
Interventions for foster parents: Implications for developmental theory

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Abstract

All children who enter foster care have experienced disruptions in their relationships with caregivers, and many have experienced maltreatment. Studying the effects of these adverse early experiences can inform developmental theory. In particular, insight can be provided regarding sensitive periods in the development of attachment and self-regulatory capabilities. The quality of surrogate caregivers varies as a function of both the intervention services provided and foster parent characteristics. Studying the effects of foster parent quality can suggest which aspects of child functioning are more or less canalized at various developmental periods. This paper considers salient developmental issues of infancy, preschool years, middle childhood, and adolescence and examines ways in which these issues may present special difficulties for foster children. Across development, foster care is associated with difficulties regulating behaviors, emotions, and physiology. Thus, conditions associated with foster care placement (e.g., disruptions in care, maltreatment) appear to affect very basic and fundamental regulatory processes. Interventions have been designed that target developmentally specific manifestations of regulatory difficulties. Although the literature regarding evidence-based interventions for foster parents is quite limited, preliminary findings provide some evidence that nurturing, responsive care can serve to partially remediate early deficits. These findings suggest that stable and nonfrightening care is essential for normal development. Nonetheless, even in the case of quite adverse early experience that results in problematic child outcomes, there is some evidence that the development of many systems remains relatively plastic.

Approximately 500,000 children in the United States are in foster care (U.S. Congress, 1991, 2000). Children typically enter foster care when they are considered unsafe in the care of their parents or when their parents are unable to provide care for them. Mothers who test positive for illegal substances during childbirth and parents who neglect or abuse their children are among those whose children are removed from their care because of conditions considered unsafe; parents who are incarcerated or experience psychiatric hospitalization are among those whose children are removed from their care because parents are

unable to care for them. Except in the case of kinship care, foster care always represents a disruption in caregiving as well as a disruption in exposure to a familiar environment more generally. In addition, children have usually been exposed to serious disturbances in their caregivers' functioning that have precipitated foster care placement. Often these children have experienced threatening, frightening living conditions, conditions known to have a number of problematic long-term outcomes for those who remain in the care of maltreating parents (e.g., Cicchetti & Rogosch, 2001b; Heim, Newport, Bonsall, Miller, & Nemeroff, 2001; Main & Hesse, 1990). Not surprisingly, children in foster care show high rates of problematic long-term outcomes, with many showing externalizing or internalizing behaviors in the clinical range (Glissen, 1994;

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McIntyre & Keesler, 1986). Leslie and her colleagues (Leslie, Landsverk, Ezzet-Lofstrom, Tschann, Slymen, & Garland, 2000), for example, found rates of mental health treatment usage among children in foster care that are approximately 10 times greater than rates among control samples. Despite the host of problematic circumstances and outcomes associated with foster care placement, relatively little systematic research has been conducted on the effectiveness of interventions for foster parents.

Studying foster children's outcomes can inform our understanding of normal developmental processes. Although careful, systematic study of foster children is in a nascent stage, this field of inquiry is expected to provide evidence regarding such issues as sensitive periods in the development of attachment and self-regulatory capabilities and the plasticity of various systems. This paper first examines the foster care system, the needs of foster children at different developmental periods, and the concomitant risks of foster care placement. The limited literature regarding evidence-based interventions is then examined, as are the intervention concepts that have some empirical justification. Throughout, the relevance of these findings to an understanding of normal developmental processes is considered. Findings regarding foster children's outcomes and the effectiveness of foster care interventions both challenge and support extant developmental theories.

The Nature of Foster Care

Although the primary goal of the foster care system has traditionally been the provision of a safe, temporary home for children, it became apparent early in the history of the formal state-run system that foster care often did not result in temporary placements. Rather, many children stayed in foster care for very long periods of time, often until they were adults. Further, despite the often long-term nature of foster care, in many cases it did not represent stability because many children were moved from one home to another (Maas & Engler, 1959). Multiple disruptions in placement have been associated with the

most problematic outcomes for children in foster care (e.g., Fanshel, Finch, & Grundy, 1990; Newton, Litrownik, & Landsverk, 2000). Attention to the instability of foster care placement and the adverse consequences associated with multiple placements led to the recognition of the need for system-level change.

The enactment of the Adoption Assistance and Child Welfare Act (PL 96-272) in 1980 addressed the need for permanent homes for children. The priorities established in the act included working with biological families to prevent disruptions and/or minimize the time of separation and expediting adoption plans if reunification proved unlikely. The immediate effects of the law could be seen in the reduction in the number of children in the foster care system from a peak of 500,000 in 1977 to a low of 243,000 in 1982 (U.S. Congress, 1991, 2000). In the last two decades, however, the number of children in foster care has steadily increased to about 530,000 nationwide. Children have continued to stay in foster care for long periods of time, and some experience a number of changes in caregiving over time.

Nonetheless, changing priorities may be leading to changes in policy and procedures. The Adoption and Safe Families Act of 1997 renewed the focus on permanency planning by placing time limits on the resolution of children's foster care status. In Baltimore, Maryland, for example, foster care and adoption services were not integrated prior to the early 1990s; foster parents were not routinely licensed as adoptive parents, thus necessitating a change in placement when a child became eligible for adoption. By the late 1990s that had changed, with all foster and adoptive parents dually certified and agency staff coordinated, so that the transition from foster to adoptive status could be achieved much more readily. This represents a significant change at the practical level; a sizable percentage of young children living in this city who are freed for adoption are now adopted by their foster parents.

Maltreatment

The experience of maltreatment constitutes a significant risk for a child at any develop-

mental stage. The literature linking maltreatment to problematic outcomes is extensive. Maltreated infants are at greatly increased risk for forming disorganized attachments to caregivers (Carlson, Cicchetti, Barnett, & Braunwald, 1989), which place children at increased risk for a number of problematic long-term outcomes (Carlson, 1998; Lyons-Ruth, 1996). Maltreated preschoolers tend to characterize themselves and their caregivers in distorted ways (Toth, Cicchetti, Macfie, Maughan, & Vanmeenen, 2000), with unrealistic conceptions of self and negative conceptions of caregivers. At school-age, maltreated children show negative attributional biases, assuming that peers intend them harm when intentions are ambiguous (Dodge, Pettit, & Bates, 1994). These negative attributional biases, combined with inadequate inhibitory control, lead to maltreated children often behaving aggressively and inappropriately such that they are often rejected by peers (Rogosch, Cicchetti, & Aber, 1995).

Maltreatment and foster care placement are often confounded. With the exception of infants, most foster children have experienced maltreatment. (Infants are often removed from parents' care, not because they have been maltreated, but because of factors predictive of maltreatment, such as maternal substance use during pregnancy or maltreatment of another child.) Although most foster children have experienced maltreatment, there are many maltreated children who never enter the foster care system.

It will be important to begin to disentangle the effects of maltreatment and foster care, as well as the combined effects of maltreatment and foster care. Disentangling these effects will be important in elucidating the relative roles of disrupted attachment relationships and maltreatment on child outcomes. Unpacking these effects is complex, yet feasible. Cicchetti and colleagues' (e.g., Cicchetti & Rogosch, 2001a; Toth, Cicchetti, Macfie, & Emde, 1997) investigation of the differential effects of different types of maltreatment provides a model for this investigation of the relative effects of relationship disruption and maltreatment. Two requirements include the rigorous definition of variables and adequate sample size to permit breakdown into sub-

groups that have experienced maltreatment and/or disruptions in care at various ages. Whereas most studies of foster care and maltreatment have been conducted independently of one another, studies systematically studying effects of the two phenomena are critical. Thus, maltreated children in the care of their birth parents, as well as maltreated children who are in foster care, and foster children with histories of maltreatment, as well as those with no histories of maltreatment, need to be included in a single study. Such study will inform an understanding of conditions critical for normal development.

Further, little attention has been paid to differential effects of physical and sexual abuse on foster children. Work by Cicchetti and colleagues (e.g., Cicchetti & Rogosch, 2001a, 2001b; Manly, Kim, Rogosch, & Cicchetti, in press) suggests that different types of maltreatment may have very different effects on behavior and physiology. Future research on the effects of foster care placement needs to begin to consider children's specific maltreatment histories.

Foster Care and Developmentally Salient Tasks

Optimal development involves the negotiation of tasks relevant to particular developmental periods (e.g., Sroufe & Rutter, 1984). Foster care and the inadequate history of care prior to foster care placement might therefore be expected to have a differential impact, depending upon the developmental issues most salient for the child at the time. All foster children experience disruptions in relationships with caregivers, all have temporary surrogate caregivers, and many have a history of inadequate care or maltreatment. For children of any age, these are among the most challenging of circumstances. Children of varying ages may struggle with somewhat different issues, though. In this section, salient developmental issues for children of different ages are considered.

Infancy

Regulatory capabilities. For the young infant, regulation of behavioral, emotional, and phys-

iological functioning is necessarily a dyadic process, with sensitive responding by the caregiver gradually helping the infant develop his or her own capability to regulate functioning autonomously (e.g., Gianino & Tronick, 1985). At birth, the infant is dependent on the caregiver for the maintenance of smooth routines that can help modulate physiological arousal states (Sroufe, 1996). Sander's (1975) study of infants in a neonatal care facility illustrates the caregiver's role in maintaining a responsive environment. Infants who were kept in a nursery for 10 days and received noncontingent care (e.g., feedings on schedule) cried more than infants who had a caregiver staying with them (Sander, 1975). Further, when infants experienced a change in the caregiver staying with them, they showed increased distress (e.g., gagging, turning away, etc.).

According to Sroufe (1996), the caregiver's role in helping the infant regulate distress becomes increasingly important between the ages of 3 and 6 months. Under optimal circumstances, the caregiver helps the infant maintain organization during periods of increased stimulation or tension. Gianino and Tronick (1985), Brazelton (1982), and others have described the caregiver's sensitive attunement in this phase as helping the infant develop a nascent sense of efficacy, with brief attunement failures creating opportunities for repair and re-engagement. Under nonoptimal circumstances, though, the caregiver may fail to help the infant maintain organization and indeed may even contribute to his or her disorganization (Carlson, 1998; Lyons-Ruth, 1996; Lyons-Ruth, Easterbrooks, & Cibbelli, 1997).

Attachment. By the time the child has developed the ability to crawl or walk away from the caregiver, he or she has also developed an attachment behavioral system that promotes the maintenance of proximity under conditions of threat. This formation of an attachment is a key, biologically based task.

The quality of infants' attachments appears to reflect their caregivers' availability. When an infant's caregiver is responsive to his or her bids for reassurance, the infant typically

develops a secure attachment to the caregiver. When infants have caregivers who are rejecting of their bids for reassurance, they usually develop avoidant attachments to their caregivers (Ainsworth et al., 1978); that is, they turn away from, or avoid, their caregiver when distressed. When infants have caregivers who are inconsistent in availability, they usually develop fussy, resistant behavior when distressed (Ainsworth et al., 1978). Although these avoidant and resistant behaviors may not seem optimal, they are well suited to the caregiver's availability; that is, they can be seen to maximize the likelihood of continued caregiver involvement. Most importantly, like secure behaviors, these reflect *organized* behavioral strategies. When children experience caregiving that is frightening, however, they often fail to develop organized attachment strategies (Carlson et al., 1989; Main & Solomon, 1990) or show a breakdown in strategy. Disorganized attachment appears to place children at risk for a range of problematic outcomes, including internalizing and externalizing problems (Lyons-Ruth, 1996; Lyons-Ruth et al., 1997) and dissociative symptomatology (Carlson, 1998).

Foster care and neuroendocrine regulation for infants. Infants' placement into foster care involves a disruption in relationships with primary caregivers at a point when children are fundamentally dependent upon, and ultimately attached to, caregivers. Infants show physiological dysregulation even when placed into foster care at very young ages (Dozier, Levine, Stovall, Eldreth, & Fisher, 2001). The majority of foster infants and toddlers show atypical patterns of glucocorticoid production, with most showing atypically low levels across the day and some showing atypically high levels. These atypical patterns are seen even when infants are placed into care quite early. For example, infants show these atypical patterns when placed into foster or adoptive care before 6 months of age as well as when they are placed at later ages. This early dysregulation of the neuroendocrine system, apparently caused by separation from the caregiver, has long been observed in rodent and nonhuman primate research as well (e.g.,

Levine, 1983; Levine & Stanton, 1990; Suomi, 1999). Indeed, in animal studies, the effects of separation appear more pervasive and enduring when experienced very early rather than later in development (e.g., Graham, Heim, Goodman, Miller, & Nemeroff, 1999). These findings in human and nonhuman young suggest that early development of neuroendocrine system regulation is dependent upon the caregiver's stable presence. Separations are experienced as dysregulating, at least in terms of neuroendocrine functioning.

Dysregulation of neuroendocrine functioning results, not only from attachment disruptions, but from other adverse early experience as well. Children often develop disorganized attachments to their caregivers when caregivers behave in frightening ways (Lyons-Ruth, Bronfman, & Atwood, 1999; Main & Hesse, 1990; Schuengel, Bakermans-Kranenburg, van Ijzendoorn, & Blom, 1999). These children with disorganized attachments often show larger increases in the production of glucocorticoids in response to challenge than other children (Gunnar, Brodersen, Nachmias, Buss, & Rigatuso, 1996; Spangler & Grossman, 1993). Similarly, children who have been maltreated often show atypical patterns of neuroendocrine regulation (Cicchetti & Rogosch, 2001a, 2001b). These findings suggest that children require a caregiver who is, at the least, not frightening, if the neuroendocrine system is to function as intended.

These findings regarding the effects of attachment disruption and maltreatment inform our understanding of normal development of the neuroendocrine system. Through careful study of how disruptions and other adverse experiences affect the ability to regulate the system, it is possible to identify conditions critical for normal development. Until relatively recently, animal models were relied upon to assess the effects of early adverse experience on neuroendocrine regulation. Using salivary cortisol sampling (thus not requiring invasive techniques) with foster care children (thus not requiring experimental imposition of long separations), these questions can be asked with human infants and children. It is interesting that the findings are not altogether consistent with what would have been pre-

dicted from animal models, suggesting the importance of using a human model as well as an animal model to further our understanding of neuroendocrine regulation. Animal models have suggested that infants separated from caregivers become hyperreactive to stress later (e.g., Levine & Stanton, 1990), whereas findings with human infants and young children suggest that hyporeactivity, or low basal levels of cortisol production, is at least as likely an outcome as hyperreactivity.

Foster care and attachment formation for infants. On the other hand, children placed into foster care during the first year of life appear able to organize their attachment behaviors readily around the availability of their new caregivers if the caregivers are nurturing (Stovall & Dozier, 2000). During the second year of life, this transition becomes more difficult, with infants requiring a longer time to develop organized attachments to caregivers. Nonetheless, even when placed as late as 20 months of age, infants ultimately develop organized attachments when placed in the care of nurturing (i.e., caregivers with autonomous states of mind) caregivers (Dozier, Stovall, Albus, & Bates, 2001). When placed with nonnurturing caregivers, however, foster infants are at very high risk for developing disorganized attachments. Given that disorganized attachment is associated with negative long-term outcomes, foster placement with nonnurturing surrogate caregivers appears to be problematic.

These findings regarding infants' attachments to surrogate caregivers provide important insight into the role attachment plays in normal development. It appears that children's behavioral systems remain flexible throughout the first year of life and become less plastic, but nonetheless with some plasticity remains through at least most of the second year. Attachment disruptions seem to affect neuroendocrine regulation earlier and more pervasively than attachment formation. Future research findings should illuminate the plasticity of the neuroendocrine system.

Effects of prenatal substance exposure. Many infants placed into foster care have also been

prenatally exposed to substances such as alcohol, nicotine, and cocaine. Indeed, the most frequent reason infants are placed into foster care at birth is that mothers test positive for use of illegal substances (usually cocaine) at delivery (Chasnoff, Landress, & Barrett, 1990). Although the findings regarding the long-term effects of prenatal exposure to cocaine are inconsistent, Mayes (1999) argues that the preponderance of evidence suggests effects on arousal and attention regulation, with the specific effects depending on the timing and duration of prenatal exposure. The long-term effects of prenatal exposure to alcohol range from a slight decrease in intellectual functioning to severe mental retardation (Barth, 1991). These factors would be expected to affect development directly and indirectly, through caregivers' reactions to regulatory or developmental difficulties.

Interventions for foster infants and their caregivers

Minimizing disruptions in care. Some foster care interventions focus upon infants' needs for stable, consistent, nurturing care. An intervention developed by Zeanah et al. (2001) focuses upon achieving a permanent placement for the child as quickly as possible, either through reunification with the biological parent or termination of parental rights. The effectiveness of the Zeanah et al. (2001) intervention was assessed by examining differences in the type of permanency children ultimately achieved. The intervention group consisted of eligible children entering care in a Louisiana county between 1995 and 1998, and the control group consisted of children entering care in the same county during the 3 years prior to the intervention. Intervention and control group children differed significantly in the type of permanency plan achieved, with intervention group children less likely to be reunified with biological caregivers and the parental rights of their biological parents more frequently terminated. These results, however, are confounded by changes in policy that occurred during this time period as permanency became a more

pressing priority. Therefore, alternative explanations for the difference between the treatment and control groups cannot be ruled out.

In shared family foster care, rather than fostering only the child, the biological mother and her children are typically fostered together by foster parents (Barth & Price, 1999). This type of foster care is used frequently in cases where the biological mother herself was in foster care when her baby was born. There are several examples of shared family foster care, including the Ark in Spokane, Washington (Worsham & Kretchmar, 1999), and Whole Family Foster Care in Minneapolis, Minnesota (Nelson, 1992). Some programs have extended such practices to substance-abusing mothers (Williams & Banyard, 1995) and to mothers at high risk for out of home placement of their children (Gibson & Noble, 1991). The programs share a focus on providing a role model for adequate parenting and support for appropriate parenting while not disrupting the relationship with the biological parent, as is characteristic of more typical foster care. Outcome data on such programs appear to be limited to case studies, making it difficult to assess the effectiveness of these programs. Nonetheless, this is a promising model because its primary objective, maintaining caregiver consistency in children's lives, fits with what is known about young children's needs for relationship stability.

The Infant Nursery Caregiver Education Parent Training (INCEPT; Linares, Jones, Sheiber, & Bandman-Rosenberg, 1999) program targets children in foster care who have been exposed to substances prenatally. The INCEPT program works with foster and biological parents and provides therapeutic care for infants in a nursery program. Biological parents' addictions are targeted and they are helped to gain skills and confidence in caring for their children. Foster and biological parents are treated as a team, with the foster mother serving as a support to the biological mother. In an evaluation of 42 young children who participated in the INCEPT program, they showed significant gains in mental development but also increases in problem behaviors from pre- to postintervention assessments

(Linares et al., 1999). Given the absence of a control group, it is difficult to know whether either of these differences is attributable to the intervention itself or some other factor.

Enhancing attachment quality and regulatory capabilities. Dozier et al.'s (in press) intervention focuses on helping foster parents provide environments in which foster infants can develop organized attachment strategies and adequate self-regulatory capabilities. Two obstacles often interfere with foster infants developing organized attachment strategies. First, caregivers tend to respond "in kind" to their children, creating a cycle during the first several months following placement whereby infants behave as if caregivers are not needed or are inadequate and caregivers behave in a distant or angry fashion. Although this cycle appears to be of limited duration (Stovall & Dozier, 2000), several months of experiencing inadequate care from an otherwise caring foster parent is far from optimal. Second, foster infants are at very high risk for developing disorganized attachments if their caregivers are not nurturing (Dozier, Stovall, et al., 2001). Therefore, the Dozier, Stovall, et al. (2001) intervention helps caregivers to see that their children need them, even if children's behaviors suggest otherwise, and to respond in nurturing ways to their children even if this does not "come naturally" for them. Because foster infants and toddlers often show evidence of dysregulation at behavioral and neuroendocrine levels (Dozier, Stovall, et al., 2001), children's self-regulatory capabilities are targeted as well. Intervention concepts have been borrowed from van den Boom (1994, 1995) and Barnard (Barnard, 1999; Barnard & Morisset, 1995), who developed interventions for temperamentally difficult children.

Assessment of the intervention's effectiveness is limited to a small sample of foster infants (12 in the experimental group, and 10 in the control group). Current results, however limited, suggest that the intervention is effective in helping children display more secure behaviors with caregivers and develop more typical patterns of neuroendocrine regulation. A large randomized control study is now be-

ginning that will provide data regarding the efficacy of the intervention, with effectiveness trials also planned in several sites. If these pilot results were replicated with the larger sample, evidence would be provided for the plasticity of both the neuroendocrine and attachment systems.

Psychoeducation of foster parents. The focus of the four-session Burry intervention is helping foster parents recognize the effects of prenatal substance exposure and learn strategies for dealing with behaviors that result from substance exposure. In an evaluation of process-level variables, intervention foster parents were compared with control foster parents attending televised foster parent training. Intervention foster parents reported feeling greater efficacy in caring for a substance exposed child than control foster parents and showed greater skills in handling substance abused children in postintervention relative to preintervention assessments. There were a number of problems with this design, especially the lack of comparability of experimental and control groups (the experimental group consisted of a self-selected group of 28 foster parents out of 80 who had originally volunteered for participation, whereas the control group appeared to be attending a required class, with no such selection bias likely). Further, the lack of child outcome data limits the contribution. Once again, however, the target of the intervention, helping foster parents gain skills specific to the needs of their foster children, makes this a promising, although untested, intervention.

Increasing resource usage. Silver et al.'s intervention (Silver, DiLorenzo, Zukoski, Ross, Amster, & Schlegel, 1999) focuses on increasing foster parent use of health and mental health resources. The intervention seeks to identify young children in foster care whose health and physical development needs are going unmet. Silver et al. document the needs among infants and toddlers in foster care for early intervention. Their findings indicate that foster children have extensive needs for specialized mental health services and these needs often go unrecognized.

Preschool period

Cicchetti and colleagues (Macfie, Cicchetti, & Toth, 2001) have suggested that the typically developing toddler and preschool aged child develops an integrated, organized sense of self that is based on past experiences and memories. This developing sense of self increasingly helps the child to mount an organized response to stimuli, especially challenging stimuli. Accompanying these changes in the sense of self are changes in the child's self-regulatory capabilities. During the toddler and preschool years, the ability to regulate behaviors, emotions, and physiology becomes increasingly well developed. For the toddler, the caregiver necessarily takes a more active role in helping the child regulate emotions and behaviors than for the preschooler. The preschooler is increasingly expected to regulate affect and behaviors rather independently. The ability to delay gratification and to inhibit a prepotent response changes dramatically during these preschool years (Diamond & Taylor, 1996) and has been associated with healthier psychosocial outcomes in later childhood and adolescence. Inhibitory control and other executive functions appear to be subserved by the prefrontal cortex, in coordination with other brain structures (Luciana, Lindeke, Georgieff, Mills, & Nelson, 1999; Luciana & Nelson, 1998; Nelson, Bloom, Cameron, Amaral, Dahl, & Pine, 2002).

The ability to inhibit prepotent responses affords children the opportunity to consider possibilities and consequences before acting (Diamond & Taylor, 1996; Luciana & Nelson, 1998). Therefore, children with well-developed inhibitory control become capable of such things as deciding not to retaliate when they feel they have been wronged and attending to their schoolwork rather than looking out the window at children playing in the schoolyard. The converse of this is the inability to inhibit impulses or regulate behaviors and emotions, as seen in children diagnosed with attention deficit hyperactivity disorder and conduct disorder.

Foster care for the preschool age child. Macfie et al. (2001) found that maltreated children

appeared to dissociate more than nonmaltreated children. Maltreated children's responses to a story-stem task showed an increase in dissociation across the preschool years, suggesting that the sense of self was becoming increasingly fragmented rather than integrated. These findings are specific to maltreated children from intact families rather than to foster children, but a fragmented sense of self and of family has been found to be characteristic of preschool-aged foster children as well (Dozier, Juliano, & Higley, 2001). The family drawings of preschoolers who had been placed into foster care in infancy were rated as more disorganized and bizarre than the family drawings of children from intact families. A fragmented sense of self would be expected to interfere with primary tasks of the preschool years, including the ability to regulate behaviors and emotions.

Human and nonhuman primates who have experienced inadequate early care often show specific deficits in inhibitory control (Dozier, Juliano, et al., 2001; Winslow, 2002). For example, preschool foster children showed a specific deficit in the ability to inhibit a prepotent response (Dozier, Juliano, et al., 2001; Fisher, 2001). In that inhibitory control is associated with behavioral problems such as attention deficit disorder and conduct disorders, deficits in inhibitory control among foster children may be especially important for later adjustment. Indeed, some studies have suggested extremely high rates of both behavioral and developmental problems among children under 6 in foster care (Klee, Kronstadt, & Zlotnick, 1997).

Difficulties in the regulation of the neuroendocrine system are also seen among preschool children, similar to the difficulties seen among foster infants (Dozier, Levine, et al., 2001; Fisher, 2001). In particular, most foster children show low levels of cortisol production across the day, and some also show very high levels. Dysregulation of the neuroendocrine system may be associated with difficulties in regulating behavior as well (Fisher, 2001).

Preschool foster children often develop behaviors that are adaptive to dealing with maltreating family environments or to buffering

the effects of relationship disruptions. However, many of these behaviors appear to increase the risk for failure at the developmental tasks of the preschool years. The manner in which foster children interact often has the effect of increasing caregivers' inconsistency and decreasing the likelihood of nurturance, producing escalating cycles of negative interaction (Fisher, Ellis, & Chamberlain, 1999).

Interventions for foster parents of preschool children

The only intervention identified that specifically targets preschool foster children is the Early Intervention Foster Care program (EIFC; Fisher et al., 1999), an intervention that targets preschooler's need to develop adequate behavioral control strategies. The EIFC represents an adaptation of the Oregon Social Learning Center's Multidimensional Treatment Foster Care (MTFC) approach, a therapeutic foster care program for adolescents in the juvenile justice system (see Chamberlain, 1994). As an adaptation of MTFC, EIFC addresses two related domains of preschool foster children's functioning: emotional or behavioral problems and developmental delays. The intervention includes intensive training and ongoing support to foster parents, as well as family therapy to biological families when reunification is a possibility. Standard parent training methods are used with biological families (Chamberlain, 1994; for a complete description of the program, see Fisher et al., 1999).

One of the central questions addressed in the evaluation of the EIFC program is the extent to which changes in psychological adjustment are related to changes on physiological measures of stress reactivity (Fisher, Gunnar, Chamberlain, & Reid, 2000). In a pilot evaluation of the EIFC program, Fisher et al. (2000) found that positive impact on children's behavior problems and on parenting practices was matched by positive changes in neuroendocrine regulation. In contrast, children in a regular foster care condition did not show such gains. These findings are not the result of a randomized control trial, and small sample size prohibited tests of statistical sig-

nificance, thus limiting what can be concluded at this point. EIFC is currently the subject of a 5-year randomized trial investigation that seeks to provide additional evidence for the effectiveness of this approach with regard to behavioral and physiological systems.

Middle childhood

A key task for school aged children is the development of the capacity for behavioral control. In the classroom, children are often required to sit for long periods of time and attend to academic tasks. Appropriate social behavior often requires that children reflect on the possible consequences of their behaviors before acting. If children are distracted by stimuli extraneous to the task at hand or if they behave in impulsive ways, they often experience difficulties academically and socially.

Given the earlier deficits in regulating physiology and behavior, it is not surprising that school age foster children often show difficulties controlling their behavior in academic settings and with peers (Claussen, Landsverk, Ganger, Chadwick, & Litrownik, 1998; McIntyre & Keesler, 1986). Such behavior problems also appear to be consistent over time; in a retrospective review of the records of a group of children in foster care, Fanshel et al. (1990) found that children who displayed high levels of delinquent behavior early in care were likely to demonstrate continued conduct problems on leaving care.

Peer relations are also central to children's adjustment during middle childhood. Expectations of peers are developed, at least in part, on the basis of experiences with caregivers (Elicker, Englund, & Sroufe, 1992). When children have expectations that others will behave in a hostile fashion (Dodge, 1980), they tend to interpret ambiguous behaviors as hostile and behave in keeping with these expectations. Dodge and colleagues (Dodge, 1980; Lochman & Dodge, 1998) found that these hostile attributional biases are powerful predictors of children behaving in characteristically aggressive ways and being labeled as aggressive by peers.

Interventions for foster parents of school aged children

Behavioral strategies. Behavioral problems are of particular concern for school age children in foster care. Studies suggesting high rates of disorder, as well as studies suggesting that behavior problems increase the likelihood of placement disruption (Fanshel et al., 1990), highlight the need for interventions in this area. Therefore, several behavioral interventions with foster children share an emphasis on essential principles of effective parenting for children with behavior problems. In such programs, foster parents are assisted in learning to provide a consistent set of contingencies, with positive attention for desired behavior, no attention for problem behaviors, and loss of privileges for unacceptable behaviors.

Hampson and Tavormina (1980) assessed the effectiveness of an 8-week behavioral intervention relative to the effectiveness of an 8-week reflective intervention (designed to help foster parents learn sensitivity to children's separation concerns). In a randomized study of 34 foster parents, the reflective intervention was more effective at changing parental attitudes toward the children but the behavioral intervention resulted in more positive child behaviors and more appropriate mother-child interactions. In a second study, Hampson, Schulte, and Ricks (1983) found that a combined reflective and behavioral intervention resulted in more positive outcomes when administered individually than in groups.

Boyd and Remy (1978) assessed the effectiveness of a 16-week training course in behavioral management skills. Although children were not randomly assigned to control and experimental groups, a matched control group was used. Disruptions in placements occurred less frequently for families that had received training prior to child placement ($n = 55$) than among those who had not received training ($n = 113$). Data regarding child behavioral outcomes were not reported.

Principles from Multidimensional Treatment Foster Care (Chamberlain & Reid, 1998) are being implemented in San Diego County, California (John Landsverk, personal communication, April 2001). This is a true ef-

fectiveness trial, with case workers in the county administering the intervention. Outcome data are not yet available from this effectiveness trial.

Enhancing communication and insight. Other interventions focus on enhancing foster parents' ability to communicate effectively with their foster children. For such programs, the primary focus is helping foster parents to appreciate difficulties children in foster care may have as a result of disruptions in care and a history of inadequate care.

Levant and Slobodian (1981) assessed the effectiveness of a systematic communication and parenting skills training program with a small sample of inner city foster mothers. This is one of the rare studies of foster parent intervention effectiveness in which foster parent and child behavior were examined in videotaped interactions. Foster mothers who participated in the intervention did not differ from foster mothers who had not participated in the intervention on any of their behavioral outcomes. Although the sample size was small, making it difficult to obtain statistically significant results, differences from pre- to post-intervention were negligible and would not have been detected even with a much larger sample. Levant and Slobodian suggested that the failure to find differences may have resulted from the greater needs of low income foster mothers. They proposed a more extensive 6-month intervention for these foster mothers. To our knowledge, the more extensive intervention has not been reported in the literature.

Runyan and Fullerton (1981) assessed the effectiveness of a 10-session intervention focusing on issues of separation, communication, and responsibility among foster children. Foster parents reported fewer problem behaviors for their foster children following the intervention than they reported prior to the intervention. This study did not include a control group, however, leaving open the possibility that changes in reported problem behaviors resulted from factors other than the treatment conditions (e.g., from placebo effects, regression to the mean, etc.).

Finally, Simon and Simon (1982) studied

the effectiveness of a foster parent selection and preservice training program. Training focused on helping foster parents understand the effects of foster care on their children and developing strategies for working with their children's difficult feelings. Prospective foster parents attended 21 classroom hours of training and received home visits and individual interviews. Of greatest interest were findings related to disruptions in foster care placements. The authors report that 28% of control placements (foster parents enrolled in the year prior to the inception of the program) were disrupted in a 6-month period, contrasted with 17% disruptions for the intervention group, a difference that the authors indicate is significant. Our own calculations (via chi-square analysis) indicate that this difference does not approach significance, however. Thus, although the findings favor the experimental group, the lack of statistically significant findings limits the contribution.

Adolescence

A host of factors contribute to make adolescence a particularly difficult period for foster children. Ideally, adolescence is a time of making a transition to independence from caregivers, developing more intimate relationships with peers, and forming a stable and healthy identity. Adolescents increasingly assume responsibility for making decisions for themselves as they are less under the immediate supervision of caregivers. Therefore, difficulties in inhibitory control at this age are often associated with dangerous or risky behaviors, such as substance use and abuse, risky sexual behaviors, and other antisocial behaviors (Giancola & Tarter, 1999; Giancola & Zeichner, 1994; Gillen & Hesselbrock, 1992; Seguin, Pihl, Harden, Tremblay, & Boulerice, 1995).

Adolescents in foster care face a number of challenges. These children have experienced some fundamental instability in their family lives, in many cases in the form of multiple transitions in and out of foster care over the course of their childhoods. It may be especially difficult for these adolescents to suc-

cessfully negotiate the transition to a period of greater autonomy.

Foster care placement instability increases with child age (Smith, Stormshak, Chamberlain, & Bridges-Whaley, 2001). Such instability places adolescents at increased risk relative to younger children. For example, choices about whether to engage in risky behaviors, like those mentioned above, are better made when children's lives are stable. Further, the difficulties in peer relationships that were described for younger foster children become even more salient for adolescents. Frequent changes in caregiving and in physical circumstances make the successful negotiation of peer relationships increasingly challenging.

Interventions for foster parents of adolescents

Focus on coordination of services. In Tennessee, Services Coordination Teams were developed in response to the lack of coordination among agencies involved in children's receipt of services (Glissen, 1994). The goal of the program is to better coordinate and access available services for foster children. To assess the effectiveness of the program, 24 Tennessee counties were randomly assigned to intervention or control group condition and 600 children were randomly selected from the counties. Most of the children were adolescents. Although this paper generally limits consideration to studies of children in foster care as the result of caregiver problems, 70% of these children were placed into care because of their own behavioral problems, with only 30% placed because of neglect and abuse (at the time the study was conducted in Tennessee, these children were often handled by the child welfare system rather than the juvenile justice system). Children in the intervention counties received more mental health services than children in control counties. For those children scoring in the clinical range of behavior problems, experimental group children showed more improvement than control group children, a pattern not shown for children scoring in the nonclinical range.

The Fostering Individualized Assistance Program (FIAP; Clark, Prange, Lee, Stewart,

McDonald, & Boyd, 1998) is also included here in our discussion of interventions for adolescents, despite the fact that children from a larger age range (7–15 years) were targeted for the intervention. FIAP is discussed here because the intervention had its strongest effects for adolescents. The children who are targeted for the intervention are foster children with identified behavioral and/or emotional problems. The program shares this emphasis with treatment foster care programs but restricts inclusion to children who have been abused or neglected, which is not an inclusion criterion for treatment foster care programs. FIAP involves “wraparound services,” the provision of all services necessary to help the child and family cope adequately. Family specialists or case managers supervise the provision of services and participate as counselors and advisors.

Children were randomly assigned to the FIAP ($n = 54$) or to a standard foster care group ($n = 77$). FIAP children who were from the older subset (11.5–15 years) were significantly more likely to achieve permanency than control group children of the older age range. Findings were similar for behavioral outcomes. Older children in the FIAP were less likely to run away from home, be incarcerated, or miss school than older control group children. Problem behaviors, as reported by the children and their caretakers, revealed greater improvements for FIAP children over time than for control group children. However, this effect was qualified by a treatment group by gender effect, with males in the FIAP showing significant gains over time relative to control group males, a pattern not seen for females.

What Is Needed?

The literature on the effectiveness of interventions with foster parents and children is clearly very limited. None of the studies of the effectiveness of foster care interventions meets standards for establishing an intervention as definitely efficacious. At this point, there are few interventions that have even weak empirical support, with the greatest deficits apparent for interventions specifically

targeting school age children and adolescents in foster care. This does not appear to be because assessments of interventions have been tried and failed, but rather because they have not been tried. It is possible, of course, that null findings have gone unpublished. However, we have made personal contact with a number of foster care researchers who have told us that they do not have data regarding their interventions' effectiveness at this point.

This lack of attention to the outcomes of foster care interventions may reflect the assumed function of the foster care system, that is, providing custodial care for children rather than treatment. However, given that more than 500,000 children in the United States are in foster care and that these children are at high risk for a range of problems, it is critical that interventions be developed and empirically evaluated. The issues considered important in the development of intervention programs are considered next.

Regulation and dysregulation

Evidence of neuroendocrine dysregulation has emerged among foster infants and preschoolers (Dozier, Levine, et al., 2001; Fisher, 2001). These deficits are not specific to children in foster care, but rather are characteristic more generally of children who experience adverse early experience, such as maltreatment, orphanage care, or foster care (Cicchetti & Rogosch, 2001b, Dozier, Juliano, et al., 2001; Gunnar, in press). Ashman, Dawson, Panagiotides, Yamada, and Wilkinson's (2002) findings suggest that the first two years of life may be particularly important for developing normative patterns of neuroendocrine regulation. The findings of Dozier, Levine, et al. (2001) suggest that dysregulated patterns emerge very early, indeed in the first weeks or months of life, and are likely to persist without intervention. Together, these findings provide strong evidence for a sensitive period in the development of neuroendocrine regulation.

Nonetheless, results from our labs have been promising with regard to altering this dysregulation through intervention (Dozier, Levine, et al., 2001; Fisher, 2001). Pilot work (Dozier, Levine, et al., 2001) suggests that an

intervention focusing on foster parents functioning as very responsive social partners may help infants develop more typical patterns of neuroendocrine function. Further, there is some preliminary evidence that foster parents who provide a very predictable environment have preschoolers who show more normative patterns of cortisol production (Fisher, 2001). Although these two interventions differ in terms of their theoretical approach, they share an emphasis on having the child experience a predictable interpersonal world. If these findings are replicated with a larger sample, they would have important implications for development, providing evidence for the plasticity of the neuroendocrine system.

Attachment

The effects of attachment disruptions are manifested in different ways from one developmental period to another. When infants experience the disruption of their primary attachment relationships, they often interact with surrogate caregivers in a defensive manner (Stovall & Dozier, 2000). Although these behaviors may be most noticeable for the caregivers of infants, Fisher (2001) finds that older children's behaviors can be characterized similarly. It is critical that caregivers provide nurturance even when their foster children behave in rejecting ways. Thus, an important focus of interventions for foster parents of young children is to help caregivers provide a nurturing environment, even though foster children may not appear to need nurturance.

Bowlby (1980) and Sroufe (1983), among others, have suggested that a child's sense of self and other emanate from attachment relationships with primary caregivers. When children experience abuse or neglect at the hands of caregivers, the sense of self and other that develop are far from optimal (Milan & Pinderhughes, 2000; Toth et al., 2000). Further, the experience of losing these caregivers may serve to make the sense of self and other even more fragile or negative. Not surprisingly, foster children often have negative expectations of peers, assuming that peers intended them harm rather than that they behaved in a

way that accidentally caused harm (Price & Landsverk, 1998). These attributional biases are important because such biases tend to drive behavior. That is, children with negative attributional biases tend to respond aggressively to provocation, and thus tend to become labeled by teachers and peers as aggressive (Dodge et al., 1994). Sense of self may become particularly relevant in adolescence, when identity formation is paramount. To our knowledge, no intervention has yet addressed this issue among adolescents in foster care.

Turning around these conceptualizations of self and other is critical. The relationship with the caregiver is considered to have the greatest chance of affecting these conceptualizations. Rather than simply responding to the child in a complementary fashion, foster parents need to behave in *therapeutic* ways. If they respond consistently in ways that lead the child to feel efficacious and loved rather than in ways that confirm his or her worldview, the child's internal representations can change. The power of nonparental figures was illustrated by Egeland, Jacobvitz, and Sroufe (1988) in a longitudinal study of women who had been abused as children. Those women who did not go on to abuse their own children were more likely than other women to have had a key figure in their life, such as a neighbor, teacher, or counselor, who served the role of confidante. Particularly for adolescents, who are less likely than other children to be adopted, the presence of such an alternative attachment figure could represent an important influence.

Behavior problems

Young children in foster care often show deficits in inhibitory control (Dozier, Stovall, et al., 2001; Fisher, 2001). Many of these children have difficulties delaying gratification and inhibiting a prepotent response. These capabilities have not been examined with older foster children, but evidence of increased levels of behavioral problems among older foster children is consistent with inadequately developed inhibitory control. Foster parent interventions that emphasize parenting

skills such as the communication of clear, simple expectations may be useful in helping children function in the short term. Further, helping children learn to focus attention and inhibit prepotent responses under arousing conditions is expected to help them develop their executive function capabilities (Greenberg, Kusche, & Riggs, in press).

By preschool age, foster children show more externalizing and internalizing behavioral problems than nonfoster children, and the difference between foster and control children increases as they grow older (Claussen et al., 1998). The challenge of the school years makes foster children's developmental delays and behavioral disruptiveness especially salient. In many cases, behavior problems may also interfere with foster parents' attempts to provide nurturing care.

Beyond infancy, the most frequently reported interventions are behavioral. There is some limited evidence that better outcomes are associated with behavioral interventions than shown for control groups or alternative treatment groups (Hampson & Tavormina, 1980). Providing foster parents with behavior management skills can have a number of ripple effects, including bringing behavior problems under control, helping the child regulate physiological as well as behavioral functioning, and enhancing the ability of the foster parents to form a meaningful relationship with the child. Clearly, interventions for children in the preschool years and beyond must address these behavioral issues. Nonetheless, it may be important that even behavioral interventions hold as an ultimate goal enhancing the relationship quality between child and caregiver. The relationship between caregiver and child is posited here to be the critical transducer of change.

Policy implications

Disruptions in care have profound consequences for children, including dysregulation of behavioral and physiological functioning. Further, a history of failed or disrupted relationships adversely affects expectancies for subsequent relationships. The more frequently children experience relationship disruptions,

the greater is their risk for problematic outcomes. Newton and colleagues (2000), for example, found that the number of times children were moved from one home to another predicted the level of problem behaviors exhibited, over and above the baseline level of problem behaviors assessed when children first entered care. Therefore, the current emphasis on developing and quickly implementing permanency plans is considered in the best interest of the child.

Developmental needs of children should be of paramount importance in making decisions about foster placement. Nonhuman primate and rodent studies have demonstrated that relatively brief separations have long-term adverse effects for infants (Levine, 1983; Levine & Stanton, 1990). For example, when the length of separation exceeded the time mothers were likely to be foraging for food, long-term effects on physiology were seen for nonhuman primate infants (Coplan et al., 1998). Thus, a separation of several weeks (considered a very short foster placement) may nonetheless have significant consequences on an infant's developing regulatory capabilities. Therefore, when reunification is considered probable (as in the case of a mother who is incarcerated), keeping the mother-infant dyad together seems optimal. For example, Cassidy, Marvin, Cooper, Hopper, and Powell (J. Cassidy, personal communication, January 12, 2002) are randomly assigning pregnant incarcerated women to a treatment condition in which mothers parent their babies in prison while receiving intervention services or to a usual care condition in which babies are placed in foster care. Although minimizing disruptions is important for children of any age, infants and toddlers appear unable to tolerate even short separations well.

Keeping groups of siblings together has been a priority in many locales. Again, the developmental needs of members of the sibling groups may be critical in making such decisions. For older children, the connections among siblings may promote a sense of stability even when adults change. Sometimes, however, relationships between potentially adoptive foster parents and infants are disrupted so as to reunite sibling groups. Given

that infants likely experience moves from birth homes or foster homes as disrupting a key relationship, such moves should only be made when essential.

There is a critical need for theoretically driven, evidence-based intervention programs for foster parents. Given that children coping with different developmental challenges will be affected differently by foster care placement, it seems unlikely that a single intervention strategy will be effective for all foster children. Indeed, detrimental effects have been found when children who appeared least in need of treatment received a universal intervention (Glissen, 1994). Therefore, it is critical that interventions target specific needs of children, based on developmental level and particular patterns of functioning difficulties.

Implications for Developmental Theory

The specific effects of foster care placement elucidate some of the caregiving factors necessary for normal development. Stability of caregiving and sensitive attunement appear pivotal to the development of early regulatory capabilities. Later sensitive care does not easily remediate early deficits in regulatory capabilities, although there is some evidence that extraordinary surrogate caregivers (e.g., Fisher et al., 2000; Suomi, 1999) can help children develop their self-regulatory capabilities. Disruptions in care and/or maltreatment in infancy do not appear to interfere with the tod-

ler's ability to form an organized attachment to a new, nurturing caregiver. However, again, the quality of surrogate care is critical. Young children who have experienced early adversity are often not able to organize attachment behaviors around new caregivers' availability when caregivers are not nurturing. These findings suggest that there are sensitive periods in the development of both neuroendocrine regulation and attachment. Greater plasticity appears to exist in the attachment behavioral system than in the neuroendocrine system, though these preliminary findings need to be replicated and extended.

Sroufe's (1996) adaptation of Bowlby's (1973) branching tree metaphor is considered apt in characterizing the development of foster children. Early maltreatment and/or disruptions in care are not deterministic of later outcomes, but they place children on a different branching pathway from most other children. Discontinuity in experience (e.g., biological parents receiving effective treatments, placement in a loving adoptive home) will create the possibility for branching in a more productive direction. Nonetheless, subsequent experience will be affected by children's early adaptations to these experiences. As children develop, their expectancies, sense of self, ability to regulate behavior and emotions, and learned behaviors may make it increasingly more difficult for them to use environmental resources and more difficult for caregivers to provide the nurturance, responsiveness, and structure children need.

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