or threatened death or serious injury to the child or others, or a threat to the psychological or physical integrity of the child or others” (Zero to Three National Center for Clinical Infant Programs, 1994, p. 19; see Table 5.2). The difference between the DSM-IV-TR and the DC: 0–3 definitions reflects the unresolved dilemma of how to incorporate developmental variations in the definition of childhood trauma. For example, a week-long separation from the mother may represent a traumatic stressor for a 12-month-old who can neither understand the reasons for her departure nor anticipate her return, whereas a 4-year-old who has the cognitive skills to process an explanation of the mother's absence may experience this situation as stressful but not traumatic. Such developmental variations may partly explain inconsistencies and variations in how the concept of trauma is used theoretically and clinically.

The usefulness of the DC: 0–3 criteria for diagnosing posttraumatic stress disorder (PTSD) in young children was systematically researched by Scheeringa, Zeanah, Myers, and Putnam (2003). These authors examined the validity of the current DSM-IV-TR criteria and algorithms, introducing modifications in the criteria based on the traumatic stress responses described in DC: 0–3. Their findings confirmed that young chil-

TABLE 5.1. Diagnostic Criteria for Posttraumatic Stress Disorder

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- A. The person has been exposed to a traumatic event in which both of the following were present:
- (1) the person experienced, witnessed, or was confronted with an event or events that involve actual or threatened death or serious injury, or a threat to the physical integrity of self or others
 - (2) the person's response involved intense fear, helplessness, or horror. **Note:** In children, this may be expressed by disorganized or agitated behavior.
- B. The traumatic event is persistently reexperienced in one (or more) of the following ways:
- (1) recurrent and intrusive distressing recollections of the event, including images, thoughts, or perceptions. **Note:** In young children, repetitive play may occur in which themes or aspects of the trauma are expressed.
 - (2) recurrent distressing dreams of the event. **Note:** In children, there may be frightening dreams without recognizable content.
 - (3) acting or feeling as if the traumatic event were recurring. **Note:** In young children, trauma-specific reenactment may occur.
 - (4) intense psychological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event
 - (5) physiological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event
- C. Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma), as indicated by three (or more) of the following:
- (1) efforts to avoid thoughts, feelings, or conversations associated with the trauma
 - (2) efforts to avoid activities, places, or people that arouse recollections of the trauma
 - (3) inability to recall an important aspect of the trauma
 - (4) markedly diminished interest or participation in significant activities
 - (5) feeling of detachment or estrangement from others
 - (6) restricted range of affect (e.g., unable to have loving feelings)
 - (7) sense of foreshortened future (e.g., does not expect to have a career, marriage, children, or a normal lifespan)
- D. Persistent symptoms of increased arousal (not present before the trauma), as indicated by two (or more) of the following:
- (1) difficulty falling or staying asleep
 - (2) irritability or outbursts of anger
 - (3) hypervigilance
 - (4) exaggerated startle response
- E. Duration of the disturbance (symptoms in Criteria B, C, and D) is more than 1 month
- F. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.
- Specify if:*
- Acute:** if duration of symptoms is less than 3 months
- Chronic:** if duration of symptoms is 3 months or more
- Specify if:*
- With Delayed Onset:** if onset of symptoms is at least 6 months after the stressor
-

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TABLE 5.2. DC: 0–3 Criteria for Traumatic Stress Disorder

A continuum of symptoms related to a single event, a series of connected traumatic events, or chronic, enduring stress:

1. Re-experiencing of the trauma as evidenced by:
 - a. Post traumatic play
 - b. Recurrent recollections of the traumatic event outside play
 - c. Repeated nightmares
 - d. Distress at reminders of the trauma
 - e. Flashbacks or dissociation
2. Numbing of responsiveness or interference with developmental momentum
 - a. Increased social withdrawal
 - b. Restricted range of affect
 - c. Temporary loss of previously acquired developmental skills
 - d. A decrease in play
3. Symptoms of increased arousal
 - a. Night terrors
 - b. Difficulty going to sleep
 - c. Repeated night waking
 - d. Significant attentional difficulties
 - e. Hypervigilance
 - f. Exaggerated startle response
4. Symptoms not present before
 - a. Aggression toward peers, adults or animals
 - b. Separation anxiety
 - c. Fear of toileting alone
 - d. Fear of the dark
 - e. Other new fears
 - f. Self-defeating behavior or masochistic provocativeness
 - g. Sexual and aggressive behaviors
 - h. Other nonverbal reactions, e.g., somatic symptoms, motor reenactments, skin stigmata, pain, or posturings.

Note. From Zero To Three/National Center for Clinical Infant Programs (1994). Copyright 1994 by Zero To Three. Reprinted by permission.

dren can be reliably and validly diagnosed with PTSD. They also found a high rate of comorbidity with other disorders, extending to children under age 6 a finding that had been reported with older children and adults. Based on these findings, the authors recommended the modification of DSM-IV-TR criteria for PTSD on the basis of developmental considerations, and the inclusion of novel symptoms emerging since the time of the trauma as associated symptoms because they are among the symptoms most currently reported for young children in a variety of studies.

A diagnosis of traumatic stress disorder (TSD) may be warranted in young children when their behavior problems following traumatic expo-

sure become sufficiently intense and pervasive to interfere with developmental progress (Zero to Three/National Center for Clinical Infant Programs, 1994). Traumatic stress responses in infancy and early childhood are grouped into four main behavioral clusters: reexperiencing the traumatic event, numbing of responsiveness or interference with developmental momentum, increased arousal, and new symptoms not present before the trauma. Reexperiencing the traumatic event is manifested by symptoms such as posttraumatic play, recurring recollections of the event outside of play, repeated nightmares, distress at traumatic reminders, or episodes that indicate flashback or dissociation. Numbing of responsiveness or interference with developmental momentum may be manifested in increased social withdrawal, restricted range of affect, temporary loss of previously acquired developmental milestones, and decrease or constriction of play. Increased arousal is shown in night terrors, sleeping difficulties, repeated night wakings, attentional difficulties and decreased concentration, hypervigilance, and exaggerated startled response. New symptoms not present before the trauma usually include, but are not limited to, aggression; separation anxiety; new fears; provocative, defiant, or sexualized behavior; motor reenactments; and somatic symptoms. As children mature beyond the first 3 years, they more readily meet criteria for the DSM-IV-TR diagnosis of PTSD, though many of the modifications made for the DC: 0–3 diagnosis may continue to apply. Particularly relevant for children of all ages is the significance of new onset of other symptoms not evident prior to trauma exposure.

A decade of research on the neurobiological correlates of traumatic life experiences and PTSD has yielded findings of alterations in neuroendocrine functioning, physiological profiles, and brain structure development (DeBellis et al., 1994; DeBellis, Baum, et al., 1999; DeBellis, Keshavan, et al., 1999; Perry & Pollard, 1998; Putnam & Trickett, 1997; Yehuda, 1997; Yehuda, Yehuda, Spertus, & Golier, 2001; see also Putnam, Chapter 4, this volume). The research on neurobiological effects of stress and trauma in children (especially young children) is less advanced than research involving adults. Studies of adult trauma populations (notably veterans, rape victims, and adults with histories of child maltreatment) have provided the current picture of the effects of acute and chronic stress on the hypothalamic–pituitary–adrenal (HPA) axis, adrenergic nervous system, and brain structure and function (Hiem & Nemeroff, 2001; Mason, Kosten, Southwick, & Giller, 1990; Resnick, Yehuda, Pitman, & Foy, 1995; Yehuda, 1997). Higher levels of cortisol in child maltreatment populations compared to controls as well as adrenocorticotrophic hormone (ACTH)-blunted response to corticotropin-releasing hormone (CRH) has been noted in child maltreatment populations and children with PTSD (Carrion et al., 2002; Cicchetti & Rogosch, 2001; DeBellis et al., 1994; DeBellis, Baum, et al., 1999; DeBellis, Keshavan, et al., 1999; Putnam,

Chapter 4, this volume; Putnam & Trickett, 1997). Brain-imaging research in children and adolescents with maltreatment histories and PTSD has revealed dramatic findings of reduced brain volumes (particularly in the area of the corpus callosum) compared to controls (DeBellis, Keshavan, et al., 1999; Teicher et al., 1997). DeBellis, Keshavan, and his colleagues (1999) have also reported that duration of abuse and severity of PTSD correlated with loss of brain volume in children.

The more repeated and pervasive the trauma exposure, particularly trauma experiences that begin early in life and are perpetrated by the primary caregiver, the more likely it is to result in the chronic stress response termed “complex trauma.” With complex trauma, the stress response extends beyond the symptoms encapsulated in the diagnosis of PTSD, leading to impairment that spans multiple domains of functioning, most notably affect regulation, self-concept, behavioral control, dissociation, attachment, and biological systems (Cook, Blaustein, Spinazzola, & van der Kolk, 2003; Dube et al., 2001; Felitti et al., 1998; Gordon, 2002; Herman, Perry, & van der Kolk, 1989; Lyons-Ruth & Jacobvitz, 1999; Simpson & Miller, 2002; van der Kolk, Roth, Pelcovitz, Mandel, & Spinazzola, in press; Yehuda et al., 2001). A recent white paper from the National Child Traumatic Stress Network Complex Trauma Task Force organizes the research findings on the outcomes of complex trauma as impairing the developmental continuum from infancy to adulthood in the following domains: (1) self-regulation, attachment, anxiety, and affective disorders in infancy and childhood; (2) addiction, aggression, social helplessness, and eating disorders; (3) dissociative, learning, somatoform, cardiovascular, metabolic, and immunological disorders; (4) sexual disorders in adolescence and adulthood; and (5) revictimization (Cook et al., 2003). When experienced in the early years in the context of the child’s attachment relationship, trauma may lead to profound multifocal problems that are notably similar to those seen in children classified as having a disorganized/disoriented attachment to their primary caregiver. These findings, taken together with the observed impact of trauma on multiple developmental domains, support the recommendation that PTSD in children should be considered as a trauma developmental disorder (Perry, 1994; Perry & Pollard, 1998; Pynoos & Steinberg, 2004).

DISORGANIZED ATTACHMENT AS A POSSIBLE MANIFESTATION OF TRAUMATIC STRESS RESPONSE

Attachment theory and research have documented the critical nature of the caregiving relationship in early childhood and the impact of attach-

ment disturbances on the infant's mental health. Among the attachment classifications delineated within this paradigm, disorganized/disoriented attachment has a unique position: it reflects the infant's failure to utilize a single coherent strategy to cope with uncertainty regarding the mother's availability. In the Strange Situation procedure, the disorganized infant responds to the stress of separating from the parent with a range of often fleeting behaviors that are contradictory and out of context (Main & Solomon, 1986, 1990). The infant may move back and forth between clingy, avoidant, and/or aggressive responses to the mother, or may engage in unusual movements or postures; freezing and slowed movements and expressions; signs of fear (hunched shoulders or fearful facial expression); and indications of disorganization and disorientation (such as disoriented wandering, confused or dazed expressions) (Lyons-Ruth & Jacobvitz, 1999).

Outcomes and correlates of disorganization in infancy have been studied systematically (see Lyons-Ruth & Jacobvitz, 1999, for a comprehensive summary). In follow-up studies of preschoolers and children up to age 6 who were classified as disorganized at 1 year, the majority of children displayed controlling behaviors toward the parent (Main & Cassidy, 1998; van IJzendoorn, Schuegel, & Bakermans-Kranenburg, 1999; Wartner, Grossmann, Fremmer-Bombik, & Suess, 1994). Other significant associations include avoidance of the parent, dissociative symptoms, general behavioral/oppositional problems, emotional disconnection, aggression toward peers, and low social competence in preschool (Carlson, 1998; DeMulder & Radke-Yarrow, 1991; Greenberg, Speltz, DeKlyen, & Endriga, 1991; Hann, Castino, Jarosinski, & Britton, 1991; Hubbs-Tait, Osofsky, Hann, & Culp, 1994; Jacobvitz & Hazen, 2000; Lyons-Ruth, Alpern, & Repacholi, 1993; Moss, Parent, Gosselin, Rousseau, & St. Laurent, 1996).

Disorganized/disoriented attachment has been linked to maternal behavior that places the child in the inherent conflict of being afraid of the person who is also his or her source of protection (Lyons-Ruth & Jacobvitz, 1999; Main & Hesse, 1990). The parent's behavior does not provide the safe haven that normally facilitates the infant's coherent strategy to gain access to protection (i.e., seeking proximity to the caregiver). Instead, parental behavior is at crucial times aversive, threatening, confusing, or frightening, often as the result of unresolved traumatic experiences that go back to the parent's own childhood (Cassidy & Mohr, 2001). Controlling/disorganized behaviors in the preschool years are related to the mother's mental representations of attachment and unresolved loss or trauma as assessed with the Adult Attachment Interview (AAI; George & Solomon, 1996; Greenberg et al., 1991). Applications of attachment theory and research to clinical issues suggest that incoherent, incongruous states of mind are transmitted from

parent to child and function as a mechanism that links and hence perpetuates disorganized attachment and infant/toddler symptomatology (Lyons-Ruth & Jacobvitz, 1999; Main & Hesse, 1990; Main, Kaplan, & Cassidy, 1985).

Disorganized attachment is more prevalent among maltreated infants or infants with family risk factors such as domestic violence, maternal psychopathology (including PTSD and complex trauma), and family history of substance abuse (see Cassidy & Mohr, 2001, and Lyons-Ruth & Jacobvitz, 1999, for reviews). Within this constellation of risk factors, the infant is seen as unable to attain a stable self-regulatory capacity because of the mother's inability to regulate her own behavioral responses.

Infants and young children are exquisitely sensitive to variations in environmental stress, and respond to such variations with subsequent changes in neurobiological functioning. Findings from research on individual differences in attachment indicate that infants with disorganized attachment have higher heart-rate levels and higher cortisol levels than infants in other attachment categories or than nondisorganized infants during and/or following the Strange Situation procedure (Hertsgaard, Gunnar, Erickson, & Nachmias, 1995; Spangler & Grossmann, 1993). There are speculations that disorganized attachment is linked to structural alterations in the corticolimbic areas of the brain responsible for affect regulation, illustrating the critically sensitive nature of experience-dependent brain development (Schore, 2001; Siegel, 1999). Maunder and Hunter (2001) concluded in a recent review that disruption of the development of a secure attachment in both animals and humans appears to produce lasting biological dysregulation associated with lifelong risk of physical disease, psychosocial dysfunction, and predisposition for traumatic stress and complex trauma disorders. This review has influenced the conceptualization of complex trauma in children and adolescents (Cook et al., 2003).

WITNESSING DOMESTIC VIOLENCE: THE CONVERGENCE OF ATTACHMENT AND TRAUMA RESPONSES

Patterns of attachment disorganization may contribute to maladaptive child outcomes both directly and through synergistic exchanges with environmental traumatic stressors that affect the child as well as the caregiver. Witnessing violence between the parents is a prime example of a situation where attachment and trauma elements are intricately linked, creating conditions that may simultaneously traumatize both the child

and the parent(s) and lead to a deterioration in the quality of the parent–child relationship through misattributions, self-absorption, emotional withdrawal, irritability, and anger. The parent and the child may have different interpretations of the traumatic event, resulting in miscommunication and mutual alienation.

Parents are often unaware of the impact that a traumatic event may have on a young child. This response may be the result of a variety of factors, including the parents' personal involvement in the traumatic event (e.g., in accidents that affect both the parent and the child, or in situations of domestic violence or child abuse where the parent is the perpetrator and/or victim of the trauma), or their mistaken assumption that the child is too cognitively immature to notice what happened. Parents may then misinterpret the child's traumatic responses, which often consist of manifestations of intense and dysregulated affect, as expressions of defiance, opposition, or lack of caring on the child's part. Their efforts to "correct" the child through punitive measures or emotional withdrawal may, in turn, lead to an exacerbation of the child's symptoms. Such transactional processes between traumatized parents and traumatized children, stemming from external trauma endured simultaneously by the parent and by the child, may be internalized by the child in the form of a disorganized pattern of attachment (Lieberman, 2004b).

The vignette below illustrates the responses of an 18-month-old boy, Luis, as he watches an escalating fight between his father and his mother.

Luis's mother complains to the father that she does not have the money for diapers and that he never thinks of anything but his friends, his soccer game, and his own parents and siblings. The father replies that he just gave her money, and that she should be more careful with how she spends it. The mother calls him a "cheap bastard"; the father yells at her that he works hard at two jobs and that she has no sense of the value of money because "all she does is stay home with the baby all day." Alerted by the parents' loud and angry voices, Luis stops playing and watches them with a serious expression. His heart begins to beat faster as he monitors his parents' behavior and registers their angry facial expressions and increasingly harsh voices. He observes with a frightened expression as his mother pushes his father and slaps him; the father slaps the mother back and shoves her against the wall. As his stress level accelerates, Luis is compelled to take action. He gets up, stands next to his parents, and shouts, "No! No!" with his arms up toward his parents and his face contorted with fear and anger. The adults pay no attention to him, and continue pushing and shoving while yelling

at each other. Luis starts crying loudly, calling out, “Mama! Mama!” while he crouches next to a dining-room chair shaking with fear. The father storms out of the house, banging the door so hard that Luis responds with a strong startle. After the father leaves, the child runs to his mother and hugs her knees while she sobs loudly. He asks softly, “Where Daddy?,” but his mother does not reply. She is sad and sullen, and has become quite short and laconic with her child. By dinnertime, the father has not yet returned. Luis hardly eats; his movements are slow and lethargic, and he looks frightened and sad. Soon afterward, when the mother puts Luis to bed, neither of them talks to the other. She is silent and absent-minded, and he avoids looking at her. That night, Luis wakes up screaming several times, and insists that his mother stay with him.

This scene of marital violence illustrates the multilayered experience of the child who witnessed it. Luis responded to his parents’ fight at physiological, emotional, social, and cognitive levels. He engaged in age-appropriate efforts to secure safety and protection through the entire time that the conflict was taking place. He first mobilized himself to anticipate danger by using the parents for social referencing as he responded physiologically and affectively to the early stages of their fight, keeping his distance but observing them closely. He later tried to ward off the escalation of danger by coming close to his parents and attempting to stop their fight. When this was not effective, he resorted to self-protective mechanisms by staying out of the way and crouching next to a protective barrier (the dining-room chair) as his physiological and affective reactions accelerated into uncontrollable shaking. However, he remained intensely involved both in trying to engage his mother’s protection and in monitoring her well-being by crying “Mama! Mama!” as he watched the fight. Afterward, he established physical contact with his mother to be reassured both that she was not hurt and that she could be available to him.

Sadly, Luis’s efforts were ineffective because neither of his parents could offer the protection that he was so eloquently asking from them. His cumulative failures to gain their attention compounded the initial helplessness he felt at being unable to prevent or stop the fight. Luis’s father left, and his departure was accompanied by the startle-producing sound of the door being slammed shut behind him. Luis’s mother, absorbed first in venting her anger at her husband and later in preserving her physical and psychological integrity, was at first unaware of and later unable to respond to her son’s efforts to secure her help.

Dysregulation of physiological, emotional, and cognitive processes is the hallmark of the traumatic stress response. Depending on the nature of the trauma, the child is exposed to unbearably intense visual, au-

ditory, olfactory, tactile, and kinetic stimuli that overwhelm his or her coping capacities and leave the child completely dependent on the intervention of others to regain homeostasis. Following the trauma, the child is often exposed to secondary stresses and related adversities that may interfere with the child's ability to recover and regain developmental momentum (Pynoos et al., 1999).

The child's recovery from trauma may encounter further obstacles through parental unawareness of and unresponsiveness to the child's experience, a recurrent pattern in children of battered women (Peled & Edleson, 1992). Although there are no comparable studies of fathers experiencing or perpetrating marital violence, it is likely that they also are unaware of and unresponsive to their children's needs. Parental unavailability may contribute to the clinical symptoms exhibited by children who witness marital violence by failing to provide a protective framework to help the children process and contain their emotional arousal. Young children use their parents as points of reference to detect danger, and they turn to their parents as a secure base for safety and relief from fear (Ainsworth et al., 1978; Bowlby, 1969/1982). When the parent is actually the perpetrator of the trauma, the child is caught in an unsolvable dilemma because the source of danger and the source of protection become one and the same (Main & Hesse, 1990).

Attachment Disorganization vis-à-vis Trauma

By exposing the child to unmanageable sources of danger, traumatic stressors compound the developmentally expectable primordial anxieties described in the psychoanalytic literature, which consist of fears of abandonment, loss of love, loss of body integrity, and self-blame (Brenner, 1976; Pynoos, 1995). Whenever the parent fails as a protector, these internal dangers converge with the external danger posed by a traumatic stressor and exacerbate the child's dysregulated functioning in response to it. When the danger is real rather than anticipated in the child's imagination, the child's fears of being abandoned, unloved, and damaged because of self-attributed failures are no longer relegated to the realm of fantasy but become terrifyingly concrete in light of the real-life events. As a result, a young child such as Luis, traumatized by marital violence, contends simultaneously with the body-based feelings of unmanageable fear (prompting physiological dysregulation that is behaviorally expressed in hyperarousal and inhibition) and with the superimposed stress of being deprived of the parental protection he needs to regain physiological and affective regulation. The inability to rely on the parent to restore self-regulation, in turn, exacerbates the child's anxieties because the parent offers no reassurance that the child will not be aban-

done, will continue to be loved, and will be protected from bodily harm and from the agonies of self-blame.

This conceptualization highlights the simultaneous contributions of external trauma *and* maternal unavailability to the formation of disorganized attachment. This dual emphasis on external events and internal processes stands in contrast with the current emphasis on the intergenerational transmission of trauma from the mother to the child, either through the vehicle of maternal frightened/frightening behavior (Cassidy & Mohr, 2001; Main & Hesse, 1990) or through maternal lapses in behavioral and attentional strategies that lead to ruptures in the dialogue between mother and child (Lyons-Ruth & Jacobvitz, 1999).

Our emphasis on the role of external traumatic stressors impinging directly on the child and the child's attachment figure is particularly relevant to the relationship–diathesis model proposed by Lyons-Ruth and her colleagues (Lyons-Ruth, Bronfman, & Altwood, 1999). In this model, the child's vulnerability to stress-related dysfunction is considered to be a function of at least three factors: the characteristics of the stressor, the genetic vulnerability to stress, and the capacity of the attachment system to modulate high levels of arousal. We propose that, in assessing individual children, clinicians and researchers need to assess systematically the characteristics of the stressor and the child's response to it in light of prior functioning. This dual focus is essential to understand the role that the attachment system is playing in helping the child to modulate arousal. It is possible, for example, that children showing behaviors associated with disorganized attachment may in fact be exhibiting a traumatic stress response based on recent and unresolved exposure to a traumatic event (Lieberman, 2004b). Systematic assessment of external stressors, child vulnerability, and quality of the attachment relationship can lead to clearer elucidations of the construct of attachment disorganization in clinical and research populations.

Trauma vis-à-vis Attachment Disorganization

When the child's exposure to traumatic stressors occurs regularly as part of an unpredictable or punitive caregiving environment, direct and indirect effects on later adolescent and adult outcomes may be predicted. Within the attachment literature, outcomes that are considered core features of a disorganized attachment relationship include difficulties in intimate relationships, unintegrated mental representations, negative self-concepts, problems with affect regulation, learning difficulties, internal and externalizing behavior problems, dissociation, and neurobiological alterations (Goldberg, Gotowiec, & Simmons, 1995; Greenberg et al., 1991; Lyons-Ruth et al., 1993; Putnam, Chapter 4, this volume). The

similarity between these outcomes and the features associated with the paradigm of complex trauma (Herman, 1992; van der Kolk et al., in press) deserve investigation. The integration of the trauma-focused approach of considering both the objective characteristics of the trauma and intersubjective factors (i.e., quality of attachment and caregiver's capacity to provide comfort and assuage fear) can build bridges between attachment theory and findings from trauma research within an ecological/transactional model of development and psychopathology (Cicchetti & Lynch, 1993; Pynoos et al., 1999).

The Attachment Figure as a Traumatic Reminder

Responses to trauma may be difficult to distinguish from the disorganizing effects of a caregiver who becomes a traumatic reminder of overwhelming events for the child. Infants with disorganized attachments may or may not have been maltreated. The neurobiological and behavioral profiles of maltreated and nonmaltreated disorganized infants should be compared in order to better understand individual variations in infant response to caregiving stresses that range from unpredictable and insensitive care to physical and/or sexual abuse.

CONTRIBUTIONS OF ATTACHMENT AND TRAUMA APPROACHES TO TREATMENT

Utilizing the dual lens of trauma and attachment to assess the treatment needs of infants and young children challenges clinicians to consider the separate and interactive contributions of current traumatic life events with the enduring effects of the parental past on the infant–parent relationship. While dependent on the parent, infants and toddlers are also vulnerable to life events that occur out of the parent's control and may simultaneously affect parent and child (Cicchetti & Lynch, 1983). Real-life events play a central role in the development of attachment security, particularly when those events, such as trauma, have a powerful emotional impact on the parent and/or the child (Lieberman, 2004b).

We return to the case of Luis to illustrate one possible pathway toward disorganized attachment through exposure to an external stressor that had repercussions on the quality of the child–mother relationship.

Luis was referred for treatment by his pediatrician 2 months after this traumatic stressor took place. The referral was prompted by the mother's complaint that Luis had become increasingly aggressive and defiant during the day and woke up screaming during the night.

The initial assessment session was attended by both parents, who described the high level of stress in their marriage. Luis's father, age 22, felt that the mother had "trapped" him by becoming pregnant in spite of his opposition to a pregnancy on the grounds that they were too young for the responsibility of raising a child. The father was from an impoverished background and had hoped to pursue a college education by working during the day and going to school at night, but he now felt that this option was no longer open because of his role as breadwinner for his girlfriend and child. Luis's mother, whose parents were in a comfortable economic position, wanted to accept their offer of help, but Luis's father felt humiliated by the idea of being supported by them. He also resented his girlfriend's conviction that she should stay home full time to raise Luis, and argued that his own mother had worked hard while he was growing up and still managed to take good care of him. The young couple felt mutually alienated by their opposing points of view, which had become increasingly polarized in the course of many acrimonious arguments. There were frequent verbal arguments that escalated into shouting and occasional mutual pushing, shoving, and slapping, often in Luis's presence. Luis was caught in the middle of his parents' strife. The parents reported that the father spent little time with the child, and the mother found herself unable to set firm and clear expectations when he was aggressive and defiant because she felt guilty about the unhappiness in the home.

The second assessment included only Luis and his mother because the father reported that he could not miss work. At 20 months, Luis looked serious and worried throughout the 1-hour session. Although he showed interest in the toys and had a good attention span, he also startled easily and was hypervigilant to outside noises. He quickly became whiny and demanding in his interactions with his mother, as if nothing she did could please him. He insisted that she hold a toy but immediately took it away from her. Twice he hit her when she did not understand what he was trying to tell her. He did not object to his mother's departure when she left the clinic playroom to use the bathroom, and during her absence he played quietly and reciprocally with the assessor. When the mother returned, he approached her with averted gaze and walked right by her, leaving the playroom through the open door and not paying attention to her calling him by name and asking him to come back.

This reunion behavior suggests that, had Luis been assessed using the Strange Situation procedure, he might have been classified as having a disorganized pattern of attachment. What would such a classification mean in Luis's case? Based on the clinician's observation and reports from the child's pediatrician, his mother was not harsh or punitive toward him. On the contrary, she seemed excessively attuned to his moods

and wishes and overly eager to please him. Her solicitousness had an anxious quality that was consistent with the guilt she described herself as feeling because of the marital conflicts that Luis had witnessed. This attitude and behavior are reminiscent of the helpless pole of the helpless–hostile construct described by Lyons-Ruth and Jacobvitz (1999), and it was possible that in the privacy of their daily life she might show hostility as well. In this mother–child dyad, however, the juxtaposition of the maternal lack of self-confidence in caregiving and the child’s mixture of angry neediness and rejection of the mother could be attributed in large part to the existential impasse the parents were going through rather than primarily to unresolved events from the mother’s childhood, although such events might have played a contributing role. Luis’s stress responses involved constricted affect, hypervigilance, and heightened arousal in the forms of sleeping problems and excessive startles. Given this background, it is possible to interpret his reunion behavior as expressing his lack of trust in his mother’s capacity to help him feel safe in spite of her evident devotion to him. Disorganized attachment might coincide and overlap with traumatic stress disorder. Luis’s behavior illustrates the value of simultaneously using a stress/trauma lens and an attachment lens in the assessment of young children exposed to adverse external circumstances.

DUAL-LENS APPROACH: IMPLICATIONS FOR TREATMENT

The use of a dual stress/trauma and attachment lens has important implications for treatment. The treatment of choice for infants, toddlers, and preschoolers logically follows a parent–child dyadic model (Lieberman, 2004a), including a focus on the parent–child relationship and building healthy parental attunement and reflective functioning on the part of the caregiver. Core treatment principles for child trauma must also be addressed and folded into a developmentally informed treatment approach. For example, unidentified traumatic reminders undermine the child’s feelings of security because they occur unpredictably and trigger a reexperience of the trauma. The caregiving adult, failing to understand the meaning of the traumatic reminder, may respond counterproductively by scolding or punishing the child and aggravating the traumatic response. Once a traumatic reminder is identified, there are a variety of ways of alleviating its impact. The simplest palliative measure is to remove the stimulus from the child’s environment. When this is not feasible, adults can use gradual desensitization by exposing the child to the traumatic reminder in a modulated way, while at the same time engaging

in protective and soothing behaviors such as holding, rocking, and singing. Once the child has acquired some language, the caregiver can be coached to anticipate when the traumatic reminder will occur and practice ways of coping with the negative emotions that will ensue. Semi-structured guided play with a caring adult enables the child to reenact the traumatic event. This reenactment facilitates strategized recall of a coherent (even if nonverbal) narrative, enabling the child to modulate the anxiety associated with the event and to experiment with ways of coping with it. This process allows the child to practice the safe expression of themes of anger, punishment, and revenge, as well as themes of rescue and reconciliation (Amaya-Jackson et al., 2003; Gaensbauer & Siegel, 1995; Lieberman, Compton, Van Horn, & Ghosh Ippen, 2003). These strategies, particularly when implemented in a relational context with a supportive caregiver, offer a necessary experiential contradiction to the emotional helplessness that accompanied the trauma and facilitate the child's capacity to discriminate between reminders of the trauma and the actual traumatic event.

The dual-lens approach can bring to bear certain attachment- and trauma-informed theoretical perspectives not previously linked to inform clinical practice. For example, the excessive physiological hyperarousal, impaired cortical control over subcortical areas, and relative decrease in left hemispheric activation during reliving of the trauma (Tiecher, Andersen, Polcari, Anderson, & Navalta, 2002) may explain why experience and memories are often not translated into language, and why nonverbal (right-brain-mediated) relational strategies may prove to be critically important in treatment (van der Kolk, 2003). It is not enough to use intervention strategies that assist traumatized children in organizing a coherent narrative of the trauma and modulating anxiety to traumatic reminders. The caregiver and the therapist must also offer the nonverbal relational experiences that counterbalance the emotional helplessness that accompanies the trauma. This approach comprises a direct application of the "corrective emotional experience" from the attachment paradigm (Lieberman, 1991).

PROPOSED MODEL OF DIRECT AND INTERACTIONAL EFFECTS OF TRAUMA AND ATTACHMENT

We propose a model that accounts for the direct and interactive effects of disorganized attachment and traumatic stress disorder (or PTSD) on child and parent functioning (see Figure 5.1). We draw on attachment theory's account of intergenerational transmission of the mother's unre-

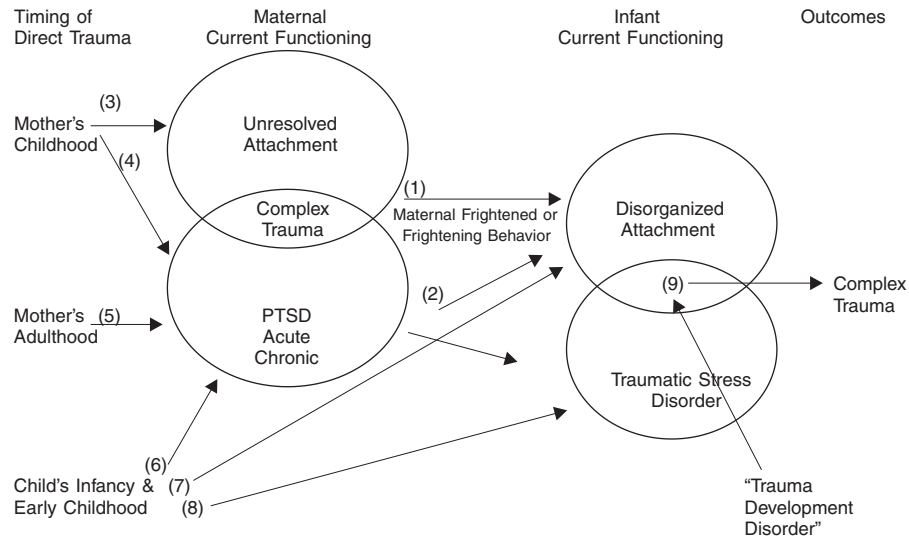


FIGURE 5.1. Proposed model: Direct and interactional effects of trauma and attachment.

solved traumatic responses (from either childhood [paths 3,4] or adult exposure to trauma [path 5]) onto their infant via maternal frightened/frightening behavior or lapses of attentive nurturing (paths 1, 2). It is noted that the mother's PTSD (be it acute from adult trauma or chronic as a result of childhood trauma[s]), if occurring in the context of an unresolved attachment, will likely manifest in the symptom picture described as complex trauma. Young children exposed directly to traumatic life event(s) often experience traumatic stress disorder as a result (path 8). We also note that the child's mother may develop PTSD as a result of trauma to her child (whether she was a victim of the same trauma or not) such as when her child is assaulted or if her child is victim to a life-threatening illness or injury (path 6).

According to the stress relational–diathesis model, in the face of stressful life events to the young child, if the attachment figure is able to provide security, comfort, and attentiveness, fear-evoking experiences may be minimized and ameliorated and disorganization may be short-lived. Yet, if the traumatic experience is overwhelming (i.e., Criterion A for PTSD or TSD), or if the parent is unable to provide comfort and security, the child can be expected to show the emotional and behavioral lapses associated with attachment disorganization (path 7). The accompanying emotional dysregulation may be accounted for as

part of the picture of attachment disorganization, as symptoms of TSD, PTSD (in older children), or alternatively, a possible “trauma developmental disorder” (Pynoos & Steinberg, 2004) borne out of the combined effects of a disrupted attachment system and trauma response. Trauma developmental disorder may be considered a precursor to the development of a complex trauma outcome (path 9). Outcomes of disorganized attachment and TSD/PTSD are well established and have been described earlier.

CONCLUSION

Building on the crucially important contribution of how unresolved maternal past attachment experiences and subsequent mental representations are passed on to form the basis for the infant’s mental representations of attachment, the fields of both attachment and trauma should also draw on Bowlby’s emphasis of the importance of real-life events for shaping attachment-related phenomena (Bowlby, 1969/1982). The consideration of the direct impact of recent traumatic life events on caregiver and infant can enhance our understanding and developmental approach to working with young children. Research and clinical application of the dual-lens approach to trauma and attachment will allow us to pursue important clinical research possibilities. For example, it is possible that at least some of the infants classified as disorganized in the Strange Situation might be showing signs of traumatic stress, raising the question of what is the relationship between disorganized attachment and direct traumatization. Moreover, what will future neurobiological research on both trauma and attachment further contribute to the understanding of both? Other questions might revolve around the mother’s traumatic experiences in the present as well as her actual behavior toward the child in everyday life. The frightened/frightening behavior of some mothers, for example, may well represent symptoms of post-traumatic stress related to recent trauma, rather than moments of disconnection stemming from unresolved childhood trauma. Alternatively, the frightened/frightening behavior of still other mothers could represent the cumulative effects of traumatic events starting in childhood and continuing into the present. Finally, it is exceedingly important to determine whether the mother might be engaging in maltreatment toward the child or engaging in violent behavior toward other family members in the presence of the infant. When maltreatment and/or family violence are occurring, the separation and reunion episodes in the Strange Situation may serve as a traumatic reminder for the infant of frightening everyday events, such as verbal and physical fights, parental mood swings, and

sudden or unexplained separations from the parent. In such cases, the infant's reunion behavior can be interpreted simultaneously as evidence of traumatic stress and evidence of attachment disorganization—an overlap that helps us to understand the convergence of real-life events and psychological factors in shaping the child's functioning. The dual attachment/trauma lens can also shed light on the crucial question of the etiology of chronic complex trauma. The question here is whether the interactive effects of multiply occurring trauma exposure and attachment disorganization constitute the antecedents of a trauma-developmental disorder that, if untreated, may culminate in the most difficult-to-treat symptom constellation of chronic complex trauma? These questions can be profitably explored if the fields of attachment and trauma become better integrated in their approach to developing hypotheses and coordinating methodologies and treatments. Their complementary points of view may then facilitate a greater understanding of how traumatized infants, toddlers, and preschoolers come to be who they are and how they can be helped.

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PART II

INTERVENTIONS
TO ENHANCE
EARLY ATTACHMENTS

Practice and Policy

CHAPTER 6

The Circle of Security Intervention

Differential Diagnosis and Differential Treatment

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The Circle of Security (COS) Project is a 20-week, group-based, parent intervention program designed to alter the developmental pathway of at-risk¹ parents and their young children (Marvin, Cooper, Hoffman, & Powell, 2002). As the demand for early intervention intensifies, the call for effective, evidence-based, systematic treatment protocols is becoming more urgent. In response to that call, attachment theory and research have spawned an increased number of early childhood intervention programs (see Bakermans-Kranenburg, van IJzendoorn, & Juffer, 2003; Berlin, Chapter 1, this volume; Egeland, Weinfeld, Bosquet, & Cheng, 2000; and Lieberman & Zeanah, 1999, for reviews). The COS was developed to enhance relationships between young children and their parents or caregivers, what we term “attachment–caregiving relationships.” To reach this goal, we integrated congruent developmental theories and object relations theory into the protocol (see, e.g., Schore, 1994). The COS was field-tested with Head Start/Early Head Start child–caregiver dyads (see, e.g., Cooper, Hoffman, Marvin, & Powell, 2000). Neil Boris and Sherry Heller at Tulane University are currently replicating the work

within an experimental design; variations of the COS protocol are being implemented and tested in various sites across the country.

In developing this protocol, one of our primary goals has been to incorporate advances in attachment theory and research into the actual intervention process, as well as to use attachment-based procedures for measuring outcome of the intervention. In an earlier paper (Marvin et al., 2002), we presented the general conceptual framework and a detailed description of the intervention protocol. Because the COS intervention utilizes a simple and intuitive approach to teach parents sophisticated theoretical concepts, on first view the protocol itself may appear simpler than it actually is. In this chapter, we begin with a brief description of the complex and multifaceted COS approach, and then focus on four specific principles and the COS procedures that follow from each of these principles.

BRIEF DESCRIPTION OF THE CIRCLE OF SECURITY PROTOCOL

Individualized Assessment

Each dyad participates in an identical assessment just before, within 10 days after, and 1 year after the group intervention. Each dyad is videotaped in the Strange Situation followed by episodes of reading and cleanup. The Strange Situation is classified using a combination of either Ainsworth's classification system for infants (Ainsworth, Blehar, Waters, & Wall, 1978), or the Preschool Attachment Classification System (Cassidy & Marvin, with the MacArthur Working Group on Attachment, 1992), and the Caregiver Behavior Classification System (Britner, Marvin, & Pianta, 2005; Marvin & Britner, 1995).

Following the Strange Situation, the caregivers participate in the Circle of Security Interview (COSI; Cooper, Hoffman, Marvin, & Powell, 1999), a videotaped, 1-hour interview that consists of questions about their children's and their own behavior and feelings during the Strange Situation, selected questions from the Parent Development Interview (Aber, Slade, Cohen, & Meyer, 1989), and selected questions from the Adult Attachment Interview (AAI; George, Kaplan, & Main, 1985). Finally, caregivers complete several standardized questionnaires that measure child behavior problems, parental anxiety and depression, parenting stress, and stressful life events. This assessment process yields discrete and continuous data that are used to develop individualized and highly focused intervention goals and plans, and to measure preintervention–postintervention changes. For a more detailed description of these assessments, and of the protocol summarized below, see Marvin and colleagues (2002).

Individualized Intervention

Every week for 20 weeks parents gather for 75 minutes to review videotaped attachment–caregiving interactions between themselves and their children. Rather than relying on the traditional “one-size-fits-all” approach to group intervention for parents, the use of videotapes allows the intervention to be tailored to each parent–child dyad’s specific attachment–caregiving patterns and each parent’s specific defensive process.

In the first 2 weeks of the COS protocol, we present basic attachment theory and help parents build observational and inferential skills regarding their children’s attachment and exploratory behavior, needs, and feelings. Essential elements of attachment theory are explained via the COS graphic (see Figure 6.1, below). Then, while viewing videotaped interactions of themselves with their children, parents practice creating behavioral descriptions of the interactions. Once a given interaction is described, the parents create hypotheses about the primary attachment or exploratory need that is being displayed in the clip. This process, called “Seeing and Guessing,” is the basic procedure used for viewing videotapes throughout the group.

Phase 1 tape reviews begin in week 3 and continue through week 8. During each tape review, the group therapist focuses on edited video clips from one parent’s Strange Situation procedure, sensitively placing emphasis upon both strengths and limitations in her or his caregiving approach. The strengths and limitations emphasized are carefully chosen to help the parent reflect on, and if necessary shift, a problematic attachment–caregiving pattern. To help them strengthen their observational and inferential skills, the other parents in the group are given a worksheet to record their observations and inferences. They are also invited to share their insights and to voice their support for the parent whose tape is being reviewed.

Phase 1 tape reviews have two focal points. The first is to reveal to parents their success with an underdeveloped parenting capacity (e.g., a parent who is dismissing is shown sharing a moment of emotional connection), and the second is to build an emotional and cognitive foundation for parents to use to explore, in phase 2 tape reviews, the key defensive process, or “linchpin,” that hinders the parent from fully utilizing her or his underdeveloped capacities. Through an integration of attachment theory and object relations theory, the linchpin is viewed as a key defensive strategy that is represented both in the dyad’s interaction and in each partner’s internal working model (cf. Main, 1981; Masterson & Klein, 1995; Winnicott, 1965). These patterns are hypothesized to pass from one generation to the next as the child, in response to the parent’s

discomfort in addressing particular needs, begins to miscue² the parent about those needs.

The week 9 group session is used to build a shared conceptual framework for looking at defensive processes. Struggles in parenting and defensive processes are normalized and parents are invited to reflect on their experience. Parents learn that caregivers (and dyads) experience especially strong danger signals when confronted with a child's need that evokes key defensive processes. This is presented in a manner that normalizes self-protective behavior and makes it clear that it is natural for parents to defend against painful feelings and memories. It is likewise clarified that the activation of self-protective behavior is not necessarily dependent on "real" outside danger but is triggered by the parents' memories and feelings, and that this behavior can lead to problems for their children. Parents also learn that their defensive strategy is linked to the patterns developed early on in response to their own caregiver(s), and they begin to consider new caregiving options to avoid passing on an insecure pattern to the next generation.

In weeks 10–15, parents participate in phase 2 tape reviews. Again, one parent each week is presented with video clips from the preintervention assessment. In phase 2 tape reviews, the focus is on underdeveloped parenting capacities and the underlying linchpin defensive process that is activated when the parent tries to make use of those capacities.

In the 16th week, the dyads are videotaped in a modified Strange Situation procedure. This tape is not coded or used as part of the assessments. However, the tapes are edited for the phase 3 tape reviews that take place in weeks 17–19. The focus of phase 3 is celebrating positive changes and negotiating a direction for future improvement.

Week 20 is reserved for the graduation celebration during which each parent receives a "Certificate of Graduation." Parents are encouraged to discuss their experiences in the group. After the final assessment, the parents receive a copy of the video clips used in their tape reviews.

PRINCIPLES AND PROCEDURES OF THE CIRCLE OF SECURITY PROTOCOL

We have based the COS protocol on four principles. Each principle is related to contemporary attachment theory and research. The first principle states that the quality of child–parent attachment, which is amenable to change, plays a significant role in the life trajectory of a child. The second principle states that lasting change in child–parent attachments results from parents changing their caregiving patterns by developing specific relationship capacities rather than by learning techniques to manage their children's behaviors. The third principle states that par-

ents' relationship capacities are best enhanced if they themselves are operating within a secure-base relationship. The fourth principle states that interventions designed to enhance the quality of child–parent attachments will be especially effective if they are focused on the caregiver, and are based on a differential diagnosis of the strengths and struggles that are specific to each caregiver–child dyad. We now discuss each of these principles in greater detail, and describe how the COS protocol incorporates each principle.

Principle 1

The quality of the child–parent attachment, which is amenable to change, plays a significant role in the life trajectory of the child.

We chose to focus on facilitating positive change in children's attachments for a variety of reasons. As Bowlby suggested, "Intimate attachments to other human beings are the hub around which a person's life revolves" (1980, p. 442). Increasing evidence suggests that an insecure attachment during infancy and early childhood, and especially one that is "disorganized," is an important component of the cumulative risk factors on a developmental pathway toward childhood socioemotional problems and future academic and psychiatric problems (see Lyons-Ruth & Jacobvitz, 1999, for a review). As such, an enhancement of the child's primary attachment may be a pivotal difference that leads to positive changes in many areas. This is especially the case in high-risk populations (Greenberg, 1999; Sroufe, 1990). Individual patterns of attachment may also be more amenable to change than many other risk factors.

The central goal of the COS protocol is to enhance attachment relationships. On some level, all COS procedures focus on achieving this goal. Each individualized intervention is designed to shift problematic patterns. In addition, we see the procedures associated with Principles 2, 3, and 4 as building blocks that support a dyad's shift to healthier attachment–caregiving behaviors.

Principle 2

Lasting change in child–parent attachments results from parents changing their caregiving patterns by developing specific relationship capacities rather than by learning techniques to manage their children's behaviors.

Recent research in attachment (see Liotti, 1992; Lyons-Ruth & Jacobvitz, 1999) is consistent with the hypothesis that teaching parents concrete behavior management techniques may be limited by a parent's

problematic history and the resulting tendency to experience strong negative emotion (which may evoke defensive behavior) in response to particular signals from her or his child. Although a parent may *cognitively* learn about more sensitive responses, there may in fact be no increased likelihood of the parent applying those new responses when emotionally aroused by the child's signals. Our assumption is that applying these changes in a lasting manner requires changes in the parent's internal working models, which are partially regulated by emotional reactions.

The COS Project is designed to help parents enhance five relationship capacities: (1) coherent understanding of children's relationship needs, (2) observational and inferential skills, (3) reflective functioning, (4) emotional regulation, and (5) empathy. We now discuss each parental capacity and the COS procedures used to enhance the capacity.

Coherent Understanding of Children's Relationship Needs

Attachment theory provides a framework within which parents can relatively easily comprehend the fundamental relationship needs of children. According to Bowlby (1969/1982), young children are "designed" through evolution to maintain proximity to one or a small number of specific protective adult(s). Much of a parent's caregiving system is similarly designed. The combination, under good enough circumstances, creates an elegant interplay between parent and child that provides a sense of security for the child. This sense of security allows that child (when he or she feels safe) to explore the physical, emotional, and social world and develop the capacities needed to become a competent self-reliant adult. As an integral part of this pattern, a secure child also feels confident that the parent will be available to provide protection and soothing when needed. The interplay between the attachment system and the exploratory system provides a greater evolutionary advantage than either system can offer independently. The conceptualization of the dynamic equilibrium between these two systems is arguably Ainsworth's most important contribution to the study of early relationships, and is represented by the constructs of the "secure base" and the "safe haven" (Ainsworth et al., 1978).

The COS Project has created a parent-friendly approach to observing and understanding the complexities of this dynamic equilibrium. During the first group session, we use video examples of their children to introduce the COS (see Figure 6.1) to the parents. We start with what we call "the top half of the circle," explaining that when children feel safe and secure their "curiosity kicks in" (i.e., their exploratory system is activated) and they want to learn about the world. But before children set off to explore, they need a sense that their parent is supporting that ex-

ploration (see “Support My Exploration” in Figure 6.1). “Support My Exploration” is one of the two transition needs on the circle. Even very young children watch their parents carefully to decipher what is safe and what is dangerous. Since they depend so much on their parents to protect them while they explore, young children also vigilantly monitor lapses in parental attention. Support for exploration is often a combination of the history of that parent’s support for exploration, and an immediate cue of safety.

With support from their parents, children continue around the circle. We emphasize to parents that as children are exploring, they need the parent just as much as they do when they are distressed and in the parent’s lap. Even though the needs are different on different parts of the circle, it is important to remember that children need their parent all the way around the circle.

When the child is exploring, one of the parent’s tasks is to watch out for danger or be there in case something untoward happens (see “Watch Over Me” in Figure 6.1). Although the parent may barely be aware of this, and the child may seem absorbed in play, if the parent becomes unavailable, the child’s exploration tends to terminate.

Similar to the function of watching over children, delight (see “Delight in Me” in Figure 6.1) is often running in the background. Although at times it is barely noticeable, parental delight plays a crucial function for the child in that it serves as a clear signal, even to a toddler, that the parent is attending and available. On other occasions, the delight is at the forefront and creates a palpable moment of connection.

Sometimes children need help exploring (see “Help Me” in Figure 6.1). Here the caregiver’s task is to provide the necessary help without intrusively taking over. As we say to parents, “Children need just enough help to do it by themselves.” Such scaffolding usually requires the parent to continue to follow the child’s need rather than taking charge.

At other times, children want their caregiver to enjoy the exploration with them (see “Enjoy with Me” in Figure 6.1). Enjoying with the child, as opposed to delight in the child, is usually focused on a toy or activity. These shared moments provide children with a sense that the caregiver is attentive, available, and attuned. It also makes children feel that they are worthy of such attention.

When children have explored long enough or have become tired, frightened, or uncomfortable, their exploratory system terminates. Or if children get into an unsafe situation, parents need to take charge protectively and end the exploration. Either way, children suddenly shift to a new set of needs that requires different responses from the parent. We refer to the activation of the attachment behaviors as being on the bottom half of the circle. Unless they are very frightened, children tend to

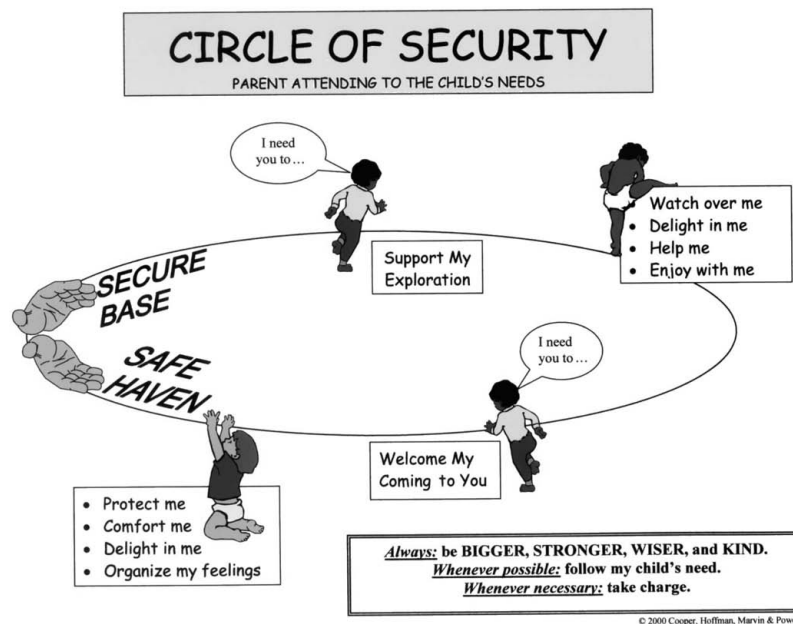


FIGURE 6.1. Circle of security.

look for a sign from the parent that they are welcome to come back to the parent for soothing. “Welcome My Coming to You” is the second transition need on the circle (see “Welcome My Coming to You” in Figure 6.1). Like support for exploration, a child’s sense that he or she is welcome to come back often results from a combination of a history of support and an immediate cue from the parent.

Children sometimes cue their parents for protection (see “Protect Me” in Figure 6.1). Providing protection from clear and immediate danger is a basic part of parenting that most parents clearly understand. However, children are sometimes frightened and need to feel protected even when, from the parent’s perspective, no rational threat or danger exists.

Sometimes the child needs soothing or comfort (see “Comfort Me” in Figure 6.1). Although most parents understand the idea of comfort, not all parents have adequate experience of either comforting or being comforted and so they struggle with giving comfort to their children.

Delight is also a function on the bottom half of the circle. Without a need for protection or comfort, children may abruptly end their exploration and return to the parent as if to refuel or refill their cup by sharing a moment of delight.

Most parents understand that their children need help organizing

their external world or their behavior, but for some parents it is a new idea that children need help organizing internal experiences (see “Organize My Feelings” in Figure 6.1). Children’s need for internal organization may come from being tired, hungry, disappointed, startled, sad, frustrated, and so on. Whatever the cause, children need their parents’ help to regulate and reflect on their emotional experience. It is through the repeated process of parents helping their children organize internally that children learn how to manage feelings, both by themselves and with the help of others, and develop an understanding of the role emotions play in relationships. When children feel safe and secure, their exploratory system activates and they begin the circle anew.

Once the parents have become familiar with how the COS is “supposed to work,” they are introduced to the idea that parents and children are at least somewhat less comfortable on one side of the circle than on the other (see Figure 6.2). Children who are less comfortable on the bottom side of the circle (see Figure 6.2) will, even when they need soothing, often miscue the parent by acting as if they would rather explore (an “avoidant” pattern). Children who are less comfortable on the top half of the circle (see Figure 6.2) will, even when they want to move off and explore, often miscue the parent by acting as if they are distressed or afraid and need proximity or contact (an “ambivalent” pattern). This process of miscuing is usually one shared by both members of the dyad. They develop these strategies to optimize attachment by defending against the uncomfortable feelings triggered by specific signals or needs around the circle (cf. Main, 1981).

Observational and Inferential Skills

The brief explanation of the circle described above serves as the parents’ introduction to attachment theory. Having a cognitive understanding of the theory, however, is not sufficient for the task of recognizing and responding to children’s needs. Parents must also learn to recognize their children’s unique behavioral signals and make reasonable inferences about the needs and feelings behind the behaviors. Using the circle to organize and inform descriptions of the dyads’ interactions becomes the foundation on which the parents’ observational and inferential skills will be developed throughout the intervention protocol.

Presenting this “user-friendly” model of attachment is supplemented, over the remainder of the intervention, by teaching parents to identify in the video clips the cues and miscues that are being used to indicate what the child needs at any given time. After viewing each video clip the group is asked to describe what they saw. With some discussion among the parents, consensus is reached about the observable behaviors. The parents are then asked where the child was on the circle. This re-

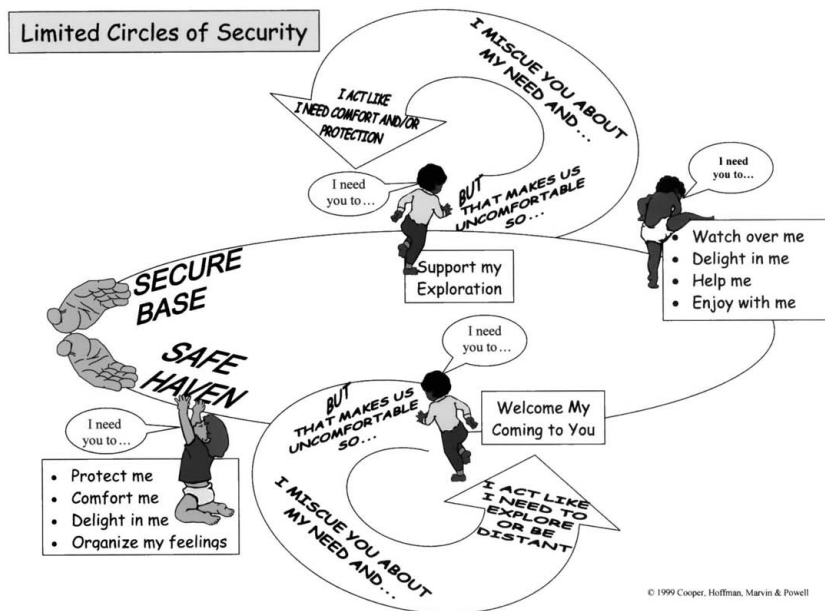


FIGURE 6.2. Limited circles of security.

quires the parents to make inferences about the child's attachment or exploratory need. A clear distinction is made between observational descriptions and the inferences by calling the process "Seeing and Guessing." Inferences are then made about what the child was feeling, and the parent is invited to talk about what she or he was feeling.

In the context of reviewing video clips of their children and themselves interacting, the parents learn to identify many of the same cues, behaviors, and behavior patterns that are used by attachment researchers in coding Strange Situations. We are consistently impressed with how quickly the parents learn to identify these behaviors, and to make accurate inferences from them about their children's internal states and needs. Being able to develop behavioral descriptions and hypothesize the attachment needs underlying those behaviors is a crucial element in building parents' sensitivity to their children's needs.

Reflective Functioning

From the project's inception, a core goal has been to increase parents' reflective functioning. Fonagy and colleagues (1997) used the concept of

“reflective functioning” to summarize a number of mental functions described in the literature under such terms as *mentalization*, *theory of mind*, *meta-cognition*, *intentional stance*, and *observing ego*. The working definition we use is that *reflective functioning* is the psychological capacity for understanding one’s own mental states, thoughts, feelings, and intentions as well as those of the other. Fonagy, Steele, and Steele (1991) showed that the reflective functioning of pregnant women predicted their child’s attachment classification at 1 year of age. Also, Fonagy, Steele, Steele, Higgitt, and Target (1994) found that only adults with high reflective functioning were able to transcend a deprived background and develop a secure (autonomous) state of mind.

In her seminal article “Ghosts in the Nursery,” Selma Fraiberg asked the question, “What is it that determines whether the conflicted past of the parent will be repeated with her/his child?” (Fraiberg, Adelson, & Shapiro, 1975). A possible answer to Fraiberg’s question is: Parents with low reflective functioning are those who tend to pass on the disorganizing ghosts from the past to their own children. Because other factors contribute to disorganized attachments, such as poverty, intensity and frequency of childhood traumas, or the like, this may be an oversimplification. From a therapeutic point of view, increasing reflective functioning is a task that can almost certainly be accomplished and that holds promise for creating a positive impact on parents’ relationships with their children.

One teaching tool we developed to help increase parents’ reflective functioning is a video-based exercise to help parents understand how their own state of mind affects their emotions, colors their interpretation of their child’s intentions and feelings, and organizes their behavior toward their children. In this exercise, the group is shown a video clip of the Oregon coastline, set to soft serene music. The group members discuss the secure feelings this activates in them. The same clip is then shown a second time, but now set to the foreboding sound of the cello in the soundtrack from the movie *Jaws*. Noting how this music elicits agitation and anxiety, the parents come to understand how their moment-to-moment responses to their children’s cues can be affected by the internal “music” those cues evoke. It is as if the parents have learned (often from their own parents) that certain needs are like shark-infested waters and must be avoided. In turn, their children’s expression of these needs evoke fear in the parents, who then “protect” their children from perceived danger by discouraging their expression of the need.

Parents participating in the COS Project have chosen the term “shark music” to describe the experience of feeling frightened in response to a specific attachment need that poses no danger. This exercise, and the overall protocol, encourages parents to acknowledge their shark

music while containing, rather than acting out, their affect. With emotional containment comes the possibility of reevaluating both the source of the frightening feelings and the historical strategies for managing the emotion, and creating new options for responding to their children's needs.

Arguably the most important protocol component for increasing reflective functioning is the "reflective dialogue" (Siegel, 1999) between each parent and the therapist. Through supportive discussions of both the video clips and of the memories from their own childhood triggered by those discussions, parents have an opportunity to experience a sense of connection with the therapist while simultaneously experiencing distressing feelings associated with attachment-caregiving interactions. The reflective dialogue with the therapist allows the parents to "stay with" these distressing feelings while both reflecting on the feelings themselves and the effects those feelings have on parenting. The COS approach to reflective dialogue is thus comprised of three components: relationship, affect, and reflection (R-A-R).

Fraiberg and colleagues (1975) described the therapeutic task as "banish[ing] the intruders (ghosts) from the nursery" (p. 388). Rather than banishing the ghosts, the COS model creates a dialogue with and about them. It is our belief that by having such a dialogue, implicit memories, which are currently experienced as threatening events, will be metabolized into explicit memories. The capacity to remember and comment on an event that was frightening evokes a very different response than simply feeling frightened. This protocol places primary emphasis on developing and maintaining a reflective process with the belief that it will lead to increased parental capacity to remember distressing events from the past without being frightened by them in the present. This increased capacity may support a change in parents' state of mind, which, in turn, can help change parental behavior and therefore support more security for their children.

Emotional Regulation

A number of theorists focus on the essential role of emotional regulation in the health of individuals and relationships (e.g., Cassidy, 1994; Schore, 1994; Siegel, 1999). In infancy and beyond, the ability to regulate affect competently is learned through the relationship with the primary caregiver (Schore, 1994). Intense negative *and* positive emotional experiences that are beyond the capacity of the child to self-regulate are managed (coregulated) with the help of the caregiver. Through the process of emotional coregulation, the child's self-regulation ability is enhanced.

In addition, emotional regulation within such a partnership gives the growing child a sense that emotional states are knowable, sharable, and not overwhelming (cf. Bowlby, 1982; Marvin & Britner, 1999). The process of seeking and receiving help with strong emotions contributes to the young child's belief that the relationship is stronger than any given emotion. It is our sense that the caregiver predictably responding in a re-assuring, attuned, and coregulating manner to any emotion the infant is experiencing supports a feeling of emotional security.

For many parents, the idea that children need help learning to regulate their internal state and experience (see "Organize My Feelings" in Figure 6.1) is new. Through the course of the intervention group, parents learn to identify, acknowledge, and bring language to their children's emotional experience. This process teaches children and parents that emotions are a useful source of information rather than something to be avoided or exploited. Through this process of video-based reflective dialogue about their children's emotional experience, parents in the group also increase their own capacity for emotion regulation, especially in the area of attachment-caregiving interactions.

Empathy

If, through the course of the group, parents gain experience using the COS as a map of children's needs, improve their observational and inferential skills, enter into reflective dialogue, contain and manage their own affect, and attend to their children's need for emotion regulation, they often make a shift from defensive process to greater empathy for their children (an empathic shift). We find that with increased empathy, parents are less likely to apply negative attributions to their child (e.g., "He is being a brat" or "She just wants attention") and more likely to recognize cues for legitimate needs as identified on the COS. This shift appears to be central to enhancing parents' ability to provide more sensitive caregiving.

The empathic shift is nurtured throughout the protocol in two ways. First, the group facilitator communicates and demonstrates empathy toward the parents themselves. For some parents this is a new and powerful experience. Second, the protocol supports a shift in focus from children's behavior to their relationship and inferred emotional needs. When parents attend to relationship and emotional needs with a coherent working model of these needs, the necessary changes in children's behavior tend to follow. A healthy relationship requires parents to set limits, take a position of hierarchy, and have high standards and expectations of children's behavior, all in a context of kindness. We summarize this for parents by saying they need to always be "Bigger, Stronger,

Wiser, and Kind.” When parents stabilize the relationship by responding with wisdom, appropriate hierarchy, and empathy, their children are then free to enjoy exploration, have confidence in their parents’ support and protection, and respond appropriately to limits and directives.

Principle 3

Parent’s relationship capacities are best enhanced if they themselves are operating within a secure-base relationship.

Bowlby (1969/1982) concluded that one of the most dangerous events for any baby mammal, including humans, is to be separated from a protective adult. At the same time, he recognized that the need for exploration and mastery is essential to survival. A secure base from which to explore and a safe haven to which to return, if needed, optimizes both safety and mastery of skills.

In working with parent–child dyads, the reciprocal relationship between seeking protection and developing new capacities applies to the therapist–parent relationship in a manner parallel to that of the parent–child relationship (see Bowlby, 1988). The interplay between parents’ own attachment and exploration presents a challenge to therapists because the focus of the therapeutic exploration is often the very issue that evokes the parents’ defenses. The defense tends to override exploration until the perceived threat has passed. Commonly, parents in treatment either look to the therapist as a safe haven or they maintain their defensive posture. If the therapist is not perceived as a safe haven, the client is likely to maintain that defensive process rather than returning to exploration. Negotiating between the secure-base–safe-haven phenomena and defensive process is a critical point that we discuss further under Principle 4.

Procedures that focus on developing a secure base and a safe haven for the parents begins with the initial contact and preassessment and continues throughout the COS protocol. The therapist’s care, concern, and interest, along with the therapist’s respect for the parents’ positive intentionality toward their children, encourage the development of a secure base/safe haven.

It is very vulnerable for parents, especially those who are insecure or unresolved, to show their own attachment needs directly, and so they tend to activate a defensive process of miscuing the therapist about their needs. For example, a parent with a dismissing state of mind in regards to attachment will miscue by dismissing the need for the therapist to provide a safe haven. When the therapist recognizes the parent’s activation of defense, it creates an important opportunity to continue to de-

velop the parent's sense of trust in the therapeutic process. If the defensive process is successfully negotiated in a manner that allows a parent to use the therapist as a safe haven, that parent will not only be able to return to exploration, but will have more confidence in the therapist's ability to provide a safe haven. The therapist must be alert to the possibility that the new round of exploration may retrigger the parent's vulnerability. By repeatedly attending to the parent's defensive processes, the sense of a secure base/safe haven between therapist and parent is strengthened.

The therapist must move between providing a safe haven and providing a secure base in much the same manner as the parents are being taught to do with their children. Having confidence that the group leader is "Bigger, Stronger, Wiser, and Kind" (see Figure 6.1) and is capable of providing sufficient emotional safety when needed, supports parents' exploration of emotionally difficult material. We believe the parallel processes of therapist–parent and parent–child are connected through the parent's state of mind in regard to attachment. Positive changes in the parent's state of mind via the therapeutic relationship may effect changes in the parent's relationship with her or his child.

Principle 4

Interventions designed to enhance the quality of child–parent attachments will be especially effective if they are focused on the caregiver, and are based on a differential diagnosis of the strengths and struggles that are specific to each caregiver–child dyad.

Infants and young children are remarkably sensitive to their need to be in a relationship with a primary attachment figure and ingenious in establishing whatever conditional behavioral strategy is necessary to stay in that state (Main, 1990). One way or another, each child's attachment behavioral patterns are adapted to fit with that parent's caregiving behavioral patterns. This is, of course, a circular process in which the parent shapes the child, who shapes the parent, who shapes the child. The COS intervention is focused on the caregiver because, as an adult, the caregiver has more degrees of freedom in changing patterns of attachment–caregiving interactions than does the child.

The interactive dance of each caregiver and child displays unique vulnerabilities that require specific focused interventions. The particular theme for an intervention for one caregiver might well be counterproductive for another. Thus, it is critical to distinguish among different caregiving–attachment strategies and to create therapeutic responses that are sensitively attuned to each of these strategies.

In addition to differentiating among caregiving–attachment patterns based on observable behavior, it is also important to understand each parent’s unique internal working model through which her or his particular pattern is organized and driven. As discussed below, two caregivers may use the same observable behaviors for very different reasons, and therefore will require different interventions.

We will explain the procedures that follow from the COS approach to differential diagnosis in two steps. First, we describe how attachment–caregiving assessments can help suggest appropriate interventions and at the same time prevent counterproductive interventions. Second, we illustrate the contribution that object relations theory makes to the assessment. This contribution is being refined and increasingly integrated with attachment theory and research on internal working models (e.g., Bretherton, 1993; Fonagy et al., 1996; Liotti, 1992; Main, 1991), with the goal of eventual integration of the two theories.

Attachment–Caregiving Assessments

To date, most attachment-based interventions have not systematically been individualized to take full advantage of the specific attachment–caregiving patterns being recognized. Although some individualization certainly occurs over the course of most interventions, the lack of a differential protocol (assessment and treatment) increases the possibility that the intervention might be ineffective (or worse, counterproductive) for a particular caregiver.

Marvin and his colleagues (Britner et al., 2005; Marvin & Britner, 1995) have developed the *Caregiver Behavior Classification System*, an assessment tool for differentiating among caregiving strategies in the Strange Situation. When used in tandem with the Strange Situation classification system, it is possible to systematically track the dyadic dance between caregiver and child. The COS Project utilizes both systems to assist the clinician in making a differential diagnosis.

The issue of differential diagnosis is complicated by cases of mismatched attachment patterns (e.g., a dismissing parent with a child who is classified as ambivalently attached) and other variations across the range of attachment–caregiving patterns, but for the sake of simplicity we will consider more straightforward cases. For example, a dyad whose attachment–caregiving assessment reveals a dismissing parent and an avoidant child may require interventions that encourage an increased willingness to negotiate interactions on the bottom half of the circle (see Figure 6.1). Furthermore, the assessment may suggest that, in an effort to avoid activation of the child’s attachment behavior, the parent over-focuses on the child’s exploration. This parent may be very engaged, and

even overinvolved, while the child's exploratory system is activated. However, the linchpin defense is seen when the child's attachment behaviors are activated and the parent directs the child toward exploration to avoid the discomfort of dealing with the child's distress.

During a video review session, a parent in such a dismissing-avoidant dyad might view a video segment in which she or he responds to her or his child's distress by distracting the child with a toy, or the child responds to distress with miscues by directing attention away from his or her need for comfort. If the therapist encourages the parent's behavior as either appropriate support for exploration or appropriate redirection, or if the therapist encourages the child's behavior as appropriate autonomy, an insecure attachment pattern could become further entrenched. An accurate preassessment, on the other hand, guides the therapist to focus instead on a moment that illustrates that the child clearly needed to increase proximity with the parent but has miscued by moving away. This moment can be used as an opportunity to clarify for the parent that meeting the child's needs on the bottom half of the circle will neither inhibit the child's exploration nor encourage the child to express unrelenting need for comfort, but will support the child's return to exploration.

Similarly, treatment with preoccupied-ambivalent dyads is enhanced with a differential diagnosis. These dyads usually require interventions that encourage an increased willingness to negotiate interactions on the top half of the circle (see Figure 6.1). Supporting a parent's attunement to a child's distress or a child's miscue regarding distress (see Figure 6.2) may actually reinforce this pattern. Thus, searching for a moment on the videotape when the child is able to activate exploratory behavior and engage in competent independent play, or a moment when the parent disrupts such play, offers an opportunity to engage the parent in reflective dialogue regarding her or his discomfort with short periods of separation.

Treatment for unresolved, disorganized, or role-reversed-controlling dyads can also be informed by a differential diagnosis. The linchpin issue is typically neither on the top nor on the bottom of the COS, but rather centers on the parent establishing a protective safe haven/secure base for the child. This dyad will require interventions that focus on the parenting formula "Always Be Bigger, Stronger, Wiser, and Kind" (see Figure 6.1). Disorganized and/or controlling children tend to be frightened, unable to see adults as a protective or organizing resource, and to be on the verge of losing emotional and behavioral control. They may present as overbright and cooperative, angry and punitive, frightened and inhibited, or a combination of the above. These behaviors are inferred to be a desperate attempt to maintain some measure of order in the relationship (West & George, 1999).

Focusing on these parents' capacities on the top or the bottom half of the circle may lead to treatment pitfalls that come from not recognizing and addressing frightening or frightened behavior. The therapist's focus on a moment when the child appears to be ill at ease and does not turn to the parent could open a dialogue regarding the child's need to be confident that the parent will protect (rather than frighten) the child.

Object Relations Assessment

To understand the contributions of object relations theory, it is helpful to imagine someone who is earnestly trying to convince you to take a certain course of action, but his or her articulate, well-meaning line of reasoning makes it abundantly clear that he or she does not understand your underlying concerns. His or her case, no matter how eloquent, will at least miss the point, possibly alienate and frustrate you, and most certainly not engage you in the course of action being suggested. In an attempt to prevent enacting the above scenario with the parents with whom we work, the COS differential diagnosis also uses a variant of object relations theory to clarify and inform therapists regarding the parents' subtle, oftentimes unconscious, underlying concerns.

Object relations theory helps explain some of the significant differences found among dyads that have the same attachment–caregiving classifications. In part, these differences arise because attachment–caregiving classifications are based on observable interactions and do not necessarily clarify the underlying parental concerns, or what we call “core sensitivities.” These core sensitivities are the basis of a parent's internal defensive process, which in turn often drives problematic parent–child interaction. Clarification of this process can inform and shape clinical interventions.

Core sensitivities are an integral part of personality structure and tend to remain stable from one relationship to the next. They are conclusions regarding the nature of relationship that are drawn from early experience with primary caregivers. In a sense, they are the perceived yet unspoken rules and requirements that one believes must be adhered to so as to avoid being abandoned. Fear of abandonment is viewed as central in the development of personality structure (Masterson, 1976).

Even though these rules are amenable to change, they tend to be imposed on all other relationships throughout a person's life. To help clarify the core sensitivities that organizes parents' patterns of attachment–caregiving interaction, Cooper, Hoffman, and Powell have applied the object relations work of Masterson and Klein (1995), Kohut (1971), and Kernberg (1975) to early childhood intervention. The COS object relations assessment is based on the standardized Circle of Security Inter-

view (COSI; Cooper et al., 1999). The COSI is administered immediately after the Strange Situation (see Assessment Procedures, above), and the subsequent classification process differentiates among three common defensive self-object relational systems from which core sensitivities are built.

Our conceptualization of these defensive systems is based on Masterson and Klein's (1995) work on differential diagnosis of a client's core historical vulnerability that shaped that person's current defensive behavior. To clarify that we are referring to defensive strategies rather than to personality disorders, and to make our terminology less confusing and more operational, we have shifted from the Masterson and Klein terminology. We label the three basic patterns, or *sensitivities*, as separation-sensitive (which in a rigid and pervasive form is borderline personality disorder), esteem-sensitive (which in a rigid and pervasive form is narcissistic personality disorder), and safety-sensitive (which in a rigid and pervasive form is schizoid personality disorder) (Hoffman, Cooper, Marvin, & Powell, 1997; Masterson & Klein, 1995). The sensitivities form a continuum from flexible and adaptive defensive strategies to rigid and pervasive personality styles. It is more difficult to discern the core sensitivity of a person who is on the flexible and adaptive end of the continuum than it is to discern the core sensitivity of one who is on the rigid and pervasive end. Fortunately, for the purpose of treatment, the more flexible and adaptive people are, the less vital it is to identify their core sensitivity.

The level of training and supervision required to develop a working knowledge of the core sensitivities is beyond the scope of this chapter. We can offer the following thumbnail sketches to help clarify the nature of these sensitivities.

- Separation-sensitive parents have come to believe that to avoid abandonment, they must focus on what others want, need, and feel, while disavowing their own wants, needs, and feelings. The underlying belief is that if they act on their own behalf, they will be abandoned.
- Esteem-sensitive parents have come to believe that who they are as a person is not enough to make them lovable. Therefore, to protect themselves from abandonment, they must prove that they are special through performance and achievement.
- Safety-sensitive parents have learned that the cost of being connected in a relationship is to abandon one's sense of self and be swallowed up by the other. On the other hand, the cost of having a sense of self is to be isolated. Since neither is bearable, individuals who are safety-sensitive are constantly seeking a compromise

between the two. However, the compromise keeps them neither in nor out of relationship and therefore is itself not satisfying. The safety-sensitive individual is “stuck” in this dilemma.

Table 6.1 provides examples of typical fears, defensive fantasies, linchpin themes, treatment goals, and interventions associated with each of the core sensitivities. These are examples of the more common ways core sensitivities are expressed in attachment–caregiving relationships. However, we find that each core sensitivity can be found in each of the caregiving patterns, as they are currently classified. It is not uncommon for parents with the same core sensitivities to be classified differently in the caregiving system and, conversely, parents with the same caregiving classification often have different sensitivities. Finally, parents with any given sensitivity may have a different caregiver–attachment pattern with each of their children. A classification system that includes assessments of caregiving-behavior patterns and the concept of core sensitivities offers a level of richness that may, with further research and clarification, shed light on both matches and mismatches between AAI and attachment–caregiving classifications.

The following may help clarify the importance of understanding a parent’s specific core sensitivity in the development of interventions. Separation-sensitive parents who activate their children’s attachment behaviors so they can feel needed by their children require a different intervention than esteem-sensitive parents who activate their children’s attachment behavior because they see their children as special and uniquely vulnerable. Another intervention altogether is required when children’s attachment systems are overactivated by inconsistent care from safety-sensitive parents’ attempt to avoid being swallowed up by their children’s need. Approaching a safety-sensitive father with the idea that the linchpin struggle is his need to have his child need him, will miss his central concern that he will be overwhelmed by his child. Understanding the linchpin struggle as this father’s need to feel it is safe to be in a close relationship with his child may lead to a more productive intervention.

CONCLUSION

The COS is an intervention protocol that is built on both attachment and object relations theories. The underlying structure of the COS protocol consists of providing a secure base from which caregivers can both learn about the attachment needs of their children and explore their own internal obstacles to meeting those needs. Although it requires careful training and supervision to apply effectively, the use of videotape review,

TABLE 6.1. Common Characteristics of Core Sensitivities

Core sensitivities	Separation-sensitive	Esteem-sensitive	Safety-sensitive
Caregiver's fears about child	Child will go out to explore and never return; child will be more interested in the world than in caregiver.	Child's need will trigger memories of rejection and humiliation in the caregiver.	Child will "need" too much and overwhelm/appropriate the caregiver's already limited experience of safety.
Primary defensive strategy (common linchpin struggles)	Keeping child focused on the relationship (bottom half of circle); interfering with child's natural autonomy; making self indispensable to the child; avoiding hierarchy as a way to keep child from anger and separation.	Keeping child focused upon exploration/performance/achievement (top half of circle); avoiding/dismissing child's requests for comfort and emotion regulation; building sense of "one mind" (specialness or grandiosity that dyad has in common).	Keeping child focused away from the relationship (bottom half of circle); promoting child's self-sufficiency; seeing child as too demanding or having unnecessary needs for closeness and connection.
Defensive fantasies of child ("positive")	"Finally I have someone who will love me no matter what" (ever-available other).	"I have the brightest/most special/most fragile child I have ever known" (perfect and fused other).	"My daughter really knows how to take care of herself in so many situations" (self-sufficient other).
Defensive fantasies of child (negative)	"My son can throw such tantrums! I know he hates me already. He just doesn't want anything to do with me" (abandoning other).	"She is so spoiled. All she ever wants is attention. Thank God for time-outs" (critical and demanding other).	"I just wish he weren't so damn needy. For no reason at all he just keeps hanging on me" (engulfing other).
Target themes for video review and intervention	Support hierarchy and competence of caretaker with child (ex. interest in child's initiative and exploration on top half of circle and separate experience, willingness to take charge when needed, clarity and firmness of purpose, clarity and directness of speech, etc.).	Support attunement and positive experience of needs on bottom half of circle (e.g., mutual gaze, tenderness and delight attending to child's feelings, willingness to negotiate, matching of child's tempo, clarity of speech, etc.).	Support closeness between caregiver and child (e.g., face-to-face contact, mutual gaze, comfortable communication, recognition of child's capacity for sensitive and tender contact, successful negotiation of feelings and physical contact, seeing child's genuine need for closeness as appropriate and time-limited, etc.).
Treatment goal	Greater comfort with child's exploration and autonomy (top half of circle).	Increased attunement to child's need for comfort, delight, and organizing/sharing of feelings (bottom half of circle).	Increased closeness and negotiation of feelings with child (bottom half of circle).

parent-friendly teaching tools, differential diagnosis, and linchpin goals make it possible to intervene in a manner that allows a wide range of parents to comprehend and apply the basics of attachment theory in a common-sense manner. At least two components distinguish this from a parent education model: the focus is on enhancing relationship capacities rather than learning specific behavior techniques; and in addition to the cognitive intervention, parents are encouraged to identify and explore defensive processes that interfere with the relationship with their child.

There are many perils in intensive, narrowly focused, short-term interventions. Often therapists have only a few opportunities to join with and engage parents in the treatment process. We have found that having access to a systematic understanding of both attachment–caregiving strategies and core sensitivities provide needed specificity in the choice of treatment goals and interventions to engage parents in the therapeutic process.

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NOTES

1. This protocol was designed for Head Start and Early Head Start families who are considered at risk for problematic developmental trajectories because of the prevalence of poor internal and external resources and multiple risk factors associated with low-income families.
2. The COS protocol defines a *cue* as a direct or indirect signal from the child for a specific need to be met and a *miscue* as a misleading or contradictory cue used to protect the child from the pain of having a specific need exposed and/or unmet. In this sense, for example, “avoidant” behavior on reunion functions as a miscue used to protect the child (or parent) from the painful feelings associated with rejection of a more straightforward cue.

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CHAPTER 7

Minding the Baby

Enhancing Parental Reflective Functioning in a Nursing/Mental Health Home Visiting Program

Arietta Slade, Lois S. Sadler, and Linda C. Mayes

Embrace complexity.
—SALLY PROVENCE

The past 30 years' research on mother–infant attachment has documented that the nature and quality of the mother–child relationship is of utmost significance in predicting a range of socioemotional and cognitive outcomes throughout childhood and adolescence. Attachment researchers have also documented the fact that—as a result of failures and derailments in early care—children growing up in high-risk environments are at particular risk for disrupted attachments (see Carlson & Sroufe, 1995, for a review).¹ As is reflected in the present volume, these findings have led researchers and clinicians alike to develop a range of attachment-based interventions, which—while differing in intensity and focus—are without exception aimed at promoting positive and productive attachment relationships between mothers and their infants (see Berlin, Chapter 1, this volume, Bakermans-Kranenbourg, van IJzendoorn, & Juffer, 2003; Egeland, Weinfeld, Bosquet, & Cheng, 2000; and van IJzendoorn, Bakermans-Kranenbourg, & Juffer, Commentary 1, this volume, for reviews and further discussion).

Many interventions to enhance early attachments are relationship-based—that is, they assume that change arises as a function of a curative

relationship with an intervenor. Relationship-based work owes an enormous debt not only to attachment theory, but also to the infant mental health movement as well. Selma Fraiberg (1980) and her colleagues' seminal papers on infant–parent psychotherapy established a relationship-based approach to working with high-risk infants and their families that has been central to the development of a range of early intervention programs worldwide.

As a function of the fact that many high-risk families have difficulty making use of clinic-based services, many attachment-based and infant mental health programs take place in the home. While home visiting had been practiced in this country since the turn of the century (Wald, 1915), and is well established in many European countries, such programs now reach disenfranchised and needy families in a wide range of communities across the United States (Gomby, Culross, & Behrman, 2000). Today, child care professionals from fields as diverse as nursing, social work, psychology, and education visit mothers and infants in their homes using a wide range of approaches to improve maternal and child health, parenting, parent–child and family relationships, child development, and maternal life course outcomes.

In this chapter, we describe the development and pilot implementation of a home visitation program for infants and their families living in inner-city New Haven, Connecticut. The program, *Minding the Baby* (MTB)—which grew out of an interdisciplinary collaboration among clinicians and researchers from the Yale Child Study Center and the Yale School of Nursing—brings together a range of approaches to improving attachment, mental health, and health outcomes in young mothers and babies. In particular, as is described below, we are specifically targeting the development of maternal reflective functioning (Fonagy, Gergely, Jurist, & Target, 2002).

MTB is based upon an integrated nursing/mental health model of service delivery, such that—in addition to receiving relationship-based support for the development of attachment and healthy parenting—families receive advanced practice nursing and mental health services on a regular basis. Given the challenges of the population we serve, we felt it was important to provide a broad “web” of care (Lieberman, 2003) so as to address in a coherent holistic way the multiple and complex needs of these high-risk families. In the following sections, we describe the theory and history underlying the MTB intervention, the development of the intervention itself, the process of our pilot implementation of MTB, and the preliminary quantitative and qualitative findings of early research evaluations. We close the chapter with two brief case descriptions, and considerations for future intervention and research.

THEORETICAL UNDERPINNINGS

The broad assumptions of attachment and social ecology theories are at the heart of MTB; these are (1) that the quality of a child's primary attachment relationships plays a fundamental role in setting the stage for a range of developmental, health, social, interpersonal, and cognitive outcomes (Carlson & Sroufe, 1995); and (2) that these relationships evolve within the complex context of social, biological, and environmental factors (Saner & Fiese, 2000). Thus—from the framework of these complementary theoretical perspectives—enhancing early attachment relationships can occur only as a function of change at both the individual and the contextual levels, that is, at the level of singular relationships and at the broad level of relationships to the family and community. Without attention to these diverse levels of influence, change is impossible.

At the same time that our intervention is grounded in these general assumptions, various recent developments in attachment theory—specifically Fonagy and his colleagues' (2002) work on the reflective function—are at the core of our intervention, and drive various of the specific techniques and principles we have developed in MTB. While we are attempting to broadly influence a range of socioemotional, attachment, and health outcomes, we are attempting to do so by specifically targeting the enhancement of mothers' reflective functioning.

Over the past 10 years, Fonagy and his colleagues have developed the construct of reflective functioning (RF), which refers to the basic human capacity to understand behavior in light of underlying mental states and intentions, a capacity crucial to the development of intimate relationships (see Fonagy et al., 2002, for a review). Within the domain of parent-child attachment, RF refers to the mother's capacity to "keep the baby in mind," to make sense of his internal states, his emotions, his thoughts, and his intentions, as well as her own (Fonagy et al., 1995, 2002; Slade, 2002, in press). Fonagy and his colleagues propose that because RF makes it possible for the mother to recognize and regulate her baby's states of arousal and affective experience, it is key to maternal sensitivity, and thus to the development of secure, reciprocal, and flexible attachment relationships. RF is also believed to underlie the development of positively valenced, coherent, and flexible maternal representations of the child (Slade, in press). Indeed, Fonagy and his colleagues (Fonagy et al., 2002), as well as Slade and her colleagues (Grienemberger, Slade, & Kelly, in press; Slade, Grienemberger, Bernbach, Levy, & Locker, in press) have proposed that reflective functioning is a crucial mechanism in the intergenerational transmission of attachment, and is central to understanding the "transmission gap" described by van IJzendoorn (1995).

The suggestion that RF plays a crucial role in the intergenerational transmission of attachment is based upon a series of research investigations linking RF to a range of attachment and other outcomes. Fonagy and his colleagues have linked a mother's capacity for reflective functioning (assessed using the Adult Attachment Interview [AAI]; George, Kaplan, & Main, 1988) to (1) her own adult attachment organization, (2) her child's attachment status, and (3) her child's capacity to think about others' desires and beliefs (Fonagy et al., 2002). They have also suggested that RF protects adults against the effects of early trauma (Fonagy et al., 1995). Slade and her colleagues have likewise demonstrated a relationship between maternal RF (assessed using the Parent Development Interview [PDI]; Aber, Slade, Berger, Bresgi, & Kaplan, 2002) and (1) maternal attachment organization, (2) child attachment organization, and (3) disrupted affective communication in the dyad (Grienemberger, Slade, & Kelly, in press; Slade et al., in press). In these same studies, RF was found to mediate the relationship between maternal and child attachment, as well as between atypical maternal behavior and child attachment. In related work with a high-risk sample, Mayes and her colleagues have found that mothers who abused cocaine during their pregnancies were significantly less reflective on the PDI than their equally disadvantaged but cocaine-free counterparts. In this same study, maternal RF also correlated positively with child attention, social skills, and adaptability, and negatively with parent distress, parent-child dysfunction, and child withdrawal. Finally, RF appeared to mediate the effects of maternal drug use on child social skills, parent distress, and parent-child dysfunction (Truman, Levy, & Mayes, in press).

This emerging research strongly suggests that reflective capacities allow mothers to accurately perceive and sensitively respond to their children's internal states. Indeed, it suggests that maternal representations of the child as well as maternal caregiving behaviors may well be *manifestations of or proxies for* underlying reflective capacities. Thus, from an intervention standpoint, attempting to change behavior or rework maternal representations will be intrinsically intertwined with the enhancement of RF. It is for this reason that we believe that these capacities must be directly targeted for intervention.²

Fonagy's research (Fonagy et al., 1995, 2002) suggests that RF plays an especially crucial role in mediating the effects of trauma, specifically that the effects of early trauma on a range of adult psychiatric outcomes is mitigated by the presence of reflective capacities. The mothers (and families) we work with have typically had few, if any, experiences of security and comfort in relation to their primary caretakers, but instead have been victims of chronic trauma, loss, and abandonment. For many, these assaults to the self inevitably and profoundly interfere with

the development of reflective capacities, and lead to chronically dysregulated and disrupted development. As a result, mothers have difficulty regulating their own needs as well as those of their children, and are often overwhelmed by the physical and emotional demands of parenthood. It is for this reason that the enhancement of RF in this population seems especially crucial.

A Brief History of Home Visiting Approaches

Only relatively recently have home visitation services been offered in any kind of comprehensive way to U.S. children and their families. A comprehensive review of these programs is not possible here (but see the excellent and rigorous recent overviews provided by Olds and his colleagues [Olds, Chapter 10, this volume; Olds, Hill, Robinson, Song, & Little, 2000]). For purposes of this chapter, we will focus on the two different models of home visitation that have been most extensively researched and studied over the past 20 years, and that are most central to the MTB model: the nurse home visiting model (Nurse–Family Partnership [NFP]) and the mental health home visiting model. It is important to emphasize that despite their differences, both models see as crucial to change the development of the relationship between the home visitor and the mother.

The NFP model, developed and tested by Olds and his colleagues over the last 25 years, has been the most successful and enduring of all nurse home visiting models, consistently producing a range of positive outcomes in long-term studies (Hahn et al., 2003; Kitzman et al., 1997, 2000; Olds, 2002, and Chapter 10, this volume; Olds et al., 2000). The services are delivered by experienced public health nurses, who conduct frequent home visits to first-time high-risk mothers and their infants beginning in the end of the second trimester of pregnancy and proceeding to the child's second birthday. In three separate trials, Olds and his colleagues have consistently been able to reduce maternal smoking, preterm births, and emergency department visits for illness and injury in infancy and childhood, and have reduced subsequent pregnancies, increased employment, increased father involvement, and decreased time on welfare. Nurse-visited families had significantly better outcomes than control families, with respect to mother–child interactions and child mental developmental outcomes at 24 months (Olds et al., 2002). At 15-year follow-up, mothers were less likely to have abused or neglected their children, had spent less time on welfare, had fewer behavior problems linked to substance abuse, had fewer arrests, and their children had fewer arrests, convictions, sex partners, and days of consuming alcohol (Olds et al., 2000).

Several important questions have emerged from this work. Many

researchers, including Olds himself, have asked whether such services can be equally well and less expensively provided by paraprofessionals. In general (although findings continue to emerge) programs relying on well-educated nurses seem to have more success than programs incorporating trained paraprofessionals (Gomby et al., 2000; Korfmacher, O'Brien, Hiatt, & Olds, 1999; Olds et al., 2002). But, as Broton and her colleagues (Broton, Youngblut, Deatrick, Naylor, & York, 2003) have demonstrated, advanced practice nurses (APNs) may be even *more* effective than public health nurses in delivering home-based care. These researchers have conducted a series of randomized controlled trials with APNs providing home care for families with very-low-birthweight infants, women with unplanned Cesarean births, postoperative patients, and elderly patients. In the individual studies and in a recent meta-analysis of the APN studies, Broton concluded that a greater dose of APN services was associated with better patient outcomes as well as decreased health care costs (Broton et al., 2002, 2003). Based on these compelling findings and our desire to match the advanced level of skills of the APN with the complex needs and issues of high-risk mothers, we have incorporated a master's-prepared pediatric nurse practitioner (PNP) into the health and nursing component of our home visiting intervention.

In addition to the question of *level* of training, there continue to be questions regarding how to best meet the substantial and normative mental health needs of the population of young, unmarried, and poor mothers who are served by nurse home visiting programs. Previous studies with the researched samples indicate that mothers with substantial mental health issues do poorly in nurse-only home visitation programs, as their needs are overwhelming and often may make full participation in the nursing intervention nearly impossible (J. Robinson, personal communication, March 5, 2002; P. Zeanah, personal communication, April 2, 2002; Olds et al., 2000). In addition, the difficulties faced by these mothers often preclude their being able to make use of the nursing aspects of the visit, as they are so preoccupied with their own difficulties that they cannot concentrate on the baby's most basic needs. Program revisions have addressed these problems by either expanding nurses' training in understanding the dynamics and dimensions of emotion regulation in mother-infant dyads (Robinson, Emde, & Korfmacher, 1997) or by adding a mental health specialist to consult with nurse home visitors (Boris, Nagle, Larrieu, Zeanah, & Zeanah, 2002).

The most explicit effort to address the mental health and relational difficulties of high-risk mothers and their families was of course initiated by Selma Fraiberg (1980), who pioneered the use of home-based infant-parent psychotherapy as a means of affecting mental health and developmental outcomes in mothers and infants. Larger scale empirical replications of Fraiberg's model have been conducted by Lieberman (Lieberman,

Weston, & Pawl, 1991) and Heinicke (Heinicke et al., 1999, 2000). Lieberman and her colleagues (1991) demonstrated the effectiveness of intensive parent–infant psychotherapy, delivered in the home, in ameliorating both attachment and maternal outcomes after 1 year. In related work, Heinicke and his colleagues (1999, 2000) demonstrated that an intervention in which mothers received home visiting services (prenatally through their child’s second year) by specially trained mental health professionals improved mother–child interactions and home environments across a range of domains. While these are the only two mental health home visiting interventions that have been extensively researched, there are numerous mental health home visiting services around the country, based primarily on an infant–parent psychotherapy model (see *Zero to Three*, 2002, for a review and links to other program descriptions).

The above review suggests that (1) nursing approaches, while effective in many domains, have not yet been fully able to address the significant mental health difficulties of very-high-risk infants and families, and (2) mental health approaches, while effective in changing relationship patterns and enhancing various aspects of attachment and caregiving, do not address the broad protection against negative health and life outcomes provided by nursing interventions. Thus, we felt it worthwhile to work toward articulating a team approach that would unify these two perspectives in an organized and flexible way. To this end, we developed MTB, an attachment-based intervention that utilizes an interdisciplinary approach to promoting maternal RF. We see maternal RF as key to a number of health, mental health, and developmental outcomes in mother and baby. MTB services are provided by master’s-level clinicians, who provide services at a level of intensity and complexity that matches the needs of this complex population. Unifying all aspects of the intervention is the notion that all change is mediated through therapeutic relationships with the home visitors. Finally, we believe that successful interventions must be embedded in a system of community health care. Programs that are not adequately linked to the range of services provided by local health providers and other community agencies risk becoming as isolated and disenfranchised as the populations they serve. We have also embedded our intervention within a program of research, which we describe below.

THE MINDING THE BABY PROGRAM

The Model: An Overview

MTB home visiting services are provided by a team of clinicians: a pediatric nurse practitioner (PNP) and a licensed clinical social worker

(CSW). The program is based at the Fair Haven Community Health Center (FHCHC), a local comprehensive community health center that provides a range of medical care for an underserved population of families, most of whom live at or below the poverty line, and are of diverse cultural and ethnic heritages, including African American, Caribbean American, Puerto Rican, Mexican, and El Salvadoran. Our team has a close working relationship with the pediatric, nurse-midwifery, and family medicine or adult primary care staff, attending regular team meetings and maintaining ongoing contact with individual providers. This level of communication has proved to be crucial in providing comprehensive care to our very needy and chaotic families, whose physical, medical, and mental health needs can often be overwhelming to them as well as to their providers.

All medically low-risk pregnant women³ coming to FHCHC receive their prenatal care in groups that are conducted by certified nurse-midwives. The MTB home visitors attend these prenatal care groups beginning in midpregnancy and invite first-time pregnant women, ages 14–25, to join the program. After recruitment and consent, home visits begin immediately (usually by the 28th week of pregnancy), continue through the infant's first year, and then are tapered to every other week through the child's second year.

Once the intervention begins, weekly home visits average 60–90 minutes per visit, and typically alternate between PNP and CSW visits. It is crucial to emphasize, however, that flexibility in the scheduling, content, location, and length of visits is intrinsic to MTB service delivery. It is sometimes the case, for example, that both clinicians may visit a mother in one week, or the mother may be visited by one visitor more frequently in times of physical or mental health crisis (which in our experience are common). It is also sometimes the case that visits are extended in times of crisis (such as illness in a child, a domestic violence episode, etc.). Under such circumstances, visits may last hours, and take place in locations as diverse as the neighborhood library or a fast food restaurant. In addition, while our work is focused upon the dyad, other family members (such as the father or grandparents of the baby) are encouraged to join in home visits, and indeed often become key participants in the treatment. Family members may have strong beliefs and traditions regarding how a child is treated, which provides an opportunity for the clinicians and family members to get to know and trust one another. It is not unusual for the PNP or CSW to help other family members with their own health care or other social service needs.

To some extent, the home visitors have distinct roles in relation to the mothers. The PNP provides advanced levels of individual and family primary care health assessments, counseling, and interventions. The

CSW provides a range of services to mothers and babies that combine case management, infant–parent psychotherapy, individual psychotherapy, crisis intervention, and parenting support. At the same time that they provide guidance in areas that are specific to their individual disciplines and experience, both see promoting the mother–child attachment relationship as central to their work.⁴ They do this in a variety of ways, for example, by helping mothers to understand infant and toddler communication and cues, by promoting play and positive engagement, and by supporting mothers’ sensitive responsiveness. And in line with the theoretical constructs guiding the intervention, they also share a set of assumptions about the importance of enhancing RF in mothers and families. What this means concretely is that home visitors (who, along with the supervisory team, receive training in the recognition and enhancement of RF) work to keep mothers aware of their babies’ physical and mental states, and continuously model a reflective stance in relation to everyday caregiving and nurturing.

They do this by continuously referring to the child’s internal states, by giving voice to the baby’s states and intentions, thus concretely keeping the baby in mind for the mother. For example, in observing the mother–baby interaction, the home visitor will refer to the infant’s physical and mental states in an ongoing way, linking them to behavior: “He keeps looking around, I’ll bet he’s wanting to know where you are” or “She watches you use the remote control every day—she’s wants to be like you—that’s why she’s playing with it!” Giving voice to the baby’s experience in this way reframes the baby’s intentions and emotions for the mother, so that she can see the baby as curious and not “bad.” This kind of reframing also uses concrete aspects of the interaction to teach about the child’s internal experience as well as development. Often the home visitor speaks for the mother as well, giving voice to her intolerable feelings and making sense of her impulses. This helps the mother keep herself, her history, and her own feelings in mind as she negotiates the complex transition to parenthood and the development of a new and lifelong relationship with her child. This work takes place all the time, and at all levels of the intervention: while helping the mother figure out how to feed her child; while standing with mother, child, and grandmother in line at a housing agency; while calming a panicked mother during a phone call; and the like.

It is important to note that the enhancement of reflective capacities is not, in and of itself, a new intervention strategy, and indeed is intertwined with ongoing efforts to promote maternal sensitivity and to rework negative maternal representations and attributions (Lieberman, 1997). For instance, the “Speaking for the Baby” techniques described above are hardly novel (see Carter, Osofsky, & Hann, 1991). Home visi-

tors working within a variety of disciplines are always trying to help mothers understand themselves and their babies in more complex and dimensional ways, regardless of whether the port of entry is physical or emotional development. What the construct of RF offers is a way of understanding the developmental and therapeutic function of a wide array of well-established techniques; this understanding necessarily focuses the use of these techniques in relation to a specific and organized goal. By observing children's mental and physical states, and linking them together in meaningful ways for mothers, home visitors are helping mothers develop a range of positive and empowering representations of the child, and thus creating the requisite understanding to provide sensitive and responsive care.

The development of maternal reflective capacities takes place within the context of the *mutative relationship* with the home visitors, which provides an opportunity for the development of the RF (Fonagy et al., 2002; Lieberman & Amaya-Jackson, Chapter 5, this volume; Slade, 1999, 2003). In MTB, the clinicians' attunement and acceptance are crucial to the emergence of coherent representations of self and other; a sense of a positively felt, authentic self; and mothers' developing a sense of their own agency and effectiveness in relating to their babies and charting the course for their own lives. Understanding and developing these relationships is crucial to every single aspect of our work.

In the MTB program, the mothers form *two* mutative relationships: one with the PNP and one with the CSW. For the high-risk mothers we see, forming a new relationship is hard, and forming two is even harder. Given the nature of their anxieties about relationships, there are times when mothers endeavor to split the treatment team, "choosing" one over the other. The best antidote to these processes is coherence and mutual support within the team, such that the mothers experience a *seamless* web of care. They can then internalize a single caring experience rather than two different, potentially competitive and polarized relationships. Joint interdisciplinary supervision is critical to maintaining team coherence.

The Content and Process of Home Visits

Prenatal Visits

During the prenatal phase of the intervention, our home visitors have several goals: (1) to establish a relationship with the mother and other family members, (2) to assess the health and psychological functioning of the mother, and (3) to make the baby and impending parenthood more real and presumably less overwhelming for our mothers. Discus-

sions begin with a focus on the mother and her health and then move toward a focus on the transition to parenthood and planning for the arrival of the baby. The PNP begins by assessing the mother's health, risk behaviors, and understanding of her pregnancy and baby's development. Using information she has gained from discussions with the mother about her fears, her views on childrearing, and so on, the PNP can then address various aspects of the mother's self-care, including nutrition, sexual practices, and exposure to cigarette smoke. This is the first bridge toward connecting the mother's behavior to the well-being of the developing fetus. The PNP also helps the mother to identify signs and symptoms of pregnancy complications, addresses fears and questions about the upcoming labor and delivery, and helps the mother think about infant feeding choices. In our sample, many mothers (especially those with histories of sexual abuse) begin to experience feelings of fear about the approaching labor and delivery, in the context of their own post-traumatic stress disorder (PTSD) symptoms. The PNP develops an individualized labor and birth plan, using a format created for work with sexually abused women and PTSD survivors (Seng, 2002; Simkin, 1992). This format provides concrete information, while allowing the mother to make choices about those aspects of the labor that can be planned.

The CSW spends much of her time with the mother during pregnancy assessing various aspects of the mother's and family's psychological functioning. This includes a full psychosocial assessment, as well as the assessment of current risks and previous occurrences of domestic violence, childhood maltreatment, sexual abuse, and mental illness. The CSW also helps the mother begin to think ahead about her new role as a parent, and addresses her feelings about pregnancy and impending parenthood, helping her to set goals for herself and her child during their first year together. There are typically many social service needs that mothers have during this period concerning living arrangements and furnishings for the baby.

The First-Year Visits

After the birth of the baby, there are weekly visits through the first year. The PNP supports the mother as she learns basic infant care skills in the first weeks of the child's life. For example, the mother is helped to successfully read her infant's cues by learning to identify the states of awareness in a newborn. This increases her sense of efficacy as a new parent, and decreases stress levels, allowing for more positive interactions between mother and child. Various components of the primary health care delivered in the community health center visits are reinforced in the

home by the PNP. Pediatric anticipatory guidance concerning safety, health promotion, and problem solving around feeding issues and common minor ailments are explained and demonstrated in the home. The PNP also teaches the mother about the child's growing skills in the cognitive, language, motor, and socioemotional domains. This not only helps the mother to keep developmentally appropriate expectations for her child, but also encourages her powers of observation. As the mother learns to ask "Why is my baby doing this?," she begins to see the world from the baby's point of view and can provide more sensitive and responsive parenting.

This developmental approach is also employed by the CSW, who works in a variety of ways to enhance the developing parent-child relationship. The mother is encouraged to vocalize to her baby, to maintain ventral-to-ventral contact, and to bond with her child through the simple acts of caregiving, engaging, and playing. The mother is given information about services and parenting, and all of her positive efforts and feelings are strongly reinforced, both with coaching in teachable moments during visits and by reviewing and discussing short videotaped mother-child interactions. A significant part of the work, of course, is to establish a dialogue with the mother about her emotional life and her often disappointing and traumatic family and romantic relationships, within the context of infant-parent psychotherapeutic approaches that address her thoughts and feelings about her developing relationship with the child. The mother is helped to understand how her own feelings and needs affect the baby in an ongoing and real way.

The CSW also continues to assess mental health concerns, and provides direct mental health interventions as needed, for most of these mothers are often fearful and not amenable to more formal psychotherapy. In addition, the work to mediate environmental and family stressors often becomes central, because of the continuing upheavals that result from significant family problems involving multigenerational family members and partners, high levels of trauma (past and current), and severe psychopathology in mothers and extended family. The CSW is often involved in safety and health issues as case manager and case worker: mobilizing diverse resources for families from cribs and car seats to access to state programs for nutritional support and health insurance. Engaging with mothers around these concrete needs in an ongoing way is crucial to overcoming resistance to the intervention, to building trust, and to helping keep the developing mother-child relationship on track.

The PNP and CSW both encourage mothers to breast-feed their newborns, knowing that breast-feeding not only provides excellent nutrition for babies, but also a wonderful means to promote physical closeness and intimacy, and thus attachment. Both clinicians also point out

attachment behaviors, such as the newborn's interest in gazing at mother's face. As babies grow, clinicians translate their behavior in developmental terms that help mothers understand their importance to their babies. In this way, clinicians reframe normal but upsetting or confusing child behaviors (such as stranger or separation anxiety) from the babies' point of view. They may also reframe the babies' temperament in a way that makes the babies more comprehensible, and hence less disruptive to mothers. As babies become mobile, issues regarding discipline come to the forefront of many home visits. Discussions with mothers give them time to reflect on being a role model to their young children, who learn behavior through imitation. Often the mothers in our program have never had the opportunity to discuss and critique their own upbringing, or to formulate appropriate behavioral goals for their children. The home visitors also work to promote playfulness between mothers and children. Mothers who have grown up with histories of deprivation have rarely been given the time or place to play and explore, and they often do not see the need for infants to crawl and interact spontaneously with the world. Learning to follow the baby's lead is a very difficult skill for these mothers to acquire.

Preliminary Findings and Characteristics of Families in the First 18 Months of the Program

Since the inception of the MTB Program in August 2002, we have enrolled 23 mothers (with a mean age of 20.5, with a range from 16 to 28 years) and 21 babies (including one set of twins, three low-birthweight babies, and five preterm infants) in the treatment group, and seven mothers in our control group (with a mean age of 19, with a range from 16 to 25 years) with three babies born to date. The control group has been recruited in the same fashion as the treatment group; control mothers are receiving standard pre- and postnatal care at FHCHC. All families participate in one research session during pregnancy, two research sessions in the first year, and one at the completion of the second year. Research instruments measuring maternal psychological resources, self-efficacy, social support, demographic characteristics, and reflective functioning are administered during the course of these separate home visits by trained research assistants. The Pregnancy Interview (Slade, Haganir, Grunebaum, & Reeves, 2004) is administered to mothers in pregnancy, and the Parent Development Interview (PDI-R; Slade, Aber, Berger, Bresgi, & Kaplan, 2003) is administered at 14 months. These instruments are scored for level of RF. The Strange Situation is administered at 14 months, and the Bayley Scales of Infant Development (Bayley, 1993) and an observation of a mother-child teaching/play interaction rated

with the Nursing Child Assessment Teaching Scale (NCATS; Barnard et al., 1989) are conducted at the Yale Child Study Center at 24 months.

Thus far, three mothers have dropped out of the program; this retention rate (88%) in our pilot sample is extremely high as compared to the rates of retention (33–80%) in other published research (Heinicke, Fineman, Ponce, & Guthrie, 2001; Olds et al., 2000). All mothers are from low-income families; 65% are Latino, 23% are African American, and the remaining 13% are Caucasian. Seventeen percent are married, 57% cohabiting, and 26% are single and have no interaction with the baby's father. In this predominantly Latina sample, women are far more likely to have partners, and are less likely to live with their mothers (25%) than women in samples that are predominantly African American. Despite this apparent stability, their relationships with their partners are often chaotic, violent, or destructive. Among our participants, family violence patterns are multigenerational and most families have multiple experiences of domestic violence, substance abuse, and incarceration (this is especially true of the male partners).

At baseline, 36% of the mothers reported a history of childhood abuse and 55% reported a history of depression. Scores on the brief psychiatric screening instrument revealed that 40% of the sample is in the clinically vulnerable range, and 27% of the mothers had levels of posttraumatic stress reactions in a range comparable with samples diagnosed with psychiatric disorders. Thirty-nine percent of the mothers scored above the cut-off point for depressed symptoms on a commonly used depression inventory, and 65% of the sample reported moderately low levels of mastery on the measure of general self-efficacy. Three of the 19 women who have given birth in this preliminary study had psychotic reactions around the time of the birth. One woman with a long history of anxiety, depression, and suicidality became acutely psychotic and reported auditory hallucinations, beginning approximately 2 weeks before the baby's birth. Another mother became psychotic during labor, an apparent PTSD reaction to undisclosed prior trauma. A third mother became hypomanic a week after giving birth, and in 6 weeks married a man she had just met.

At 18 months into the program, the home visitors have had remarkable success in maintaining weekly home visit schedules and establishing relationships with the mothers, and the evidence of the impact of the MTB program on a range of health, mental health, and socioemotional outcomes is beginning to emerge. The breast-feeding rate in the pilot cohort of mothers at birth is 70%, by 3 months is 40%, and at both 6 and 12 months women are breast-feeding at a rate (30%) that is much higher than the expected rates for women with their risk factors and socioeconomic status (Centers for Disease Control, 2004). Infant health and de-

velopment is progressing well (including that of two twins born at 28 weeks, each at under 1,100 grams birthweight), with the exception of two infants who have been diagnosed with genetic conditions. All children are up-to-date with their routine pediatric well-child visits and immunizations. There have only been two hospitalizations, there have been no accidents or emergency room (ER) visits for infant injuries, and no families have been involved with child protective services. No children in the sample have been diagnosed with asthma or with dental caries. With the exception of mild chronic conditions such as obesity and asthma, mothers are all moderately healthy.

With respect to socioemotional and attachment outcomes, home visitors report that mothers are relating to their babies in increasingly contingent and responsive ways. At this stage, we can report anecdotal evidence from our preliminary review of interview data. Qualitative analysis of all interviews collected during pregnancy indicates extremely low levels of RF at the initiation of the intervention. Home visitor accounts and qualitative review of PDIs ($n = 6$) collected after 18 months of treatment indicate that mothers have become far more reflective in relationship to their children's emotional, cognitive, and physical development. Preliminary review of the six Strange Situations collected to date suggests that none of the children are disorganized in relation to attachment. These apparently positive trends await more data for confirmation. With respect to maternal outcomes, preliminary analysis of data collected at 12 months ($n = 7$) indicates a trend toward lower levels of depression, lower levels of posttraumatic stress symptoms, and higher levels of self-efficacy. Mothers are returning to work and school, there has been only one subsequent (planned) pregnancy and one unplanned pregnancy, and both of these second births will take place after the index child is 24 months of age. All other young women in the sample are complying with their chosen methods of birth control.

We have included 10 (ages range from 16 to 19 years) adolescent mothers in our sample, who along with their environmental and family stressors have the added risks of pregnancy and early parenthood coinciding with the navigation of the developmental tasks of adolescence (Sadler & Cowlin, 2003; Sadler, Swartz, & Ryan-Krause, 2003). These mothers in particular respond to the close contact and trusting relationship that develops with weekly visits, where each aspect of their child's health and development as well as their own need for parenting support is addressed and reinforced. Two major goals for these mothers include helping them to reenter or successfully stay in school, and also to delay subsequent childbearing with close attention and follow-up to their contraceptive needs.

Case Examples

We next present two brief case vignettes. We highlight clinical material that clearly documents shifts in reflective capacity, specifically in the ways mothers understand their own and their babies' internal experience.

Christina

Christina, of Mexican descent, was 17 when she became pregnant. Her own mother had also been 17 when she became pregnant. Christina's childhood history was marked by repeated and ongoing trauma. Both her parents were drug users and she was as a young child placed in kinship foster care and shifted from familial home to familial home along with siblings and cousins. When she was 10, her father was killed. Christina's mother eventually stopped using heavy drugs, but when Christina was 13 her mother married a man who tried to molest her several years later. Christina began a pattern of staying with relatives in order to avoid her stepfather. At age 16 she developed a relationship with a young man in his 20s who had a long history of criminal activity.

Christina had been the child whom her mother had expected to "redeem" her own failure, and both complete high school and go on to college. When her mother learned that Christina was pregnant, she threw her out of the family home, and Christina was left to stay with her boyfriend's family in a household that was even more chaotic than her own. Her boyfriend's family members ate the food given to her by the Women, Infants, and Children (WIC) program, and she had to hide and lock it away from them.

When Christina joined our program, she was clearly depressed and anguished about the tasks that lay before her. She was surprisingly articulate about her complicated feelings of shame, hope, anger, and determination, and recognized in believable ways that her baby was going to come into the world needing her love and support. In what we took to be a very positive sign, she described having a relationship with her baby *in utero*. She used a term of endearment as a nickname that suggested her (likely unconscious) recognition that he would have to have a very hard shell to survive.

Christina became more depressed after her son, Jason's, birth. Her living situation continued to be disrupted and overwhelming, and both at her mother's and her boyfriend's home there was a constant undercurrent of chaos and violence. Everyone—including Christina—interacted with Jason in a way that was loud, intrusive, and overstimulating; teas-

ing and yelling was a preferred mode of interaction in both families. When we videotaped her in interaction with her baby at 4 months, she was threatening, intrusive, aggressive, and not only insensitive but frightening to the baby. His responses ranged from a wan smile (easily read as "Please don't hurt me!") to clear dissociation. There were many ways to think about how Christina was re-creating trauma in her relationship with Jason—the trauma of being obliterated, of being violated, and of being a victim.

Over the course of the next several months the PNP began preparing Christina for the challenge of mothering a mobile baby. Christina was particularly upset when Jason at 8 months did not listen to her rules about touching her possessions. The mother began imagining a future child who was as "spoiled and disrespectful" as she experienced the baby's father to be. While discussing how babies learn through imitation and repetition, Christina was able to understand her role in her baby's behavior. One day when the infant was 11 months old, Christina said, "I guess he's too old to hit now because it only teaches him that hitting is okay." The mother's ability to see herself and her actions through her baby's eyes decreased her fears of having a difficult child who needed harsh punishment and changed her parenting approach.

When Jason was just a year old, Christina and the clinical social worker reviewed the videotape of her interaction with him at 4 months of age. Her reactions to watching the videotape reveal multiple indications that she has begun to develop RF in relation to Jason. She recognizes that Jason's behaviors offer irrefutable cues to his mental states, and that she had ignored these cues as a function of her own anxiety. When asked to narrate what had happened between them, Christina said the following: "He was tired. I had to keep him entertained [this was her interpretation of the experimental instruction] or else he would explode into cries." As she watched the sections in which she loomed and poked again, she remarked, "I see now that maybe his crying was to tell me he'd had enough." When asked when she realized he had had enough, she readily admitted, "I didn't. But now, while watching myself, I see that he was already squirming and [pausing the tape] here I can see his face sad, trying to tell me what I didn't know, that he may have been hungry or sleepy." She described liking it when he laughed at being tickled, and as feeling good about being able to calm him down by picking him up. But as her usual efforts were thwarted, her aggression erupted. "The whole time he cried, I had no idea what he wanted. I tried everything, the bottle, the pacifier, nothing worked." She realized that he had in fact not been fed, and that "here he is, coming right from the babysitter's. Normally, it takes about an hour for my baby to settle down after being away from me for the whole day . . . and he was starv-

ing, and here he was with me all in his face. I couldn't read him, I couldn't get him to play with me, and who plays with a baby without picking them up or using pacifiers or bottles?" This led to a nuanced discussion of how she has learned to "read" him, to understand his intentions, as they are variously communicated in behavior and language. While she is still harsh with him, her recognition that he is someone to read and to know marked an enormous shift in her reflective functioning, and—more importantly—in their relationship.

Keisha

Keisha is an African American teenage mother who became pregnant when she was 17. Her childhood was mired in alcoholism and family violence, and she herself was heavily involved in drinking and partying when she became pregnant. Her boyfriend was nearly 10 years her senior, and seemed to have significant cognitive limitations. During her pregnancy, Keisha expressed an unintegrated and unrealistic view of parenthood; despite her boyfriend's infidelities, and her own unpreparedness for motherhood, she described fantasies of vacations and "normal" life that were rather poignant and unrealistic idealizations. In late pregnancy, she did not yet feel that she had a relationship with her baby, and her fantasies of their eventual relationship largely involved dressing her daughter up to show her off. In spite of the fact that she knew her baby was a girl, she largely referred to her as "it."

In the months after her baby's birth, both home visitors were quite concerned about Keisha's relative lack of interest in the baby, her intolerance of negative affect in the baby, and her readiness to give the child to her own mother for caregiving. She had refused to breast-feed, and had returned to wearing her prepregnancy provocative and revealing clothes. She was primarily interested in how the baby looked, but for the most part left the baby behind as she returned to her partying and wild ways. The situation with her boyfriend had deteriorated significantly. He had returned to live with her but she was abusive toward him, often in front of the baby. She was in every sense of the word a "perpetrator."

The following is an example of a "reflective" intervention that took place after Keisha had hit her boyfriend in front of their child, who was 4 months old at the time. The CSW asked Keisha about the incident, which she began describing with pleasure, recounting her boyfriend's tears and injuries. The CSW gently inquired about mother's mental states during this episode: "How did you feel when you were hitting him? What were you thinking about? How did you feel when you ripped up his clothes? What were you thinking about?" Gradually, Keisha was able to move from describing the pleasure she felt in hitting him to ac-

knowledging that it was her sense of betrayal that led her to strike out at him, thinking about his infidelities and his generosity with his other girlfriend. This questioning eventually led to her describing how she had felt when her own mother had beat her while in a similar type of rage. Finally, she was then able to think about the impact of this episode upon her daughter, and to acknowledge that it was likely very frightening.

Prevention of child abuse by this volatile mother was directed toward several areas. The PNP focused on helping the mother identify moments when her feelings of anger or impatience might effect her treatment of the baby. The mother was taught stress reduction skills to use during difficult periods, and was given information for normalizing the baby's colic and crying. Reframing of the baby's behavior was a great relief to the young mother, who was then more open to trying infant massage to comfort her baby. While massaging the baby, the mother practiced reading the baby's cues of distress and comfort and became increasingly confident in effecting positive mood in the infant.

Over the course of many moments like these, Keisha began to keep the baby in mind. While she is still prone to hand the baby over to her mother when she is angry or the baby is distressed, she is far more comfortable managing the child in a range of situations. Their exchanges are playful and loving, and she now increasingly makes large and small decisions that reflect her appreciation for the baby's feelings as well as the baby's physical and developmental needs.

EMERGING CONCERNS

In the course of our work with these families, we were impressed again and again with their strengths and capacities for resilience in the face of enormous adversity. We were moved by their willingness to invite us into their homes and their culture. At the same time, there were with some families recurring challenges that limited our capacity to effect change, and in particular to influence the development of maternal RE. Certainly the most overriding impediment to progress, both in the work and in the families themselves, are the overwhelming effects of chronic, lifelong, and multigenerational poverty. The exploration of this general issue is beyond the scope of this chapter, yet it is important to note that the various challenges we describe below are inextricably related to the devastating effects of poverty (see Aber, Jones, & Cohen, 2000, for a more comprehensive discussion of this issue).

As is often the case in samples such as ours (J. Robinson, personal communication, March 2003), a small, but nevertheless worrisome subset of our mothers are functioning in the borderline range of intellectual

functioning. As a result, there are many aspects of daily life that are complicated for them and many aspects of our intervention that challenge them. Evidence provided by Fonagy and his colleagues suggests that RF is linked more strongly to emotional than to cognitive factors (Fonagy et al., 2002). And in related research, we found that while RF was indeed lower in a high-risk sample, normally occurring fluctuations in RF in this population are related to factors other than intelligence (Truman et al., in press). However, it is at the same time true that holding an idea or a state in mind and “playing” with it, reflecting on it in a flexible way, and trying it out in interpersonal relationships is linked to executive capacities such as planning and reasoning that are part and parcel of higher cortical functioning. With these mothers we have at times had so much difficulty just getting them to hold onto an idea, let alone link it to other mental or objective phenomena, that we have had to lower our goals and expectations significantly. Our goal for these mothers became simply to have them articulate an awareness of a physical state, feeling, thought, or intention, and to maintain this awareness for longer periods of time. We have seen that this kind of steady and concrete work sometimes works to help mothers modulate and control their impulses (and thus take better care of their babies), even if they are not yet thinking about physical or mental states in a reflective way.

A large proportion of our mothers—at least 40%—are struggling with significant mental illness (which is not exclusive, necessarily, of cognitive limitations). This high incidence of psychopathology (most prominently PTSD and borderline personality disorder) is linked both to environmental factors such as severe and long-standing trauma and to biological factors such as heritable mental illness. Within the first weeks of their babies’ lives, we see in these mothers with either positive psychiatric and/or severe trauma histories a propensity toward disrupted and distorted caregiving, manifested in malevolent attributions, distorted perceptions, and rough handling, as early as 3–4 months. For example, one mother commented, “My 6-week-old is already giving me ‘the finger.’” In this group of mothers, reactions to their babies are often impulsive, aggressive, overarousing, frightening, and potentially dangerous. The babies are already showing signs of dissociation and numbing, which are thought to be a prelude to disorganized attachment.

Because of these mothers’ underlying personality disorganization, which results both from their own psychology and from the chaos and violence with which they live, they have an especially hard time keeping their babies in mind, either at a physical or an emotional level. Home visits, reflecting the realities of everyday life, are characterized by relentless intrusions and upheaval (family dysfunction and violence; insufficient food, money, or housing), making it very difficult for the home visi-

tors to maintain a focus on either the baby or the mother, and specifically on health or parenting concerns. Putting out the fires that indeed threaten our mothers' very existence become central to the work. This must be accomplished alongside cultivation of the mothers' awareness of their babies' needs and intentions.

Complicating this already difficult situation is the fact that the intervenors themselves become overwhelmed, distressed, and depleted by the mothers' intense affects and chaotic lives. They are also powerfully affected by observing highly disrupted mother-child interactions. Ironically, severe life crises can often provide home visitors a welcome retreat from working directly with mothers' anger and hostility. In these circumstances, common in our most challenged families, we conceptualize the work as necessarily working from the crisis *in toward* the mother and baby, working from the "periphery" of crises toward the realities of physical and mental states, toward the realities of the relationship. Maintaining this focus both internally and *with the mothers and babies themselves* is very challenging for home visitors, who must constantly reframe the situation for mothers in terms of its impact upon the parent-child relationship. Home visitors' relationships with mothers, cultivated over months of being present and available, provide the therapeutic leverage for this reframing. Supervision becomes especially important to this process, as it provides a safe and organizing space for home visitors to themselves reframe and reconceptualize the many difficult circumstances and feelings they regularly encounter in using *their* relationship with mothers to protect and enhance the *mother-baby* relationship.

CLOSING COMMENTS

Within the field of early attachment interventions, discussion continues as to whether focused behavioral or long-term intensive interventions such as MTB are most effective and appropriate (see Berlin, Chapter 1, this volume; van IJzendoorn et al., Commentary 1, this volume). Clearly, we favor a more intensive approach, especially for mothers with a significant psychiatric and trauma history. As we have moved forward in our pilot work, it seems clear to us—and we expect these intuitions to be supported by later data analyses—that the families struggling with cognitive or psychiatric limitations are the ones who most need and are most likely to benefit from the kind of intensive, integrated intervention MTB has to offer. These are the families (roughly half of our sample) who most desperately need help synthesizing the multiple demands of caring for their babies and themselves. These are the mothers who—by dint of cognitive and/or psychiatric challenges—cannot hold the *whole*

physical and emotional baby in mind, and who thus need multiple levels of holding and integration from our team. We suspect that it is these mothers who challenge and overwhelm home visiting professionals working primarily within a single discipline or those attempting more structured behavioral interventions. The families' needs for integration and complex services are simply too great for singular or focused behavioral models. While integrated models are more costly and necessarily complex and difficult to replicate, our preliminary work makes us feel that such challenges must be integrated into the child-care professionals' thinking and financial calculations. If we are to truly effect change, we must provide high-risk families with what they need, first to heal and repair, and then to grow and flourish.

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NOTES

1. "High risk" here is used to refer to the elevated risks for social, emotional, and psychological difficulties that often stem from severe poverty and social disadvantage, and specifically from the family and environmental disruptions that these circumstances often convey.
2. Minding the Baby is one of several reflective parenting programs currently in development at the Yale Child Study Center and other sites (Goyette-Ewing et al., 2004; Grienberger et al., 2004; Slade, 2002).
3. Medically *low risk* is defined as women who are not suffering from a major illness, such as AIDs, and who are not actively using drugs.
4. Space limitations preclude a full description of our intervention, which—like all home visiting interventions—is complex and multifaceted, involving ongoing assessment and intervention in a large number of areas. Home visitors blend a variety of roles—nurse,

developmental specialist, educator, social worker, therapist, case manager, chauffeur, and so on—all designed to provide a facilitating environment for our very needy and depleted mothers. We have prepared a manual that describes the pilot phase of this work (Slade et al., 2004). We rely upon several curricula for prenatal (Baby Basics; Rand & Greenwood, 2002), parenting (PIPE; Butterfield & Dolezol, 1996), and pediatric primary care (Bright Futures; Green & Palfrey, 2002) guides and teaching materials, all of which have been developed and used with multicultural young parents and have been pilot-tested in clinical work with young urban mothers. We have also found several parenting and health publications for teen parents published by Meld Publishing Company and the Healthy Steps (Kaplan-Sarnoff & Zuckerman, 1999) teaching materials to be very helpful for use with young parents. In our work so far, the clinicians have been creative in selecting and adapting written or video teaching materials for particular families to the MTB model.

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Attachment and Biobehavioral Catch-Up

*An Intervention Targeting Empirically
Identified Needs of Foster Infants*

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Human infants are prepared evolutionarily to become attached to their caregivers (Bowlby, 1982). A strong motivation to maintain proximity to the attachment figure is probably universal to human infants, as well as to many nonhuman primate young. In terms of our evolutionary history, loss of one's caregiver could have resulted in death for the human or nonhuman primate infant. When considering foster placement, it is important to remember the child's very fundamental need to maintain contact with a caregiver. The young child placed in foster care essentially deals with a loss of attachment figures at a time when maintaining contact with the attachment figures is vital. Given these challenges, it is not surprising that many foster caregivers need specialized help to deal effectively with young foster children in order to provide optimal environments for growth.

In this chapter, we develop the empirical rationale and describe the structure of our intervention program for infants who have experienced early adverse care and disruptions in care. The Attachment and Biobehavioral Catch-Up (ABC) intervention targets several key identified issues, including providing nurturance for distressed infants even when parents are not comfortable providing nurturance, overriding tendencies

to respond in kind to infant behaviors, and providing a predictable interpersonal environment. First, we present information about the current state of foster care in the United States, and then offer an empirical justification for each of the intervention targets. Second, we describe the intervention goals and provide an overview of each session's content. Third, we present case examples that illustrate challenges and results. Fourth, we discuss the policy implications of our work.

BACKGROUND ON FOSTER CARE

When a child is placed in foster care, the state temporarily assumes custody of that child. Reasons for placement into foster care are diverse and include parental child maltreatment, substance abuse, mental or physical illness, and incarceration. In the last decade, there has been an increase in the number of reports of child abuse and neglect to child welfare agencies, especially among infants and toddlers (U.S. Department of Health and Human Services, Administration on Children and Families, 2002, 2003).

The number of children in foster care has risen in recent years, with estimates exceeding 550,000 at any given point in time (U.S. Department of Health and Human Services, Administration for Children and Families, 2002). Further, it has been reported in numerous studies that these children are experiencing high levels of emotional, behavioral, and medical difficulties (Chernoff, Combs-Orme, Risley-Curtiss, & Heisler, 1994; Clausen, Landsverk, Ganger, Chadwick, & Litrownik, 1998; Halfon, Mendonca, & Berkowitz, 1995).

EMPIRICAL JUSTIFICATION OF OUR INTERVENTION

On the basis of attachment theory and our empirical findings, we have developed a training program for surrogate caregivers (i.e., foster and adoptive parents) that helps caregivers deal effectively with the specific needs of young children who have experienced adverse care and disruptions in attachment. First, some caregivers (especially those classified as having "dismissing" states of mind with respect to attachment) do not respond with nurturance when infants become distressed or upset (Dozier, Stovall, Albus, & Bates, 2001). We have found that foster children are especially in need of nurturing care. Therefore, our first intervention goal is to help caregivers override what may be their own natural response to turn away from a distressed infant. Second, we have

found that infants in foster care often fail to elicit nurturing caregiving by pushing caregivers away or by appearing inconsolable (Stovall & Dozier, 2000; see also Zeanah & Smyke, Chapter 9, this volume). Our second intervention goal therefore focuses on provision of nurturing care by the caregiver even when foster infants do not elicit nurturance. Third, young children in foster care often appear dysregulated at the behavioral, emotional, and neuroendocrinal levels (Dozier et al., 2004). Thus, the third goal of our intervention is to help foster parents provide a more predictable interpersonal environment for their children in an attempt to enhance children's regulatory capabilities. Recently, we have added a fourth goal to our intervention. Children who experience adverse early conditions may be at increased risk for feeling threatened, and their environments may be readily experienced as threatening (Main & Hesse, 1990). The fourth goal is to help caregivers provide a nonthreatening, safe environment for their children.

Component 1: Providing Nurturance When It Does Not Come Naturally

Among biologically intact dyads, the association between parental state of mind with respect to attachment and infant attachment security has been found to be quite strong. Van IJzendoorn's meta-analysis (1995) revealed a kappa of .49 (75% concordance) for the two-way prediction from maternal state of mind (autonomous/nonautonomous) to child attachment (secure/insecure). There were a number of reasons to expect lower correspondence between state of mind and attachment among foster mother–infant dyads. To the extent that biological relatedness contributed to the correspondence among biologically intact dyads, or the extent to which early pre-foster care placement variables reduced the correspondence among foster care dyads, correspondence was expected to be lower than among intact dyads. More specifically, if correspondence is relatively high among biologically related dyads because of inherited factors, we should not see a high correspondence between foster parent state of mind and infant attachment. Further, if children's difficult early experiences detracted from their ability to trust surrogate caregivers, we would not expect to see autonomous state of mind predict secure attachment as strongly as among biologically intact dyads. Nonetheless, we found a kappa of .42 ($r = .72$) between foster mother state of mind and infant attachment (Dozier et al., 2001), which was only slightly lower than that found among intact dyads. What differentiated foster children's attachments was that they were disproportionately likely to be disorganized. Foster mothers with unresolved state of mind, and also foster mothers with dismissing state of mind, were likely to have children with disorganized attachments.

These findings were troubling, suggesting that foster children of dismissing foster parents were having outcomes similar to foster children of unresolved foster mothers, at least in terms of disorganized attachment. Our interpretation of these findings is that foster children have difficulty organizing their attachment systems unless they have nurturing foster parents (i.e., caregivers who provide sensitive care like autonomous caregivers). Therefore, we considered it important to help dismissing as well as unresolved foster parents respond in nurturing ways to their foster children. Thus, our first intervention goal is to help foster parents provide nurturing care even if they are nonautonomous with regard to their own attachment status.

Component 2: Infants in Foster Care Often Fail to Elicit Nurturance

We have argued that foster parents may not be nurturing to their foster infants because of their own states of mind with regard to attachment. A second reason is that infants who enter the foster care system often fail to elicit nurturance, even from caregivers who would otherwise provide it. Stovall and Dozier (2000) found that foster mothers tend to respond “in kind” to their foster infants’ behavior. When the foster infant behaves in an avoidant manner, foster mothers fail to provide nurturing care, acting as though the infant does not need them. When the foster infant behaves in a resistant manner, foster mothers tend to respond angrily toward the infant. Even autonomous mothers tend to respond “in kind” to their babies’ behaviors (Stovall & Dozier, 2000). For example, picture an autonomous foster mother whose foster child turns away from her after falling from a chair. The foster mother says, “Oh, I’m glad you’re OK,” and then goes back to picking toys up, without patting the child on the back or moving closer to the child as she might have otherwise done if the child expressed distress. Thus, mothers who would otherwise be expected to provide nurturing care behave in nonnurturing ways when their babies act as though they do not need them. For this reason, the second goal of our intervention is to train foster mothers to act in nurturing ways toward their foster infants even in the absence of cues from the infant.

Component 3: Infants in Foster Care Are Often Dysregulated at Physiological, Behavioral, and Emotional Levels

Young children in foster care often show signs of physiological, behavioral, and emotional dysregulation (Dozier et al., 2004; see also Putnam, Chapter 4, this volume). Physiological dysregulation is particularly evi-

dent in the dysregulated functioning of the neuroendocrine system in foster infants. We have found that foster children often show atypical production of the stress hormone cortisol across the day (Dozier et al., 2004; see also Putnam, Chapter 4, this volume). Whereas most children show a drop in cortisol levels from a morning peak to near-zero levels at night, foster children often show atypical patterns of production. Some show very high levels of cortisol production, some show unusually low levels, and others show irregular patterns (e.g., rises from morning to evening). These atypical levels of cortisol are a concern because they reflect the dysregulation of a basic regulatory system. Very low or very high levels are associated with particular types of psychopathology. Low morning levels are seen among adults with posttraumatic stress disorder (PTSD) and with psychopathy (Yehuda, Southwick, Nussbaum, Giller, & Mason, 1991; Yehuda, Teicher, Levengood, Trestman, & Siever, 1994). High evening levels are seen among adults with depression and anxiety (Plotsky, Owens, & Nemeroff, 1998). We do not know whether infants who show low or high levels of cortisol production are at increased risk for such disorders later, although we and others are collecting data that will allow us to answer this question. In any case, such obvious disruption in functioning of a major regulatory system is very troubling.

Many foster infants also show behavioral signs of dysregulation. Foster infants have more difficulty regulating behaviors, such as sleeping and eating, than comparison children (Dozier, Dozier, & Manni, 2002; Yarrow & Goodwin, 1973). This finding is consistent with a host of other findings that indicate more externalizing and internalizing problems among older foster children than among comparison children (e.g., Clausen et al., 1998; Rutter, 2000).

Whereas intervention Components 1 and 2 are linked intuitively with identified needs, it was less clear how to intervene to affect children's regulatory capabilities. In that premature babies and temperamentally difficult babies seem to have regulatory deficits, we borrowed from the literature regarding interventions with these populations (Barnard, 1999; Barnard & Morisset, 1995; van den Boom, 1994, 1995). This literature suggested the importance of helping parents follow the child's lead, as well as holding and touching the child (see Tronick, 1995). Our third intervention goal is to help caregivers become more responsive social partners, following the child's lead.

Component 4: Infants in Foster Care Often Experience Threatening Conditions

One of the functions of parents is to protect children from real and perceived dangers. However, foster children have nearly always experienced

the breakdown in this system, with parents either failing to protect them (e.g., from danger, from separation from caregiver, etc.) or actually serving as the threat themselves. In the worst conditions, the implicit or sometimes explicit threat is that a child's continued placement is contingent upon the child's behavior. Caregivers have been reported to say things such as: "If you don't behave better, I'll call your social worker and tell her to take you out of here." Indeed, even among biologically intact dyads, threats of abandonment ("I'm going to give you to the gypsies"/"Take you to reform school"/"Put you up for adoption") are common enough that they are queried directly in the Adult Attachment Interview (AAI; George, Kaplan, & Main, 1996). When children experience frightening conditions for which they have no adequate response, they have a limited range of options for response. They often "check out" or dissociate as a way of coping (Perry, 1994; van der Kolk & Fislir, 1994). Possible evidence for dissociative coping may be seen in foster children's disproportionate tendency to show disorganized attachments (Dozier et al., 2001), and in long-term outcomes such as elevated incidence of dissociative symptomatology (Lawrence, Carlson, & Egeland, 2004).

Our fourth intervention goal is to reduce threatening behavior among foster parents. We help caregivers to understand the impact of threatening behavior on foster children, and to work to reduce their engaging in such behavior.

ATTACHMENT AND BIOBEHAVIORAL CATCH-UP

Our intervention, Attachment and Biobehavioral Catch-Up (ABC), includes the four components described in the previous section. We are currently assessing the effectiveness of this intervention in a randomized clinical trial with 200 foster families. Half of the foster infants enrolled in our project are randomly assigned to the ABC intervention and the other half are assigned to an educational intervention, Developmental Education for Families (DEF; Dozier, 2003), which serves as a comparison intervention. The focus of the DEF intervention is to enhance cognitive and language development by teaching parents skills to promote early intellectual development.

Caregiver behaviors, including sensitivity, nurturance, following child's lead, and commitment, are examined prior to and following the intervention (either ABC or DEF) and at annual intervals. Child behaviors, including attachment to caregiver during infancy, engagement in a difficult task during toddler years, problem behaviors, and ability to inhibit behavior, are assessed. In addition, children's regulation of their neuroendocrine functioning is assessed before and after the intervention and at regular intervals.

Overview of the Intervention

The intervention consists of 10 sessions that are administered in caregivers' homes. Professional social workers deliver the manualized intervention. Most of the sessions involve the caregiver and the child in interaction together. Sessions are videotaped from beginning to end so that we can assess treatment fidelity. In addition, some parts of the sessions are videotaped so that caregivers can observe their own interactions during the sessions. Therefore, we use two video cameras to allow uninterrupted filming.

The intervention starts with an emphasis upon aspects of the child's behavior that can be problematic in the developing relationship. We have found this emphasis to be less threatening to foster parents than focusing initially on foster parents' own issues in parenting. Following two sessions that concern what the child brings to the relationship, the focus shifts to the need for the caregiver to provide a predictable interpersonal world for the child. Following several sessions addressing these issues, the caregiver's own difficulties in being available to the child's needs are addressed. Throughout the intervention, concepts and skills build upon one another, and earlier messages are revisited. The specific content of the sessions is described below (see also Table 8.1).

Sessions 1 and 2 focus upon helping foster parents reinterpret children's behavioral signals such that they provide nurturing care even though it may not be elicited by children (Component 2 as described above).

Session 1 introduces caregivers to how vital it is for foster children to have nurturing care, and characteristics of the child that may make it difficult for caregivers to provide it. Videos are shown of babies that directly elicit care (secure behavior) and babies that fail to elicit care (avoidant and resistant behavior). Caregivers are asked to think about the likely impact of the child on the caregiver. They are assigned home-

TABLE 8.1. The Attachment and Biobehavioral Catch-Up Intervention

Intervention focus	Desired child outcome	Session
Nurturance	Organized attachment	1, 2
Following child's lead	Regulation of behavior and biobehavioral systems	3, 4, 5, 8, 10
"Overriding" own issues	Organized attachment, regulation of behavior	6, 7
Nonthreatening behavior	Child not frightened by parent	9

work in which they are to keep records of how their child responds to distress (e.g., being frightened, hurt, or separated) and their own responses to their child.

Session 2 helps caregivers reinterpret children's behavioral signals. Among other things, homework is discussed as a way to help parents notice the child's behavior when distressed, and to attend to their own behaviors and emotions. This session goes further than Session 1 in helping caregivers become more aware of their own reactions to infant behaviors and helping them begin to behave in different, more nurturing ways.

Sessions 3, 4, and 5 (as well as Sessions 8 and 9, which will be described later) help caregivers provide predictable interpersonal environments to children so that children can develop regulatory capabilities (Component 3 described above).

Session 3 introduces caregivers to the idea of following the child's lead. The distinction between taking the lead with the distressed child and following the child's lead (when the child is not distressed) is discussed. The importance of giving the foster child a sense of agency is emphasized. Caregivers are videotaped "reading" to their child with instructions to follow the child's lead. In a homework assignment, parents are asked to read several books to their children that are left with them.

Session 4 continues the focus on caregivers allowing their children to take charge of interactions. After reviewing homework, caregivers are asked to make pudding with their child (with activity modified for children younger than 1 year old). This is a challenging task for parents. The parents then view the videotape and consider aspects that were difficult for them.

Session 5 focuses on helping the caregiver learn to read the child's signals for engagement and disengagement. Videotapes of other children who react to a puppet in very different ways are shown. In one instance, the child is interested in the puppet and approaches it, whereas in the other instance the child is frightened and tries to move away from it. Parents are urged to think of the messages the child is conveying in each case and the importance of attending to these messages. They are helped to read their own child's cues in videotaped interactions, responding to their child's needs to engage or disengage. In a homework assignment, parents are asked to keep notes regarding times when their child signals the need for more or less autonomy.

Sessions 6 and 7 help caregivers understand how their own comfort in providing nurturance may affect their responsiveness to their child (Component 1 above).

Session 6 asks parents to think about how their own attachment experiences may affect their ability to parent. A technique borrowed from the Circle of Security Project (Cooper, Hoffman, Powell, & Marvin,

Chapter 6, this volume) is used to help parents think about how their own states of mind will affect their perception of their children's needs. Parents are presented a videotape, entitled *Shark Music* (see Cooper et al., Chapter 6, this volume). In the video, an ocean scene is first accompanied by soothing music, which is typically experienced as comforting. The same video is presented again, but this time is accompanied by what is referred to as "shark music." Rather than being soothing, the video is then usually experienced as threatening. Parents are told that everyone experiences "shark music" at times while parenting. What is critical is being able to recognize when "shark music" is experienced so that parents' responses to their distressed children are not automatic. For example, although a parent may continue to hear "shark music" when her child cries, she may become able to override her tendency to distract the child or fuss at the child at such times. Parents are helped to think of times when they have experienced "shark music" while parenting.

Session 7 continues the focus on parents' own experiences that affect their ability to respond sensitively to their child's distress. Parents are first videotaped in a "mini-Strange Situation" procedure (a brief separation-and-reunion assessment) and then are asked to reflect on how their child's response during the procedure affected them. They are asked to think of how their own parents would have responded to their distress when they were children. Given that this session can be threatening to parents, strengths are emphasized and parents' difficult feelings are approached very sensitively.

Session 8 emphasizes the importance of touch in helping children develop regulatory capabilities. Parents are helped to read the signals of their child in engaging in contact. While being videotaped, parents are asked to play lap games with their child (e.g., by singing "Itsy Bitsy Spider" or doing other such games). The child's enjoyment of the game, and the parent's responsiveness to the child's signals, are highlighted in reviewing the video.

Session 9 focuses on reading the child's emotions (especially negative emotions) and helping the child gain comfort experiencing and expressing emotions. In addition, parents are helped to see the importance of responding to the child in ways that are not frightening.

Session 10 reinforces lessons from previous sessions (especially Session 9) and celebrates changes parents have made. Videos are shown that highlight parents' strengths in the areas of focus.

Case Studies of Intervention

We next provide two case examples to demonstrate how our intervention works at a practical level. Although the intervention is manualized,

we emphasize that it is tailored to the particular issues and needs of parents. Caregiver state of mind, as well as variables such as the length of time caregivers have parented, affect the way training is delivered and used. (See Dozier & Sepulveda, 2004, for a fuller discussion of differences related to treatment use among individuals who differ with regard to state of mind.)

Case Example 1

Ms. P is a 60-year-old African American relative caregiver (grandmother) who was assigned to the ABC intervention. Ms. P is designated by the state as a foster parent, having completed requirements established by the social services agency. Ms. P has a seventh-grade education and an income of less than \$10,000/year. She was herself raised in foster homes from the age of 3 or 4 until the age of 8 due to her mother's illness. At age 8 she returned home to live with her mother until her mother died when Ms. P was 15 years old. When her mother died, Ms. P returned to foster care until she reached the age of emancipation.

Ms. P had struggled with her daughter's addiction to heroin, and initially felt little confidence in raising her granddaughter. She agreed to foster the child because no other relative was available and she did not want her granddaughter to experience the foster care system as she had as a child. Samantha, her granddaughter, was placed with Ms. P when the child was 14 months old.

Ms. P's AAI was classified as unresolved, with a secondary autonomous classification (U/F2). Korfmacher and colleagues (Korfmacher, Adam, Ogawa, & Egeland, 1997) found that individuals with unresolved states of mind tended to experience frequent life crises that then served as the focus of treatment. Other research findings have been mixed with regard to the importance of the secondary autonomous classification in parenting, with some studies showing parenting more similar to autonomous (van IJzendoorn, 1995), and some showing parenting more aberrant (Dozier et al., 2001; Schuengel, Bakermans-Kranenburg, & van IJzendoorn, 1995). Early in the training program, Ms. P was resistant to the concepts presented. She questioned the need to be nurturing and worried about spoiling her child. Midway through the intervention, when she began to think of the impact of her own attachment experiences on her ability to be sensitive to the child, she had an "Aha!" experience. Suddenly, it seemed that a light had come on, and she began to see connections between the training and her interactions with her child. She came to embrace the concept of following the child's lead at this point, and became excited about what she was learning. Throughout the remaining sessions, she reported changes in her own behaviors.

In particular, she recounted instances in which her own issues (“shark music”) arose in interactions with the child, but now her awareness of them allowed her to monitor them and override them, and was thus able to respond more sensitively to her child. These changes in her interactions were apparent in the sessions as she responded more warmly and nurturantly to the child, but could also let the child take the lead. Ms. P rarely presented the parent trainer with crises. We expect that this difference between Ms. P and parents described by Korfmacher and colleagues (1997) may partially result from the age difference (i.e., Ms. P was older than Korfmacher and colleagues’ birth-parent participants).

Before the intervention, Samantha showed a pattern of atypical cortisol levels that started low in the morning and rose throughout the day. Following the intervention, Samantha showed a pattern of cortisol levels that was in the normal range in the morning and steadily decreased throughout the day. Play assessments showed that, from pre- to postintervention, Ms. P became more emotionally available and provided more supportive assistance. Samantha’s postintervention attachment classification based on the Strange Situation was secure (B2). (We are not able to conduct pre- and postintervention Strange Situations and therefore cannot compare this to a preintervention measure.) Taken together, these measures suggest that Samantha became better able to use her foster mother effectively as a coregulator on physiological, emotional, and behavioral levels following the intervention.

Case Example 2

Ms. B is a 56-year-old European American foster mother who was assigned to the ABC intervention. Laura is the 6-month-old child placed into her care. Ms. B has a 12th-grade education and an income in the upper-middle-income range. Ms. B runs childcare from her home for five other children. She has been a foster parent off and on for 15 years, fostering over 50 children. She is single and has two grown children.

Ms. B’s AAI classification was dismissing (D1). She indicated that she had a “lovely” childhood, and that her parents were the “most wonderful and loving in the world.” She became slightly annoyed when asked to give specific memories to instantiate these characterizations of her parents. She maintained that she had many general memories, but could not recall specific memories. Some information that was discrepant with the general characterization emerged from time to time (e.g., her sister was kicked out of the house, her father left the family for 6 years).

Not surprisingly, initially Ms. B was somewhat resistant to training. Her experience in running family childcare, her experience fostering pre-

vious children, and her dismissing state of mind led her to be somewhat disdainful of the possibility that she could learn much from training. Initially she challenged much of the content that was presented. For example, she argued that videoclips that were presented (e.g., of children showing avoidant behavior) did not actually portray children that needed anything from their parents. She suggested that touching and holding children was not necessary, and that activities to promote touching (e.g., putting lotion or stickers on children) were “silly.” Nonetheless, Ms. B gradually came to see the point of responding to a distressed child. She remembered her own experiences of not being held and considered that it “might not have been the best way [to parent].” By the completion of training, the parent trainer felt that Ms. B had made some changes, although she continued to behave in some relatively insensitive ways.

Prior to the intervention, Laura’s production of cortisol across the day was extremely low, with no morning peak. Following the intervention, morning levels were atypically high, but the pattern across the day more closely resembled a typical pattern. As with the previous case example, play assessments that were taped before and after the intervention showed that caregiver scores on measures of emotional availability and quality of play improved from pre- to postintervention. Finally, Laura’s postintervention attachment classification based on the Strange Situation was classified as secure (B4).

In both of these case examples the caregivers are classified as having a nonautonomous state of mind. Following the intervention, however, the infants in their care are classified as having secure attachments. If, as we hope, these case examples turn out to be illustrative of typical outcomes for our ABC training, then the intervention will be successful in promoting secure attachments in foster infants *without the need to alter the caregiver state of mind* (see Berlin, Chapter 1, this volume, and van IJzendoorn, Bakermans-Kranenburg, & Juffer, Commentary 1, this volume, for reviews and further discussion of narrow vs. comprehensive attachment interventions).

Intervening with Birth Parents

Although the ABC intervention was originally designed for foster parents, we have modified the intervention for use with birth parents as well. As part of the randomized clinical trial, we intervene with children’s caregivers wherever the children are placed. That is, we provide the intervention to caregivers when children are placed with foster parents, relative caregivers, or adoptive parents, and when they are re-

unified with their birth parents. Parent trainers who first used the intervention with birth parents reported that birth parents embraced the intervention enthusiastically. Therefore, we developed a modified version of the intervention for use with birth parents. We are now testing the effectiveness of the training with a group of birth parents who have had substantiated allegations of maltreatment made against them, but who have not had their children placed in out-of-home care, as well as with birth parents who have had their children returned to them following foster care placement.

The four issues targeted by the ABC intervention appear to be as relevant to birth parents as they are to foster parents. That is, birth parents need to override their own propensities to be rejecting of their children and provide nurturing care; they need to interpret children's behavioral signals such that they see that their children need them; they need to help children develop regulatory capabilities (e.g., Gilles, 1999); and they need to behave in ways that do not frighten their children. Indeed, it was in our work with birth parents that parent trainers first recognized the need to include reduction of threatening/frightening behaviors among their treatment objectives.

Caregiver Commitment

Our intervention does not target the commitment of the caregiver to the child directly. This may or may not be a critical omission. It is possible that, in fact, caregivers do become more committed as they become more nurturing and as they follow children's lead more. On the other hand, it is also possible that neither this intervention nor most other interventions can affect how committed caregivers become to their children.

We have found that caregiver commitment is an extremely important variable in terms of child outcomes. At this point, our measurement of commitment is limited to an interview in which we ask caregivers about issues such as how much they want to raise the child to adulthood, and how upset they would be if the child were removed from their care. *Foster mother commitment* is defined as the extent to which the mother views the baby as her own while in her care, allows herself to become emotionally invested in the child, commits physical or emotional resources to promote the child's growth or development, and gives evidence that parenting her foster child is very important to her. A highly committed foster mother expresses a strong desire to parent the child as long as the child remains in foster care, indicates that she would deeply miss the child if he or she were moved to another home, or gives evidence that she has "psychologically adopted" the foster child. A foster mother who shows low levels of commitment is indifferent to whether

the child remains with her, consciously takes steps to limit her emotional connection to the child, or views the child as an unwanted guest or as a source of income. Whereas attachment quality does not predict child outcomes as expected, caregiver commitment does predict such outcomes. For example, in a recent study we found that caregiver commitment predicted children's persistence in problem-solving tasks and their attributions regarding peers, whereas the child's attachment did not predict these outcomes (Ackerman & Dozier, 2004; Bates & Dozier, 2002). The assessment of attachment among human infants has focused on children's response to distress, and thus their expectancies regarding being soothed when distressed. Not focused on are expectations regarding whether the caregiver will stand between the child and danger. Although this issue of commitment (i.e., of standing between the child and danger) may have been something that could be neglected among biologically intact dyads, we suggest that it represents a critical issue for most foster children.

CONCLUSIONS AND POLICY IMPLICATIONS

In this chapter, we have presented the empirical rationale and description of an intervention for caregivers of young children who enter the foster care system. We expect that our intervention will make a difference in the quality of care foster parents and birth parents provide for children. But we also expect that these effects will be limited. Our data and our intuitions suggest to us that a system of surrogate caregivers is inherently problematic for young children.

Lawrence and colleagues (2004) found that maltreated children show more behavioral problems after placement in foster care than maltreated children who continue to live with their birth parents. Although the Lawrence et al. study is correlational and does not allow causal inferences regarding foster care, the findings are in keeping with the notion that losing a caregiver is problematic.

We acknowledge that there are conditions under which children must be placed into substitute care. Especially for young children, we urge that children are placed with caregivers who could become adoptive caregivers if permanent placement became necessary. Children would not then have to be moved to a different home if they became eligible for adoption. Until recently, foster and adoptive systems in many states have been separate, requiring different credentials and training. Systems are becoming more integrated, allowing more seamless transition from foster to adoptive care. When reunification with birth parents is considered likely, we urge that birth parents and children be kept to-

gether when possible. An innovative example is provided by the model of fostering birth parent and child together (Kretchmar & Jacobvitz, 2002). We anticipate that promoting conditions under which caregivers become committed to children and children feel confident in caregivers' commitment will result in the best child outcomes.

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Building Attachment Relationships Following Maltreatment and Severe Deprivation

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Young children who experience abuse, neglect, and deprivation are at dramatically increased risk for serious disturbances of attachment. Children at the extremes of the risk continuum pose challenges to clinicians attempting to design interventions appropriate for them. For clinicians assisting young children placed in foster care following serious maltreatment, the task is to help them develop attachment relationships to their new caregivers, sometimes while simultaneously attempting to repair disrupted or disturbed attachment relationships with their birth parents (see also Dozier, Lindhiem, & Ackerman, Chapter 8, this volume). Similarly, when children are adopted from foster care or out of institutions, they must develop new attachments to their adoptive parents. These children present clinicians with questions about how best to enhance the construction and/or reconstruction of parent–child attachment relationships.

In this chapter, we focus on understanding the origins of attachment disturbances in young children and the methods that have been used to diagnose and to ameliorate such disturbances. We examine the important contributions from both the developmental literature and the clinical literature and address ways in which the “clinical–developmental

gap” can be bridged. We begin by reviewing the evolution of the concept of attachment disturbances in at-risk children, paying particular attention to maltreated and institutionalized children. We then present two programs whose goals include the (re)establishment of attachment relationships and the reduction of attachment disturbances.

We consider findings from developmental attachment research on disorganized and atypical attachments and then review research from the clinical perspective on reactive attachment disorder in similar populations. Next, we describe our experiences in two intervention efforts designed to enhance the development of attachment relationships in these two populations. The first is an intervention program for young children in foster care in New Orleans in which comprehensive and integrated services are offered to address the challenges of building attachment relationships with foster parents and enhancing attachment relationships with birth families. The second is an intervention project in Bucharest, Romania, in which formerly institutionalized children are placed in foster care and their development is compared with that of a group of institutionalized children. For each initiative, we review approaches to building attachment relationships and the child and parent barriers to developing attachments, and we consider how to improve disturbed attachment relationships.

THE DEVELOPMENTAL PERSPECTIVE: FAILURE TO ORGANIZE ATTACHMENTS

Maltreatment and Disorganized Attachment

Maltreatment has long been recognized to be associated with disturbances of attachment as measured by the Strange Situation procedure (SSP; Ainsworth, Blehar, Waters, & Wall, 1978). In fact, anomalous attachment behaviors in maltreated children provided a major impetus for development of the criteria that now are used to identify disorganized attachment relationships (Main & Solomon, 1990). Subsequent research has demonstrated that disorganized attachment is strongly associated with maltreatment (Carlson, Cicchetti, Barnett, & Braunwald, 1989; Cicchetti & Barnett, 1991), and several features of parental behavior known to be associated with disorganized attachment could plausibly occur in the context of maltreatment. These include caregivers’ frightening and frightened behavior (Main & Hesse, 1990), disrupted affective communication (Lyons-Ruth, Bronfman, & Parsons, 1999), and high levels of criticism or expressed emotion (Green & Goldwyn, 2002; Jacobsen, Hibbs, & Ziegenheim, 2000).

Institutional Care and Disorganized Attachment

Young children raised in institutions also have a preponderance of disorganized attachments with their caregivers. Vorria and colleagues (2003) reported that 65% of young children in Greek institutions had disorganized attachments with their institutional caregivers, whereas only 25% of family-reared infants had disorganized attachments. Similarly, Zeanah and colleagues (Zeanah, Smyke, Koga, & Carlson, 2003) found that in Romanian institutions 78% of young children failed to organize an attachment to their institutional caregivers (65% were disorganized and 13% were unclassifiable), whereas only 22% of children (all classified disorganized) in a family-reared comparison group had failed to organize an attachment to their primary caregivers (Zeanah, Smyke, et al., 2003).

Institutional Care and Other Attachment Disturbances

Recent research with young children raised in institutions also has demonstrated that failure to organize an attachment does not tell the complete story of disturbances of attachment in these children. In a study of institutionalized and family-reared children in Bucharest, for example, Zeanah, Smyke, and colleagues (2003) found evidence of incompletely developed patterns of attachment in the institutionalized children. The investigators developed a 5-point rating system for assessing the degree to which the child exhibited fully developed attachment behaviors during the SSP (Zeanah, Smyke, et al., 2003). In this system, a 5 described children with typical patterns of attachment characterized by fully developed attachment behaviors, whereas a 1 described children who exhibited no attachment behavior toward either their caregiver or the stranger. In between were children who were given secure, avoidant, or disorganized classifications, but who showed evidence of incompletely formed attachment behaviors.

For example, children who received a rating of 4 were noted to have evidence of attachment behavior with regard to actively seeking out the caregiver and displaying affect toward her, but also displayed aberrant behaviors (e.g., stereotypies throughout the SSP) that did not fit in the scheme typically used to assess for disorganized behaviors usually used for coding (Main & Solomon, 1990). Children who received a rating of 3 showed a clear preference for the caregiver that was characterized by passivity. The child would respond to the caregiver's efforts at interaction but affect, either negative or positive, toward the caregiver was weak. Children who received a rating of 2 had a slight preference for the

caregiver over the stranger but showed little interactive behavior or affect toward the caregiver.

Remarkably, using this system without awareness of group status, raters rated all of the family-reared children as a 5, whereas fewer than 5% of the institutionalized children were rated a 5. In fact, 66% of the institutionalized children were rated as 3 or lower. Importantly, of the children rated 3 or lower, 21% were classified secure in the SSP. Clearly, these “secure” attachments were atypical.

Three studies have examined patterns of attachment in preschool children adopted out of Romanian institutions. These studies all have found a high proportion of unusual classifications. Marcovitch and colleagues (1997) found markedly higher levels of insecure/controlling behavior in their sample of children adopted into Canada from Romania, both among children adopted early (< 6 months) and among those adopted later ($\geq$ 6 months), compared to a sample of Canadian community children. Furthermore, even among the adopted children classified secure, several children exhibited indiscriminate behavior with the stranger in the SSP, suggesting that there may have been some children who would have been more appropriately considered “false secure” (Marcovitch et al., 1997), in essence displaying “secure” behavior but with individuals they had just met.

Chisholm (1998) studied Romanian children after adoption from institutions in a home-based separation–reunion procedure. Children were assessed after living with their adoptive parents for an average of 39 months. Chisholm found that the majority of children adopted after 8 months of age had unusual, atypical insecure patterns of attachment when coded according to Crittenden’s Preschool Assessment of Attachment (1994).

In the Chisholm sample, measures of indiscriminate friendliness did not map well onto measures of security of attachment. Chisholm (1998) used parent responses on a questionnaire comprised of attachment-related items from the Attachment Q-Sort (Waters & Deane, 1985), a measure of indiscriminate friendliness, and the SSP to assess attachment. Although there is debate about the use of parent-report measures to examine many types of child behavior (Holden, 1995; LaGreca & Silverman, 1993), and parent report regarding attachment security has yet to be completely validated, it is interesting to note that scores of attachment security between these children and their adoptive mothers increased significantly between 11 and 39 months. Interestingly, levels of indiscriminately friendly behavior did not decrease over time and, in fact, remained significantly elevated compared to children adopted prior to 6 months of age and age-matched Canadian-born children.

O'Connor and his colleagues (2003) found that at age 6 years, following adoption into the United Kingdom out of Romanian institutions, 51% of children were classified as insecure/controlling or insecure/other, whereas only 17% of children adopted within the United Kingdom displayed these patterns. In addition, 36% of children adopted out of Romanian institutions compared to only 13% of children adopted within the United Kingdom exhibited nonnormative behavior in separations and reunions, such as extreme forms of emotional overexuberance, nervous excitement, silliness, coyness, and excessive playfulness more typical of a much younger child.

THE CLINICAL PERSPECTIVE: REACTIVE ATTACHMENT DISORDER

In contrast to the developmental perspective that considers the quality of a young child's attachment to a caregiver as a risk or protective factor for development of psychopathology, the clinical tradition considers that the attachment relationship may be so disturbed as to constitute an already established disorder. Reactive attachment disorder (RAD) describes a constellation of aberrant attachment behaviors and other social behavioral anomalies that are believed to result from "pathogenic care" (American Psychiatric Association, 2000, p. 130). Two clinical patterns have been described: (1) an emotionally withdrawn/inhibited pattern, in which the child exhibits limited or absent initiation or response to social interactions with caregivers, and a variety of aberrant social behaviors, such as inhibited, hypervigilant, or highly ambivalent reactions; and (2) an indiscriminately social/disinhibited pattern, in which the child exhibits lack of expectable selectivity in seeking comfort, support, and nurturance, with lack of social reticence with unfamiliar adults, including a willingness to "go off" with strangers.

Although it has been described formally in the psychiatric nosologies for nearly 25 years, RAD has been studied only recently. There are fewer than a dozen studies involving only seven samples of young children: two samples of internationally adopted children (Chisholm, 1998; Chisholm, Carter, Ames, & Morison, 1995; O'Connor, Bredenkamp, Rutter, and the English and Romanian Adoptees Study Team, 1999; O'Connor, Rutter, and the English and Romanian Adoptees Study Team, 2000; O'Connor et al., 2003); two samples of children currently institutionalized (Smyke, Dumitrescu, & Zeanah, 2002; Zeanah, Nelson, et al., 2003; Zeanah, Smyke, & Dumitrescu, 2002); one sample of maltreated toddlers (Zeanah et al., 2004); one sample of maltreated, homeless, and

young children attending Head Start (Boris et al., 2004); and one sample of clinic-referred toddlers (Boris, Zeanah, Larrieu, Scheeringa, & Heller, 1998).

Given that the data base is so small and so recent, it is not surprising that intervention efforts for RAD are largely unexplored. One may reasonably ask, Is there reason to believe that environmental enhancement leads to improvement? A few case reports do document substantial improvements in young children removed from severely neglecting environments and placed in foster care (Hinshaw-Fuselier, Boris, & Zeanah, 1999; Zeanah & Boris, 2000; Zeanah, Mammen, & Lieberman, 1993). Stovall and Dozier (2000) reported a descriptive study indicating that attachment behaviors in a small sample of young children became organized toward their new caregivers within days to weeks of placement in foster care. Although there was evidence of the development of attachment relationships between children adopted from institutions and their adopted parents (Chisholm, 1998; O'Connor et al., 2003), it was not known whether such children had developed attachment relationships in the institutional setting prior to adoption.

A recent study that does include assessments of children's attachment prior to removal from institutions and placement in foster care is the Bucharest Early Intervention Project (Zeanah et al., 2003). This project is described in detail later in this chapter.

TOWARD AN INTEGRATION OF THE CLINICAL AND THE DEVELOPMENTAL PERSPECTIVES

Clearly, there is a need to understand how the clinical and the developmental perspectives interrelate. In our assessment process, we use a combination of a developmental approach (e.g., the SSP to classify children's attachments as organized or disorganized) and a clinical approach (e.g., caregiver query regarding attachment disorder signs), as well as a third approach (ratings of the degree of attachment formation, as discussed earlier) in an attempt to more fully define the nature of attachment relationships between young at-risk children and their caregivers. Although we believe that the third of these approaches has promise to contribute a useful additional perspective on attachment disturbances in severely neglected children, it is premature to determine if it will provide an integration of the clinical and the developmental perspectives. This evaluation is a remaining challenge for attachment researchers, especially those interested in designing interventions for young children with disturbed attachments.

In the following sections, we describe the essential features of the

foster care interventions, targeting caregiver–child relationships, that we have developed in New Orleans and in Bucharest to facilitate attachment relationships in children with a history of serious neglect. As in our assessment process, the interventions were designed to encompass both a developmental perspective, in which we intended to promote the (re)development of healthy attachment relationships, and a clinical perspective, with the goal of reducing the incidence of attachment disorders.

NEW ORLEANS INTERVENTION FOR MALTREATED CHILDREN IN FOSTER CARE

The first foster care intervention to be discussed is an ongoing intervention program designed to address the developmental and mental health needs of children younger than 5 years old who have been maltreated and placed in foster care in New Orleans, Louisiana (Larrieu & Zeanah, 1998; Zeanah et al., 2001). The program is supported by the state government as a demonstration project, and has supplemental funding from private foundations. So far, more than 250 children/families have participated in this program. The program is staffed by a multidisciplinary team of faculty and trainees from a medical school division of child and adolescent psychiatry who have particular expertise in infant mental health. The staff includes psychiatrists, clinical and developmental psychologists, social workers, pediatricians, and paraprofessionals, all of whom have expertise in infant and child development and developmental psychopathology. The program works collaboratively with a variety of systems impacting the lives of infants and toddlers, including the legal, child welfare, educational, health-care, and mental health-care systems, to provide assessment and treatment for this high-risk sample. Outcome data for the program have revealed a 68% reduction in maltreatment recidivism for the same child and a 75% reduction in recidivism for a subsequent child of the same mother (Zeanah et al., 2001). This preventive approach clearly has the potential to impact a family's development long after the child is no longer in care.

As soon as possible after placement in care, young children referred to this program receive intensive assessments and multimodal treatments (Larrieu & Zeanah, 2004; Smyke, Wajda-Johnston, & Zeanah, 2004). Following placement in foster care, about half of these children are returned to their parents or relatives and about half are freed for adoption following voluntary or involuntary termination of parental rights (Zeanah et al., 2001). Thus, the program provides simultaneous assistance to the child and foster parent, who must coconstruct a new attachment relationship, and to the child and birth parents, with whom the child has a

disrupted and usually disturbed relationship. Elsewhere, we have addressed approaches to children's disturbed relationships with their birth parents (Larrieu & Zeanah, 2004). Here our focus is on building relationships between young children and their foster parents.

Therapeutic Goals of Intervention

A primary goal of our intervention with young foster children and their foster parents is to support them in building an attachment relationship between them. Even in cases in which the child is returned to his or her birth parents, foster placements are prolonged (generally 12–18 months), and so it is important for the child to have as healthy an attachment relationship with the foster parent as possible.

Building an attachment relationship means that the child comfortably and readily seeks comfort, support, nurturance, and protection from the caregiver in times of stress and distress. Attachment behaviors seem to appear within the first few days or weeks after the child arrives in the foster home (Stovall & Dozier, 2000), although it remains unclear how long is required for these behaviors to consolidate into a robust, fully developed attachment relationship. Particularly given our experiences with foster care in Romania, we are aware that the development of an attachment relationship is not an all-or-nothing phenomena and we look for signs, based on our 1–5 rating scale, that children are actively and affectively involved with their foster parents. In order to build a new attachment relationship between foster child and foster parents, however, it is necessary to identify and overcome various barriers to attachment in both children and parents.

Barriers to Attachment

Given the unusual circumstances that bring them together, both foster parents and the children in their care face significant barriers to attachment. Below, we consider these briefly as they relate to foster children and foster parents.

Barriers to Attachment Presented by Maltreated Young Children

Young children who are placed in foster care are disadvantaged in several ways. First, by definition, their relationships with their birth parents were sufficiently disturbed that their removal by the state was essential for their safety. Given the importance of caregiving relationships for young children's adaptation (Zeanah, Boris, & Lieberman, 2000), serious relationship disturbances that precede placement are likely to be

important contributors to difficulties in establishing new attachment relationships.

In fact, the constellation of risk factors with which these young children must contend is formidable. Most come from parents who are poor, with limited education and histories of erratic employment. Histories of psychiatric problems and substance use disorders also are common in parents, and the majority of parents have been arrested for a crime other than the child's maltreatment. Troubled relationship histories with parents' families of origin and partner violence with current and former partners also are quite common. The sheer number of, and interactions among, these risk factors place young maltreated children at considerable disadvantage.

For all of these reasons, developmental delays, especially speech and language impairment, and behavior problems are the rule rather than the exception for young children in foster care (Culp et al., 1991; Heller, Smyke, & Boris, 2002; Reams, 1999; Rosenfeld et al., 1997; Smyke et al., 2004). A range of regulatory, socioemotional, and developmental problems may actively interfere with the development of attachment relationships between maltreated or severely neglected children and their foster parents. See Table 9.1 for further delineation of some of these important and challenging issues (see also Dozier et al., Chapter 8, this volume and Putnam, Chapter 4, this volume).

A history of disruptions may increase the child's sense of relationship as inconsistent and undependable. Furthermore, some maltreated young children in foster care remain attached to their birth parents, albeit insecurely, despite harsh and inconsistent treatment, and this loyalty may complicate their developing relationships with their foster parents.

Histories of serious relationship disturbances and disruptions together with developmental and behavioral problems mean that young children placed in foster care bring their already disturbed expectations about relationships into their new relationships. Kaufman and Henrich (2000) noted that disturbances in interpersonal relatedness, disturbances in the sense of self, and emotion regulation problems are characteristics of young maltreated children. Each of these problems poses challenges for foster parents.

Barriers Presented by Foster Parents

Foster parents also may present barriers to forming healthy attachment relationships with young maltreated children. According to attachment theory, the caregiving system is a biobehavioral system in adults that is complementary to the attachment system in young children (Bowlby,

TABLE 9.1. Common Behavior Problems in Maltreated and Severely Deprived Infants and Toddlers

Problem	Maltreated children	Postinstitutionalized children
• Regulatory problems	• Extreme withdrawal • Severe temper tantrums • Easily frustrated • Poor attention	• Extreme withdrawal • Agitation • Constant activity • Easily frustrated • Stereotypies • Poor attention • Loudness/shouting • Temper tantrums
• Developmental problems	• Delayed speech/language • Fine/gross motor delays • Frequent mild cognitive delay	• Very poor speech/language • Fine/gross motor delays • Mild to significant cognitive delay • Autistic features • May persist
• Socioemotional problems	• Aggression • Indiscriminate behavior • Usually resolves quickly • Difficulty forming attachment without adult's help	• Aggression • Indiscriminate behavior • May persist • Difficulty forming attachment without adult's help
• Sleep problems	• Difficulty going to sleep • Difficulty staying asleep	• Nightmares
• Eating problems	• Overeating/stuffing	• Overeating/stuffing • Difficulty with complex textures • Marked food preferences (e.g., chocolate and bananas)
• Toileting problems	• Incomplete toilet training • Soiling of clothing, home • Bedwetting • Difficult to toilet train	• Refusal to use toilet (in institution, children routinely required to sit on toilet up to 2 hours) • Sometimes quite difficult to toilet train

1969/1982). This system governs a strong biological predisposition in adult caregivers to care for and protect young children. For many foster parents, particularly those who are fostering in order to build their families, these feelings are strong. Other foster parents, who may have begun fostering children during the era when they were told not to “get too attached,” may have a more distant and instrumental approach to the care of their young foster children. Furthermore, foster parenting involves money because foster parents typically receive a board rate for the child’s expenses such as food, clothing, and activities; the children that foster parents care for are unrelated; and most of the time foster parents do not have the children from birth. Finally, foster parents are aware that children are placed in care following disruptive and often traumatic events. All of these factors may interfere with the activation of the foster parents’ caregiving system.

How foster parents understand the young child’s previous experiences is an important issue. For example, if they view the child as “damaged goods,” they may remain emotionally distant and underinvolved. If they think the child “merely” needs structure and affection, they may become frustrated by the child’s challenging behaviors.

We pay particular attention to the meaning of the child to the foster parent, which we assess formally with a structured clinical interview (Zeanah, Benoit, & Barton, 1986). In this intervention program, qualitative features of foster parents’ narrative descriptions of the child and their relationship with the child have been strongly associated with foster parents’ behavior with the child and the child’s behavior with them (Zeanah, Aoki, Heller, & Larrieu, 1999). Along similar lines, foster parents’ attachment classifications derived from the Adult Attachment Interview have been associated with foster children’s symptomatology and sense of self (Dozier, Stovall, Albus, & Bates, 2001).

Closely related to the meaning of the child is the motivation for fostering. Loss is an inherent risk of foster parenting. Charged as they are with fully loving the children in their care and simultaneously being prepared to let them go is the essential challenge for foster parents. Any issues of unresolved loss about their own ability to produce biological children, from repeated attachments to and loss of foster children, or from losses of loved ones may complicate the ability of foster parents to form a healthy attachment relationship to the child.

Supports and Services

There is every reason to believe that a great deal hinges upon the quality of the attachment relationship that foster parents and their children de-

velop. Yet there are virtually no standards of care available to provide a basis for designing foster care as an intervention, although some programs have been implemented to foster the development of a relationship between foster child and foster parent (Dozier, Higley, Albus, & Nutter, 2002). In order to assist foster parents to become the “go to” person for the young child, we provide individualized interventions based upon the child’s age, the child’s clinical presentation, and the state of the child’s match with the foster parents.

In order to accomplish these goals, we have a small group of team members whose primary responsibility is to assess the young child in the context of foster care. This includes developmental and behavioral evaluations of the child, observations of the child in the home and in the childcare setting, and careful appraisal of the relationship between foster children and foster parents.

These efforts are informed by knowledge about the development of attachment in typical and atypical situations. In particular, we help foster parents provide the young child with a safe and predictable environment. Our goals include supporting foster parents in their efforts to learn to help the child in regulating emotions, to respond effectively to the child’s distress, and to understand the child’s signals, especially mis-cues. As noted above, young children whose experiences of important relationships have been inconsistent, confusing, and at times frightening may give signals to their caregivers that are, in turn, confusing (Marvin, Cooper, & Hoffman, 2002). For example, if a young child is ignored or punished when she expresses feelings of dependency toward her mother, she may learn to suppress any indication that she needs a caregiver. This child in foster care may look strong and independent, leading the foster parent to think that she is not needed. In point of fact, this young child desperately needs to be able to rely on a warm and consistent caregiver. Foster parents benefit from training in recognizing what young foster children actually need, not necessarily what they signal that they need (Dozier et al., 2002; Dozier et al., Chapter 8, this volume).

Even preschool children may exhibit provocative behaviors that elicit strong feelings of rejection in their caregivers. These behaviors may be oppositional/uncooperative, depressed/withdrawn, active/disorganized, and/or aggressive. Withdrawn children may be easily overlooked and ignored and also may give little back in the form of gratifying responses. Indiscriminate children may seem equally comfortable with unfamiliar as well as familiar caregivers and convey the impression that caregivers are interchangeable.

In addition to relying on our assessment teams, we maintain regular phone and visit contact with foster parents to determine their needs. To address such needs, we have conducted support groups for foster parents

and, occasionally, we provide short-term but regularly scheduled parent guidance sessions to address specific issues in the foster parent–foster child relationship.

THE BUCHAREST EARLY INTERVENTION PROJECT

This project aims to determine if foster care can ameliorate developmental problems in young children raised in institutions in Bucharest, Romania (Zeanah, Nelson, et al., 2003). In this study, 136 children in institutions were randomly assigned to continued care in institutions or to placement in foster care. Their development was assessed across multiple domains, including attachment, over time.

Many of the issues that we have addressed in our work with foster children and parents in New Orleans also required attention in our foster care network in Romania. In fact, the feelings with which foster parents contend are quite similar in the two settings, suggesting that the job of fostering young children is challenging across multiple contexts.

In Romania, we were invited to establish a foster care network in a setting in which there were no established models and in which foster care was unusual. This allowed us the opportunity to consider how best to design a program of foster care that could enhance the compromised development of postinstitutionalized young children. The Bucharest Early Intervention Project (BEIP) foster parents were trained initially by Romanians in Bucharest, using methods that had been previously developed there. Our contribution was to ground the approach to foster care there in principles consistent with attachment theory and research.

In many European countries, foster parenting is a full-time, salaried position. This is in contrast to foster care in the United States where subsidies accompany the child. Foster parents in our network in Romania received salaries; material support such as diapers, shoes, and clothing for their foster children; and also had access to a pediatrician on a 24-hour basis if they had concerns about the health of the foster child in their home.

Therapeutic Goals of Intervention

The goals of the BEIP in Romania were quite similar to the goals of the New Orleans project in the United States. That is, we attempted to facilitate a secure attachment between young children and their foster parents. The uncertainty of the placement in Bucharest is, if anything, even more marked than in the United States. The BEIP investigators pledged not to interfere with decisions about placement that the Romanian

National Authority on Child Protection was charged with making. As a result, children have been adopted domestically or returned to their birth families, and sometimes these changes have occurred without a predictable sequence of events leading to a permanent plan.

Barriers to Attachment

Much as building healthy attachment relationships is similar in the two settings in which we work, so too are the barriers that complicate the development of attachments. In addition to the uncertainty of outcomes noted above, foster parents in Romania also have a variety of motivations for fostering and a number of different ways of interpreting the behavior of postinstitutionalized children. Foster care is often criticized in the popular media in the United States and harshly critiqued in academic circles (Child Abuse Prevention and Treatment Act, 2001). In Romania, foster care is regarded with suspicion, and the motives of foster parents may be assumed to be less than altruistic by their neighbors and friends (Zeanah, Nelson, et al., 2003). In the United States, foster parents are often assumed to be “in it for the money” (Heller et al., 2002), a notion that also is expressed about Romanian foster parents—sometimes by the very child protection professionals who are charged with supervising them.

Young postinstitutionalized children in Romania present a variety of complex and challenging behaviors that are even greater than those displayed by maltreated children in the United States, though there are a number of similarities. These problems are presented in Table 9.1. In addition, similar to New Orleans foster parents, foster parents in Romania did not like to mention when they were having difficulty with a child's behavior because they thought that they would be judged as inadequate (Heller et al., 2002).

Difficult child behaviors, the children's histories of institutionalization, parents' hesitance to disclose problems, and community attitudes all served as barriers to attachment. As in the United States, BEIP social workers worked to reinterpret miscues about these children's needs with foster parents, as well as to help them to appreciate how dramatic environmental changes accompanying placement might be experienced as confusing and disorganizing for many of the children.

Issues regarding children of Roma ethnicity also proved problematic in the Romanian setting. Individuals of Roma, or Gypsy, ethnicity are found throughout Europe. Their ancestors migrated from India in the Middle Ages, and they are ethnically and linguistically distinct from ethnically European individuals. A great deal of prejudice against Roma exists among dominant cultures throughout Europe (European Roma

Rights Center, 2001). Although the Roma people comprise only about 5–10% of the population, Roma children comprised approximately 30% of the BEIP sample, reflecting their overrepresentation among children in institutions. Roma children are widely believed by professionals working with them to be more difficult to place and especially to have more difficulty in being adopted than ethnically Romanian children. Anecdotal observations within our foster care network suggest that Roma ethnicity does not appear to have impacted foster parents' ability to establish attachment relationships with their foster children. The impact of Roma ethnicity has been noted, though, more often when foster parents cite this as a reason for poor child behavior. For example, a 3-year-old Roma child who was curious about the purses of other riders on the bus was thought to be exhibiting her Roma tendency to petty thievery.

Supports and Services

The BEIP Foster Care Team consisted of three social workers who carefully monitored the foster parents in the network. They visited families every 10–14 days and inquired about the child's adjustment, the child's overall development and behavior, and any concerns that the foster parent had about her foster child. Social workers also monitored the development of the relationship between the foster child and his or her caregiver and referred dyads for intervention if there were concerns. They regularly acknowledged to foster parents that they faced unique challenges in caring for these young postinstitutionalized children, thus "normalizing" the experience for them.

Several types of interventions were implemented, including both developmental stimulation and behavioral interventions. For example, the BEIP social workers encouraged play as a way to stimulate social interaction in these young children. Similarly, because infants and toddlers with language delays in Romania typically do not have access to speech and language evaluation and therapy, we began a caregiver–child group that was comprised of four to six dyads. For this group, we used a curriculum that stressed communicative behavior such as turn taking, imitation, and pretend play (Academic Communication Associates, 1999). During the sessions, foster parents received information on a given skill and were encouraged to practice that skill with their child during the next week.

Methods of time-out and distraction, as well as ways to anticipate and avoid frustration, were discussed with foster parents. They were notified before a child was assigned to them that physical punishment of the child was unacceptable. A detailed survey commissioned by the Romanian National Authority on Child Protection indicated that many

institutionalized children have experienced corporal punishment (Stativa, Tabacaru, Stanescu, & Simion, 2000). The BEIP social workers indicated that many foster parents had used corporal punishment with their own children, but they agreed to the prohibition of corporal punishment with their foster children.

In an effort to give foster parents multiple sources of support, a foster parent support group was initiated. In this group, eight to 10 foster mothers met to discuss the challenges and joys of foster parenting. It was in this setting that team personnel began to fully understand the degree of loss that some of the foster parents had experienced as a result of caring for a child who came out of an institution, lived with them for 6 months, and was then sent off for international adoption. Foster parents truly loved these children and were devastated when they had no idea where a given international adoptee was being sent and realized that they were unlikely to ever have any more contact with the child.

Parallel Processes in Foster Care

Our goal in our interactions with the foster care team staff was to model and then to develop relationships that were marked by respect and trust, thereby actively implementing a model of positive parallel process. We hoped that the social workers and psychologists would work with their clients, the foster mothers and their children, in such a way that respect and trust became the qualities expected to guide their interactions. In turn, we hoped that foster parents would work to develop relationships with their foster children that were characterized by love, affection, and trust. This model of “parallel process” within the supervisory process was one that we had grown accustomed to in our supervisory experiences in the United States (Sumerel, 1994), but that were new to Romania.

As we began the project, we quickly noted that many of the problems that arose, for both the foster children and their caregivers, needed to be addressed. We thus began weekly telephone supervision of the study personnel. We soon recognized that the social workers of the foster care team and the psychologists conducting the interventions would benefit from separate group consultations. Thus, twice-weekly telephone supervision was scheduled during which staff could ask about issues ranging from implementation of a behavioral program to techniques for discussing difficult issues with foster parents. Romanian staff were unfamiliar with a supervisory model that was supportive rather than administrative, so some time passed before sufficient trust could be formed to manage some of the challenging feelings that arose for staff as they did this work. Like the foster care network, the supervisory model was con-

ceptualized as occurring within an attachment framework. That is, the supervisor, located in the United States, made an effort to establish trust with the team by providing information but also by valuing the input of the individuals “on the ground.” We tried to communicate a model to intervention personnel that encouraged proactive engagement with a focus on collaboration rather than evaluation. It took some time before team personnel allowed themselves to trust that they were not being evaluated.

In turn, we encouraged study personnel, particularly the social workers on the foster care team, to support and monitor the foster parents in a way that would allow for the development of trust and respect. Foster parents were valued for their ability to provide important input regarding the emotional, cognitive, and behavioral development of the young child in their care. As in the supervisory relationship, the social workers were encouraged to provide needed information but also to be open to input from the foster parents. Our hope was that this would in turn inspire proactive engagement on the part of the foster parent. We were, after all, encouraging them to make a psychological investment in their young foster children, and to treat the children as their own. If they responded with warmth and respect to the needs of their young charges, then the parallel process was in place. We wanted foster parents to share a relationship with the social worker that was one of collaboration rather than of evaluation.

Many parents were able to build a trusting relationship with their social worker. They felt comfortable calling their social worker when they had concerns. The social worker was not always able to “fix” the problem but, as with foster parents in the United States, and parents in general, a discussion of the problem with a trusted person was often enough to allay their fears. There were many cultural aspects of life in this formerly communist nation that worked against the establishment of such a parallel process and there were not always successes. The introduction of this model, however, was an important step for the social workers and for the foster parents. Personnel in the traditional child protection system in the city often commented, sometimes with awe, sometimes with confusion, that the foster parents were devoted to their children, and to their BEIP social workers. They were shocked that foster parents would consider adoption of their foster children, an idea that represented a loss of income because the foster parent would then be out of a job. The attachment framework of the intervention highlighted the importance of the relationship between the foster parent and her child and, in fact, many foster parents embraced this approach.

Preliminary results indicate significant reduction of emotionally withdrawn/inhibited and indiscriminately social/disinhibited signs of

RAD in children placed in foster care (Zeanah, Nelson, et al., 2003). After an average of 18 months of placement, signs of emotionally withdrawn/inhibited RAD in formerly institutionalized children were not significantly different from those in never institutionalized community children. Although reductions in indiscriminate/disinhibited RAD were reduced by placement in families, after 18 months in care, formerly institutionalized children still exhibited higher levels of indiscriminate behavior than never institutionalized children.

CONCLUSIONS

The study of maltreated and severely deprived young children from different but markedly challenging environments may help us to bridge the gap between the developmental and clinical perspectives on attachment. As our understanding of, and ability to identify, disturbances and disorders of attachment become better developed, it is clear that the traditional concept of attachment disorganization, as formulated within developmental psychology, cannot fully articulate the marked complexity of these disorders, particularly in extreme populations. Further, once recognized, it appears that improvement in a young child's caregiving environment serves to reduce signs of attachment disorder, particularly for RAD emotionally withdrawn/inhibited. Signs of RAD indiscriminantly social/disinhibited also decrease with environmental enhancement but may be more likely to persist, for a longer period of time, than those of RAD emotionally withdrawn/inhibited.

As we pursue our goal of bridging the divide between clinical and developmental perspectives, we are currently focusing on two tasks. The first is improving our understanding of when interventions with caregivers and young children are necessary to ensure the child's well-being. Our second task is developing an understanding of the best methods by which to address the barriers presented by young children and the adults in their lives as they strive to create an attachment relationship that will serve as a foundation for the young child's later socioemotional health and happiness.

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The Nurse–Family Partnership

Foundations in Attachment Theory and Epidemiology

David L. Olds

Since 1977, my colleagues and I have developed, tested, and refined a program of prenatal and infancy home visiting by nurses known as the Nurse–Family Partnership (NFP). The NFP is for low-income parents in which the mother has had no previous live birth. The nurses have three major goals: (1) to improve the outcomes of pregnancy by helping women improve their health-related behaviors; (2) to improve the child's health and development by helping parents provide more competent care of the child; and (3) to improve parents' own personal development by helping develop a vision for their futures and helping them make constructive decisions about the timing of subsequent births, staying in school, and finding work. This program has been grounded in theory, epidemiology, and the clinical insight and wisdom of numerous talented colleagues.

This book is devoted to interventions grounded in attachment theory. The NFP has been significantly influenced by attachment theory, with a focus on promoting sensitive and responsive parenting and also on promoting a sense of shared joy and regulation in the parent–child relationship. I began this work in the 1970s, however, with a realization that attachment theory provided an insufficient foundation for guiding the development of an intervention for low-income parents, or those for whom parenting is complicated by stressors external to the parent–child dyad. Single theories almost inevitably focus attention on just part of the

set of influences that shape the health and well-being of the developing child. For example, attachment theory says little about family or neighborhood contextual factors that can play important roles in shaping the nature of dyadic interaction between parents and children. And it provides an insufficient basis for prescribing actions that service providers can conduct to bring about reliable behavior change, especially when parents' intrinsic motivation for empathizing with their children or responding to their child's cues can be compromised by parents' histories of abusive or neglectful relationships with their own parents or with their own partners.

Finally, theory provides no more than a framework for the development of interventions. Specific risk and protective factors that are malleable and that show promise in altering the life course trajectories of individuals, from a preventive perspective, can be more precisely determined with a comprehensive review of the epidemiological evidence. In designing the NFP, I was impressed with the role that prenatal factors, for example, could play in shaping the biological integrity of the child's developing nervous system and the role that perturbations in neurological integrity could play in shaping the degree to which the newborn would be experienced as an aversive versus a pleasant partner in the parent-child relationship. Similarly, our team became aware of the central role that the timing of subsequent pregnancies could have on parents' abilities to focus attention on the care of the firstborn. The success of attachment-guided interventions, in our view, would depend upon the degree to which the intervention was able to alter these other critical aspects of the environment and the developing organism.

As a result, we developed a program model that was grounded in the health care delivery system and that simultaneously focused on improving the prenatal and postnatal health and development of the child, the prevention of child abuse and neglect, and the promotion of parents' economic self-sufficiency and personal development. This approach to preventive intervention was grounded in my personal experience as a daycare teacher in inner-city Baltimore in the early 1970s.

After finishing college, I worked in an inner-city daycare center for low-income children, where I taught a classroom of 4-year-olds and arranged parent groups that met at naptime to address their concerns about their children's needs. I approached this work with the hope that if I provided a more nurturing and cognitively stimulating classroom environment for the children and helped their parents support one another, their children would have better prospects in life. And while the classroom environment was indeed enriching and many parents valued meeting during naptime, it soon became clear to me that for many children a supportive preschool environment was simply too little and too late.

One little boy in my classroom was the victim of child abuse and was withdrawn and fearful. His mother would beat him if he wet himself during naptime. So during naptime he would lie awake, afraid to sleep, while the other children napped. His mother never attended the parent group sessions. Another boy had profound language delays and communicated by gesturing. He was cared for by a heroic grandmother who faithfully attended the parent group meetings. This boy's biological mother had abused drugs and alcohol during pregnancy and had abandoned him before his grandmother gained custody. We suspected that his profound language problems were the result of his prenatal exposure to toxicants during pregnancy.

A program that begins when children reach preschool could not prevent these damaging earlier experiences. Moreover, the children were growing up in neighborhoods devastated by drugs, crime, and limited employment opportunities; they and their parents had almost no personal experiences or models within the community to give them hope for a better life. These firsthand experiences with children and families living in poverty have shaped my career since then.

Interventions would gain strength, I reasoned, if they were able to reduce biological risks for children's compromised neurological development during pregnancy and if they reduced critical contextual risks for maladaptive child and family functioning. Moreover, I believed that neither human ecology theory nor attachment theory provided a solid theoretical basis for guiding adaptive behavioral change. They were essentially theories of development, but with no firm basis for how one might reliably bring about changes in women's prenatal health, parenting, or family circumstances. We needed a theory of motivation and behavioral change, and for this our team turned to Bandura's (1977) self-efficacy theory.

Finding the balance between focusing on the promotion of caregiving that will lead to secure attachment versus responding to critical contextual pressures facing the family is a challenge that most early preventive interventions for vulnerable families must address. Parents living in poverty and those with multiple stressors must divide their resources between focusing on the emotional needs of their infants and responding to factors external to the parent–child dyad that can interfere with their abilities to care competently for their children (such as meeting the next rent payment and dealing with violent partners). How programs address this fundamental challenge is crucial. Without a clear delineation of program goals, objectives, and procedures, service providers can lose their focus in responding to the multiplicity of family needs. Service providers need guidance in setting priorities. Attempting to respond to all of the stressors faced by families can dilute the program, leaving little time for

addressing proximal risk and protective factors that theoretically influence the outcome of interest. On the other hand, programs that focus solely on the promotion of sensitive and competent caregiving in the context of households with domestic violence, substance abuse, mental illness, or extreme financial deprivation are likely to have limited impact.

Throughout the history of this program, we have been deeply concerned that the program make sense to parents and that they find it worthy of investment of their time. It would need to resonate with their views of the world and their beliefs about what was needed to ensure their children's healthy development and that they believe that it would reduce their sense of vulnerability about their pregnancy, labor, delivery, and early care of the child, a concern addressed most cogently with the Health-Belief Model, which I describe below. With this set of concerns in mind, I drafted the first version of the NFP, which we originally tested in Elmira, New York, through a nonprofit organization known as Comprehensive Interdisciplinary Developmental Services.

While having good theory is an important ingredient for effective preventive intervention, having a solid empirical grasp of important risks and protective factors for compromised health and development would help focus the intervention on those factors that theory and evidence indicate are likely to leverage the greatest positive change in the life course trajectories of the children and families we wished to help. The approach we developed ties together traditional epidemiology with developmental theory (Kellam & Werthamer-Larsson, 1986).

Evidence of the effectiveness of early center-based interventions for preschoolers (Darlington, Royce, Snipper, Murray, & Lazar, 1980) was just beginning to emerge when we began this work in 1976, but there was virtually no convincing evidence on the effectiveness of home visiting programs. If we were really going to make a difference in the lives of children and families, we would need to know whether the intervention really worked. The only way to answer this question reliably was to test its effectiveness in the form of a randomized controlled trial. The growth of the NFP in recent years as a credible preventive intervention rests entirely on its having replicated evidence of effectiveness in affecting socially and clinically important outcomes in separate randomized controlled trials, with different populations, living in different contexts, and at different points in our country's history.

This chapter describes the empirical and theoretical foundations upon which this program of research was founded, the design of the program, the major findings from the trials, and our recent response to offering the program for public investment outside of research contexts.

A THEORY-DRIVEN, RESEARCH-BASED MODEL

Theory-Driven

As noted above, the NFP is grounded in theories of human ecology (Bronfenbrenner, 1979, 1995), self-efficacy (Bandura, 1977), and human attachment (Bowlby, 1969). Together, these theories emphasize the importance of families' social context and individuals' beliefs, motivations, emotions, and internal representations of their experience in explaining the development of behavior.

Human ecology theory emphasizes that children's development is influenced by how their parents care for them, and that, in turn, is influenced by characteristics of their families, social networks, neighborhoods, communities, and the interrelations among them (Bronfenbrenner, 1979). Drawing from this theory, nurses attempt to enhance the material and social environment of the family by involving other family members, especially fathers, in the home visits, and by linking families with needed health and human services.

Parents help select and shape the settings in which they find themselves, however (Plomin, 1986). Self-efficacy theory provides a useful framework for understanding how women make decisions about their health-related behaviors during pregnancy, their care of their children, and their own personal development. This theory posits that individuals choose those behaviors that they believe will lead to a given outcome and that they can carry out successfully (Bandura, 1977). Individuals' perceptions of self-efficacy can influence their choices and can determine how much effort they put forth in the face of obstacles.

First, the curriculum is designed to help women understand what is known about the influence of particular behaviors on their own health and on the health and development of their babies. The program guidelines are updated periodically to reflect the most recent evidence regarding influences on family and child health. Second, the home visitors help parents establish realistic goals and small achievable objectives that, once accomplished, increase parents' reservoir of successful experiences. These successes increase their confidence in taking on larger challenges.

Third, the program is based on attachment theory, which posits that infants are biologically predisposed to seek proximity to specific caregivers in times of stress, illness, or fatigue in order to promote survival (Bowlby, 1969). Attachment theory hypothesizes that children's trust in the world and their later capacity for empathy and responsiveness to their own children once they become parents is influenced by the degree to which they formed an attachment with a caring, responsive, and sensitive adult when they were growing up, which affects their internal representations of themselves and their relationships with others (Main,

Kaplan, & Cassidy, 1985). Parents with histories of abuse or neglect, intimate partner violence, or failed interpersonal relationships are at particular risk for having difficulty caring competently for their children because, according to attachment theory, the models of interpersonal relationships they have acquired as a result of their own experience lead them to doubt their own value and to be at greater risk for misinterpreting their infants' communicative signals (Main et al., 1985).

The program therefore explicitly promotes sensitive, responsive, and engaged caregiving in the early years of the child's life (Barnard, 1990; Dolezol & Butterfield, 1994). In addition, home visitors help mothers and other caregivers review their own childrearing histories and make decisions about how they wish to care for their children in light of the way they themselves were cared for as children. Finally, the visitors seek to develop an empathic and trusting relationship with the mother and other family members because experience in such a relationship is expected to help women eventually trust others and to promote more sensitive and empathic care of their children. To the extent that the nurse's relationship with parents (primarily the mother) is characterized by deep appreciation for mothers' needs and assistance in helping mothers gain control over a host of challenges that are of concern to them, the nurse will demonstrate the essence of an effective attachment relationship. In theory, this will make it easier for parents to understand what the program is designed to accomplish with respect to their care of their infants. (See also Berlin, Chapter 1, this volume, for further discussion of the parent's attachment to the intervenor as a key agent of therapeutic change.)

Research-Based

Developmental and epidemiological research has guided decisions about the families to be served and the content of the program. All of the studies have examined program impact with women who have had no previous live births, and each has focused recruitment on women who were low income, unmarried, and adolescents. The primary difference among the studies is that in the first trial in Elmira, New York, any woman bearing a first child was allowed to register, although those who were poor, unmarried, and teens were actively recruited. Women with these characteristics were recruited because the problems the program was designed to address (e.g., poor birth outcomes, compromised child health and development, and diminished economic self-sufficiency of parents) are concentrated in those populations (Elster & McAnarney, 1980; Furstenberg, Brooks-Gunn, & Morgan, 1987; Overpeck, Brenner, Trumble, Trifiletti, & Berendes, 1998). In addition, program effects in Elmira were greater for the higher risk families (those who were low income

and unmarried), so the subsequent Memphis and Denver trials focused recruitment more exclusively on those with these overlapping risks.

All three of the trials focused on women who had no previous live births because we hypothesized that primiparous women would be more receptive to home visitation services concerning pregnancy and child-rearing than would women who had already given birth. Moreover, as parents learn to care for themselves and their firstborn children, they should be better able to care for subsequent children, increasing the public health impact of the program. Finally, if the program helped parents plan subsequent births, then it would be easier for parents to finish their educations and find work because of fewer problems with childcare (Furstenberg, et al., 1987), and the children would benefit from more focused parental support and guidance (Tygart, 1991).

The content of the program is also research-based. The program seeks to modify specific risks and protective factors associated with the negative outcomes the program seeks to address: poor birth outcomes, child health and developmental problems, and compromised parental life course. Figure 10.1 summarizes how these influences are thought to reinforce one another over time. On the far left of this figure we note the three broad domains of proximal risks and protective factors the program was designed to affect: prenatal health-related behaviors; sensitive, competent care of the child; and early parental life course (pregnancy planning, parents' completion of their educations, parents finding work, and fathers' involvement in the lives of their children). The middle set of outcomes reflects corresponding child and parental outcomes that the program was designed to influence: birth outcomes (obstetric complications, preterm delivery, and low birthweight); child abuse, neglect, and unintentional injuries; child neurodevelopmental impairment (perturbations in emotional, behavioral, and cognitive development); and later parental life course (family economic self-sufficiency, welfare dependence, maternal substance abuse). On the far right, we show child and adolescent outcomes that the program might affect years after completion of the program at child age 2, including school failure, antisocial behavior, and substance abuse. Part of the program effect on adolescent functioning is thought to be affected by reducing children's exposure and susceptibility to negative peer influences.

Each of the major domains of proximal influences is discussed in greater depth below.

Prenatal Health Behaviors: Modifiable Risks for Poor Birth Outcomes and Child Neurodevelopmental Impairment

Prenatal exposure to tobacco, alcohol, and illegal drugs are established risks for poor fetal growth (Kramer, 1987) and, to a lesser extent, for

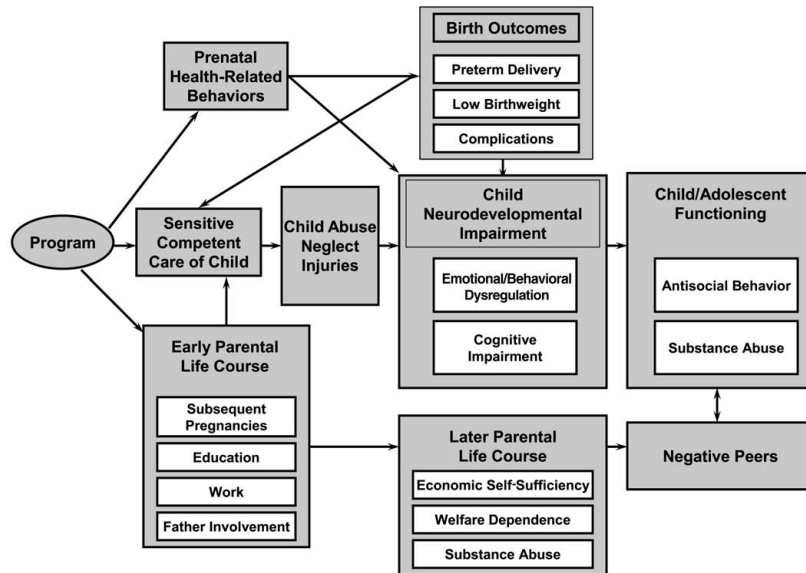


FIGURE 10.1. Conceptual model of program influences on maternal and child health and development.

preterm birth (Kramer, 1987) and neurodevelopmental impairment (such as attention-deficit/hyperactivity disorder, or poor cognitive and language development) (Fried, Watkinson, & Dillon, 1987; Mayes, 1994; Milberger, Biederman, Faraone, Chen, & Jones, 1996; Olds, 1997; Olds, Henderson, & Tatelbaum, 1994a, 1994b; Streissguth, Sampson, Barr, Bookstein, & Olson, 1994). In all three trials, the home visitors therefore sought to reduce mothers' use of these substances. The prenatal protocols also address other behavioral factors that increase the risk for low birthweight, preterm delivery, and poor child development: inadequate weight gain (Institute of Medicine, 1990), inadequate diet (Institute of Medicine, 1990), inadequate use of office-based prenatal care (Klein & Goldenberg, 1990), and early identification and treatment of obstetric complications, such as genitourinary tract infections and hypertensive disorders (high blood pressure) (Klein & Goldenberg, 1990).

Sensitive, Competent Care of the Child: Modifiable Risks for Child Abuse and Neglect and Injuries to Children

Parents who empathize with their infants and sensitively read and respond to their babies' communicative signals are less likely to abuse or

neglect their children and they are more likely to perceive their children's developmental competencies accurately, leading to fewer unintentional injuries (Peterson & Gable, 1998). While it makes sense to target these proximal behaviors, it is helpful to understand and address the general sets of influences that affect parents' abilities to care for their children. We have hypothesized that these influences on parenting skills can be moderated with targeted intervention strategies.

Parents' caregiving skills are affected by both their personal histories and their current context. Parents who grew up in households with punitive, rejecting, abusive, or neglectful caregiving are more likely to abuse or neglect their own children (Egeland, Jacobvitz, & Sroufe, 1988; Quinton & Rutter, 1984; Rutter, 1989). Parents' psychological immaturity and mental health problems can reduce their ability to care for their infants (Newberger & White, 1990; Saner, 1983). While it is impossible to change parents' personal histories and it is very difficult to reduce personal immaturity and mental illness, as indicated below, the program has sought to mitigate the effect of these influences on parents' caregiving. In addition, unemployment (Gil, 1970), poor housing and household conditions (Gil, 1970), marital discord (Belsky, 1981), and isolation from supportive family members and friends (Garbarino, 1981) are all associated with higher rates of abuse and neglect, perhaps because they create stressful conditions in the household that interfere with parents' ability to care for their children (Bakan, 1971). As noted below, the program is designed to improve parents' economic self-sufficiency, help parents find safe housing, improve partner communication and commitment, and reduce social isolation.

Moreover, recent evidence suggests that children's characteristics may affect the degree to which their parents care for them competently. Children born with subtle neurological perturbations resulting from prenatal exposure to substances such as tobacco and alcohol and maternal stress and anxiety during pregnancy are more likely to be irritable and inconsolable and to have difficulty habituating to auditory stimuli in the first few weeks of life (Clark, Soto, Bergholz, & Schneider, 1996; Saxon, 1978; Streissguth et al., 1994), and those exposed to tobacco during pregnancy are at greater risk for developing cholic (Shenassa & Brown, 2004) and for having exacerbations of the terrible 2's, making it more difficult for parents to find enjoyment in their care. Children with attention-deficit/hyperactivity disorder are at increased risk for becoming seriously injured (DiScala, Lescohier, Barthel, & Li, 1998), a link that may be explained in part by the difficulties parents may have with regulating and guiding their children's behavior. Thus these child characteristics (which are affected to some degree by the quality of the uterine environment) may contribute to parents' abilities to become competent parents.

Parents who are mature, married to supportive spouses, have adequate incomes, and few external stressors are more likely to manage the care of difficult newborns better than those parents without these resources. Unfortunately, children with subtle neurological vulnerabilities are more likely to be born into households where these salutary conditions are absent, multiplying the likelihood that caregiving will be compromised.

Early Parental Life Course (Subsequent Pregnancies, Education, Work, and Father Involvement): Modifiable Risks for Compromised Maternal Life Course Development

One of the major risks for compromised maternal educational achievement and workforce participation is rapid, successive pregnancies, particularly among unmarried women (Furstenberg et al., 1987). Such pregnancies often occur when women have limited visions for their futures in the areas of education and work (Musick, 1993), as well as a limited belief in their control over their life circumstances and over their contraceptive practices in particular (Brafford & Beck, 1991; Heinrich, 1993; Levinson, 1986).

One of the more significant questions that young mothers must address is the role that the child's father will play in their lives. As indicated below, the program actively promotes fathers' involvement with their partners and children. In most cases, fathers are eager to be supportive partners and providers for their children. In some cases, they are ambivalent, unprepared, abusive, and/or involved in criminal activities. While couples who are married are more likely to achieve economic self-sufficiency and their children are at lower risk for a host of problems (McLanahan & Carlson, 2002), it would be a mistake to conclude that simply promoting marriage for unmarried pregnant women is the right approach, without considering the quality of the possible relationship. These decisions are complex and require careful consideration of whether the father (or other prospective partner) can be a supportive spouse and a positive caregiver.

To the extent that families improve their economic conditions over time, they are less likely to live in unsafe crime-ridden neighborhoods where children are exposed to negative peer influences. But even if children are exposed to negative peers, nurse-visited children are less likely to be susceptible to those negative influences because they will have stronger relationships with their parents, which will have helped them develop a stronger moral core (Emde & Buchsbaum, 1990).

The young women consult with nurses as they make these significant life-shaping decisions. In all of this, the nurses help women envision a future consistent with their deepest values and aspirations; they help

women evaluate different contraceptive methods, childcare options, and career choices; and they help women develop concrete plans for achieving their goals.

Early Life Course Modifiable Risks for Early-Onset Antisocial Behavior

Many of the factors listed above are risk factors for early-onset antisocial behavior (Olds, 1997; Olds, Pettitt, et al., 1998; Olds et al., 1997), a type of disruptive behavior that frequently characterizes children who grow up to become violent adolescents and sometimes chronic offenders (Moffitt, 1993; Raine, Brennan, & Mednick, 1994). For example, children who develop early-onset disorder are more likely to have subtle neurodevelopmental deficits (sometimes due to poor prenatal health) (Milberger, et al., 1996; Olds, 1997; Streissguth et al., 1994; Wakschlag et al., 1997) combined with abusive and rejecting care early in life (Moffitt, 1993; Raine et al., 1994). Recent evidence indicates that prenatal tobacco exposure is a unique risk for conduct disorder and youth crime (Brennan, Grekin, & Mednick, 1999; Wakschlag et al., 1997). Adverse prenatal influences on fetal neurological development are sometimes exacerbated by adverse postnatal experiences. Children who have been abused are more likely to develop negative attributional biases that make them more likely to interpret ambiguous behaviors on the part of others as threatening (Dodge, Bates, & Pettit, 1990) and to have internal representations of interpersonal relationships characterized by dysregulated aggression and violence (Buchsbaum, Toth, Clyman, Cicchetti, & Emde, 1992), both of which probably reflect an adaptive neurological response to a threatening world (Teicher, 2000). They are more likely to come from large families, with closely spaced children (Tygart, 1991), where parents themselves are involved in substance abuse and criminal behavior (Moffitt, 1993).

PROGRAM DESIGN

The program design employed in the Elmira, Memphis, and Denver trials has remained essentially the same in each of the trials.

Frequency of Visitation

The recommended frequency of home visits changed with the stages of pregnancy and was adapted to the parents' needs. When parents were experiencing crises, the nurses were allowed to visit more frequently. Mothers were enrolled through the end of the second trimester of preg-

nancy. In Elmira, Memphis, and Denver the nurses completed an average of nine (Elmira: range 0–16), seven (Memphis: range 0–18), and seven (Denver: range 0–15) visits during pregnancy, respectively; and 23 (Elmira: range 0–59), 26 (Memphis: range 0–71), and 21 (Denver: range 0–63) visits from birth to the child's second birthday, respectively. Each visit lasted approximately 75–90 minutes. Analyses of factors associated with frequency of visitation have revealed that the nurses completed substantially more visits with women who had few coping resources (limited belief in their control over their life circumstances in Elmira; limited psychological resources, limited intellectual functioning, high levels of mental health symptoms, and limited control beliefs in Memphis) than they did with women who had greater coping resources. This is probably because the nurses recognized these women's greater need for help (Olds & Korfmacher, 1997). That pattern did not hold, however, in the Denver trial.

Nurses as Home Visitors

Nurses were selected to be the home visitors because of their formal training in women's and children's health and their competence in managing the complex clinical situations often presented by at-risk families. Nurses' abilities to competently address mothers' and family members' concerns about the complications of pregnancy, labor, and delivery, and the physical health of the infant, are thought to provide nurses with increased credibility and persuasive power in the eyes of family members. Nurses probably have additional persuasive power because the public views them as having the highest standards of ethics and honesty of all professionals (Gallup Organization, 2000). In addition, through their ability to teach mothers and family members to identify emerging health problems and to use the health-care system, nurses enhance their clinical effect through the early detection and treatment of disorders.

Program Content

During the home visits, the nurses carried out three major activities: (1) they promoted improvements in women's (and other family members') behavior thought to affect pregnancy outcomes, the health and development of the child, and parents' life course; (2) they helped women build supportive relationships with family members and friends; and (3) they linked women and their family members with other needed health and human services.

The nurses followed detailed visit-by-visit guidelines whose content reflects the challenges parents are likely to confront during specific

stages of pregnancy and the first 2 years of the child's life. Specific assessments were made of maternal, child, and family functioning that correspond to those stages, and specific activities were recommended to address problems and strengths identified through the assessments.

During pregnancy, the nurses helped women complete 24-hour diet histories on a regular basis and plot weight gains at every visit; they also assessed the women's cigarette smoking and use of alcohol and illegal drugs and facilitated a reduction in the use of these substances through behavioral change strategies. They taught women to identify the signs and symptoms of pregnancy complications, encouraged women to inform the office-based staff about those conditions, and facilitated compliance with treatment. They gave particular attention to urinary tract infections, sexually transmitted diseases, and hypertensive disorders of pregnancy (all these conditions are associated with poor birth outcomes). They coordinated care with physicians and nurses in the office and measured blood pressure when needed.

After delivery, the nurses helped mothers and other caregivers improve the physical and emotional care of their children. They taught parents to observe the signs of illness, to take temperatures, and to communicate with office staff about their children's illnesses before seeking care. Curricula were employed to promote parent–child interaction by facilitating parents' understanding of their infants' and toddlers' communicative signals, enhancing parents' interest in playing with their children in ways that promote emotional and cognitive development, and creating households that are safer for children. In the Elmira program, the nurses taught parents to understand their infants' individual temperaments and to learn how to imagine the world from their babies' perspectives. The nurses were particularly concerned about helping parents develop realistic expectations for their babies' development so they would have accurate understandings of their babies' needs and ways of communicating. These topics continued to be central parts of the program as it was replicated in the Memphis trial and they were augmented with materials that focused on helping parents promote their infants' cognitive development using Sparling's Learninggames (Sparling & Lewis, 1984). In the Denver trial, the nurses employed the Partners in Parenting Education (PIPE) program (Dolezol & Butterfield, 1994) as a way of helping parents gain an empathic appreciation for their infants' needs and ways of engaging their infants in joyful, regulated play and interaction through simple interactive games and observations of their babies.

It is important to note that the nurses promoted methods of child discipline that did not rely upon corporal punishment, but did not actively interfere with parents' spanking or slapping their toddlers' hands as long as these discipline strategies were part of a coherent and other-

wise supportive parent–child relationship. We took this stance because of our commitment to making the program consistent with the basic values and beliefs of the parents we served and because many parents believed that spanking was a sign of effective parenting. We decided to focus on promoting parent empathy and responsiveness to the child’s communications, rather than admonishing parents for spanking, which we thought would lead us to lose parents because we would be perceived as being out of touch with their beliefs about what their toddlers needed.

OVERVIEW OF RESEARCH DESIGNS, METHODS, AND FINDINGS

In each of the three studies, women were randomized to receive either home visitation services during pregnancy and the first 2 years of their children’s lives or comparison services. While the nature of the home visitation services was essentially the same in each of the trials as described above, the comparison services were slightly different (consisting of developmental screening and free transportation for regular prenatal and well-child care in Elmira, screening and transportation for prenatal care in Memphis, and screening for sensory and developmental problems and referral for further evaluation and treatment in Denver). All three studies employed a variety of data sources. The Elmira sample ($n = 400$) was primarily white. The Memphis sample ($n = 1,138$ for pregnancy and 743 for the infancy phase) was primarily black. The Denver trial ($n = 735$) consisted of a large sample of Hispanics (46%) and systematically examined the impact of the program when delivered by paraprofessionals (individuals who shared many of the social characteristics of the families they served) and by nurses. High rates of sample retention in each of the trials increases the validity of the treatment contrasts found in these studies.

We looked for consistency in program effect across those sources before assigning importance to any one finding. Findings corroborated by data from different sources have increased validity. In the Denver trial, the paraprofessional visitors produced effects that were roughly half the size of effects produced by nurses and that were rarely statistically significant. We therefore have focused the summary of results for the nurse-visited families in the report of the Denver findings.

Prenatal Health Behaviors

During pregnancy, compared to their counterparts in the control group, nurse-visited women in the Elmira trial improved the quality of their

diets to a greater extent, and those identified as smokers smoked 25% fewer cigarettes by the 34th week of pregnancy (Olds, Henderson, Tatelbaum, & Chamberlin, 1986). By the end of pregnancy, nurse-visited women experienced greater informal social support and made better use of formal community services.

In the Memphis trial, by the 36th week of pregnancy, nurse-visited women were more likely to use other community services than were women in the control group. There were no program effects on women's cigarette smoking, probably because the rate of cigarette use was only 9% in this sample (Kitzman et al., 1997).

In Denver, nurse-visited smokers had greater reductions in urine cotinine (the major nicotine metabolite) from intake to the end of pregnancy than did smokers in the control group (Olds et al., 2002).

Pregnancy and Birth Outcomes

By the end of pregnancy, nurse-visited women in Elmira had fewer kidney infections; among women who smoked, those who were nurse-visited had 75% fewer preterm deliveries; and among very young adolescents (ages 14–16), those who were nurse-visited had babies who were 395 grams heavier than their counterparts assigned to the comparison group (Olds, Henderson, Tatelbaum, & Chamberlin, 1986). Nurse-visited women had a nonsignificant lower rate of hypertensive disorders after registration in the trial than their counterparts in the comparison group. This led us to hypothesize that we would detect an effect on this outcome in Memphis, where the sample was larger and the rates of hypertensive disorders were higher.

In Memphis, nurse-visited women, in contrast to those in the control group, had fewer instances of pregnancy-induced hypertension, and when it was diagnosed it was of lower severity (Kitzman et al., 1997).

We did not have access to the women's or children's medical records in the Denver trial because the health-care delivery system in Denver was too complex for us to be able to trace their complete utilization patterns, and this prevented us from examining pregnancy outcomes.

Sensitive, Competent Care of Child

We considered conducting Strange Situation attachment assessments of the infants when we began the Elmira trial, but the validity of the Strange Situation had not been fully evaluated at the time that trial was initiated (1977). We relied instead on the Home Observation for Measurement of the Environment (HOME; Caldwell & Bradley, 1979) pro-

cedure for evaluation of the home environment and parents' caregiving competencies.

At 10 and 22 months of the child's life in Elmira, nurse-visited poor unmarried teens, in contrast to their counterparts in the control group, exhibited less punishment and restriction of their infants and provided more appropriate play materials according to the HOME than did their counterparts in the control group (Olds, Henderson, Chamberlin, & Tatelbaum, 1986). At 34 and 46 months of life, nurse-visited mothers provided home environments that were more conducive to their children's emotional and cognitive development as rated by the HOME inventory and that were safer, based upon observations of safety hazards (Olds, Henderson, & Kitzman, 1994).

In the Memphis and Denver trials, we hypothesized that program effects on caregiving and child outcomes would be greater for mother-child dyads in which the mothers had low psychological resources (limited intellectual functioning, limited belief in their control over their life circumstances, and higher rates of mental health symptoms—especially depression and anxiety) because program effects on child abuse, neglect, and injuries in the Elmira trial were concentrated in children born to mothers with limited confidence in their control over their lives (described in the following section). We reasoned that the conditional effects of the program observed in Elmira were a reflection of a more substantial interaction with mothers' psychological resources.

Nurse-visited mothers in Memphis reported that they attempted breast-feeding more frequently than did women in the comparison group. By the 24th month of the child's life, in contrast to their comparison-group counterparts, nurse-visited women held fewer beliefs about childrearing associated with child abuse and neglect. Moreover, the homes of nurse-visited women were rated on the HOME scale as more conducive to children's development (Kitzman et al., 1997). While there was no program effect on observed maternal teaching behavior, using the NCAST teaching scales (*NCAST Caregiver/Parent-Child Interaction Teaching Manual*, 1994), we found that children born to nurse-visited mothers with low levels of psychological resources were more communicative and responsive toward their mothers than were their comparison-group counterparts (Kitzman et al., 1997).

Perhaps most importantly, the greater communicativeness and responsiveness of the nurse-visited infants toward their mothers in Memphis strongly suggest that nurse-visited mothers with low psychological resources were more sensitive and responsive toward their infants than were their control-group counterparts. Parents are likely to change their parenting behavior toward socially acceptable ways while being observed, thus reducing treatment-control differences in observed parent-

ing behavior. Infants' and toddlers' behavior is likely to reflect their prior experiences with their parents.

During the first 24 months of the child's life, nurse-visited mother–infant dyads in the Denver trial interacted more responsively than did control pairs, an effect concentrated in the group defined by the mothers having low psychological resources (Olds et al., 2002).

Child Abuse, Neglect, and Injuries

During the first 2 years of the child's life in the Elmira trial, nurse-visited children born to low-income unmarried teens had 80% fewer verified cases of child abuse and neglect than did their counterparts in the control group ($p = .07$). During the second year of life, nurse-visited children were seen in the emergency department 32% fewer times, a difference that was explained in part by a 56% reduction in visits for injuries and ingestions (Olds, Henderson, Chamberlin, & Tatelbaum, 1986).

As can be seen in Figures 10.2 and 10.3, the effect of the program on child abuse and neglect in the first 2 years of life and on emergency department encounters in the second year of life was greatest among children whose mothers had little belief in their control over their lives when they first registered for the program. The numbers on the vertical axis show the rates of the outcome (child abuse or emergency visits),

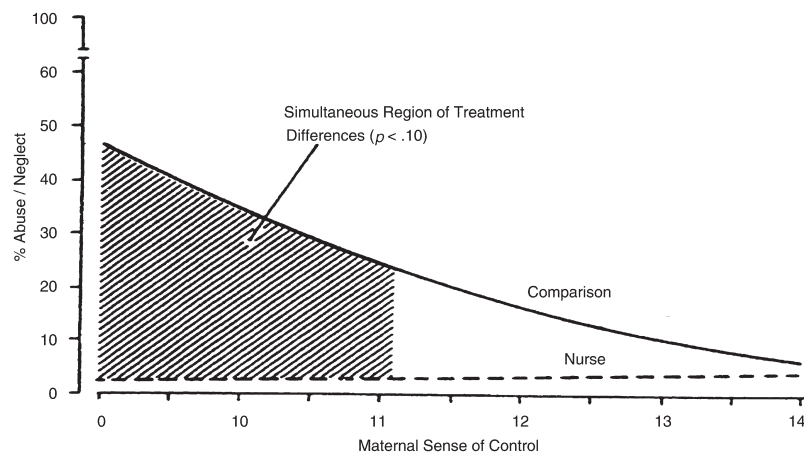


FIGURE 10.2. Concentration of program effects on child abuse and neglect in low-income, unmarried teens with little sense of mastery. From Olds, Henderson, Chamberlin, and Tatelbaum (1986). Copyright 1986 by the American Academy of Pediatrics. Reprinted by permission.

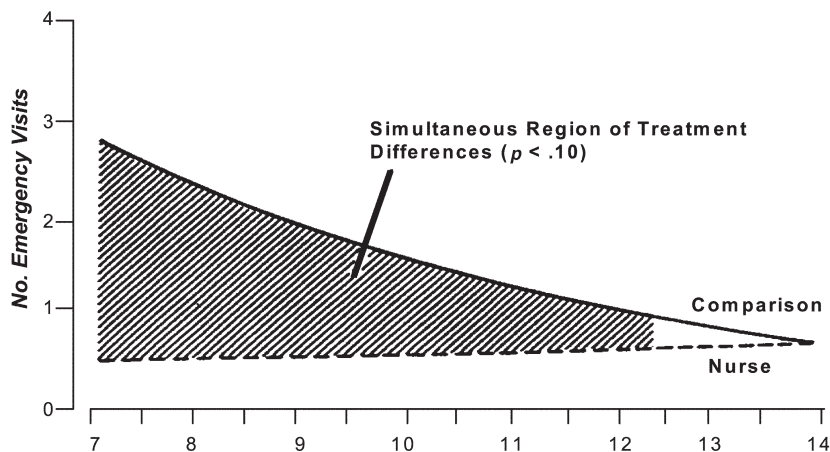


FIGURE 10.3. Concentration of program effects on emergency department visits for injuries among children born to mothers with few psychological resources. From Olds, Henderson, Chamberlin, and Tatelbaum (1986). Copyright 1986 by the American Academy of Pediatrics. Reprinted by permission.

while the numbers on the horizontal axis display mothers' scores for their control beliefs measured at registration (Rotter, 1966), with higher scores indicating greater belief in their control over their life circumstances. The lines on the top and bottom of these figures marked "Comparison" and "Nurse" are fitted regressions of abuse and neglect (Figure 10.2) and emergency department visits (Figure 10.3) on maternal sense of control. These lines (fitted regressions) are significantly different from one another ($p < .05$), and the shaded regions show where we can say with specified levels of confidence ($p < .10$, two-tailed tests) that the two groups differed (Olds, Henderson, Chamberlin, & Tatelbaum, 1986).

During the 2 years after the program ended, its impact on health-care encounters for injuries endured: irrespective of risk, children of nurse-visited women were less likely than their control-group counterparts to receive emergency room treatment and to visit a physician for injuries and ingestions (Olds, Henderson, & Kitzman, 1994). The impact of the program on state-verified cases of child abuse and neglect, on the other hand, disappeared during that 2-year period (Olds, Henderson, & Kitzman, 1994), probably because of increased detection of child abuse and neglect in nurse-visited families and the nurses' linkage of families with needed services (including child protective services) at the end of the program at the child's second birthday (Olds, Henderson, Kitzman, & Cole, 1995). When child abuse or neglect was identified in

the first 4 years of the child's life, the nurse-visited cases were found to be less serious, again probably because of the early identification of less serious forms of maltreatment in the nurse-visited families (Olds et al., 1995).

Results from a 15-year follow-up of the Elmira sample (Olds et al., 1997) indicate that the Group 4–comparison differences in rates of state-verified reports of child abuse and neglect grew between the children's 4th and 15th birthdays. Overall, during the 15-year period after delivery of their first child, in contrast to women in the comparison group, those visited by nurses during pregnancy and infancy were identified as perpetrators of child abuse and neglect in an average of 0.29 versus 0.54 verified reports per program participant. This difference for the entire time period overrode the disappearance of program effects during the 2-year period immediately following the end of the program and was greater for women who were poor and unmarried at registration (Olds et al., 1997).

During their first 2 years, nurse-visited children in Memphis had 23% fewer health-care encounters in which injuries and ingestions were detected than did children in the comparison group, an effect that was accounted for primarily by a reduction in outpatient clinic encounters. Nurse-visited children also were hospitalized for 79% fewer days with injuries and/or ingestions than were children in the comparison group (Kitzman et al., 1997).

As can be seen in Figures 10.4 and 10.5, the effect of the program on both total health-care encounters and number of days children were hospitalized with injuries and ingestions was greater for children born to women with few psychological resources. As with Figures 10.2 and 10.3, the numbers on the vertical axis show the rates of the outcome (in this case, number of health-care encounters where injuries or ingestions were detected or days hospitalized with injuries or ingestions), while the numbers on the horizontal axis display mothers' scores on the psychological resource scale. In order to assist with its interpretation, the psychological resources scale has been standardized to a mean of 100 for this sample, with a standard deviation of 10. In both figures, the fitted regressions for the nurse-visited and comparison-group women are significantly different from one another ($p < .01$). The shaded regions show where we can say with confidence ($p < .05$ and $p < .01$) that the two groups differed.

An examination of the children's hospital records provides insight into reasons that nurse-visited children were hospitalized for fewer days than children in the comparison group. As can be seen in Table 10.1, nurse-visited children tended to be older when hospitalized and to have less severe conditions. The three nurse-visited children who were hospi-

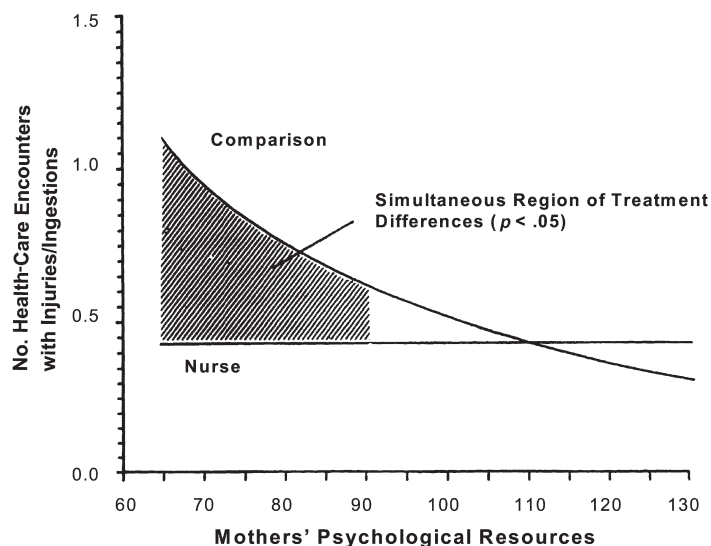


FIGURE 10.4. Intensification of program effect on health-care encounters for injuries and ingestions concentrated among children born to mothers with few psychological resources. From Olds, Henderson, Kitzman, et al. (1998). Copyright 1998 by Ablex Publishing Corporation. Reproduced with permission of Greenwood Publishing Group, Inc., Westport, CT.

talized with injuries and ingestions were admitted when they were 12 months of age or older, while six of the 14 comparison children were hospitalized when they were younger than 6 months of age. Eight of the 14 comparison-group hospitalizations involved either fractures and/or head trauma, while none of the nurse-visited hospitalizations did. These profiles suggest that many of these hospitalized comparison-group children suffered from more seriously deficient care than children visited by nurses.

Low baseline rates prevented our team from using child protective service records as the primary child maltreatment outcome in the replication trials of the program in Memphis and Denver. The rates of substantiated cases of maltreatment were only 3–4% for low-income children in those communities in the first 2 years of life, compared to rates in the Elmira trial that were in the 10% range for the sample as a whole and even higher for families at higher sociodemographic risk (Olds, Henderson, Chamberlin, & Tatelbaum, 1986). Chemung County, where Elmira is located, consistently had the highest rates of reported and substantiated child abuse and neglect in all of New York State immediately

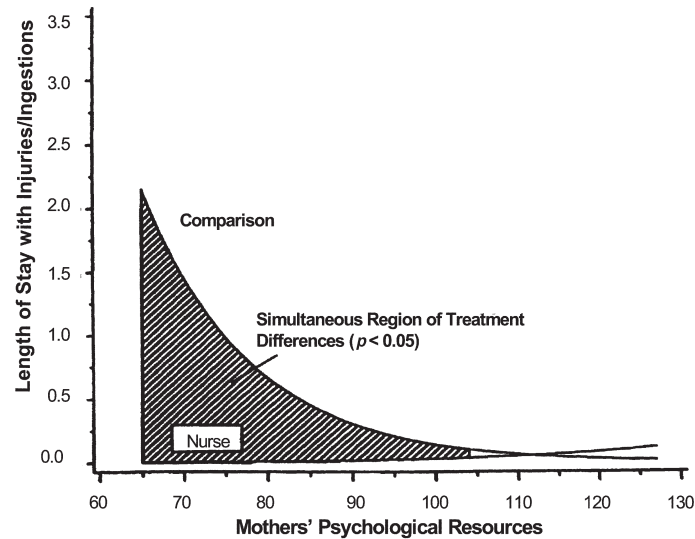


FIGURE 10.5. Intensification of program effect on days hospitalized for injuries and ingestions concentrated among children born to mothers with few psychological resources. From Olds, Henderson, Kitzman, et al. (1998). Copyright 1998 by Ablex Publishing Corporation. Reproduced with permission of Greenwood Publishing Group, Inc., Westport, CT.

before and after the Elmira trial was initiated (New York State Department of Social Services, 1973–1982). Moreover, as noted above, in trials of home visiting, treatment-based surveillance bias leads to more complete detection of maltreatment in home-visited families, given that home visitors are mandated reporters and there are fewer opportunities to detect maltreatment in control groups—where families are observed less frequently (Olds et al., 1995).

In the Denver trial, we also were unable to use the children's medical records to corroborate program impact on child maltreatment, given the complexity of the health-care delivery system in the Denver metropolitan area, so instead we focused on examining the children's early emotional expressions, as these aspects of children's functioning have been correlated with child abuse and neglect (Gaensbauer, 1982). JoAnn Robinson adapted Hill Goldsmith's measure of infant temperament (Goldsmith & Rothbart, 1994) for the Denver trial by including a laboratory-based examination of infants' engagement with their mothers while they experienced emotion challenges (Robinson & Acevedo, 2001). We present the results of these analyses below under child neurodevelopmental impairment.

TABLE 10.1. Results from the Memphis Study: Diagnoses for Hospitalizations in Which Injuries and Ingestions Were Detected, by Treatment Condition

Diagnosis (in months)	Age (in months)	Sex	Length of hospital stay (in days)
Nurse-visited group (Group 4; <i>n</i> = 216)			
First- and second-degree burns to face	12.0	M	2
Coin ingestion	12.1	M	1
Ingestion of iron medication	20.4	F	4
Comparison group (Group 2; <i>n</i> = 481)			
Head trauma	2.4	M	1
Fractured fibula/congenital syphilis	2.4	M	12
Strangulated hernia with delay in seeking care/first-degree burn to lips	3.5	M	12
Bilateral subdural hematoma ^a	4.9	F	19
Fractured skull	5.2	F	5
Bilateral subdural hematoma (unresolved)/aseptic meningitis—second hospitalization ^a	5.3	F	4
Fractured skull	7.8	F	3
Coin ingestion	10.9	M	2
Child abuse/neglect suspected	14.6	M	2
Fractured tibia	14.8	M	2
Second-degree burns to face/neck	15.1	M	5
Second- and third-degree burns to leg ^b	19.6	M	4
Gastroenteritis/head trauma	20.0	F	3
Burns—second hospitalization ^b	20.1	M	6
Finger injury/osteomyelitis	23.0	M	6

Note. From Kitzman et al. (1997). Copyright 1997 by the American Medical Association. Reprinted by permission.

^aOne child was hospitalized twice with a single bilateral subdural hematoma.

^bOne child was hospitalized twice for burns resulting from a single incident.

Child Neurodevelopmental Impairment

Nurse-visited poor unmarried teens in the Elmira trial reported that their infants at 6 months of age were less irritable and fussy than did their counterparts in the comparison group (Olds, Henderson, Tatelbaum, & Chamberlin, 1986). Subsequent analyses indicated that these differences were concentrated among infants born to nurse-visited women who smoked 10 or more cigarettes per day during pregnancy in contrast to

babies born to women who smoked 10 or more cigarettes per day in the comparison group (Olds, Henderson, Kitzman, et al., 1998). Over the first 4 years of the child's life, children born to comparison-group women who smoked 10 or more cigarettes per day during pregnancy experienced a 4- to 5-point decline in intellectual functioning in contrast to comparison-group children whose mother smoked nine or fewer cigarettes per day during pregnancy (Olds, Henderson, & Tatelbaum, 1994a). In the nurse-visited condition, children whose mothers smoked nine or fewer cigarettes per day at registration did not experience this decline in intellectual functioning, so that at ages 3 and 4 their IQ scores on the Stanford–Binet Test were about 4–5 points higher than their counterparts in the comparison group whose mothers smoked 10+ cigarettes per day at registration ($p < .05$; Olds, Henderson, & Tatelbaum, 1994b).

After 2 years in the Memphis program, children in the nurse-visited and comparison groups did not differ in their mental development or reported behavioral problems, either for the full sample or for mothers with lower psychological resources. By child age 6, however, program effects emerged for the nurse-visited children (Olds et al., 2004): children visited by nurses had higher intellectual functioning and receptive vocabulary scores and fewer behavior problems in the borderline or clinical range. Moreover, nurse-visited children born to mothers with low psychological resources had higher arithmetic achievement test scores and expressed less aggression and incoherence in response to story stems based upon the MacArthur Story-Stem Battery (Robinson, Herot, Hayes, & Mantz-Simmons, 2000).

In Denver, we found that nurse-visited 6-month-old infants born to mothers with low psychological resources, compared to their counterparts in the control group, had higher rates of emotional vitality (high levels of engagement with their mothers and more intense emotional expressions of joy and anger) and lower rates of emotional vulnerability, that is, high fear responses coupled with disengagement with their mothers. At 21 months, nurse-visited children were less likely to exhibit language delays than were children in the control group, an effect concentrated among children born to mothers with low psychological resources. Nurse-visited children born to women with low psychological resources also had superior language and mental development in contrast to their control-group counterparts (Olds et al., 2002).

Early Parental Life Course

By the time the first child was 4 years of age, in the Elmira trial, nurse-visited, low-income, unmarried women, in contrast to their control-

group counterparts, had fewer subsequent pregnancies, longer intervals between the birth of the first and second child, and greater participation in the workforce than did their counterparts in the comparison group (Olds et al., 1988).

At the 24th month of the first child's life, nurse-visited women in the Memphis trial reported fewer second pregnancies and fewer subsequent live births than did women in the comparison group. Nurse-visited women and their firstborn children relied upon welfare for slightly fewer months during the second year of the child's life than did comparison-group women and their children, although there were no differences during the child's first year of life. There were no program effects on mothers' reported educational achievement or length of employment for either the whole sample or for those with few psychological resources (Kitzman et al., 1997).

By 24 months after delivery in the Denver trial, nurse-visited women, compared to controls, were less likely to have had a subsequent pregnancy and birth and had longer intervals until the next conception. Women visited by nurses also were employed longer during the second year following the birth of their first child than were controls (Olds et al., 2002).

Later Parental Life Course

At the 15-year follow-up of the Elmira participants, no differences were reported for the full sample on measures of maternal life course such as subsequent pregnancies or subsequent births, the number of months between first and second births, receipt of welfare, or months of employment. Poor unmarried women, however, showed a number of enduring benefits. In contrast to their counterparts in the comparison condition, those visited by nurses during both pregnancy and infancy averaged fewer subsequent pregnancies, fewer subsequent births, longer time between the birth of their first and second children, fewer months on welfare, fewer months receiving food stamps, fewer behavioral problems due to substance abuse, and fewer arrests (Olds et al., 1997).

During the 4.5-year period following birth of the first child in the Memphis trial, in contrast to counterparts assigned to the comparison condition, women visited by nurses had fewer subsequent pregnancies, fewer therapeutic abortions, and longer durations between the birth of the first and second child; fewer total person-months (based upon administrative data) that the mother and child used Aid to Families with Dependent Children (AFDC) and food stamps; higher rates of living with a partner, marriage, and living with the biological father of the child; and partners who had been employed for longer durations. There

were no statistically significant effects on maternal educational achievement, employment, or use of Medicaid.

Results of follow-up work in the Denver trial are not yet available.

Child/Adolescent Functioning

The Elmira 15-year follow-up study also assessed children of the original participants when the children were 15 years of age (Olds, Henderson, et al., 1998). There were no differences between nurse-visited and comparison-group adolescents for the whole sample, but in contrast to adolescents born to poor unmarried women in the comparison group, those visited by nurses during pregnancy and infancy reported fewer instances of running away, fewer arrests, fewer convictions/violations of probation, fewer lifetime sex partners, fewer cigarettes smoked per day, and fewer days having consumed alcohol in the last 6 months. Parents of nurse-visited children reported that their children had fewer behavioral problems related to use of drugs and alcohol (Olds, Henderson, et al., 1998). There were no program effects on other behavioral problems, such as teachers' reports of adolescents' acting-out in school; suspensions; initiation of sexual intercourse; and parents' or children's reports of major acts of delinquency, minor antisocial acts, or other behavioral problems (Olds, Henderson, et al., 1998).

Cost Analysis

The Rand Corporation has conducted an economic evaluation of the NFP that extrapolates the results of the 15-year follow-up study to estimate cost savings generated by the program (Karoly et al., 1998). While there were no net savings to government or society for serving families in which mothers were married and of higher social class, the savings to government and society for serving families in which the mother was low income and unmarried at registration exceeded the cost of the program by a factor of 4 over the life of the child. The return on the investment was realized well before the child's fourth birthday and the primary cost savings were found in reduced welfare and criminal justice expenditures, and increases in tax revenues.

SUMMARY OF RESULTS, POLICY IMPLICATIONS, AND PROGRAM REPLICATION

Many of the beneficial effects of the program found in the Elmira trial that were concentrated in higher risk groups were reproduced in the

Memphis and Denver replications. Overall, the Elmira and Memphis trials demonstrate that the NFP achieved two of its most important goals: the reduction in dysfunctional care of children and the improvement of maternal life course, including a reduction in subsequent pregnancy and an increase in the interval between births. The impact on the outcomes of the first pregnancy, however, was equivocal, given no replicable program effects on prematurity or low birthweight.

Policy Implications

One of the clearest messages that has emerged from this program of research is that the functional and economic benefits of the NFP are greatest for families at greater risk. In the Elmira study, it was evident that most married women and those from higher socioeconomic households managed the care of their children without serious problems and that they were able to avoid lives of welfare dependence, substance abuse, and crime without the assistance of the nurse home visitors. Similarly, their children on average avoided encounters with the criminal justice system, the use of cigarettes and alcohol, and promiscuous sexual activity. Low-income unmarried women and their children in the comparison group, on the other hand, were at much greater risk for these problems, and the program was able to avert many of these untoward outcomes for this at-risk population. Cost analyses suggested that the program's cost savings for government are solely attributable to benefits accruing to this higher risk group. Among families at lower risk, the financial investment in the program was a loss.

This pattern of results challenges the position that these kinds of intensive programs ought to be made available on a universal basis. Not only is it likely to be wasteful from an economic standpoint, but it may lead to a dilution of services for those families who need them the most, because of insufficient resources to serve everyone well.

During the past 5 years, new studies have been reported that have led us to doubt the effectiveness of home visitation programs that do not adhere to the elements of the model studied in these trials (Gomby, Culross, & Behrman, 1999; Olds, Hill, Robinson, Song, & Little, 2000), including especially the hiring of nurses and the use of carefully constructed program protocols designed to promote adaptive behavior (Olds et al., 2002). Most home visiting programs for low-income families studied in randomized controlled trials have failed to alter clinically important maternal, child, and family outcomes (Gomby et al., 1999). A recent report from the Washington State Institute for Public Policy shows dramatically different costs to government and society resulting from investing in different types of home visiting and early childhood

programs (Aos, Lieb, Mayfield, Miller, & Pennucci, 2004). These results should give policymakers and practitioners pause as they consider investments in home visitation or other early intervention programs without careful consideration of program structure, content, methods, and likelihood of success.

Replication and Scale-Up of the Nurse–Family Partnership

Even when communities choose to develop programs based on models with good scientific evidence, such programs run the risk of being watered down in the process of being scaled up. So it is with some apprehension that since 1997 our team has been working to make the program available for public investment in new communities (Olds, Hill, O'Brien, Racine, & Moritz, 2003). Today the program serves over 250 counties with over 170 local operating sites.

State and local governments are securing financial support for the NFP (about \$8,000 per family for 2.5 years of services, in 2003 dollars) out of existing sources of funds, such as Temporary Assistance to Needy Families, Medicaid, the Maternal and Child Health Block-Grant, and child-abuse and crime-prevention dollars. Sharing the costs among several government agencies reduces the strain on any one agency's budget, and is an approach that the NFP national office is encouraging states and communities to consider given the breadth of its outcomes (see also Nagle & Wightkin, Chapter 12, this volume, for a discussion of garnering public funds for the NFP in Louisiana).

CONCLUSIONS

This program of prenatal and infancy home visiting by nurses shows promise for reducing some of the most damaging and widespread problems faced by low-income children and families in our society. Since publication of the results from the trials, the demand for the program in local communities and states has been strong, perhaps in part because dissemination began in the middle of the long U.S. economic boom of the 1990s. Whether the NFP will continue to be sustained and grow as economic conditions fluctuate is not yet known. Ironically, it is during periods of economic stagnation and high unemployment that this program is needed most. Preliminary data on program implementation give reason to be optimistic that it is being conducted with essential fidelity to the model, and have helped those involved in replication of the program learn how to better support

communities' efforts to manage the program with quality and to sustain and grow it over time.

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Enhancing Early Attachments in the Context of Early Head Start

Can Programs Emphasizing Family Support Improve Rates of Secure Infant–Mother Attachments in Low-Income Families?

Susan Spieker, Dana Nelson,
Michelle DeKlyen, and Fredi Staerkel

More than forty years of attention to the consequences of poverty for children's academic achievement, school completion, and life course has resulted in a variety of programs designed to mitigate adverse effects. Some programs focus primarily on improving outcomes for the adult single parent, usually the mother. These programs include education, job training, and welfare-to-work programs. In theory, the benefits of maternal education and employment trickle down to children (St. Pierre, Layzer, & Barnes, 1995), but research suggests that these programs do not necessarily lead to improved child well-being (Huston, 2002). Other programs have the express purpose of improving outcomes for children. These programs are of two types: those that focus primarily on direct services to the child and those that help parents learn ways to promote children's development. The former have been somewhat more effective than the latter (Brooks-Gunn, Berlin, & Fuligni, 2000). Some programs, known as "two-generation interventions," focus more broadly and include both parent-directed services, such as family support and case-management approaches that connect families to existing services and provide crisis intervention, and child-directed services. An example of such a two-generation program is the Comprehensive Child Develop-

ment Program (CCDP), which targeted high-risk children by intervening early, continuously, and comprehensively. A national evaluation of CCDP revealed no differences 5 years after the program began between randomly assigned program and control families in areas of economic self-sufficiency, parenting skills, or the cognitive or socioemotional development of participating children or the birth or health outcomes of subsequently born children. The evaluators speculated that CCDP services, although comprehensive, were not intensive enough in any area. Although recognizing the importance of parents for children's development, CCDP had not identified aspects of parenting that were both important to children's development and amenable to change (St. Pierre, Layzer, Goodson, & Bernstein, 1997).

At the same time that comprehensive approaches to improved outcomes for children in poverty were being tested, other preventive interventions were developed based on the assumption that the parent-child attachment relationship was crucial to children's well-being and positive development. The importance of this focus was supported by attachment research, which has expanded dramatically over the last half-century (cf. Cassidy & Shaver, 1999). A basic premise is that attachment security with a primary caregiver is a critical feature of the parent-child relationship, and central to the development of a child's socioemotional health. A meta-analysis found that children with early secure attachments to primary caregivers developed fewer problem behaviors in the preschool and early school years, including both externalizing (acting out, oppositional and defiant behavior, conduct problems) and internalizing (withdrawn, depressed, anxious) symptoms (van IJzendoorn, Schuengel, & Bakermans-Kranenburg, 1999), compared to insecurely attached children.

In addition to socioemotional outcomes, children's cognitive ability and achievement, though generally outside the scope of attachment theory and research, may also be enhanced within secure attachment relationships, at least in the early years. Evidence is accumulating that securely attached children have an early advantage in cognitive and language development. Another meta-analysis across seven studies found that secure children, compared to insecure children, had significantly higher language and cognitive scores across a variety of standardized tests (van IJzendoorn, Dijkstra, & Bus, 1995). Results from our own research involving children eligible for Early Head Start were in accord with these findings (Spieker, Nelson, Petres, Jolley, & Barnard, 2003). Thus, promoting attachment security may be important for socioemotional health as well as the more common yardsticks of children's development, achievement and cognitive abilities. The question is how best to achieve these benefits.

Egeland, Weinfield, Bosquet, and Cheng (2000) reviewed a set of attachment-related interventions for multiproblem families and concluded that they were only marginally effective. Egeland and colleagues' recommendations echoed others in calling for future attachment-enhancing interventions that would focus even more intensively on promoting parental sensitivity and emotional responsiveness at the behavioral level and altering parental representations of attachment-related experience at the intrapsychic level, while maintaining comprehensive program components designed to meet the many and varied nonattachment needs of families in high-risk samples.

What is the evidence in support of this recommendation? Recently, Bakermans-Kranenburg, van IJzendoorn, and Juffer (2003) conducted a meta-analysis of 81 studies that reported intervention effects on parental sensitivity, and 23 studies that reported intervention effects on attachment security (see also van IJzendoorn, Bakermans-Kranenburg, and Juffer, Commentary 1, this volume, and, for further discussion, Berlin, Chapter 1, this volume, and Ziv, Chapter 3, this volume). The majority of studies employed randomized experimental designs. The studies included in the meta-analysis ranged from two-generation comprehensive approaches (including CCDP) to very brief, behaviorally focused interventions. The samples included low-income, multirisk, and clinic-referred families as well as low-risk families. Following categorizations offered by Egeland and colleagues' (2000) review, Bakermans-Kranenburg and her colleagues (2003) classified the intervention studies according to their provision of intervention in three areas: behavioral promotion of maternal sensitivity, broad-based family supports, and/or efforts to change parental representations of attachment relationships. Bakermans-Kranenburg and her colleagues (2003) reported a number of surprising findings. Interventions focusing solely on sensitivity were more effective for enhancing maternal sensitivity or attachment security than the combination of all other types of interventions (including all other groupings of the three emphases). Interventions with fewer than 16 sessions were more effective than interventions with more than 16 sessions (though this finding was apparent only when the outcome was sensitivity); interventions using video feedback were more effective at enhancing sensitivity but less effective at promoting attachment security than interventions without this feature; and interventions begun later were generally more effective in promoting sensitivity and attachment security than interventions begun either prenatally or in the first 6 months of life. Similar patterns emerged when the subsamples of studies involving families with multiple risks were analyzed separately. This evidence suggests that "less is more" when the specific target outcome is parental sensitivity or attachment security, and that a relatively inexpensive approach is at least

as effective as one that is more costly, such as a comprehensive two-generation program.

Comprehensive preventive interventions, however, have a much broader focus than attachment security, and, although they may not measurably affect attachment, such interventions may benefit other aspects of child or family functioning. Ideally, prevention programs could enhance both attachment and nonattachment outcomes, but we know little about the conditions under which this might be accomplished. Could embedding a brief attachment-focused intervention component, as recommended by Bakermans-Kranenberg and colleagues (2003), within a more comprehensive family support program enhance attachment security? The current study investigates this question in regard to Early Head Start (EHS), an expansion of the federal Head Start program that serves low-income pregnant women and families with children up to 3 years old. EHS began in 1995 with 68 initial programs that were funded by competitive grants. By 2003 there were 664 EHS programs nationwide serving over 55,000 families. EHS is a two-generation, comprehensive program developed such that each EHS site implements a uniquely designed program that also adheres to performance standards that are based on an ecological perspective set forth by the 1994 Advisory Committee on Services for Families with Infants and Toddlers:

All children from birth to age three need early child development experiences that honor their unique characteristics and provide love, warmth, and positive learning experiences; and all families need encouragement and support from their community so they can achieve their own goals and provide a safe and nurturing environment for their very young children. This recognition is guiding the design of the new Early Head Start Program. (Administration on Children, Youth and Families, 1994)

These guidelines require programs to address four EHS “cornerstones”: child development (health, resiliency, social competence, cognitive and language development), family development (parenting, family health, parent–child relationships), staff development (professional development, staff–parent relationships), and community development (enhance childcare in the community, integrate services for families) (Administration for Children and Families, 2003).

In addition to providing for EHS staff training, program monitoring, and service coordination, in 1996 the federal government began a program of research and evaluation. The EHS Research and Evaluation Project involved partnerships between 17 of the original 68 EHS sites and local university research teams, selected on the basis of competitive grant applications. The sites varied widely by geographic region, urban–

rural setting, racial-ethnic composition, program experience, and age at which participants were enrolled (pregnancy through 12 months of age). About 3,000 families across the 17 sites were randomly assigned to an EHS program or to a community comparison group. Local research teams administered a common core of national evaluation measures as well as assessments specific to local research questions. The national evaluation found positive but modest impacts at 2 and 3 years of age across a wide range of parenting and child outcomes important for children's well-being and future development (Office of Research and Evaluation and Head Start Bureau, 2001, 2002).

This chapter focuses on some of the local research outcomes from one of the 17 research partnerships. The partnership involved an experienced program, which addressed the required focus on the four EHS cornerstones with an intensive family support approach that started in pregnancy and continued through the child's third year. Through its partnership with its research team, the program also implemented a brief attachment protocol, the Parent-Child Communication Coaching Program (PCCCP), which is described in further detail below. Elements of the PCCCP were based on some of the brief interventions reviewed by Bakermans-Kranenberg and her colleagues (2003). The primary goal of the PCCCP was to enhance caregiver-infant interaction and promote the security of caregiver-infant attachment relationships by addressing the three therapeutic targets outlined by Berlin (Chapter 1, this volume): caregivers' representations, parenting behavior, and the relationship between the home visitor and the family. The prenatal components of the PCCCP were designed to nurture caregivers' representations of the fetus and the child-to-be, and the infancy modules focused on activities to enhance parenting behavior, accurate reading of infant cues, and appropriate responding to infant needs. The research team conducted training sessions for home visitors on attachment theory and discussed the possibility that a trusting caregiver-home visitor relationship would increase the sensitivity and responsiveness of caregivers' parenting behaviors.

The research team was funded to address multiple attachment-related questions, several of which are addressed in this chapter. First, we examined whether enrollment in the program influenced attachment-related outcomes. We also investigated whether parental representations, or parents' "state of mind with respect to attachment," as measured by the Adult Attachment Interview (AAI; George, Kaplan, & Main, 1985, 1996), or depressive symptoms moderated the impact of the program. That is, within the context of the entire sample, was program participation more effective for parents with certain preintervention characteristics? Bakermans-Kranenburg and colleagues (2003) did not find that interventions were more or less effective across higher or lower risk

groups, but the EHS study as a whole benefited families at moderate risk only, and families of parents with more depressive symptoms at baseline (Office of Research and Evaluation and Head Start Bureau, 2002). Finally, for a subsample of active program participants, we examined whether demographic variables and caregivers' psychosocial functioning and state of mind with respect to attachment influenced families' participation in the EHS program, and ultimately, whether level of participation in the program in general, and in the PCCCP in particular, enhanced parent-child interaction and parent-child attachment.

METHOD

The Early Head Start Program

The local EHS program, which had been a CCDP site from 1989 to 1993, was very experienced in working with at-risk families. As an EHS program it initially implemented a home visiting model, but it later became a mixed program, offering both home visiting and childcare classroom services. Home visitors had at least a college degree and backgrounds in child development, and worked in collaboration with public health nurses. In addition to home visits, families had access to vocational counseling, stress management and mental health services, and assistance in finding childcare. Program staff worked with caregivers on their own life course struggles and supported their parenting skills and parent-child interaction. Ninety-minute home visits were scheduled to occur on a weekly basis for most families, monthly if the target child attended a center-based childcare, and four times per year if the child attended the EHS childcare center. There were three elements to the home visiting program: (1) developing family goals; (2) developmental assessment and intervention based on the Hawaii Early Learning Program Model (VORT Corporation, 1995); and (3) the Parent-Child Communication Coaching Program (PCCCP) developed by the researchers in partnership with some of the local EHS home visitors. Only the PCCCP element will be described in this chapter, as it was specifically developed at the initiative of the research team to address the parent-child relationship and attachment.

Home visits were structured into three 20–30 minute segments. One segment focused on child development, including assessment and activities to achieve goals outlined on an Individual Learning Plan (ILP). Another segment focused on the home environment and parent initiation of parent-child interactions. The third segment was devoted to information sharing, parental concerns, and introducing concepts and activities from the PCCCP.

The Parent–Child Communication Coaching Program

The PCCCP began in pregnancy (for the 64% of caregivers enrolled during pregnancy) and continued with age-specific interventions at key developmental time points as part of regularly scheduled home visits through the child's third birthday. Thus, the local program followed EHS performance standards that encourage programs to provide an intensive intervention that starts early, a goal congruent with the recommendations of Egeland and colleagues (2000). The intervention was based on a review of the theoretical and empirical literature and incorporated activities that had previously demonstrated benefits to parent–child communication, interaction, and/or attachment (see Barnard & Solchany, 2002; Solchany, Sligar, & Barnard, 2002). The PCCCP consisted of 33 steps in 10 topic areas. Each step involved an activity, an informational handout, and some kind of “homework” or follow-up suggestion. Some activities involved the use of video-feedback techniques. PCCCP activities associated with each developmental phase are described briefly in Table 16.1. Home visitors also videotaped several parent–child interactions (e.g., feeding at 1 month, imitation of the baby at 4–5 months, eliciting emotions at 6–8 months, and communicating with nonverbal gestures at 12 months) and subsequently reviewed them with the mother. A clinician from the research team met regularly with home visitors to advise them in the feedback process.

Participants

One hundred and seventy-nine low-income women who were either pregnant or caregivers of a child less than 6 months of age were recruited in 1996 and 1997 from low-income, suburban neighborhoods near a large Pacific Northwest city. Recruiters used a variety of sources, including local hospital social services, pediatricians, local public health departments, Head Start programs, and a network of local service providers. Eligible participants lived at or below the federal poverty level and spoke English well enough to answer interview questions. Eligible participants were randomly assigned at intake to either the comparison condition ($n = 89$) or the EHS program ($n = 90$). Over the course of the study, 17 children had at least one change in primary caregiver, and new caregivers were always invited to participate in all aspects of the study. Despite such efforts to retain families, the sample was further reduced by subsequent attrition. Of the original 179 participants, 25 caregivers dropped out of the study before providing baseline data and often before they had been notified of their program/comparison group assignment.

TABLE 11.1. PCCCP Steps: Descriptions and Completion Rates

Title of intervention protocol	Focus of intervention protocol	Steps	Mean steps completed	% completing all steps
<u>Pregnancy</u>				
Baby kicks and wiggles	Recognizing the fetus	3	1.1	18
Support network	Gaining acceptance for the infant within the family	1	.5	51
Attachment	Trying on the maternal role and creating “attachment moments”	4	1.5	18
<u>Newborn–3 months</u>				
Baby carrier	Creating a close physical proximal environment through use of a soft baby carrier, which was provided to each caregiver	4	1.5	16
Get to know baby	Acquainting the parent with the infant’s states and behavioral cues	6	1.8	4
<u>4–8 months</u>				
Imitation	Learning to respond in a contingent manner	4	1.6	24
Baby feelings	Learning the importance of reading the infant’s emotional and verbal expressions	3	.9	22
<u>9–24 months</u>				
Baby signs	Learning the value of using natural and developing gestures to facilitate parent–child communication before verbal language	1	.5	45
Predialogic	Encouraging preverbal activities such as book sharing, and combining action and words on trips to the store, zoo, playground	5	.6	1
<u>24–36 months</u>				
Dialogic reading	Focused on book reading where the parent encourages the child to participate in communication about the book, identify objects, and respond to the parent’s questions to elaborate actions of the story from the pictures	2	.5	18

Of the remaining 154 participants, 135 (65 of whom were in the program group) completed at least one of the following four attachment and parenting outcomes and were thus included in the final data analysis sample: 19-month infant attachment ratings for security and disorganization ($n = 113$); observational ratings of parental warmth/sensitivity averaged over 14, 24, and 36 months ($n = 123$); and additional observations of warmth/responsivity averaged over 14, 24, and 36 months ($n = 130$). Most of the caregivers were biological mothers, but there were also five fathers, two paternal grandmothers, and one “other relative.” Analyses provided no evidence that these 135 participants differed from those missing outcome data on any of the baseline variables listed in Table 11.2, with the exception that caregivers excluded from the analyses were somewhat older than included caregivers, a finding that could be due to chance.

Measures

Demographics

Eligibility for EHS and relevant family demographics were assessed prior to random assignment using the standard Head Start Family Information System (HSFIS) that was common to all sites.

Psychosocial Functioning

After random assignment, the baseline clinic visit occurred, during which the following psychosocial measures were collected:

- The Wechsler Adult Intelligence Scale Vocabulary subscale (WAIS Vocabulary; Wechsler, 1981) was administered to caregivers to assess *verbal ability*. Scores were adjusted for age of respondent.
- *Maternal depressive symptoms* were measured using the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977).
- *Life stress* was measured with a 20-item checklist of positive (e.g., Have you gotten married?) and negative (Has your electricity or phone been cut off?) life events and difficult circumstances that occurred in the last 6 months (Mathematic Policy Research, 1996).

Adult Attachment/State of Mind with Respect to Attachment

Several measures of caregiver representations of early attachment relationships were derived from the Adult Attachment Interview (AAI;

TABLE 11.2. Baseline Characteristics of Program and Comparison Groups Using Full Sample

Continuous variables	Comparison		Program		Inferential statistics		
	M	SD	M	SD	t	df	p
Maternal age at child's birth	22.5	4.6	23.7	6.0	-1.48 ^a	166.8 ^a	.14
Child age in days at random assignment	-41.9	103.5	-42.8	92.4	0.06	172	.95
Number of children at child's birth	2.1	0.9	2.6	1.4	-2.61 ^a	154.4 ^a	.01
Family yearly gross income	\$7,246	\$4,387	\$7,332	\$5,373	-0.11	164	.91
Number of moves in last year	1.3	1.4	1.5	1.3	-0.75	175	.45
AAI: Coherence of mind scale	4.2	1.7	4.2	1.7	0.01	151	.99
AAI: Lack of resolution scale	3.2	1.9	4.0	2.0	-2.39	151	.02
Number of stressful events	6.0	3.0	5.9	3.5	0.13	152	.90
CES-D	18.7	10.7	19.2	10.9	-0.26	151	.79
WAIS Vocabulary	8.2	2.2	7.9	2.6	0.63	152	.53
Categorical variables (<i>df</i> = 1)	%		%		χ^2	<i>n</i>	<i>p</i>
Child gender male	51.7		46.1		0.56	176	.45
Mother white	64.0		55.6		1.34	179	.25
Mother employed or in school	34.5		28.9		0.64	177	.42
Mother has high school diploma or equivalent	58.6		58.4		0.00	176	.98
AFDC recipient	44.8		45.6		0.01	177	.92
Mother has partner	41.6		44.4		0.15	179	.70
AAI categorical classifications					4.60	153	.33
Dismissing	37.5		27.4				
Secure Autonomous	30.0		24.7				
Preoccupied	5.0		6.8				
Unresolved	22.5		37.0				
Can't Classify	5.0		4.1				

Note. AAI, Adult Attachment Interview; CES-D, Center for Epidemiologic Studies—Depression Scale; WAIS, Wechsler Adult Intelligence Scale; AFDC, Aid to Families with Dependent Children.

^a*t*s and *df*'s adjusted for inequality of variance.

George, Kaplan, & Main, 1985, 1996). The audiotaped interviews were transcribed verbatim and the transcripts were coded by the third author, who was trained by Mary Main and met criterion on a set of 30 reliability transcripts.

Transcripts were classified as *secure-freely autonomous* ($n = 50$), *insecure-dismissing* ($n = 42$), *insecure-preoccupied* ($n = 9$), or *unresolved-disorganized* ($n = 45$). A small number of transcripts ($n = 7$) were identified as *cannot classify* because they did not meet criteria for placement in any of the other categories (Hesse, 1996). These were combined with the unresolved cases for analyses because of the shared quality of narrative incoherence unrelated to an attachment strategy, analogous to combining infant disorganized and unclassifiable cases because of their “similarity in meaning” (Main & Solomon, 1990, p. 155). AAI transcripts were also rated on two 9-point scales, “Coherence of Mind” and “Lack of Resolution of Loss and Trauma.” *Coherence of mind* reflects the extent to which the parent’s discourse reveals the ability to access and evaluate memories in response to specific questions, and remain consistent and plausible as a discourse partner. Lack of resolution of loss and lack of resolution of trauma were rated on 9-point scales and the higher score was used to indicate *lack of resolution*. Individuals with high lack of resolution scores have discourse with indications of disorganization and disorientation in response to questions about loss or trauma. Descriptive statistics on the three AAI measures are reported in Table 11.2.

Attachment and Parenting Outcomes

The Strange Situation (Ainsworth, Blehar, Waters, & Wall, 1978) was used to assess infant–mother attachment security at 19 months. Three experienced coders (Early Child Care Research Network, 1997), blind to information about the child and family, evaluated Strange Situation videotapes. Each assessment was double-coded using the standard attachment classifications of *secure* ($n = 53$), *insecure-avoidant* ($n = 30$), *insecure-resistant* ($n = 6$), *insecure-disorganized* ($n = 18$), and *insecure-unclassifiable* ($n = 6$) (Main & Solomon, 1990). The group and first author viewed disagreements at the major category level, and a code was assigned by consensus. Across all coder pairs, before conferencing, agreement with the five-category classification system was 71% ($\kappa = .55$). To maximize power in this sample, we also used two 9-point rating scales, *security* and *disorganization*. The security scale was developed for the MacArthur preschool attachment coding system (Cassidy, Marvin, & the MacArthur Attachment Working Group, 1992), and the disorganization rating was developed for the infant system (Main & Solomon 1990). Rater reliability (Pearson correlation) was .64 for the secu-

rity scale and .42 for the disorganization scale. Interrater disagreements of 2 or more points in either rating were resolved by reviewing the tapes and reaching consensus. The reliability of the coders conducting the attachment classifications was marginal (mostly regarding the D [disorganized] classification) and it is unclear why this experienced team had this level of difficulty. We are confident that, after discussion, we did get the most accurate classifications and ratings possible. As expected, the two rating scales were correlated, $r(113) = -.57, p < .001$.

Parent-child interaction was videotaped in semistructured 10-minute sessions at home visits at 14, 24, and 36 months, using the "three-bag" procedure (modified from the "three-box" procedure; see Early Child Care Research Network, 1999). Mothers were asked to show their children age-appropriate toys in three bags, moving from bag to bag in a specified order. Parents were given deliberately vague instructions in order to elicit naturally occurring individual differences in parenting. A team of coders established reliability with a trained coder at a criterion of 85% (exact or within 1-point agreement). Weekly interrater reliability checks were conducted on a random sample of 15% of the tapes. Reliability averaged 90% at 14 months, 93% at 24 months, and 94% at 36 months. The ratings were standardized at each age and then averaged across 14, 24, and 36 months to minimize the impact of missing data. The caregiver's behavior was rated on six 7-point scales of sensitivity, intrusiveness, detachment, stimulation of cognitive development, positive regard, and negative regard. Combining the sensitivity and positive regard scales at all three ages created a composite of parental *warmth/sensitivity*. Warmth/sensitivity was modestly correlated with security, $r(105) = .24, p = .01$, but not with disorganization, $r(105) = -.09, p = .38$.

Portions of the Home Observation Measurement of the Environment (HOME; Bradley & Caldwell, 1984) were rated during home visits conducted at 14, 24, and 36 months. The Infant version was used at 14 and 24 months, and the Preschool version at 36 months. A subset of items reflecting caregiver warmth and responsivity were used for this analysis. *HOME warmth/responsivity*¹ was computed by standardizing scores at each age and then averaging across 14, 24, and 36 months to minimize the impact of missing data. The HOME composite was correlated with three-bag warmth/sensitivity, $r(122) = .37, p < .001$, but not with child security, $r(108) = .16, p = .10$, or child disorganization, $r(108) = .02, p = .86$.

Early Head Start Program Participation

Home visitors and public health nurses each completed contact forms to calculate the frequency, content, and duration of visits. Of the variables

generated from these data, we selected two for inclusion in the primary analyses: proportion of PCCCP *attachment protocols* (steps) completed (26 of the 33 PCCCP steps, “Baby Kicks and Wiggles” through “Baby Signs,” were attachment-related) and the *number of home visits* with child development content completed. These variables were moderately correlated, $r(60) = .38, p = .003$.

RESULTS

Preliminary Analyses

The means and standard deviations for the program and comparison groups on all baseline measures are presented in Table 11.2. Program caregivers tended to have more children and higher ratings for lack of resolution than comparison caregivers; they did not differ in other respects. Number of children and lack of resolution ratings were therefore controlled in the univariate comparisons of the two groups on the four relationship outcomes.

Because differential attrition may bias conclusions, we also examined whether program and comparison families differed in their profiles of attrition. Interactions between program status and attrition for each of the outcome measures were not significantly predictive of demographic or psychosocial characteristics reported at baseline, $p > .10$.

Primary Questions

Does participation in EHS with PCCCP directly influence observed parental sensitivity or infant attachment security? As shown in Table 11.3, there was no evidence that the program and comparison groups differed on any of the continuous ratings of quality of parenting and attachment. Nor did the groups differ on categorical Strange Situation classifications, with 40.7% secure in the program group, and 52.5% secure in the comparison group, $\chi^2(4, n = 113) = 1.84, p > .10$. Subsequent analyses explored whether interaction effects may have masked direct program effects and whether low dosage of the EHS program and PCCCP may have contributed to the null findings.

Does level of maternal depression or state of mind with regard to attachment moderate the effects of participation in EHS with PCCCP on observed parental sensitivity or infant attachment security? We wondered if participant characteristics, specifically maternal depression and AAI lack of resolution, might moderate the effect of the program. Although we did not find support for this conclusion with regard to the AAI (p 's $> .10$), we did find modest support with regard to maternal de-

TABLE 11.3. Effect of Program on Outcome Measures, Controlling for Number of Children and AAI Unresolved

Outcome	Descriptive statistics ^a				ANCOVA model					
	Comparison		Program		Error		Covariates		Program status	
	M	SE	M	SE	df	MSE	Number of children	AAI unresolved	F	p
							F	p	F	p
Security	4.63	0.24	4.38	0.25	106	3.30	0.24	.62	0.06	.82
Disorganization	2.61	0.28	2.74	0.29	106	4.44	1.66	.20	0.14	.71
Three-box warmth/sensitivity	-0.06	0.11	-0.03	0.11	118	0.71	0.13	.72	0.17	.68
HOME warmth/responsivity	-.02	0.12	-0.19	0.13	123	0.91	0.02	.88	0.95	.33
									0.50	.48
									0.10	.75
									0.03	.87
									0.93	.34

^aM's and SE's adjusted for number of children and AAI unresolved.

pression. Regression analyses, controlling for number of children and lack of resolution, revealed significant interactions of depression and program status in predicting observed caregiver warmth/sensitivity, $b = .22$, $SE_b = .08$, $p = .01$, HOME warmth/responsivity $b = .19$, $SE_b = .10$, $p = .05$, and child disorganization, $b = -.45$, $SE_b = .23$, $p = .05$.

Scatterplots indicated that, as expected, for the comparison group, as depression increased, warmth tended to decrease and disorganization increased. However, within the program group, as depression increased, warmth tended to *increase* (though the evidence for this was less strong in the case of HOME warmth) and disorganization remained stable, suggesting that the program had more of an impact on mothers suffering from depressive symptoms than on nondepressed mothers. Although we expected greater depression to be associated with less optimal functioning within the comparison group, we were surprised that depression predicted more optimal functioning within the program group and, in particular, that low depression scores tended to predict poorer outcomes for the program group than for the comparison group. It may be that the home visitors were more effective at joining with caregivers who were somewhat depressed than with mothers who did not seem to “need” them, and that the relationships they established with more depressed caregivers were thus more mutually satisfying and ultimately helpful to those caregivers. In contrast, relationships established with caregivers who did not demonstrate vulnerability so obviously may have been somewhat mutually frustrating and so actually had some unintended negative effects. It is entirely possible, however, that, for all three outcome variables, and particularly for the HOME warmth measure, this pattern may have resulted from outlying cases. The small sample size makes it difficult to determine whether cases with high leverage (i.e., those with the most extreme scores on maternal depression) are true outliers, unduly affecting the regression lines, or whether they accurately represent the population from which they were sampled. We emphasize that these conclusions are tentative and that they warrant further investigation. Nevertheless, it is important to note a parallel with the national (cross-site) EHS study, in which the program was particularly effective for families with parents who were depressed at baseline (Office of Research and Evaluation and Head Start Bureau, 2002).

Within the program group, do demographic or baseline characteristics predict program participation, and does program participation relate to parenting and attachment outcomes? This question was motivated, in part, by the fact that average program participation was very low, a factor that may have contributed to the lack of significant main effects. Program families participated in less than one quarter ($M = 33.5$, $SD = 26.2$) of the 144 home visits proposed in EHS’s performance stan-

dards, and they participated for fewer months than they were eligible for (months enrolled, even if not receiving home visits, $M = 20.0$ months, $SD = 11.5$; active participation, at least one home visit per month, $M = 15.1$ months, $SD = 9.2$). Participants only completed about a third of the attachment-related PCCCP steps ($M = 36.4\%$, $SD = 24.3$), and none of them completed all of the PCCCP tasks.

To determine whether participant characteristics influenced level of program participation, we examined the associations between baseline measures and the two dosage indicators, proportion of PCCCP attachment protocols completed and number of home visits. Not surprisingly, families who enrolled when their children were younger completed more attachment protocols, $r(72) = -.41$, $p < .001$. Being in work or school was also predictive of completing more attachment protocols, $r(75) = .23$, $p = .05$. Families who had fewer moves in the year prior to enrollment and families who earned higher yearly family incomes (and thus were perhaps less stressed, although no difference appeared on the life stress measure) completed more home visits, $r(74) = -.25$, $p = .03$, and, $r(67) = .26$, $p = .04$, respectively. We found no evidence of an association between program participation and any of the other demographic variables, life stress, depressive symptoms, verbal ability, or the AAI ratings of coherence and lack of resolution, $p > .05$.

However, the AAI categorical classifications were associated with both number of home visits, $F(3, 66) = 3.85$, $p = .01$, and attachment protocols completed, $F(3, 67) = 4.04$, $p = .01$. Tukey post-hoc analyses indicated marginally significant trends such that caregivers with autonomous classifications ($M = 45.4$, $SD = 30.5$) completed more home visits than caregivers with preoccupied ($M = 13.8$, $SD = 9.6$, $p = .07$) or unresolved/cannot classify ($M = 26.4$, $SD = 19.2$, $p = .07$) classifications. Although the mean number of home visits for caregivers with dismissing classifications ($M = 41.9$, $SD = 28.0$) approached that of the autonomous classifications, all comparisons with this group failed to reach significance, p 's $> .10$. However, caregivers with dismissing classifications ($M = 49.8$, $SD = 26.6$) completed a higher percentage of attachment protocols than caregivers with preoccupied ($M = 16.9$, $SD = 17.3$, $p = .03$) or unresolved ($M = 30.6$, $SD = 21.2$, $p = .03$) classifications. Caregivers with autonomous classifications ($M = 39.3$, $SD = 23.5$) did not significantly differ from caregivers in any of the other groups with respect to attachment protocol completion, p 's $> .1$.

Finally, we examined correlations between the two dosage variables and the four attachment and parenting outcomes, controlling for enrollment and baseline characteristics that were associated with either group membership or dosage. Of the eight partial correlation analyses, only one was significant: caregivers who received more home visits also re-

ceived higher three-bag warmth/sensitivity ratings, $r(48) = .48$, $p = .0005$. Because both the warmth/sensitivity rating and the AAI classification were related to the number of visits, we examined their relation to each other. AAI classification was not associated with warmth/sensitivity, $p > .10$, but, extending these analyses to the AAI ratings, we found that program caregivers with greater coherence of mind had higher warmth/sensitivity scores $r(57) = .33$, $p = .01$.

Given the interrelations among the AAI variables, number of home visits, and warmth/sensitivity, we wondered if at least a partial mediational model was operating (e.g., coherence of mind $\rightarrow$ program participation $\rightarrow$ warmth/sensitivity); however, we found no evidence of such a mechanism. Baron and Kenney (1986) suggest that, for a mediational effect to be operating, there must be significant relations between all three variables of interest—in our case, AAI scales, number of home visits, and warmth/sensitivity—but that the relation between the predictor (AAI variables) and outcome (warmth) must be lower when the potential mediator (number of home visits) is entered simultaneously than when the mediator is not considered. We examined two potential models of mediation that differed on the primary predictor variable, either AAI classifications or coherence of mind. Although number of home visits is correlated with warmth/sensitivity (see above), AAI classification (four-category or dichotomized as secure/insecure or resolved/unresolved) was not predictive of warmth/sensitivity, p 's $> .10$, and coherence of mind was not predictive of number of home visits, $p > .10$. Because all of these relationships are necessary to suggest a mediational model, we do not have enough evidence to conclude that such a mechanism is operating. This pattern of results is partly explained by noting that the AAI coherence ratings are not redundant with the AAI classifications, only with the AAI secure/insecure dichotomy. Within the insecure AAI classifications, there are large differences that are not reflected in similar variation for the AAI coherence rating. The AAI classifications are related to number of home visits but the coherence rating is not because the number of visits completed by the different insecure groups was quite broad, with the dismissing group completing about as many as the autonomous group. We speculate why that may be so in the discussion.

DISCUSSION

The primary hypothesis examined in this report, that an EHS program with an emphasis on family support augmented with a brief attachment intervention protocol would increase parenting sensitivity and rates of attachment security in a low-income sample, was not supported. Are the

results for this one program consistent with the findings for EHS as a whole? The national evaluation of EHS did not measure infant attachment security, but it did assess child socioemotional functioning and parent-child interaction. The national evaluation found significant but small effects of program participation on both child socioemotional outcomes and parenting outcomes at 24 and 36 months (Office of Research and Evaluation and Head Start Bureau, 2001, 2002). These effect sizes ranged from .08 to .18. In their meta-analysis of attachment intervention studies, Bakermans-Kranenburg and colleagues (2003) found that only interventions that improved caregiver sensitivity substantially, with effect sizes greater than .40, also brought about changes in rates of secure attachment. Given the small effect sizes in EHS sensitivity-related measures, it seems unlikely that national EHS programs significantly influenced rates of attachment security.

Unlike the other national EHS programs, the program under question included the PCCCP, which specifically targeted the parent-child relationship. The intent of adding the PCCCP to the local EHS intervention was most consistent with the “more is better” approach to enhancing early attachments, which is exemplified by the studies of Project STEEP (Egeland et al., 2000; Erickson, Korfmacher, & Egeland, 1992) and the UCLA Family Development Project (Heinicke et al., 1999). Although the UCLA program significantly improved rates of secure attachment in the treatment group, Project STEEP did not. Thus, even under the best of conditions, the “more is better” approach to which this EHS program aspired had in the past been only modestly successful at enhancing attachment security.

In addition, unlike the STEEP and UCLA programs, which were “efficacy” studies—research projects in which the researchers control, to a large extent, the “who, what, where, and when” elements of the intervention—the EHS evaluation had more in common with “effectiveness” studies, which evaluate model programs in the real world, under the constraints of existing systems. Individual elements of the PCCCP had demonstrated value in prior research (Solchany et al., 2002), but the PCCCP as a stand-alone model program had not been tested. Instead, as might happen in an effectiveness study, the PCCCP was implemented within an existing system, or “host organization” (Price & Lorion, 1989). The host organization was an early childhood intervention and family support program that was transitioning into an EHS program, with the added constraints of a grant-mandated partnership with a university research team and a required national evaluation component. Thus, before concluding that the PCCCP itself is ineffective, it is important to analyze the issues involved in implementing prevention programs in a real-world host organization (Price & Lorion, 1989). We observed

several related issues that may have detrimentally impacted the effectiveness of the EHS program in which we worked: communication breakdown, agency transitions, and the divergent goals of the various players. All of these issues likely influenced two other problems, staff turnover and low rates of program completion.

At a basic level, this EHS host organization was actually charged with implementing two prevention projects simultaneously: Early Head Start, a new federal program, and the PCCCP, developed by the local university research partners. Implementing the new federal EHS performance standards was a challenge for all 68 EHS programs selected to receive the first round of EHS funding. Working with local university research partners was an additional complexity for the subset of 17 sites selected to participate in the national evaluation study. The reciprocal constraints and responsibilities of that relationship were partially defined at the outset but were also negotiated over time. This situation did not provide an ideal context for evaluating a parenting protocol like the PCCCP, which had never been implemented in its entirety.

Consider the issue from this EHS host organization's point of view. A primary point of confusion must have been: Who is the program implementer, the federal agency providing EHS funds and oversight or the university research partners? This confusion might have been resolved by encouraging face-to-face communication between the federal agency, the research team, and the program staff, and by establishing enduring personal relationships between these organizations. This did not happen to a sufficient extent at this site, in part because numerous transitions within the various organizations impeded effective communication.

In the course of the 5 years of the study, the local EHS program experienced two different *regional directors* of the parent agency. The regional director, who was responsible for oversight of many programs, one of which housed this EHS program, was the original program partner in the program-researcher team. The subsequent regional director had not participated in the original grant application, and, unlike the first one, had no shared history with the research team. The EHS *program manager*, who provided daily oversight of the program-research link, was replaced by the parent agency five times. The EHS *home visit supervisor*, the most proximal link between the research team and the frontline staff, was replaced three times. Successive program managers and home visit supervisors in the agency had their own goals and visions, and their own feelings about the EHS performance standards, and an increasingly distant sense of connection with the research goals of the enterprise. Furthermore, over the course of this study, all EHS programs experienced a change in federal performance standards and turnover in federal agency oversight personnel, along with uncertainty about secur-

ing sustained federal funding. Shared vision with the research team diminished, as did the sense that the future of the program was connected to the aims of the research team.

These divergent viewpoints are exemplified by the various staff members' attitudes toward families who did not keep appointments. Program staff believed that families who missed too many visits were not motivated to be helped and should be dropped from the program and replaced with other families who were more likely to utilize program resources. Research staff believed that families who missed visits were testing the relationship and commitment of program staff and should be encouraged and supported to continue in the program. Furthermore, from the research perspective, once randomly assigned to the program, a family could not be replaced and was in the program regardless of whether any intervention occurred or not, and so, for the sake of the evaluation, every effort should be made to keep these families involved. However, federal overseers were judging the quality of the EHS program, in part, by the number of home visits completed, and the program did not receive any "credit" when home visits were not conducted. To report that they were providing services, the program felt compelled to replace noncompliant families with others who would complete more home visits. Many families dropped in this manner from EHS services still completed the research assessments, however, which may have contributed to the lack of differences between the program and comparison groups.

This EHS program's lack of success in promoting secure attachments may also have reflected the fact that the home visitors and their supervisors did not share the researchers' theory of change. Home visitors may have been more concerned with conveying information than in developing the kind of trusting relationships with their clients that might facilitate supportive interaction and thereby model for mothers how to provide a sensitive, responsive environment for their infants. They themselves likely felt limited support to tackle this challenging task in an agency managing competing visions of the goals of the intervention and lacking stable leadership.

Possibly as a result of lack of support and high task demands, the turnover among frontline staff was very high and compromised the integrity of the PCCCP intervention. Over 5 years, a series of 18 EHS home visitors filled the six full-time home visitor positions, and 11 public health nurses (PHNs) filled the two full-time PHN positions. Most families had more than one home visitor, especially those who participated for more than a brief period. The original home-visiting team had taken a course taught by a member of the research team and contributed to the development of the PCCCP, important facilitative factors in pro-

gram implementation in host organizations (Price & Lorion, 1989). However, many of these professionals were hired away by newer EHS programs in the area that paid better. Subsequent home visitors did not have the shared experiences, depth of training, or commitment to the PCCCP of the original staff.

One conceptual framework in which to understand the program's difficulty with nurturing parent-child relationships is that of "parallel processes," a concept developed within the psychotherapy literature and now being introduced into organizational/consultation research (Morrissey & Tribe, 2001; Sullivan, 2002). According to this theory, a dynamic in one part of a system reinforces similar patterns of interaction in other parts. Parallel process theory would predict that staff in a safe and supportive work environment would be more able to provide a safe and supportive environment for clients/parents, who, in turn, are being asked to provide such an environment for their children, often by taking personal risks and learning unfamiliar behaviors. Ironically, however, within the EHS agency, the instability and stress paralleled that of the families staff members were trying to help. Staff attempting to help families found themselves in a work environment marked by conflicting demands, frequent changes in personnel, emphasis on satisfactory statistics rather than supportive relationships, and threats to job security; this context was not unlike the chaotic, unsupportive environments that many EHS parents inhabited and likely interfered with home visitors' efforts to support the kind of change in families envisioned by the researchers.

All of the factors listed above may have contributed to low overall levels of program participation. Failure to provide an adequate dosage of the program and the PCCCP must be included among the factors contributing to a lack of differences on the outcome relationship measures. However, rates of participation were not uniformly low, so analysis of family characteristics associated with participation level may inform the development of programs that better address specific needs of families and that help staff better cope with specific challenges presented by these needs. For example, families with lower incomes and less stable living arrangements completed fewer home visits. Thus, the model described in this chapter may not be ideal for families who are struggling with very basic standard-of-living issues.

In addition, some aspects of caregivers' state of mind with respect to attachment were associated with indicators of program participation. Caregivers with autonomous classifications, as compared to those with preoccupied or unresolved/unclassified classifications, tended to complete more home visits over the course of the program. Although we did not find an association between dosage and the lack of resolution rating,

per se, the difference between the autonomous and the unresolved/cannot classify groups parallels findings by Spieker, Solchany, McKenna, DeKlyen, and Barnard (2000) who found that EHS mothers with unresolved or cannot classify AAI classifications received lower staff ratings of program engagement and frequently had mental health problems that were challenging for program staff. Interestingly, we also found that caregivers with dismissing classifications, as compared to those with preoccupied or unresolved classifications, completed more attachment protocols, the bulk of which occurred before the child's first birthday. Home visitors may have found it easier to complete attachment protocols with these families because individuals with dismissing classifications demonstrate an "implicit claim to strength, normality, and/or independence" (Hesse, 1999, p. 401) in an attempt to limit the influence of attachment in thought and daily life. Thus, they may be more invested in presenting a competent face to the home visitor. These characteristics would help keep visits on a more superficial level, such as checking off protocols, and assure that the caregiver would not be demanding of the home visitor. In contrast, individuals who are preoccupied may be vague and confused, or angry and conflicted. Some may be fearfully preoccupied by traumatic experiences. These characteristics would make them very demanding of home visitor patience and attention, and also less reliable about completing visits and child-focused activities.

In addition to these baseline characteristics, we found that caregiver warmth/sensitivity was related to number of home visits completed. Even though dosage within the program group was associated with warmth/sensitivity in expected ways, we cannot conclude that the program enhanced caregiver sensitivity for families who received more home visits. The fact that there were no differences between the randomly assigned program and comparison groups suggests that the association with dosage in the program group resulted from selection effects. In other words, caregivers predisposed to interact warmly and sensitively may have been more likely to participate in more home visits, and home visitors may have found them more rewarding to work with and thus made more effort to complete home visits with them. It is interesting to note that the AAI classifications were not associated with caregiver warmth/sensitivity, although the ratings of coherence of mind were. However, coherence of mind was not associated with number of visits. Apparent inconsistencies such as these may result from low power (i.e., due to small sample size) but also may reflect the fact that caregivers with dismissing states of mind, and hence low coherence ratings, were quite different from other caregivers with unresolved and preoccupied states of mind but equally low coherence ratings.

In conclusion, the question in this chapter's title, "In the context of

Early Head Start, can programs emphasizing family support improve rates of secure infant–mother attachments in low-income families?,” requires more than a “Yes” or “No” answer. What we learned most about was not whether the intervention “worked,” but the myriad real-world conditions that must be negotiated successfully if research is to be translated into effective programs. There is a huge harvest of findings and insights from EHS–university research partnership studies still to come. The challenge to us all is to use these findings to further develop our understanding of how early attachment might best be enhanced. Future research should address whether it is necessary to embrace both of the two apparently disparate approaches—“starting early and intensively” (Egeland et al., 2000) and “less is more” (Bakermans-Kranenberg et al., 2003) — in order to address the needs of varied populations (see also Berlin, Chapter 1, Greenberg, Commentary 3, van IJzendoorn et al., Commentary 1, and Ziv, Chapter 3, this volume, for further discussion of this issue). For instance, the PCCCP, repackaged as a brief, stand-alone, behaviorally focused intervention, as recommended by Bakermans-Kranenburg and colleagues (2003), may be appropriate for some parents but not for other, multirisk families. The findings illustrating caregiver characteristics as predictors of level of program participation and moderators of effects of the program on attachment and parenting outcomes suggest that there are subgroups within the target population and that a “one-size-fits-all” program is probably not appropriate. Rigorous evaluation of how to implement and sustain interventions across diverse participants is urgently needed (Forgatch, 2003).

NOTE

1. The disorganization rating and HOME warmth composite resembled exponential functions, with high frequencies for low disorganization and high warmth. Transformations of the original scales did not improve distributional properties, so we collapsed the variables into both dichotomies and three-point ratings. We then analyzed these data using binary logistic and ordinal regression, respectively; however, because the conclusions for these analyses were the same as those using the original variables, we chose to maintain the original scales to facilitate interpretation.

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Tales from the Capitol

Tried, True, and Not-True Strategies for Increasing Policy Support for Programs to Enhance Early Attachment

Geoffrey Nagle and Joan Wightkin

The knowledge base of early childhood development provides substantial evidence to inform the policy decisions of government and the social systems that serve infants and families. With the ever increasing understanding of the importance of the infant's earliest experiences, it is clear that policies with the purpose of providing greater supports to meet the needs of infants and their families are needed (Shonkoff & Philips, 2000). All communities need the infrastructure, services, and systems to help families succeed in caring for their infants and children. Supporting the development of early attachments and strong relationships between newborns and their primary caregiver is one of the first components of building strong families and strong communities (Olds, Kitzman, Cole, & Robinson, 1997). Communities plagued with high rates of poverty have excessive child abuse, lower educational attainment, and more violence and crime (Brooks-Gunn & Duncan, 1997). High-quality early childhood education has been shown to reduce school failure (Ramey et al., 2000). Government has adopted policies and programs to address child maltreatment once it has occurred, but the child protection system has been stretched beyond its capacity (Thompson, 1995). The prevention of this devastating problem is often left to underfunded nonprofit or voluntary entities.

Prenatal programs addressing a woman's physical and socio-

emotional health can be an important and necessary component of postnatal and early childhood interventions that focus on the relationship between the mother and her infant. The Nurse–Family Partnership (NFP) is one such program. It uses attachment theory as a guiding theoretical framework to promote a positive and secure relationship between the mother and her new baby (Olds, Chapter 10, this volume). In the NFP the nurse visitor focuses on developing an empathetic relationship with the mother in order to help promote maternal and infant health and a sensitive and responsive infant–caregiver relationship (Kitzman, Cole, Yoos, & Olds, 1997). Proven interventions, such as the NFP, that address the comprehensive physical, mental, and social health needs of families with young children should be the cornerstone of governmental social and health policy, and be readily accessible to all families in need of such services.

As policy advocates and program leaders work to implement new programs to support young children, we often hear language including “We will use best practices” and “Why reinvent the wheel?” However, if and when best practices are known, it is often difficult to translate this knowledge into policy and programs. Shonkoff (2000) attributes this difficulty to the different cultures that exist between researchers and policymakers. This chapter details the Louisiana experience in bringing the NFP program to the state. To succeed, it was critical to build a clear agenda among child advocates, to provide government leaders with facts, and, most of all, to create the relationships that could bridge cultural differences. These relationships brought together key leaders to establish a commitment to the program model that was critical to its sustainability and expansion.

GOVERNMENT PROGRAMS TARGETING THE HEALTH OF FAMILIES WITH YOUNG CHILDREN

Two major federal efforts that address the health and welfare of low-income families in the United States today are the Title V Maternal and Child Health Block Grant program and the Medicaid program. The Title V Block Grant program had its origins in the Children’s Bureau of 1912, the Sheppard–Towner Act of 1921, and, more directly, in Title V of the Social Security Act of 1935 signed into law by President Franklin D. Roosevelt. Title V established a focal point in each state health department for the purpose of coordinating health services for pregnant women, infants, and children. With an emphasis on prevention, services included prenatal care, nutritional counseling, and health education (Bennett & Cross, 2003). The partnership between federal and state

government to jointly fund services for this vulnerable subpopulation continues today.

The Title V program is administered by the Maternal and Child Health Bureau in the U. S. Department of Health and Human Services, Health Resources and Services Administration. Sections of Title V law instruct states to provide and assure mothers and children access to quality maternal and child health services; to reduce infant mortality, the incidence of preventable diseases, and handicapping conditions among children; to promote the health of mothers, infants, and children; and to provide and promote family-centered, community-based coordinated care for children with special health care needs (U.S. Department of Health and Human Services, Health Resources and Services Administration, 2000). Each state determines its own priorities based on its annual examination of health status data and a comprehensive maternal and child health needs assessment carried out every 5 years.

Although small compared to Medicaid, the Title V program greatly influences the health care system for pregnant women and children. This is done by states targeting funding to high-risk populations and geographic areas, and using Title V funds to establish the infrastructure for the delivery of services. The federal Title V budget for 2003 was \$731 million compared to federal Medicaid expenditures for the same period totaling \$161 billion (Congressional Budget Office, 2003; U.S. Office of Management and Budget, 2004).

The Medicaid program was created in 1965 as Title XIX of the Social Security Act to provide health coverage to this nation's poor citizens. Medicaid is an entitlement program whereby all individuals who meet the income and associated requirements are eligible for benefits. Medicaid is a state-federal partnership whereby the state funds a percentage of the program costs and the federal government matches these state expenditures based on the "federal financial participation rate," which is tied to the state's per capita income. In the federal fiscal year 1999-2000, the minimum federal match was 50% and the maximum was 83%. Louisiana's match was 70.32% (Fisher, Cohen, & Flynn, 2000). In other words, Louisiana had to pay less than 30 cents of each dollar spent through the Medicaid program, with the federal government paying the difference.

Each state operates their Medicaid program under a state plan that is submitted to the federal government for review, approval, and continued oversight. States have flexibility in determining the health, mental health, and dental services that will be offered. Furthermore, states can identify special populations or groups to whom to offer additional coverage (e.g., children with disabilities).

**PREVENTIVE PEDIATRIC HEALTH CARE
FOR THE POOR: LATE 1970s THROUGH
EARLY 1990s AND THE MAJOR CHANGES
TO THE HEALTH CARE DELIVERY SYSTEM**

The majority of eligible participants in the Medicaid program are reproductive-age women and their children. One of the mandates of the Medicaid program that includes special assurances for child health is the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) program (Hakim, Boben, & Bonney, 2000). In the early years of EPSDT, most states, particularly the southern states, provided the periodic screening and preventive health components of this program through local health department well-child clinics. Title V programs provided leadership in the states' administration of EPSDT services, including training of the public health workforce providing these services and regular monitoring and quality assurance.

Since the late 1970s, Louisiana's Title V funding paid for EPSDT services for those low-income families whose incomes were above the Medicaid eligibility cutoff. Local health clinics were the primary provider of EPSDT well-child screenings from the 1970s through the mid-1990s. The local health clinics' role in providing EPSDT screenings in Louisiana began to decrease as a result of a broad national expansion of Medicaid coverage for pregnant women and children in the late 1980s. Along with expanding eligibility to include more women and children in Medicaid, the Omnibus Budget Reconciliation Act (OBRA) of 1989 mandated that state Medicaid programs assure that the reimbursement fees for obstetrical and pediatric services were comparable to the private-sector reimbursement rates. This requirement was an effort to remove the barriers to medical care that were pervasive for Medicaid patients whereby physicians were not accepting Medicaid patients because the reimbursement rate was too low (Hill, 1992). In an effort to improve the low EPSDT service utilization rates of Medicaid-eligible children, OBRA 1989 set participation goals for states, with an 80% participation goal to be met by 1995 (Hakim, Boben, & Bonney, 2000).

In the mid-1990s Louisiana's public health system had no additional capacity to increase the number of children receiving EPSDT screening. In addition to reaching the national participation goals, the Louisiana Medicaid program was interested in assuring both preventive screening services and primary care for Medicaid-eligible children. Since the public health system only delivered preventive care, the Louisiana Medicaid program contracted with an outside entity to help meet both objectives.

From the inception of the program through the early 1990s, the local health clinics provided almost all of the EPSDT screening in Louisiana. In 1992 the Medicaid contractor began recruiting private providers to deliver EPSDT services and was successful in convincing private providers to participate. As a result, EPSDT screenings delivered by the local health clinics administered by the Louisiana Office of Public Health in 1993 decreased 13% compared to 1992. By 1998 there was an overall 65% reduction in the EPSDT screenings provided by local health clinics. Today, only 5% of the original number of screenings are provided by the local health clinics, but they are provided through private practitioners with a 59% participation rate for all age children in 2003. Among infants, 87% received at least one preventive health screening in 2003.

TRANSITION FROM CLINIC-BASED CARE TO HOME- AND COMMUNITY-BASED CARE: MID-1990s TO PRESENT

The public health nurses who were formerly funded by Title XIX and Title V dollars to conduct EPSDT assessments began to shift their time away from the Child Health program and focus on other public health services that had increasing patient demand. These programs included the Supplemental Food Program for Women, Infants, and Children (WIC) and Family Planning programs. Therefore, Maternal and Child Health (MCH) program funding was becoming available for other uses and program directors sought alternative methods to improve maternal and child well-being. State rankings of maternal and child health and well-being placed Louisiana at or near the bottom each year. Louisiana consistently ranks among the states with the highest infant mortality, low birth weight, child poverty, single parenthood, and unemployment rates (Annie E. Casey Foundation, 2004).

Title V law requires state MCH programs to conduct a comprehensive assessment of their maternal and child health needs every 5 years. In addition to examining state- and local-level health status indicators, Louisiana gathered extensive qualitative information at the county (parish) level during the 1995 MCH needs assessment period through community meetings, focus groups, and telephone surveys of health, education, and social service providers and consumers. The findings showed that the top needs were psychosocial issues including violence prevention, substance abuse prevention and treatment, and parenting education (Louisiana Office of Public Health, 1995).

Another step in the needs assessment process in Louisiana was a key-informant interview with each parish public health nurse supervisor.

The 20-minute interview included questions about unmet child health needs and recommended MCH program interventions. The public health nurses' responses were consistent across Louisiana and the clear message was that the follow-up, health education, counseling, and referral of young families with psychosocial risk factors would be a relic of the past under the privatized primary health care system being established through the Medicaid initiatives in the state.

Although most of the families served by the local health clinics were poor, the majority were not in need of close follow-up by public health staff. Public health nurses did, however, express concern about a portion of this population that required intensive health education and counseling as well as close follow-up. A recent analysis of psychosocial risk factors among the health department population confirmed the nurses' estimation of risk among their patient population. This study showed that 40% of infants had mothers with less than a 12th-grade education, with 8% having an 8th-grade education or less; 5% of the mothers reported being abused as a child and current child protection agency involvement; and 8% of families with an infant reported criminal justice involvement among either parent (Wightkin, 2003).

Another consistent message from the 1995 MCH needs assessment interviews with public health nurses was that a great deal of pertinent information about a family is lost by seeing them only in the clinic setting. For the past century, public health nurses had conducted much of their work in the homes and communities of impoverished families. The primary solution expressed by the public health nurses was additional support services for families with health and psychosocial problems. While Medicaid-eligible families with young children were being linked to private medical providers to address their physical health needs, there were virtually no resources to address their psychosocial needs. What was lacking in Louisiana was a comprehensive statewide program whose goal was the prevention of family circumstances and behaviors that underlie low educational attainment, child abuse, or criminal behavior.

Approximately 60% of Louisiana's infants come to the local health department to obtain WIC program food benefits. The opportunity to reach the highest risk families at the earliest stage in a child's life was unrivaled in any other setting. Furthermore, the training and experience of public health nurses in early childhood health and development provided an excellent foundation for the establishment of a psychosocial intervention. The MCH program decided to add to this foundation by contracting with the departments of psychiatry in both medical schools in the state, Louisiana State University and Tulane University, to develop an infant mental health training program for public health nurses. The 30-hour training, designed specifically for the public health nurses, in-

cluded social and emotional development, attachment, posttraumatic disorders, and how to assess mental health during a preventive health visit. As a result of the training, the nurses were better prepared to assess risk, provide education, and make appropriate referrals.

HOME VISITING RETURNS TO LOUISIANA: 1990s

For nearly a century, public health nurses provided extensive home-based care prior to the shift to clinic-based services in the late 1970s (Gebbie & Inseon, 2000; Schmidt, 1973). In the early 1990s the Louisiana MCH program experimented with adding home visiting services as an intervention. Grants were given to each region of the state to develop an intervention to address the needs of the maternal and child population. The Hawaii Healthy Start home visiting program (Duggan et al., 1999), adopted by Prevent Child Abuse America (PCAA) and renamed Healthy Families America (HFA; Daro & Harding, 1999), was the model selected by one of the regions. There was such broad interest in this model that a national conference was organized by PCAA to introduce child-serving governmental and advocacy organizations to this intervention. Following the conference, a committee with representatives from Louisiana's MCH program, the state chapter of PCAA, the state child protection agency, and the Louisiana Children's Trust Fund (a child-abuse-prevention entity) formed to promote the implementation of the HFA program in Louisiana. As a result, MCH expanded this program to four areas of the state.

Several years later, prior to further expansion of the HFA model, MCH staff searched the literature on this and other home visiting models. At this time, the results of the 15-year follow-up of the Elmira home visiting intervention were published in the *Journal of the American Medical Association* (Olds et al., 1997). This report, as well as subsequent articles, detailed the sound, rigorous findings of the model and its success addressing a variety of long-standing public health problems including child abuse and neglect, childhood injuries, closely spaced pregnancies, welfare and food stamp utilization, and workforce participation (Kitzman, Olds, et al., 1997; Kitman et al., 2000; Korfmacher, O'Brien, Hiatt, & Olds, 1999; Olds et al., 1998). The literature on the effectiveness of other home visiting models was not as compelling, especially with concern to the generalizability of results to other groups (Gomby, 1999). In addition, the Elmira model, now known as the Nurse-Family Partnership (NFP), was a good fit for Louisiana because it addressed the psychosocial needs of pregnant women and young families, used public health nurses (who were becoming available due to the transition in

MCH services in Louisiana as previously described), and had been rigorously evaluated.

THE NURSE–FAMILY PARTNERSHIP PROGRAM IN LOUISIANA: 1999 TO PRESENT

The NFP intervention consists of having a nurse visit the home, either weekly or biweekly, starting during the pregnancy and continuing until the child reaches age 2. The program has been developed over the past 25 years and is grounded in the theories of human ecology (Bronfenbrenner, 1979), self-efficacy (Bandura, 1977), and attachment (Bowlby, 1969; see also Olds, Chapter 10, this volume). The program has three primary goals: (1) to improve a women's health behavior (focusing on improved nutrition and the prevention of substance use); (2) to improve family caregiving of children by improving parental engagement with their child including their responsiveness, sensitivity, and understanding of their child's development; and (3) to improve maternal life course development, focusing on subsequent pregnancy planning, educational achievement, and employment.

The nurses strive to achieve these goals by working within a structured, but flexible, set of program guidelines with six domains: personal health, environmental health, maternal role development, maternal life course development, family and friends, and health and human services. The approach is strengths-based, and clinical goals in each of the domains are individualized and client-driven (Olds, Kitzman, et al., 1997). Ultimately, it is the relationship between the nurse and the client that is viewed as the "vehicle" by which the education and growth can occur. To form the essential therapeutic alliance with the mother that is necessary to achieve program success, the protocols emphasize the importance of the nurse being warm, consistent, reliable, nonjudgmental, and "available" to the client (Olds, Kitzman, et al., 1997). Therefore, the nurse's relationship with the mother serves as a "parallel process" that models for the mother a way of being with her infant that facilitates the mother's as well as the infant's overall development and well-being (Kitzman, Cole, et al., 1997).

As the need for MCH funding for clinical services diminished, dollars were shifted to initiate the NFP program in two regions of Louisiana. The two program pilots were initiated in May 1999. Women were eligible if they were first-time pregnant women, less than 28 weeks pregnant, and below 133% of the federal poverty level (Medicaid eligibility for pregnant women in Louisiana in 1999). Women coming to a local health clinic for pregnancy testing, WIC, or prenatal care were screened

for NFP program eligibility and interest in participation. Nurses also received referrals from local schools, private doctors, program clients, and other community resources.

BUILDING A CLEAR AND UNIFIED MESSAGE FOR THE EXPANSION OF THE NURSE-FAMILY PARTNERSHIP: 1998–2000

While the MCH program had sound reasons for implementing the NFP, working to build support for expansion of the program throughout Louisiana would require communicating with many entities and organizations to ensure that there was one clear message regarding this evidence-based home visiting program. This was essential because all too often efforts on behalf of children in the state were undermined or “watered down” due to the lack of a coherent message about which of the many possible interventions should be implemented. The unintended result would be contradictory messages that would leave legislators confused and in need of specific direction. It was evident early on that a very clear message of support from the child advocacy community was needed in order to best position the NFP to be supported by the Louisiana legislature and executive branch.

To build a united front to support the expansion of the NFP among all child advocates and health and human service leaders would require building consensus and not imposing an agenda. At the center of home visiting advocacy was Prevent Child Abuse Louisiana (PCAL), the state chapter of PCAA. As described earlier, the HFA model was being implemented in four locations in Louisiana, funded by the MCH program. It was obvious that there would be great confusion if both PCAL and MCH were supporting two different models of home visiting. Therefore, it was essential that both entities come to an agreement on a clear and single message.

Complicating matters was the fact that the newly hired PCAL executive director was promoting the HFA model that was supported by her national organization. Fortunately, she recognized that the issue was not one of competition for a pot of money, as there was not a defined source of funds for one model or the other. Rather, due to the transition in the Louisiana MCH program, there was a unique opportunity to shift certain public health resources to home visiting services. In addition, she understood that there were unique strengths already in place because the Louisiana MCH program already employed the necessary nurses. To her credit, the executive director of PCAL supported the NFP as the best way to expand the number of children that would receive home visiting services.

A second key group to involve in building a single message was the Louisiana governor's Children's Cabinet. The cabinet is comprised of 11 members including the secretaries of the Departments of Health and Hospitals, Social Services, Labor, and Corrections, as well as the commissioners of Administration and Education. In addition, membership included an appointee of the state House of Representatives, the state Senate, and the state Supreme Court, as well as the executive director of the Children's Cabinet and the chairperson of the cabinet's advisory board. The cabinet meets at least quarterly, but often monthly, with the primary function of coordinating children's policy across departments and to make recommendations to the governor on funding priorities for children's programs.

Much of the coordinating work of the Children's Cabinet takes place at the cabinet's advisory board. This group, much larger than the cabinet, includes the heads of the state agencies within the departments listed above, as well as representatives or advocates from statewide children's organizations or associations. The advisory board meets monthly throughout the year. Because it was a large group of people with diverse interests and expertise, the advisory board created a Comprehensive Planning Committee (CPC) to help provide information and to develop preliminary recommendations.

The CPC was comprised of members of the advisory board or their designees. In April 1999, Louisiana MCH program staff produced a report for the CPC summarizing some of the emerging research that highlighted the significance of the early years of development. This report emphasized preventive interventions, specifically family-strengthening programs. The NFP received special attention as it was recognized in separate literature reviews as an exemplary model program with scientifically proven results (Center for the Study and Prevention of Violence, 1998; Kumpfer & Alvarado, 1998).

This report served to build a consensus for the need to increase state programs focusing on prevention as opposed to treatment. To illustrate this need, a conceptual framework represented by a pyramid was developed to highlight the necessity for more resources dedicated to early intervention or prevention efforts (see Figure 12.1). Examination of this pyramid revealed that the majority of programs in the state were focused on secondary or tertiary interventions. Excluding education, there were fewer than a half-dozen programs that could be categorized as prevention or early intervention (the base of the pyramid). The NFP was exactly the type of program the CPC was looking for: an early intervention and prevention program that had been proven effective. The CPC process was a crucial first step in educating members of the Children's Cab-

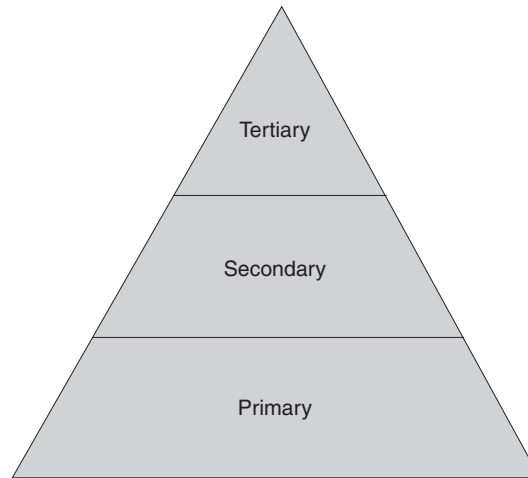


FIGURE 12.1. This pyramid was used to categorize state programs serving children in 1999. It proved to be a valuable tool highlighting the lack of prevention-focused services.

net Advisory Board, and eventually the full cabinet, regarding the value of this model program.

Of all of the work done by the CPC, perhaps the most important result was a clearly articulated policy agenda for the advisory board. Most importantly, this agenda served to focus the members of the advisory board and the cabinet on the need to build capacity and services addressing early intervention and prevention. As a result, the advisory board developed recommendations for the cabinet that followed their guiding principles and adhered to the conceptual framework of the pyramid. The top recommendations for funding in fiscal year 1999–2000 included the expansion of programs to increase the Children’s Health Insurance Program (CHIP), school-based health centers, and home visiting, specifically the NFP. The recommendations were accepted and these three initiatives were the top priorities of the Children’s Cabinet that were submitted to the governor as the new state budget was being created.

The process of building a unified message supporting expansion of the NFP was greatly facilitated by the Children’s Cabinet. The cabinet and its advisory board created a central forum for communicating with other child advocates and state leaders to educate them on both the importance of early intervention and the importance of using proven interventions, such as the NFP. In addition, having the support of PCAL, which had a seat on the advisory board, was crucial to keeping all of the

advocates united and clear as to the specific model of home visiting to support or promote. If PCAL had chosen to push for expansion of HFA, this unified agenda could have been sorely undermined.

The importance of building this understanding and acceptance of the NFP is illustrated by the events surrounding the implementation of a program evaluation. As the NFP was set to initiate the pilot in May 1999, MCH planned to contract with an outside entity to evaluate the program. However, due to state government budget shortages, there was a freeze on all new state contracts. MCH thought it was essential to have the evaluation in place from the outset in order to collect the necessary baseline information. With few available alternatives in the state bureaucracy for getting this evaluation contract through the system, the issue was raised at a meeting of the Children's Cabinet. While unusual to address such a specific issue as a program's evaluation, the NFP was a priority program of the cabinet, and therefore took on special significance. When the need to have the program evaluation initiated in conjunction with the NFP pilots was understood by the cabinet, the evaluation contract was exempted from the freeze and the program evaluation was instituted.

THE NURSE-FAMILY PARTNERSHIP AND THE MEDICAID PROGRAM IN LOUISIANA: 1999-2000

In 1999, at the time of the Children's Cabinet prioritization of the NFP as one of its top three priorities, the pilot program was being fully financed by the MCH program through the Title V Block Grant. As a result of the cabinet's priority list, the governor's budget called for an expansion of the NFP and to utilize Medicaid funding to pay for these additional services. The only problem with this change in financing was the fact that the state Medicaid agency had not been involved in the discussions of the advisory board or the CPC that led to the focus on early intervention and prevention and the support of the NFP. Therefore, the good news of potential financial sustainability of the program through Medicaid funding was tempered by the reality that support and understanding of the program was not yet fully realized by the Medicaid leadership.

When first introduced to the program, Louisiana Medicaid administrators liked the fact that the NFP was evidence-based and had clearly defined service deliverables and program guidelines. An additional positive aspect of the NFP was that it was being administered by the MCH program in the Office of Public Health, as both entities were within the Louisiana Department of Health and Hospitals (DHH). Ultimately,

Medicaid would amend their state plan to reimburse the NFP as a targeted case management service. Targeted case management is an option that allows Medicaid to deliver services to a specific group or population, in this instance, pregnant, first-time mothers.

However, Medicaid officials were cautious about adding this new targeted case management intervention without more information. It became clear that the best way to gain Medicaid's support would be to provide information from a trusted source. The goal of those individuals advocating for the adoption of this program was to identify individuals who were respected by the Medicaid leadership and who could convince them that this program would be a benefit to Louisiana and worth their efforts.

Fortunately, the perfect opportunity existed in Oklahoma, where the NFP was being implemented statewide and Medicaid was already providing reimbursement for the program. The fact that Oklahoma had already established the NFP as a Medicaid program was good for Louisiana because federal approval for reimbursement had already been achieved. Furthermore, Louisiana and Oklahoma are two of five states in the same federal administrative region. This meant that the same federal leadership that had approved the Oklahoma program would be responsible for reviewing the Louisiana state plan amendment. Therefore, the "path" to gain federal approval was clearly defined.

The leaders of the Oklahoma and Louisiana Medicaid programs are colleagues who maintain an institutional trust. In April 1999, the head of the Louisiana DHH requested that a site visit be arranged for five Louisiana administrators to the Oklahoma program. This included two NFP administrators from the MCH program and three from Medicaid and DHH.

The first meeting was at the state capitol building with the Oklahoma state senator who had been the key legislator pushing for the implementation of the NFP in every county of Oklahoma. He explained his view of the program and the reasons for bringing it to Oklahoma. These reasons included some high-profile child abuse deaths as well as the 1995 Oklahoma City bombing. These events had created the political will for investing in more prevention-focused programs that resulted in the NFP being initiated statewide.

The second meeting was with the Oklahoma Medicaid program, known as the Oklahoma Health Care Authority. This was a key meeting for the Louisiana Medicaid staff to hear about the program from their peers. The Oklahoma people explained how structured the NFP was, with excellent paperwork, training, and oversight. Furthermore, they explained how they worked with their federal monitors to manage the program. The final meeting was with the NFP program and monitoring staff who were responsible for the implementation of the program. Each of

the meetings was enlightening in terms of the program as well as successful in convincing the Louisiana delegation of the effectiveness of the program.

Once it was clear that Medicaid reimbursement for the NFP was both viable and likely to be approved by the federal government, and that there was a roadmap as to how this process was going to work, attention turned to the operational issues involved in delivering these services in what was now going to be a Medicaid program. As stewards of the taxpayers' dollars, state government often feels pressure to provide the least expensive services for the greatest number of people. The NFP was the intervention accepted and endorsed by many state government officials for its effectiveness, in terms of positive health and social outcomes, as well as its long-term cost savings (Karoly et al., 1998). However, this model program is more intensive, and thus more expensive than other case management approaches. Thus, there were debates between those who favored using less expensive personnel and the reimbursement guidelines, and those who advocated following the original NFP model and reimbursement for total program costs.

While the Medicaid leadership supported this model largely because of the evidence of its effectiveness, the staff responsible for implementing the program in Medicaid did not fully understand or appreciate the details and subtleties of this intervention. For example, the draft of the policy announcing this new Medicaid-covered program to the public did not specify that the NFP nurses had to be registered nurses. A Medicaid official discovered this discrepancy and corrected the qualification information. There was further debate about the required years of experience that a nurse must have in order to qualify as a provider. While MCH advocated for a minimum of 3 years of experience for an NFP nurse, the final Medicaid policy required only a valid nursing license.

Another example of the policy debate included the interpretation of a "home visiting" program. Medicaid program implementation staff interpreted the intervention to take place exclusively in the family's home, and only those visits would be reimbursable. This point of view failed to consider that program participants could be working, in school, or both. The NFP model assumes that some visits will take place in these settings and is a product of program success. While Medicaid struggled to set policy that assured program integrity and compliance, the Medicaid director was able to decipher the difference between a necessary rule and one whose overinterpretation might harm the program's effectiveness, and made decisions accordingly.

The final issue for debate involved the reimbursement methodology. Medicaid structured the reimbursement on a per family/per month basis. The consequences of this structure was that if one home visit was missed in a month, then there would be no compensation regardless of the

nurses' efforts to reschedule or any other mitigating factors (e.g., vacation days, holidays). While the NFP model has a structured schedule for visits, the program participants' life circumstances often disrupt their ability to keep all scheduled appointments. During the first year of this reimbursement mechanism, it became evident to all parties that the patient compliance issue was hurting the program's financial sustainability and the program was not receiving reimbursement for many completed visits. After much deliberation and compromise, decisions were made in favor of maintaining the integrity of the NFP model, with a fair and adequate reimbursement that was acceptable to both Medicaid officials and the MCH program.

A POSITIVE FUTURE FOR LOUISIANA

The story of the NFP becoming a Medicaid program in Louisiana illustrates some of the many opportunities and difficulties that arise when trying to impact social policy. Even with the strong rationale for the NFP, evidence-based results, and the available human and fiscal resources, there were many times along the way when the program could have been undermined. Ultimately, the Louisiana Medicaid and MCH programs have made wise choices that should result in the same excellent outcomes that were achieved in the randomized, controlled studies of the NFP intervention. Since fiscal year 1999–2000, additional Medicaid funding has been appropriated specifically for the NFP. It is now essential that Louisiana continues its strong financial commitment and adheres to the model as it strives to achieve a reduction in child abuse and childhood injuries and improve maternal health, education, and workforce participation. A study of the impact of Louisiana's NFP program has already shown significant reduction in prenatal depression, prematurity, and emergency room visits for the child among program participants compared to a control group (Nagle & Boris, 2004). With a clear agenda focused on prevention and early intervention, Louisiana now has an excellent blueprint for a state that is striving to improve the lives of its children and families.

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PART III

COMMENTARIES

Why Less Is More

*From the Dodo Bird Verdict to
Evidence-Based Interventions on
Sensitivity and Early Attachments*

Marinus H. van IJzendoorn,
Marian J. Bakermans-Kranenburg, and Femmie Juffer

In *Alice in Wonderland* Lewis Carroll tells the tale of the caucus-race in which the participants start at different points in time, and the finish also is a moving target. Maybe that is why the Dodo bird, after long reflection, decides: “*Everybody* has won, and *all* must have prizes.” (Carroll, 1865/1988, p. 33)

In recent years the number of controlled interventions in infancy and early childhood focusing on socioemotional development has been increasing at an exponential rate. Of course, the Nurse–Family Partnership (NFP; see Olds, Chapter 10, this volume), Head Start, and Early Head Start (see Spieker, Nelson, DeKlyen, & Staerkel, Chapter 11, this volume) are prime examples of such approaches, but more modest interventions have also been conducted in order to test whether specific theoretical implications hold water under strict experimental conditions. The content of an intervention program may differ according to whether the goals of the intervenor or experimenter are more practical (supporting families in need and children at risk) or more theoretical (testing hypotheses derived from a theory). Nevertheless, in terms of design and methods, intervention experiments show commonalities, and they may be

compared meta-analytically. We strive for evidence-based interventions using careful meta-analytic evaluation of all available data. From this perspective, meta-analytic reviews are preferable to narrative reviews (Egeland, Weinfield, Bosquet, & Cheng, 2000) or simple significance counting methods (Berlin, Chapter 1, this volume; Ziv, Chapter 3, this volume), which have been shown to be potentially misleading approaches, increasing the risk of Type II errors (Cooper & Hedges, 1994). In the current chapter we present the outcomes of a recent series of meta-analyses on the effectiveness of a particular set of interventions, namely, those that report on enhancing parental sensitivity and/or children's attachment security. Thus, our approach is limited to interventions in the socioemotional domain. Moreover, we confined ourselves to effects on sensitivity and attachment. Interventions that are not effective in enhancing sensitivity or attachment may be effective in other domains and thus may be extremely valuable but these other effects are not included in the current review (but see Greenberg, Commentary 3, this volume).

After discussing the outcomes of the meta-analyses, we provide a profile of potentially effective interventions, and discuss methodological and ethical considerations, and pitfalls in evaluating these interventions. We argue for a piecemeal approach to constructing effective interventions, starting with testing the effectiveness of small building blocks or intervention modules (a "less is more" approach; see Bakermans-Kranenburg, van IJzendoorn, & Juffer, 2003) that after successful evaluations might be combined into an even more effective, overall, broad-band program.

INTERVENTIONS FOCUSING ON SENSITIVITY AND SECURE ATTACHMENTS: META-ANALYTIC EVIDENCE

Is early preventive intervention effective in enhancing parental sensitivity and infant attachment security, and, if so, what type of intervention is most successful for what kinds of families? Interventions vary in intensity, duration, and focus, and they are divergent in outcome measures. Concerning the *focus* of the intervention, program approaches and goals can be distinguished as interventions aiming to enhance parental sensitivity, enhance the parents' mental representations, provide parents with social support, or any possible combination of these approaches (Bakermans-Kranenburg et al., 2003; Egeland et al., 2000; Juffer, van IJzendoorn, & Bakermans-Kranenburg, 2005).

Intervention outcomes may be measured in terms of the parent's

mental representations, the parent's behavior (sensitivity), and the parent–infant relationship (infant attachment). By far most intervention studies report results at the level of parental sensitivity and/or the level of infant–parent attachment, and do not address the parent's representation as an outcome measure. Our meta-analyses on the effectiveness of sensitivity and attachment interventions thus included studies with reported results on sensitivity (81 studies, $n = 7,636$) and/or infant–parent attachment (29 studies, $n = 1,503$).

Changing Insensitivity

Our meta-analysis showed that randomized interventions that focus only on sensitive maternal behavior are most effective in changing insensitive parenting ($d = 0.33$) as well as infant attachment insecurity ($d = 0.20$), although the size of the combined effects remains in the small-to-modest range (see Bakermans-Kranenburg et al., 2003, but also see McCartney & Rosenthal, 2000, for more realistic criteria). These meta-analytic findings show the effectiveness of various types of interventions for enhancing maternal sensitivity, and—to a lesser extent—infant attachment security. In particular, interventions that focus only on sensitive maternal behavior—instead of broadband approaches—appear rather successful in changing insensitive parenting as well as infant attachment insecurity. Surprisingly, the most effective interventions do not always use a large number of intervention sessions with the families, and they do not necessarily start before birth or even early in life. On the contrary, we found evidence for fewer contacts (up to 16 sessions) being somewhat more effective, and the same goes for interventions starting 6 months after birth or later.

In fact, highly intensive interventions with numerous sessions aiming to change parental sensitivity and representations, and to provide support, show disappointingly small or even negative effect sizes on attachment security (combined $d = -0.03$). It should be noted, however, that the number of studies with negative outcomes was very small, as was the number of randomized studies that targeted behavior, representations, and social support. There were three such studies (Egeland & Erickson, 1993; Heinicke et al., 1999; Lieberman, Weston, & Pawl, 1991), and they were all conducted with multiproblem families. Only one of these three interventions, Heinicke and colleagues' (1999) intervention, was indeed effective. The pioneering Lieberman intervention was effective on some outcome measures (e.g., dyadic partnership behavior) but failed to show a change on the a priori selected Attachment Q-Set as the next best validated assessment of attachment (van IJzendoorn, Vereijken, Bakermans-Kranenburg, & Riksen-Walraven, 2004) in this

study. Strange Situation classifications were not available at posttest because the children were too old. In meta-analysis one has to make an a priori selection of pertinent measures. The same goes for the selection of pertinent studies (contrary to Berlin, Chapter 1, this volume).

Interventions in Multiproblem Families

Surprisingly, highly effective intervention modalities were effective *regardless of the presence or absence of multiple problems* in the family. It could be argued that at-risk groups have different needs, and thus may profit from different types of interventions than relatively “normal” groups. Therefore, we tested in a separate set of meta-analyses the influence of intervention characteristics in randomized control-group studies with samples suffering from multiple problems (multirisk and/or clinically referred; 30 studies, $n = 4,119$ families). In this set of multiproblem samples, the interventions focusing only on sensitivity were again more effective ($d = 0.48$) than all other types of intervention combined ($d = 0.25$). Once again the most effective interventions consisted of fewer than 16 sessions. Interventions with fewer than five sessions were as effective as interventions with five to 16 sessions, and both types were more effective than interventions with more than 16 sessions.

Changing or Preventing Attachment Insecurity

In 24 intervention studies ($n = 1,280$ dyads), both maternal sensitivity and children’s attachment security were assessed as outcome measures. On the basis of the moderately strong association between sensitivity and attachment security (De Wolff & van IJzendoorn, 1997), our hypothesis was that more effective sensitivity interventions would also be more effective in enhancing children’s attachment security. In general, attachment insecurity appeared more difficult to change than maternal insensitivity, as suggested by a smaller effect size for sensitivity ($d = 0.33$) than for attachment ($d = 0.20$). The association between sensitivity and attachment effect sizes, however, confirms the hypothesis of a causal link between sensitivity and attachment security: randomized intervention studies with rather large effect sizes on sensitivity ($d > 0.40$) were also most effective in enhancing infant attachment security ($d = 0.45$). Interventions that were less effective in promoting sensitivity did not change attachment security. Moreover, interventions aiming at enhancing sensitivity (without focusing on social support or representations) were the only interventions that significantly affected infant attachment security. Both contrasts remained significant when the four studies that did not use the “gold-standard” Strange Situation procedure but alternative

measures to assess attachment were excluded from the analyses. For attachment security again, highly effective interventions were effective *regardless of the presence or absence of multiple problems* in the family. However, in samples with a higher percentage of insecurely attached infants in the control group, the interventions achieved a larger effect on infant attachment than in more normative samples; and interventions affected parental sensitivity more in clinical (but not socially at-risk) groups.

Why Less Is More

What might explain the effectiveness of sensitivity-focused interventions? Why are they more effective than interventions that also provide social support and/or efforts to affect maternal representations? First, sensitivity-focused interventions are characterized by well-defined and relatively modest aims. In broadband approaches with multiple goals, it may be more difficult to bring about a significant effect on one of the many aspects that are included in the intervention. Second, it may be easier for the “average” intervener to understand and learn the protocol of sensitivity-focused interventions. Interventions with broader aims and methods need intensively trained, highly qualified all-round interveners (as, e.g., in the Circle of Security Project; see Cooper, Hoffman, Powell, & Marvin, Chapter 6, this volume), and these may be rather scarce.

In the same vein, treatment adherence may differ for sensitivity-focused versus broadband interventions. Whereas it appears quite possible for interveners to stick to the protocol of a sensitivity-focused program, it may be much more difficult to implement a long-term broadband intervention in a standard way; and, as a result, positive outcomes of a potentially effective multifaceted intervention program may be obscured, or if effective, it may be impossible to detect the effective component. Also, interveners may easily become overburdened, and staff turnover may increase with the duration of the intervention (see Spieker et al., Chapter 11, this volume). Last, Bradley recently suggested an additional reason for the effectiveness of short-term interventions: that parenting is generally considered to be a “natural competency” (R. Bradley, personal communication, September 23, 2004). Parents expect from themselves and from each other that they roughly know how to parent a child. They may be willing to engage in an intervention program for a well-defined period of time to get some useful feedback, but they may be less inclined to commit to a seemingly endless series of intervention sessions (Juffer, Bakermans-Kranenburg, & van IJzendoorn, in press).

INTERVENTIONS FOCUSING ON DISORGANIZED ATTACHMENTS

Disorganized attachment is arguably the most insecure type of attachment and constitutes a risk factor for developing later psychopathology: disorganized infants show signs of problematic regulation of negative emotions in stressful situations, they are more inclined to display childhood externalizing behavior problems, and they are at risk for a tendency to dissociate (Carlson, 1998; Lyons-Ruth & Jacobvitz, 1999; van IJzendoorn, Schuengel, & Bakermans-Kranenburg, 1999). *Disorganized attachment* has been defined as the (momentary) breakdown of the usual, organized (secure, avoidant, or resistant) attachment strategy. Although disorganized attachment should not be equated with reactive attachment disorder (RAD), extreme indications of disorganization may be regarded as psychiatric attachment disturbance (for further discussion, see Lieberman & Amaya-Jackson, Chapter 5, this volume; O'Connor & Nilsen, Commentary 2, this volume; Zeanah & Smyke, Chapter 9, this volume; and van IJzendoorn & Bakermans-Kranenburg, 2003). Disorganized attachment has been suggested to be caused by frightening (or frightened) parental behavior (Main & Hesse, 1990), and by shared or unique environmental factors such as loss or trauma in the parents (Main & Hesse, 1990; Schuengel, Bakermans-Kranenburg, & van IJzendoorn, 1999). In a behavior genetic study (Bokhorst et al., 2003) we found evidence for the predicted influence of unique environmental factors in determining disorganized attachments in twins.

In a recent paper we reviewed 10 studies with 15 preventive interventions that included disorganized attachment as an outcome measure, and we combined the results of these interventions in a series of meta-analyses (Bakermans-Kranenburg, van IJzendoorn, & Juffer, in press). The interventions were implemented in a wide range of samples. The meta-analysis showed that the effects of the 15 interventions ranged from negative to positive, with a nonsignificant combined effect size ($d = 0.05$) in a homogeneous set of outcomes. This implies that the chances are small that a substantial or even a significant combined effect size would result from a much larger set of similar intervention studies.

Less Is More in Cases of Disorganized Attachment?

Four important contrasts emerged. First, effective interventions started after infants were 6 months of age. In the period immediately after birth, it may be more difficult for parents to be open to intervention than it is after the first 6 months. Second, sensitivity-focused interventions appeared to be more effective than interventions with a broader focus. In

fact, only sensitivity-focused interventions produced a significant (combined) effect size. Sensitivity-focused interventions may have been successful in reducing frightening or extremely intrusive or unresponsive parental behavior. Differences in intervention effects on sensitivity were not associated with differences in effectiveness on attachment disorganization, as was observed in the previous meta-analysis focusing on organized attachment strategies patterns. However, effects on sensitivity were based on assessments with Ainsworth's sensitivity scale and similar rating scales for sensitive behavior (e.g., Erickson, Sroufe, & Egeland, 1985), which may not be sufficiently differentiated to detect effects on extremely negative or atypical parental behaviors associated with disorganized attachment (see Lyons-Ruth & Jacobvitz, 1999, for further discussion).

The third contrast concerned the characteristics of the involved families. Interventions that were implemented in families in which the infants were considered to be at risk (due to prematurity, irritability, or international adoption) were more effective than interventions with at-risk parents. It might be easier to prevent or change disorganized attachment when the parent is relatively well functioning and free of psychopathology. Fourth, and last, in samples with a higher percentage of disorganization in the control group, the interventions were more successful in preventing disorganization, suggesting that there is more room for improvement when the base rate of disorganization is higher than is usually found in normal, nonclinical groups (15%; van IJzendoorn et al., 1999). A relatively high percentage of disorganization in the control group may make it easier for the intervention group to outperform the control group because it prevents a ceiling effect from dampening the intervention effectiveness.

Two moderators—the focus of the intervention and the type of family risk—were not completely independent, complicating the question of whether the effectiveness of some studies should be ascribed to either the focus of the intervention, the type of family risk, or the interaction between these two moderators. Multivariate analyses might provide an answer to this question, but the number of studies was too small to warrant such analyses. More studies on intervention effects on disorganized attachment are needed to disentangle risk and intervention effects.

We conclude that interventions may be most effective in decreasing disorganization in samples with high levels of disorganization when they start after 6 months of the infant's age, when it is the infant who is primarily at risk, and when a sensitivity-focused approach is used. It is remarkable to note the similarities in the results of our meta-analyses addressing maternal sensitivity, attachment security, and disorganized attachment. They all provide evidence for the "less is more" adage.

Focusing Attention Processes

Effective sensitivity-focused interventions may have successfully affected parents' attention processes, directing and focusing the parents' attention to observations of the child in the here-and-now. Schuengel and colleagues (1999) have illustrated how mothers' secure mental representations can protect against the development of infant disorganization, perhaps because an infant may be a more salient focus of attention for sensitive mothers than for insensitive mothers. Close monitoring of infants leaves little room for signals and thoughts from other sources. Sensitive mothers may monitor their infants more closely and may thus experience fewer moments of absorption (Hesse & van IJzendoorn, 1998) or intrusions of distracting thoughts. As we have suggested elsewhere (Bakermans-Kranenburg, Juffer, & van IJzendoorn, 1998; Bakermans-Kranenburg et al., in press; Juffer, van IJzendoorn, & Bakermans-Kranenburg, in press), interventions that teach parents to follow their child's lead (Cohen et al., 1999) or to observe their child by means of video feedback (Juffer et al., 2004) focus parents' attention on the child's behavior. Even if parents' general, attachment-related attention processes (Zeijlmans van Emmichoven, van IJzendoorn, de Ruiter, & Brosschot, 2003) were not changed by this type of intervention, they may have become more focused in the interaction with their child by monitoring the child's behavior (as was practiced in the intervention), and thereby diminishing dissociative processes in the presence of the child.

Remarkably, none of the interventions exclusively aimed at preventing disorganized infant attachment or focused on the reduction of frightening/frightened parental behaviors. As organized attachment patterns and the insecure-disorganized pattern might be considered as relatively independent, orthogonal dimensions of attachment, and as maternal sensitivity is only weakly associated with disorganization (van IJzendoorn et al., 1999), it is a serious limitation that none of the attachment-based intervention studies was designed as an intervention that exclusively aimed at preventing or changing the mechanisms known to be leading to infant attachment disorganization. Since infant disorganized attachment predicts later developmental psychopathology, it is of great clinical importance to design and test such intervention programs. Dozier, Lindhiem, and Ackerman's (Chapter 8, this volume) Attachment and Biobehavioral Catch-Up intervention for families with foster children may be one of the first published reports about a (in-progress) randomized experiment with the explicit goal of decreasing disorganized attachments by diminishing threatening behaviors in foster parents

THE IDEAL INTERVENTION STUDY: THE “DREAM TEAM” AND METHODOLOGICAL AND ETHICAL CONSIDERATIONS

The ideal attachment-based intervention study is one in which John Bowlby would implement the intervention, Mary Ainsworth would conduct and code naturalistic observations of parenting, Mary Main would observe the children in the Strange Situation procedure, Everett Waters would perform the data analyses, and Alan Sroufe would put the findings in context and write the final report. This “dream team” would certainly do the best job imaginable.

Nevertheless, one problem would remain, which is that this study would be absolutely nonreplicable and nontransferable because of its uniqueness. Its implementation in larger, applied settings would be jeopardized. In the real world other features may be more important. In this world the best intervention study emerges as a randomized design with a dummy-treated control group (see below), and a pretest to detect and compensate for possible randomization failures. The intervention should be carefully described in a protocol, and implementation and evaluation of the intervention should be independent. Interveners and coders should be “randomly” selected, and not belong to an extraordinary skilled but equally small elite.

In addition, the methodological requirement of random assignment seems rather harsh for those parents who happen to find themselves in the control group without any treatment. They might become discouraged and decide to quit the experiment before the final assessments are made. This selective “mortality” may thus lead to unexpected posttest differences between the control and the experimental groups, in favor of the control group that is left with the best functioning families and children. Differential attrition may be part of the explanation of the negative intervention effect in Barnard and colleagues’ (1988) and Beckwith’s (1988) studies, as the attrition in their control groups (47% and 36%, respectively) was much larger than the dropout rate in their intervention groups (20% and 5%, respectively).

Moreover, broadband interventions in families with multiple problems run the risk that a significant treatment effect holds only for the participants of that specific sample and not for the larger population with similar problems. Especially when experimenters have serious difficulties recruiting participants for their intervention, the sampling may not be representative, and generalizability may be compromised. In the same vein, generalizability might be restricted because of the use of specific measures, observers, or interveners (the “dream team”). This issue

may be particularly relevant for intervention studies in which the person who implemented the intervention is also the principal investigator. In medical science, the ideal design is a rigorous double-blind procedure, in which both researchers and participants are uninformed of the memberships of the experimental and control groups. It has been well documented how knowledge of what is expected to happen in an experiment can work as a self-fulfilling prophecy (e.g., Rosenthal, 1994), even when investigators, interveners, and participants have the best intentions. It is of crucial importance to replicate a successful intervention with other or more interveners to control for personal factors and expectancy effects. Expectancies may also seriously inflate effect size when coders of outcome behaviors are aware of the intervention or control condition of the participants.

Ethical Considerations

Considering the methodological requirement of random assignment, ethical considerations are also at stake. Is it possible to leave the control group without treatment and support although the parents are struggling with serious problems around family life, parenting, and child development? In addressing this complicated ethical issue, it is important to consider the fact that the intervention treatment of the experimental group still has to be evaluated, and that before finishing the intervention program we cannot be sure that the control group has been deprived of effective support to cope with their problems. Furthermore, if treating the control group would mean that scientific evaluation is impossible, the study results cannot be generalized to other groups or settings, and the implementation of the program in a wider social context is not warranted. This would deprive large groups of families from the effective support they badly need.

In medical research, the issue of dummy control treatments is a classic ethical dilemma, and in medical trials depriving the control groups of an effective drug may even be a matter of life or death. Nevertheless, medical consensus emphasizes the need for randomized controlled trials with experimenter and subjects being blind to who is receiving the real or the dummy treatment. The methodological requirement of blindness supersedes the ethical requirement of the *potentially* best treatment for all patients, in order to serve more patients in the future. Meta-analytic monitoring of progress in treatment and drug evaluation research (e.g., through the Cochrane consortium) prevents researchers from testing interventions that already have proven to be unsuccessful. A similar meta-analytic monitor is important in the field of developmental interven-

tions. In fact, our meta-analytic approach described above is meant to fulfill just this role of a monitor to prevent researchers from unethically depriving families from interventions proven to be effective (e.g., behaviorally focused intervention modules) or depleting scarce financial resources for the purpose of providing interventions already proven ineffective.

Furthermore, in two ways the control group might be provided with support going beyond a dummy treatment. First, the control group may serve as an experimental group at a later stage of the investigation. After the posttest, the control group subjects may receive the same treatment as their experimental counterparts. This treatment can even constitute a test of the effectiveness of the intervention program in a somewhat older sample, if the researchers are able to collect data in a comparison group matched to the older group. In such a design, the control participants would receive the same treatment as the experimental group, although one limitation would be that random assignment would not be possible.

Second, intervention programs may contain several ingredients that can be presented to the experimental subjects as well as to the controls without compromising the experimental design. For example, support of adolescent mothers in finding a job may be an essential ingredient of a behavioral intervention program because it motivates the participants to stay in the study. In line with the idea that treatments should be focused and well defined, the behavioral intervention is embedded in this contextual support, and the “hard core” of the intervention remains unique for the experimental group. In fact, we argue here for rather elaborate dummy interventions (contrary to Berlin, Chapter 1, this volume), or for comparison between two interventions with one crucial intervention module added to one of these interventions. In these cases, broadband interventions may still motivate subjects to enter and stay in the intervention study, and at the same time they may deliver reliable and valid knowledge about the effectiveness of an important component of the intervention. This way “embracing complexity” in case of high-risk and multiproblem families and striving for integrated intervention models such as *Minding the Baby* (Slade, Sadler, & Mayes, Chapter 7, this volume) may be reconciled with the evidence-based adage of “less is more” (Bakermans-Kranenburg et al., 2003).

Reconciling Focused and Broadband Interventions

Against the background of these methodological issues we now turn to the content of the intervention. Our meta-analytic data suggest that interventions with a clear focus and a modest number of sessions are pref-

erable. From a methodological perspective, the focused approach is preferable as well. Broadband interventions may be very effective on certain outcome measures but it may remain unclear as to which ingredients were responsible for such an effect. Here we argue for a piecemeal approach to constructing effective interventions, starting with testing the effectiveness of small building blocks or intervention modules that after successful evaluations might be combined into an even more effective overall program. Such an approach may prevent foreclosure and political abuse of seemingly unsuccessful intervention packages. Also, the modular approach may fit nicely into a stepwise upgrading of intervention intensity in which one might start with a single intervention module addressing the most common problems, and continue with ever more modules if earlier intervention efforts do not bear fruit.

Behavior and Representation

Interventions may create discrepancies between results on the level of parental behavior (sensitivity) and infant–parent attachment. The meta-analysis revealed that intervention efforts affected parental sensitivity more than they affected infant attachment. How could that be the case?

First, it may generally be easier to bring about changes in parental sensitivity (as the more proximal variable) than in parent–infant attachment (the more distal variable). Alternatively, children in the intervention groups may have become less avoidant or less resistant, but not (yet) enough to be classified as secure, and these more subtle differences may not have been detected with the categorical Strange Situation coding system. Last, it may be that the timing of posttests in a number of intervention studies contributes to obscuring an effect on infant–mother attachment. When both parental sensitivity and infant attachment are assessed shortly after the intervention, it may be too early to observe changes in infant attachment. It may take some time for the child to amend his or her expectations regarding the mother’s sensitive responsiveness, and to restructure his or her own working model of attachment. The possibility of such a “sleeping effect” points to the need to carefully time the posttest of intervention studies and highlights the need for follow-up studies to assess long-term intervention effects.

Interventions may also create discrepancies between the representational and the behavioral level, that is, they may be effective in enhancing parental sensitivity without influencing parental representations (van IJzendoorn, Juffer, & Duyvesteyn, 1995), or the other way around. If parents only acquire new behavioral strategies to interact with their infant, they may not be able to deal with the attachment needs of the de-

veloping child. In that case, the generalizability of the intervention might be restricted (for related arguments, see Cassidy et al., Chapter 2, this volume). In the long run, the discrepancy between the representational level and the behavioral level may even be counterproductive because the child may experience a discontinuity between the sensitive parent in the early years and the lack of parental sensitivity later on.

On the other hand, the parent's increased sensitivity may induce secure attachment behavior in the child and smooth infant-parent interactions, and these may, after some time, result in a favorable change at the level of the parent's representation (Fraiberg, Adelson, & Shapiro, 1975; van IJzendoorn et al., 1995). Again, longitudinal follow-up studies are needed to test which of the two scenarios is most plausible.

CONCLUSION

Taking stock of the empirical evidence, the Dodo bird verdict on the equal effectiveness of all types of psychotherapeutic intervention is not appropriate for the field of sensitivity and attachment interventions. Interventions with a behavioral focus on maternal sensitivity appear to be most effective, not only in enhancing maternal sensitivity, but also in promoting children's attachment security, and preventing or reducing disorganized attachment. Of course, the Dodo bird verdict may be valid if all possible short- and long-term outcomes of attachment-based interventions were considered. In this chapter we focused only on parental sensitivity and infant attachment security or disorganization as outcome measures. From this perspective, all interventions may get prizes but a special prize should be awarded to the behaviorally focused interventions.

Of course, the gold medal still has to be awarded, and we expect it to go to an attachment-based intervention module that helps to diminish parental frightening or frightened behavior that prevents their infants from becoming disorganized. This is largely uncharted territory of equal importance to attachment theory and clinical practice.

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Models versus Metaphors in Translating Attachment Theory to the Clinic and Community

Thomas G. O'Connor *and* Wendy J. Nilsen

A foundation of attachment theory is careful observation of clinical samples of children, particularly those who have experienced disruptions in relationships with their parents (Bowlby, 1982, 1988). The empirical studies on child–parent attachment that followed, beginning with those of Ainsworth and her colleagues (Ainsworth, Blehar, Waters, & Wall, 1978), offered immediate and substantial momentum for operationalizing the theory and, more broadly, for developing and refining models of development and psychopathology. Reintegration of findings and methods from research into practice has proceeded slowly, however.

Contributions to this volume illustrate one of the most important innovations in the attachment field in recent years, namely, the translation of its theory and research methods from the laboratory to clinical and policy settings. Contributors provide examples of both intensive and nonintensive, individual and group, and behavioral and dynamic models of intervention for child–parent dyads presenting with a range of clinical problems. Furthermore, authors provide many notable examples of how attachment theory has been connected with the broad policy questions of how to understand and formulate systems of care that promote healthy child development. The evidence base from these clinical investigations remains partial but encouraging, and sets out an agenda for how

clinical and applied researchers might help shape policies affecting children.

This commentary focuses on a set of issues associated with moving attachment from the lab and the clinic to a wider community setting. We focus on the successes and failures of translating attachment theory through two examples: the development of so-called attachment therapies to treat children with attachment disorder¹ and the training of parents in the foster care system about attachment theory and its relevance to the children in their care. We focus on these examples in order to identify some of the challenges for disseminating attachment theory and for bridging the remaining gaps between theory and practice (see also Zeanah & Smyke, Chapter 9, this volume; Dozier, Lindhiem, & Ackerman, Chapter 8, this volume).

ATTACHMENT DISORDER AND ITS TREATMENTS

In the past decade, considerable attention has been directed to children who show an “attachment disorder.” The notion of an attachment disorder—what it is and how it is best defined—is controversial but not new. Reactive attachment disorder (RAD) was defined by the *Diagnostic and Statistical Manual of Mental Disorders* of the American Psychiatric Association in 1980. More than 20 years later, some important modifications have been made (in DSM-IV and the International Classification of Diseases, 10th ed.), but the core disturbance resembles the behavioral patterns described decades ago by those working with children who experienced the absence of or severe disruptions in parental care (Freud & Burlingham, 1973; Goldfarb, 1943; Provence & Lipton, 1962). It is impressive how the observational accounts of the disturbance in these early reports are echoed in more recent studies of children who experienced institutional care or, more generally, caregiving deprivation (O'Connor, 2002).

In brief, two subtypes of RAD have been described. The first, referred to as “disinhibited,” describes a pattern in which young children fail to show wariness or inhibition toward adult strangers or display lack of selectivity in the choice of the attachment figure. Key indicators are seeking physical contact, wandering off, and failing to “check back” with caregivers, even in situations that could be dangerous. This pattern has been variously described as “indiscriminate friendliness,” “inappropriate social approach,” “indiscriminate exhibition,” and “superficial friendliness.” This is the pattern that has been widely and repeatedly described over decades of clinical observation. The second type, referred to as “inhibited,” is characterized by a persistent failure to initiate or re-

spond in a developmentally appropriate way to most social interactions—the child often exhibits excessively inhibited, hypervigilant, or ambivalent contradictory responses. This type usually includes the striking feature of the child's failure to approach the caregiver for comfort, safety, or protection when such behavior would be developmentally normal. This form of attachment disturbance is recognized clinically, but has a far less robust empirical and clinical basis, and there is wide variation in how it is described.

In addition to the above behavioral patterns, there are other features of the disorder as defined by DSM-IV, including the presence or history of pathogenic care—defined as disregard of the child's basic emotional or physical needs or repeated changes in primary caregiver that prevents the formation of a discriminating or selective attachment—that is presumed to account for the disorder; onset before age 5 years; and a presumption that the attachment disturbance is not solely accounted for by developmental delay. These criteria are based not on scientific evidence, but instead reflect the current collective clinical impression. It is possible that these criteria may be altered as more evidence pertaining to attachment disorder becomes available. In addition, further revisions of the diagnostic criteria may add certain behavioral criteria, such as more emphasis on the child's apparent lack of selective attachment behavior toward caregivers.

A BRIEF OVERVIEW OF RESEARCH FINDINGS

The systematic study of attachment disorder behavior is a recent phenomenon (for an exception, see Tizard & Rees, 1975). Importantly, however, even of those studies that do exist, virtually none examine attachment disorder *qua* disorder. Instead of using existing diagnostic criteria, studies have used a variety of observational and interview measures to index a behavioral pattern based on early clinical description (Chisholm, 1998; O'Connor, Rutter, & the English and Romanian Adoptees Study Team, 2000; Zeanah, Smyke, & Dumitrescu, 2002). Several general lessons from these studies are worth noting (see O'Connor, 2002, for a review). First, the disinhibited disturbance is "real" in that it is readily and reliably assessed with interview and observational methods. Second, the disturbance is not limited to those who experienced early institutionalization, but is instead more closely linked with caregiver deprivation. Third, early severe caregiving deprivation may be a *necessary* but may not be a *sufficient* cause; only a minority of those children adopted following institutional rearing show this form of disturbance. Fourth, in the minority of children who do show this distur-

bance, the problems follow a persistent course. Fifth, the types of disturbance implied by attachment *disorder* are qualitatively different from those described by attachment *insecurity*. Sixth, disinhibited attachment disturbance is distinguishable from other behavioral/emotional problems and developmental delay, although co-occurring behavioral and emotional problems and language and cognitive delay are consistently found.

THE POPULARIZATION OF HOLDING THERAPIES FOR CHILDREN WITH ATTACHMENT DISORDER

Despite these advances in understanding the phenomena of attachment disorder, there is as yet no satisfactory assessment protocol or intervention option for children with attachment disorder. Nonetheless, in the absence of relevant evidence, a number of professionals have actively promoted a certain kind of treatment for children with a real or suspected attachment disorder. This form of treatment is generally referred to as “holding therapy” because the treatment involves the therapist(s) and perhaps the parent(s) physically holding the child—sometimes against the child’s will. Other aspects of treatment are also applied, but the holding component has attracted the most attention because proponents of the treatment believe that it is an essential ingredient. Indeed, the use of holding in treatment has emerged as one of the most controversial issues facing those working with children who experienced early deprivation or severe abuse/neglect. Whereas its advocates suggest that it is the only form of intervention that could work for children with an attachment disorder, many professionals condemn the treatment as empirically unfounded, theoretically flawed, and clinically unethical (see target article by O’Connor & Zeanah, 2003, and commentaries; see also Hanson & Spratt, 2000). Given the current evidence base, holding therapies should not be advocated as a treatment option for any known behavioral/emotional problem in children.

An analysis of holding therapy and its popularity exposes some of the difficulties of applying attachment theory to clinical and policy settings. Two observations are particularly relevant. The first is that holding therapies are promoted as “attachment” therapies even though they are more antithetical to than consistent with attachment theory (O’Connor & Zeanah, 2003). We need to consider how it is that a treatment that attachment researchers and clinicians widely regard as destructive and unethical (Steele, 2003) came to be linked with attachment theory in the minds of a substantial number of professionals. Second, even in the absence of supporting evidence, holding therapies are seen as a viable and

useful treatment for children with an attachment disorder. How that has come about, and why holding therapies are advocated over conventional *evidence-based* attachment treatments (e.g., Lieberman & Zeanah, 1999), also requires some consideration.

Holding therapies² derive from the “rage reduction” techniques applied with autistic children several decades ago (e.g., Zaslow & Menta, 1975). A key tenet of this approach was that it was important to “break through” the child’s defenses in order to get the child to respond to others in a normal, reciprocal manner. The creators of this approach misapplied a model of ego defenses that was borrowed from psychoanalytic theory. Whatever one’s view is of the existence and clinical significance of ego defenses, there is no doubt that the application of the ego defense model to autistic individuals was wrong. The fundamental misunderstanding is illustrated by the failure of these approaches to effect any credible change and by more recent psychological and biological research showing real and substantial differences in how autistic individuals decode, understand, and process social phenomena (Gervais et al., 2004; Volkmar & Pauls, 2003).

Holding therapies were further misapplied to the cases of children whose attachments to parents were impaired by previous neglect or abuse (Cline, 1991; Welsh, 1989). That is, a group of practitioners adopted the “breaking through” metaphor that had been misapplied to autistic children and then misapplied it to children who failed to develop a discriminating attachment relationship with their caregivers. Additional metaphors were added to explain the effects of early caregiver deprivation or severe abuse/neglect on the children’s ability to form subsequent relationships. For example, some practitioners discuss the child’s development as having been “frozen” by early abuse/neglect, and argue that the aim of treatment is to “unfreeze” development (Keck & Kupecky, 1995). Practitioners of holding therapy incorporated components of attachment theory and usually referred to the writings of Bowlby, so that it came to be relabeled as an “attachment therapy” (e.g., Howe & Fearnley, 1999; Levy, 2000). Thus, in addition to, or instead of, provoking rage, the purpose of holding was to provide the child with the physical contact comfort that was missing in the child’s early life. It was further proposed that the holding induced regression, and that this regression facilitated the child’s absorption of the physical affection that the holding therapy was meant to provide, and that it had the same or similar effect it would have had at an earlier age. It is also in this context that advocates of holding therapy refer to parental “sensitivity” to the child’s distress—even if the sensitivity was in response to the distress induced by the unwanted or even coercive holding performed by the therapist or parent. It should be obvious from the above discussion that,

although most descriptions of holding therapies include language used in attachment theory, these descriptions also include ideas and techniques that are not based on attachment theory and are instead misplaced metaphors.

The recent deaths of several children following certain radical forms of coercive therapies (e.g., “rebirthing”) that share origins with holding therapy were universally condemned by professional and parent organizations and political bodies. On the other hand, and notwithstanding the strong objections raised by clinicians and clinical researchers, criticism of the more widely practiced holding therapy in the scientific and popular press was initially surprisingly muted. This is changing. For example, a recent issue of *Attachment and Human Development* (September 2003) was dedicated to this problem, and several clinicians working with children with attachment disorder have begun to develop alternative intervention models that do not rely on holding (e.g., Hughes, 2003). Position statements have also been issued by professional bodies (e.g., The American Academy of Child and Adolescent Psychiatry, 2003), but their disapproval is reserved for the coercive forms of holding therapy that caused child deaths rather than holding therapies in general. It remains to be seen how effective these efforts will be in promoting the use of alternative evidence-based treatments for these challenging children.

One of the essential factors in the impressive popularization of holding therapy as attachment therapy is the Internet. Why the Internet served such an important role in the spread of holding therapies is easily determined. Foster/adoptive parents of children with an attachment disorder frequently experienced frustration with and rejection from the professionals they approached. For their part, many professionals were ill-equipped to handle these concerns and were unable to recommend a suitable intervention (indeed, none was available). As a result, some parents who had successfully raised children of their own were dubious and even reproachful about the traditional kinds of interventions that were offered. In contrast, what was available on the Internet was a sympathetic and familiar-sounding set of testimonials and an actively promoted intervention that promised results. Thus, Internet-based opinion emerged as a far more influential source of information than opinions expressed in more traditional professional and academic outlets. Furthermore, the Internet is now also an outlet for publishing research findings on holding therapy. Increasing the dissemination and accessibility of research is much needed, but the limitation of the Internet is that much of the research reported is not properly assessed by independent experts; the Internet’s potential to disseminate misleading findings and ideas is therefore substantial.

Currently, the task for clinicians and clinical researchers is not only to develop effective interventions, but also to dispel the perception that holding therapy is an attachment-based therapy that is appropriate for children with an attachment disorder. Accomplishing the latter will depend on resolving the former. Moreover, attention needs to be paid to how information is made available. For example, it is now obvious that positions taken in academic journals and conferences will make little impact because they fail to reach consumers, in the form of parents, parent groups, or social service agencies. We expand on these issues below.

ATTACHMENT CONCEPTS IN FOSTER CARE SETTINGS

A second example of how attachment ideas can be misconstrued in applied settings concerns the foster care and adoption system. The term “attachment” has become part of the vernacular of foster/adoptive parents in the United States. This is hardly surprising given that some of the original observations that led to the formulation of attachment theory involved children in the care of the state. However, attachment in the foster care context has come to mean something different from how it is defined in research. When used in the foster/adoption context by parents and social care workers, “attachment” is a loose amalgam of ideas, including those of Bowlby, but also more casual notions, such as the dictionary definition of “affectionate regard or devotion” (*Webster’s Dictionary*, 1989) that can be used to describe the child’s feelings toward people, pets, or even things. A review of a broad literature from developmental and clinical psychology, social work, and psychiatry reveals the gap that has developed between the empirically derived conceptualization and assessment of attachment relationships and its use in routine care of children in the foster care system. These differences are equally apparent in multidisciplinary case conferences.

In the particular case of the foster care system, concerns about the misuse of “attachment” are especially noteworthy because they have led to difficulties in communication among professionals and parents, and to conflicting ideas about the role of the foster parent in the child’s development. At present, “attachment” is widely considered a powerful but diffuse source of behavioral/emotional problems in children in the foster care system. One feature of this view is that almost any disruptive behavior a child engages in can be attributed to “attachment” difficulties in early relationships, and that these early experiences are proposed as the sole source of the child’s difficulties; the role of current placement experiences is thereby minimized. This perspective undermines the role

of the foster parent to act as a therapeutic agent of change for the child. That is, the foster parent's role is undermined because of the perception that the perceived "damage" has been done prior to the child's entry into the home, with the corollary assumption that the foster/adoptive parent will be unable to effect any meaningful change in the child's development. Although persisting problems do certainly exist in some children following early adverse care, recently reported research findings demonstrate how much variation there is among children who experience deprivation. For example, many children who experienced caregiving deprivation as severe as institutionalization do not show persisting disturbances in attachment relationships (O'Connor et al., 2000); furthermore, foster parents' attachment and caregiving patterns do influence the foster child's attachment to them (Dozier, Stovall, Albus, & Bates, 2001; see also Dozier et al., Chapter 8, this volume). These findings support the tenet of attachment theory that the impact of early attachment experiences on later development cannot be considered independently from the current caregiving environment.

One important lesson here is that attachment theory is already entrenched in the foster care system; the difficulty is that it has been interpreted in varied and sometimes inaccurate ways. One implication is that collaborative clinical work with parents and professionals may require some discussion of what is meant by "attachment," and that there may be a need to promote a more nuanced view of how and under what conditions poor early caregiving may lead to persisting problems in children's psychological development as well as how foster parents' care can exert powerful ameliorative effects.

THE CASE OF TRAINING FOSTER PARENTS

One specific example of how concepts of attachment theory could be more constructively used with foster parents concerns the training of potential foster/adoptive parents. Many foster/adoptive parents are taught about child-parent attachment during their state certification process. For example, New York and other states require that prospective foster/adoptive parents complete the Model Approach to Partnerships in Parenting (MAPP; Bayless & Craig-Oldsen, 1991) course prior to their state certification. During this 10-session program, "attachment" is a central theme. One 3-hour meeting, called "Helping Children with Attachments," is devoted to the issues described in the program as "attachment." In this session, prospective foster/adoptive parents are encouraged to define attachment for themselves (suggested ideas include "belonging," "affection," and "feelings so strongly about someone you

miss them when you are not around"; Bayless & Craig-Oldens, 1991, pp. 4–10). Parents are also taught that when the child's attachment to one family is disrupted, his or her attachment to future caregivers is at risk.

There are many positive features to foster/adoptive training programs such as MAPP. These programs help parents to put the child's behavior and development in a digestible framework and to identify the role of healthy attachment relationships as important for social, emotional, and self-regulatory processes in the child. In addition, in the case of MAPP, which was first created in 1986, there was a concentrated effort to manualize and systematize foster/adoptive parent screening and training. Indeed, because MAPP was created for, and disseminated by, the prominent Child Welfare Institute, it filled a gap in the system by providing systematic training for those parents who chose to care for some the country's most challenging children. Previously, many foster/adoptive parents received no training at all or only the training an agency could create with its own limited personnel and financial resources.

On the other hand, it is not yet clear that MAPP has fulfilled its original promise. For example, the very limited research that is available suggests that MAPP has not produced significant improvement in foster parents' knowledge of child development or understanding of parent-child roles (Lee & Holland, 1991). The relative lack of research to evaluate and potentially improve the training can be attributed to the fact that applied researchers have failed to follow through on the potential to investigate the usefulness of a standardized program, and the fact that social service agencies are typically slow to evaluate implemented programs to see if they have the desired effects.

There are also some limitations of the MAPP system. For instance, MAPP is delivered prior to placement, creating a disjunction between professional training and "on-the-job" training. Additionally, as noted, the notion of attachment is broadly and vaguely defined. This has encouraged some parents to view "attachment" as a generic term that can be defined in any number of inaccurate ways, including the holding approach described as attachment therapy. In addition, enhancing attachment has been promoted at the expense of other strategies and opportunities for skill building. Thus, although behavioral interventions are a useful tool for managing behavior in foster children, these approaches tend to be undervalued and neglected by training programs that focus on attachment because resolving the child's attachment problems is regarded as the only, or at least main, solution to myriad problems. Of course, enhancing attachment relationships in very-high-risk samples is obviously an important goal, but there are additional, complementary

approaches to understanding and managing children's behavior with demonstrated clinical value. Specifically, parents would benefit from developing solid behavioral management skills to control children's behavior, whether or not the origin of the behavioral disturbance lies in early attachment difficulties. Furthermore, as van IJzendoorn, Bakermans-Kranenburg, and Juffer (Commentary 1, this volume) suggest, the distinction between "attachment" and "behavioral" interventions is less certain than most presume. For example, the most widely disseminated parent-training programs (e.g., Webster-Stratton, 1996) stress the parent-child relationship as an integral and essential component of children's behavior change. As van IJzendoorn and colleagues suggest, behaviorally based interventions may be as effective as more traditional attachment interventions in promoting children's attachment relationships.

One of the legacies of MAPP and training programs like it is that they have widely disseminated an attachment theory approach to understanding and helping children in foster care. Thus, "attachment" is a unifying lens for those looking after children in the child welfare system. However, another aspect of that legacy is that the description of attachment is not one that attachment researchers would completely support. Specifically, this overly broad description of attachment has not been linked with empirically supported assessments or interventions. Instead, it has been more often linked with a version of attachment that derives from RAD. By way of example, one website for parents of children with RAD (www.RadKids.org) lists 29 symptoms of attachment disorder, including behaviors that are obviously a part of distinctly different disorders. The diversity of behaviors that appear on attachment disorder checklists again demonstrates how virtually any undesirable behavior has been attributed to a poor attachment. This may be another reason why the therapies that are promoted on these sites have been so successful in attracting attention.

In contrast, there are few examples of training and education programs for foster/adoptive parents that are specifically derived from attachment research. Moreover, many parents, particularly those who adopt from institutions abroad, are provided surprisingly little pre-adoption guidance and information. Fortunately, recent advances, notably the work of Dozier and her colleagues (Dozier, Higley, Albus, & Nutter, 2000; Dozier et al., Chapter 8, this volume) and Zeanah and Smyke (Chapter 9, this volume), mean that future iterations of programs for prospective foster/adoptive parents may resolve the problems in communication and conceptualization that characterize existing programs. The next section suggests some strategies for further promoting evidence-based attachment research models in the foster/adoption system and other applied settings.

RECOMMENDATIONS FOR TRANSLATING ATTACHMENT THEORY AND RESEARCH TO CLINICAL AND POLICY SETTINGS

The extension of attachment theory to clinical and policy settings is an important and obvious progression from carefully conducted empirical research. But this progression is not always successful, and it can present problems that could not be anticipated from empirical research. We have illustrated this in a brief review of the literature on treating attachment disorder and attachment in the adoptive/foster care literature. These examples suggest some practical lessons for translating attachment ideas to applied settings.

A first lesson is that effective dissemination and translation of research findings requires community outreach to parents, parenting organizations, practitioners, and social service agencies. Research findings will inform practice to the extent that they are communicated in a user-friendly format (e.g., newsletters, local presentations and trainings) to these consumer groups. Active involvement in community settings will also help make parents and practitioners better consumers both for themselves (in terms of their continued training) and for their children.

A second lesson is that clinical researchers need to partner with local agencies to test assessment and intervention programs *already in place*. Interventions that are in place in the community require the same respect as academically developed programs throughout the trial process. Whether or not these programs have a strong evidence base, they will (in most cases) have the merit of being seen as relevant and accessible. Discussions of alternative programs will attract little attention until the programs already in place are taken seriously, evaluated fairly, and, where appropriate, appraised correctly as having strengths.

Finally, because programs developed within academic settings alone run the risk of being seen as disconnected with, and unresponsive to, the concerns of parents and practitioners, involvement of consumers is needed at the early stages of program development. Throughout this process, interventions must be piloted and tested within the community for which they have been designed. Community partners can be appropriately wary consumers. Accordingly, programs should be developed and evaluated for the wider set of participants for whom they are ultimately intended; restrictions for involvement need to be minimized. In other words, working in the community means that there are only effectiveness (and no efficacy) studies. As in all community endeavors, there is an inevitable balancing of scientific, societal, and practical needs.

CONCLUSION

Applications of attachment theory findings and methods to applied settings have yielded many successes. Some of these are illustrated in the chapters in this volume. However, there are also failures in how attachment has been applied to clinical and policy settings. In this commentary, we considered two examples of how attachment theory has been misapplied, namely, holding therapy for attachment disorder and the use of attachment concepts in the foster care/adoption context. We raise these examples to illustrate some of the problems that have occurred in the translation of attachment theory and research findings. In addition, we have suggested some strategies to redress some of the difficulties that have arisen to prevent the further misapplication of attachment theory in the promotion of children's well-being. The point here is not to proclaim intellectual property rights on the term "attachment" or to reserve the use of the term to a restricted set of professionals. Instead, the aim is to promote clarity and consistency in what is meant by "attachment," and in how best to translate the rich empirical base of attachment to applied settings.

NOTES

1. In this chapter we use the broad term "attachment disorder" rather than the diagnostic label reactive attachment disorder (RAD) from DSM-IV because there remains considerable confusion and controversy about how RAD is best defined and assessed, and because the reliability of the diagnosis remains in some doubt. By "attachment disorder," we refer to the pattern of disinhibited social approach toward strangers and lack of connection to the parent that has been consistently reported in children who experienced institutional care or a lack of consistent and adequate caregiving (see O'Connor, 2002).
2. A number of kinds of holding therapy have been described. Our description of holding therapy is based on a representative set of therapies as defined by a number of practitioners.

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Enhancing Early Attachments

Synthesis and Recommendations for Research, Practice, and Policy

Mark T. Greenberg

The goal of this commentary is to synthesize ideas and issues that resonate across the chapters of this volume and to prognosticate concerning the implications of our current knowledge for future developments in research, practice, and policy regarding interventions to enhance early attachments. My comments are enriched by my experience both as an attachment researcher and a prevention scientist involved in intervention development, diffusion, and policy. This commentary focuses on the following topics: First, I address what has been accomplished in the field of attachment-focused interventions to date. Second, I discuss the need to more clearly define both the types of conditions and the circumstances of attachment risk and disorder. Third, I attempt to place this research in the larger field of prevention science and consider the need for carefully designed studies using specific populations to test the effectiveness of different types of prevention/intervention models. Fourth, and finally, I speculate on how attachment-focused intervention models can be conceptualized within a larger public health model and the opportunities and challenges that this conceptualization presents to researchers and interventionists during the next decades.

WHAT HAS BEEN ACCOMPLISHED?

Having been involved with attachment research since my undergraduate and graduate years with Mary Ainsworth and Bob Marvin in the early

1970s, it is clear to me that the last three decades have produced substantial efforts and outcomes in understanding early attachment relationships. Although I will not provide details here, I note three accomplishments directly related to enhancing early attachments. First, although the modern era of attachment research was initiated with studies of normal or typical samples of infants (Ainsworth, Blehar, Waters, & Wall, 1978; Marvin & Britner, 1999), substantial progress has been made in the last two decades in assessing and understanding the development of atypical attachments in parents, infants, and young children (Cicchetti, Toth, & Lynch, 1995; Egeland & Carlson, 2003; Greenberg, 1999; Zeanah & Boris, 2000; Zeanah & Smyke, Chapter 9, this volume). There has also been substantial development of diagnostic criteria for attachment disorders, but more research is needed in this area (see O'Connor, Commentary 2, this volume; and Zeanah & Smyke, Chapter 9, this volume).

Second, taking great care to utilize the richness of attachment theory, new theory-based intervention/prevention models have been developed to enhance the security and well-being of children at risk. These new interventions include the Circle of Security (Cooper, Hoffman, Powell, & Marvin, Chapter 6, this volume), Minding the Baby (Slade, Sadler, & Mayes, Chapter 7, this volume), Attachment and Biobehavioral Catch-Up (Dozier, Lindhiem, & Ackerman, Chapter 8, this volume), and others (Cicchetti, Rogosch, & Toth, 2000; Cicchetti, Toth, & Rogosch, 1999; Heinecke, Fineman, Ponce, & Guthrie, 2001; Lieberman, Weston, & Pawl, 1991). These intervention programs have generated substantial excitement and have begun the process of bringing attachment theory back into the field of clinical intervention, where it began with the initial observations of Bowlby, the Robertsons, Ainsworth, and others (Bowlby, 1988; Cicchetti et al., 1995; Robertson & Robertson, 1989). However, in spite of the enthusiasm that these interventions have engendered, to date the field as a whole has demonstrated relatively weak effects in altering attachment security (see Berlin, Chapter 1, this volume; Egeland, Weinfield, Bosquet, & Cheng, 2000; and van IJzendoorn, Bakermans-Kranenburg, & Juffer, Commentary 1, this volume, for reviews). This is not surprising given both the early stage of the field and the substantial vulnerabilities of many intervention families that combine the risk factor of an insecure or disordered relationship with poverty, familial chaos, and/or mental disorders.

Third, given the necessity to consider the needs and concerns of families at risk from a broader ecological perspective, as well as the current concern for developing school readiness in young children (Blair, 2002), it is exciting to see that some broader interventions that have incorporated attachment theory and research into their models have

shown some effects on later child outcomes (Olds, Chapter 10, this volume).

Although these new intervention models are exciting, it should be noted that the field is in the early stage of empirically testing most intervention models and that most of these models still require refinement and independent replication. As such, one cannot overestimate the importance of well-designed and meaningful randomized trials for establishing the legitimacy of such intervention approaches (Robins, 1992).

Berlin (Chapter 1, this volume) notes that the challenge to the field is to develop interventions that are (1) theoretically well grounded, (2) evidence-based, and (3) rigorously evaluated. At present, the field is only beginning these developments and to do so effectively will also require that the interventions test their developmental theories of mediation (Coie et al., 1993). Trials of preventive interventions or treatments provide important contexts for testing developmental models of change (Conduct Problems Prevention Research Group, in press; Ziv, Chapter 3, this volume). However, two additional challenges that are influenced both by practice and pragmatics also face the field. First, interventions to enhance attachments can be seen as both *preventive* (preclinical, widely available) and *interventive* (e.g., used with families and children who have received diagnoses or have been maltreated and have entered the clinical treatment system). Further, within the realm of preventive models, intervention may be conducted with a variety of different populations (Gordon, 1983), including those that are universal (an entire community of parents), targeted (at-risk populations), or indicated (specific families or infants already identified as at risk). As discussed later, different intervention models will require different research designs and measures of outcome. Second, although new interventions are often developed as free-standing models, as they undergo the transformation from science to widespread practice it is unlikely that they can be sustained without integration into existing systems. As a result, systems research is necessary to understand where in the current health care, social services, and early educational systems such interventions might be embedded.

DEFINITIONAL ISSUES: ATTACHMENT DISORDER VERSUS RISK

Conditions of Attachment

This volume deals with a diversity of family and child contexts and conditions that are germane to attachment theory. A central issue in understanding effects of interventions is understanding how different conditions may lead to difficulties in the attachment process that may require

intervention (Ainsworth & Bell, 1971).¹ Bowlby (1953, 1973) distinguished three such conditions. The first is *physical separation* from an attachment figure either temporarily (i.e., separation) or permanently (i.e., loss). The second condition is the *absence of a specific bond* to a specific attachment figure(s), usually due to inconsistent institutional care. The third condition is deprivation. *Deprivation* can be defined as a significant relationship disturbance that might be due to one of a variety of factors and that can occur with or without separation. This third condition of deprivation can result in very insecure patterns of attachment (severe avoidance or disorganization) or care that is so depriving as to not allow the development of typical patterns of secure attachment (Lieberman & Zeanah, 1985; Zeanah & Smyke, Chapter 9, this volume).

These three conditions may combine in a variety of ways. For example, deprivation is often associated with past histories of multiple physical separations (and losses) in early childhood (Bowlby, 1973). However, physical separation can occur without deprivation, as was demonstrated by the classic work of the Robertsons (Robertson & Robertson, 1989). This is well known to parents who commonly leave their young children with able and caring caretakers, especially in familiar environments. Similarly, although institutional care is often linked with deprivation, this is not always so. There are numerous examples of effective orphanages worldwide, including one I have visited on numerous occasions, the Tibetan Children's Village in Dharmasala, India, in which more than 2,000 children are cared for with caring, nurturance, and healthy outcomes. In addition, emotional deprivation can occur without separation, as in cases of child maltreatment or other high-risk conditions in which parents show low responsiveness and low emotional availability to their young children (Dozier et al., Chapter 8, this volume). A circumstance of great clinical and policy interest is children who enter foster care or adoption after early infancy. The chapters in this volume by Dozier and her colleagues (Chapter 8) and by Zeanah and Smyke (Chapter 9) demonstrate both the great need for and the promise of such models. In these cases one may be facilitating the development of a new bond following (1) deprivation in previous relationships (e.g., maltreatment); (2) nondepriving, but traumatic, circumstances (e.g., loss of attachment bonds through death, war, etc.); or (3) the development of an initial attachment bond following institutional care (Zeanah & Smyke, Chapter 9, this volume).

Understanding Attachment Insecurity as a Risk Factor within the Context of Public Health Models

It should be noted that a number of interventions discussed in this volume have not focused on any of the above "clinical" groups, but instead

have targeted infant–parent attachments that are believed to be at risk for later poor outcomes due to either risk for attachment insecurity or assessed insecurity (see Cooper et al., Chapter 6; Olds, Chapter 10; Slade et al., Chapter 7; Spieker, Nelson, DeKlyen, & Staerkel, Chapter 11). As such, insecure attachment (or its presumed risk) can be usefully understood within a broader public health model. The public health model examines how mental disorders and maladaptation share common risk factors, with an understanding that multiple risk factors are related to later disorders and yet it is very unlikely that one or a few risk factors in the absence of other difficulties will substantially increase the probability of later disorder. It is the combination of risks (Greenberg, Speltz, DeKlyen, & Jones, 2001) that is likely to lead to disorder. It is clear that further developmental epidemiology is necessary to understand what combinations of risk factors are both causal and most potent in producing deleterious outcomes for children. However, attachment insecurity in infancy and the preschool years clearly fits the risk factor model. As numerous studies have shown, it does not have direct impact on disorder *alone*, but instead insecure attachment, in combination with other risk factors, substantially increases risk for poor outcomes (Greenberg, Speltz, & DeKlyen, 1992; Lyons-Ruth, Easterbrooks, Davidson Cibelli, & Bronfman, 1997; Shaw, Owens, Vondra, Keenan, & Winslow, 1996).

When taking a public health perspective, questions arise about how an intervention model might both increase attachment security and produce the ultimate outcomes of reduction in later disorders. This question leads to a number of considerations and challenges for the next generation of research. They include the need to develop and carefully assess new intervention models with specific populations, choosing outcome measures that have both conceptual and statistical power for specific populations, and considering attachment-focused interventions with a broader conceptual model of public policy considerations regarding child and family development.

DEVELOPMENT OF NEW PROGRAMS AND MODELS

In testing the effects of intervention/prevention models, much has recently been written about stages of the research process. Most importantly, a distinction has been made in the Institute of Medicine (IOM) report between two stages of the intervention research process (Mrazek & Haggerty, 1994). The first stage of efficacy research involves testing a new intervention in a more controlled circumstance. The second stage of effectiveness research focuses on testing models that have already shown substantial outcomes under efficacy conditions and now testing these

models under more normal or “real-world” conditions. Under such conditions, researchers have substantially less control over such factors as the hiring of interventionists and the institutional agencies that provide the intervention services, in which there is likely to be more variability in such factors as recruitment of families, fidelity of implementation of the intervention, and so forth (Kam, Greenberg, & Walls, 2003). Recently, standards of evidence have been established for both types of evaluations (Society for Prevention Research, 2004).

The study of outcomes of attachment-focused interventions is at an early stage (with the exception of the well-studied Nurse–Family Partnership [NFP] program), and, as in many subfields of prevention, few programs meet strict standards of evidence. Although preventive interventions focused on children at risk due to presumed attachment difficulties have shown significant effects, effect sizes are often small to moderate (Berlin, Chapter 1, this volume; van IJzendoorn et al., Commentary 1, this volume). Although some have shown stronger effects, most have not yet undergone independent replication. It is clear that the field has substantial work to do to demonstrate efficacy outcomes.

Following the IOM guidelines, it should be clear that initial outcomes of a new intervention model will be best demonstrated first under conditions in which the intervention is done with highly trained staff, providing the intervention with sufficient dosage and fidelity. Thus, interventions such as the Comprehensive Child Development Program (PCCP; Spieker et al., Chapter 11, this volume) cannot be judged as ineffective when done under the “battlefield conditions” of an effectiveness trial. Although it is not always possible, researchers should attempt to follow the developmental process identified by the IOM report (Mrazek & Haggerty, 1994) by first demonstrating efficacy before testing effectiveness. Olds (Chapter 10, this volume) has demonstrated important outcomes in three different trials by carefully supervising both the training, ongoing supervision, and management of the NFP.

Although some intervention models may work effectively for universal and selective populations as well as for those that have entered the “treatment system,” a central issue will be to understand which models are effective for specific populations (Ziv, Chapter 3, this volume). Although a number of chapters in this volume have discussed the “more or less” issue which focuses on the effectiveness of type, dosage, and duration of interventions (Berlin, Chapter 1; van IJzendoorn et al., Commentary 1; Ziv, Chapter 3, this volume), it is clear that issues of “more” or “less” cannot be understood in the abstract, but only as contextualized within populations. The notion that there is a unitary answer to this question trivializes its many-layered issues. Trials that examine the effects of different interventions that vary in type, intensity, and duration

on the same population are necessary to further illuminate this question. Trials of a single intervention with multiple populations will also be useful because they can further illuminate what factors in the family or child may moderate the effects of a specific intervention.

MEASUREMENT AND OUTCOMES: WHAT IS ACHIEVED?

Greater clarity on measures of both impact and level of attachment risk at the onset of intervention will be necessary to demonstrate the full potential impact of interventions. It commonly has been the case that attachment security has been used as the primary measure of the outcome of interventions (see reviews by Berlin, Chapter 1, and van IJzendoorn et al., Commentary 1, this volume). However, a reliance on attachment security as the primary measure of outcome is problematic in three ways. First, if attachment security is the outcome, one would presume that all children who are in the intervention would have been “diagnosed” as insecure in their attachments at entry to the study (e.g., all cases should have the “problem” when treatment begins). This may be true in some studies that begin after age 1 and exclude all children that are not insecure, but any intervention that begins either prenatally or in the first months of life (see Olds, Chapter 10, this volume; Spieker et al., Chapter 11, this volume; Slade et al., Chapter 7, this volume) is preventive, and thus can only base sample selection on risk factors that are presumed to be associated with insecure attachment. Further, interventions that begin later (Cicchetti et al., 1999; Cooper et al., Chapter 6, this volume; Lieberman et al., 1991) do not exclude high-risk families with children assessed as secure. As a result, the power to detect effects on attachment security may be limited by sample selection and thus require relatively large samples to assess impact. On the other hand, treatment studies in which all children are assessed as insecure at intake will require smaller samples to assess outcome. A central concern is to have trials with sufficient power to detect impact.

A second issue concerns the necessity of actually changing attachment security in order to claim intervention success. It may be the case that an attachment-focused intervention might not change attachment security but it may positively influence other aspects of both parental and child behavior that reduce the risk for later poor socioemotional or cognitive outcome (Cicchetti et al., 2000; Lieberman et al., 1991). If attachment security is measured in a dichotomous manner of secure versus insecure, much information will likely be lost on the intervention impact. Researchers and interventionists might consider more continuous

measures of attachment security or of symptoms of attachment insecurity. A larger question raised by this discussion is whether the goal is to move the child to a secure classification *per se*, or to decrease the child's probability of disorder and maladaptation through the lifespan. This issue becomes especially important when attachment-inspired or attachment-directed interventions are embedded within broader intervention models.

Finally, a third issue concerns the outcomes that are most valued by policymakers and communities and that consequently may provide ongoing support for intervention services. Although attachment theorists might argue that moving a child from insecure to secure status is a valuable outcome (and I would agree), just as important may be attachment-relevant assessments of the child's social competence (e.g., getting along with others, self-regulation), the absence of psychopathology in the child, the child's ability to explore and learn, and the child's language and cognitive status. There is a need to develop valid and reliable assessments of social, emotional, cognitive, and health outcomes in early childhood that can easily be utilized by programs as part of their accountability process. These domains are all part of competence in the preschool years and central to public policy and concern regarding children's readiness for school and ability to succeed in both social and educational contexts (Blair, 2002). It is essential that future research make explicit the logical models of their interventions as well as their presumed short-term (or proximal) impacts (e.g., attachment-related outcomes such as maternal state of mind, parental emotional availability and nurturance, delay of next pregnancy) and longer-term impacts, and then broadly assess these mediators and outcomes.

Such an approach also accords with the recent report of the president's New Freedom Commission on Mental Health (2003) that focuses on the concepts of harm reduction and "moving toward recovery." That is, many mental health interventions may not alter diagnoses, but may improve social functioning. This concurs with the notion of transitional attachment patterns in which children may show improvement in function, even though they do not show the classic behavior patterns of secure children (Cooper, Hoffman, & Marvin, 2003).

The Big Agenda: The Relationship among Attachment, Stress, Family Health, Life Course, and Social Policy

Although there is little question about the potential of attachment-focused interventions to improve outcomes, there are both theoretical and practical (see below) reasons for considering these and other inter-

ventions and policies in a larger psychosocial/biological and familial frame. Incorporating broader models of family development (Belsky, 1999; Olds, Chapter 10, this volume), the role of stress on behavior and development (Putnam, Chapter 4, this volume), and comprehensive models of early intervention (Ramey & Ramey, 1998) may be of use in placing attachment-inspired interventions in the larger context of intervention and allow the consideration of other outcomes. Some important concepts in this larger frame include (1) how personal and contextual stress affect the parent's ability to focus on the child and his or her needs (Putnam, Chapter 4, this volume), (2) the need to consider interventions that seek a balance between supporting the mother's life course and improving the mother–infant relationship (Olds, Chapter 10, this volume; Spieker et al., Chapter 11, this volume), and (3) how successful interventions succeed in altering the *combination* of felt stress reduction, effective life course planning, relationship development, and behavior change.

Furthermore, as Olds (Chapter 10, this volume) has elaborated, the intervention needs to be motivating for the caregiver by offering such short-term outcomes as alleviating stress, increasing health for the baby (and caregiver), and building hope for the future. The caregiver's initial interest in the intervention may then allow the interventionist to begin working on "deeper" relationship issues such as building trust, focusing on the mother's internal working models of attachment (Cooper et al., Chapter 6, this volume; Lieberman & Amaya-Jackson, Chapter 5, this volume; Slade et al., Chapter 7, this volume), and focusing on sensitive and appropriate parental care (e.g., behavior change).

One of the most interesting and cost-saving outcomes of the NFP model is that it delayed the interbirth interval (Olds, 2002). Although this might not appear to be a short-term mediator of infant attachment security, it may very well have this effect. Delaying the birth of further children is a critical outcome not only because the mother does not soon have a second infant, but because this ability to better plan her life course may demonstrate that she has the ability to control her own destiny. Furthermore, it may open a space for focus on her own life course, including further education and employment, and may allow a greater focus on the child and his/her development, thus building maternal emotional availability that may lead to greater child security. A central finding of a well-known study (Rutter & Quinton, 1984) of the parenting of women who were institutionalized as girls was that their ability to successfully plan their lives was believed to have led to effective partner selection, which, in turn, supported effective parenting.

The example above of delayed interbirth interval is just one of a list

of possible nonpsychological interventions or policies that might improve attachment security. For example, attachment security may be improved by improving the quality of childcare, distribution of income supplements, neighborhood transfers to housing in safer communities (Katz, Kling, & Liebman, 2001), psychopharmacological interventions such as treatment for depression, and mind-body interventions such as relaxation training, mindfulness training, and yoga. By this I do not mean to imply that they directly influence attachment security, but they may serve as short-term mediators that support mothers by reducing their stress, and thus increasing their ability to become more intentional and reflective in their parenting role, as well as by promoting their greater enjoyment of their child, and thus becoming more effective at reading their child's cues. Understanding how attachment-inspired interventions work in concert with other models to improve the lives of parents and young children is an important next step.

Systems Integration Across Levels of Care and Institutional Settings

It is the rare community that has developed integrated programming between preventive interventions (both universal and targeted) and treatment to enhance early parent-child relations. This is in part due to the fragmented nature of the models created by intervention developers and researchers, and in part the result of often fragmented policymaking, planning, and funding among government, early education, health care, and human services. The challenge is to develop models that integrate prevention programming across the institutional structures supporting early education (early intervention, Early Head Start, Head Start, preschool, childcare), community agencies (e.g., mental health, substance abuse, family services), and health care. An innovative example in the current volume is the Circle of Security Project (Cooper et al., Chapter 6, this volume), which has been developed as an adjunctive support to several Early Head Start programs. The contribution by Nagle and Wightkin (Chapter 12, this volume) shows the importance of the integration of NFP with the health care system. In turn, NFP funding by Medicare in one state shows the promise of such integrative models.

Most communities have a tangle of fragmented and often duplicative services with little coordination. Children and families are often served by multiple sources, yet there is little dialogue among these entities. Thus treatment providers from community agencies providing counseling to families, parents, or children are commonly unaware of the prevention- or treatment-focused goals in other systems that care for children. Often lack of communication leads to a lack of ecological sup-

port to “recruit” or generalize the skills learned by the child in the treatment context as well as a sense of confusion and overburden at the family level. In most communities, the “infant mental health system” is chaotic (New Freedom Commission Report on Mental Health, 2003), and a combination of unclear diagnostic and funding policies have excluded many young children (Part B of the Individuals with Disability Education Act: Public Law 105-17) who have significant attachment disorders and problems in socioemotional development as their primary “disability” from early intervention. One promising initiative that has the potential to create greater integration is the System of Care (Friedman, 2003).

Integrating prevention programming across developmental levels (from infancy to preschool), levels of care (from prevention to treatment), and institutional settings (from childcare to clinical settings) provides major services research challenges that will dramatically alter the nature of the research–practitioner agenda and requires new models of communication and collaboration across these disciplines. To create coordinated planning and action across institutional structures and levels of care will require greater integration between service providers and their institutional settings. To encourage these actions will require substantial policy changes at the local, state, and federal levels (New Freedom Commission Report on Mental Health, 2003).

Moving from Efficacy to Effectiveness

As more programs show *efficacy* in controlled trials, a next stage in prevention programming is moving to studies of *effectiveness* (Mrazek & Haggerty, 1994). There are numerous research questions to be addressed in studying effectiveness. A central question is, How effective are such programs and treatment models under “real-world” conditions? Such studies will require the use of some kind of comparison group (i.e., by using either randomized or quasi-experimental groups). However, other questions regarding effectiveness do not require comparison groups and are best done under less controlled conditions in which local circumstances vary. A most important question to address is, What factors influence the quality of implementation? In addressing this question, implementation quality itself *is* the outcome. Although such work has been done in school-based prevention programs (Dane & Schnieder, 1998; Domitrovich & Greenberg, 2000; Durlak, 1998); little attention has yet been paid to how dosage, delivery, training, and the like, may impact outcomes in interventions with young children, with the exception of the implementation study of the national evaluation of Early Head Start (Kisker, Paulsell, Love, & Raikes, 2002; see also Berlin, O’Neal, &

Brooks-Gunn, 1998; Garrett, McKinney, Kinukawa, Redd, & Moore, 2003; Olds, Hill, O'Brien, Racine, & Moritz, 2003). Research should focus on a variety of factors that are believed to influence outcome including the curriculum model and the implementation support system.

Although some aspects of implementation research can be conducted by studying natural variation in dissemination of effective programs, it also will be necessary to conduct experimental trials in which aspects of implementation are varied, such as training characteristics, level of skill of the "therapist," or level of technical assistance. Olds and his colleague have done such systematic work on the NFP; a recent trial that has examined the effect of nurses versus paraprofessionals as delivery agents is an excellent example of their work (Olds, Robinson, et al., 2003).

Understanding Broad Dissemination: "Going to Scale"

A related but larger challenge than studying interventions and treatments under "real-world" conditions is conducting research on the process of broad dissemination, often termed "going to scale." The broad dissemination of programs is just beginning and there is little experimental, naturalistic, or case study research to guide such efforts (Backer, 2000; Olds, Hill, et al., 2003).

There are clear challenges in the process of going to scale that relate to the nature of the programs, their models of marketing, and their dissemination (Rotheram-Borus & Duan, 2003), as well as to the readiness, knowledge, and planned effort of local agencies. Many of the same "services research" questions described above regarding effectiveness also apply to studies of broad dissemination: How does variation in implementation affect family and child outcomes? What factors influence the quality of implementation? How do varying models of training and technical assistance affect implementation? What kinds of information and management systems help to effectively inform practitioners and guide implementation?

Sustainability

A significant challenge to effective prevention programming is to sustain this programming over time. Only by providing effective services to multiple cohorts of children and their families will communities begin to see change in the rates of child insecurity and child problem behaviors. The challenge of sustainability as well as the challenge of program integration discussed earlier truly requires a change in approach and philoso-

phy from previous research and service paradigms. Instead of researchers approaching communities in order to get their permission to test the effectiveness of new programs, they will be required to collaborate with multiple agencies to understand what supports and structures are necessary to create sustainable change. Such a change will be dramatic for many researchers and will truly lead to a more mature integration of the prevention science and community collaborative perspectives (Weissberg & Greenberg, 1998).

The study of sustainability will bring new research and policy challenges and opportunities, as illustrated by Nagel and Wightkin's excellent contribution to this volume (Chapter 12). Research questions will include: How can local communities use data effectively to influence sustainability? What factors in management, motivation, organization, financing, training, and technical assistance lead to sustainability for programs (Olds, Hill, et al., 2003)? What types of diffusion networks and technical assistance most effectively support sustainability? How do changes in policy lead to alterations in management, coordination, and financing for sustainability?

CONCLUSION

There has been substantial progress in developing preventive and clinical models to enhance early attachments between young children and their caregivers. However, for further progress to be made, there is a need for more trials to assess and replicate results of such programs on an expanded number of relevant and theoretically meaningful outcomes. In addition, attachment-inspired interventions will need to further consider how they can most effectively be integrated with other nonstigmatized service delivery models that currently serve parents and young children, as exemplified by the work of Olds and his colleagues. As this work progresses, the processes of effectiveness research, broad program diffusion, and program integration will become a central focus of both service providers and researchers. These processes will require a new generation of prevention scientists that are inspired by attachment theory and its power to understand and support the healthy development of young children and their families.

NOTE

1. Here I rely on direct notes taken in 1971 in Mary Ainsworth's class on maternal deprivation at Johns Hopkins University.

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