

Literature Review: Developmental Problems of Maltreated Children and Early Intervention Options for Maltreated Children

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Table of Contents

Introduction	1
Part 1: Developmental Problems of Maltreated Children	2
A. Developmental Problems	2
Health, Growth and Motor Delays, and Compromised Physiological Systems	2
Cognitive Disturbances	3
Social-Emotional Disturbances	4
Psychopathology	6
Summary of Developmental Problems	8
B. Under-Utilization of Early Intervention Services	9
Part 2: Early Intervention Options for Maltreated Children	11
A. Background	11
B. Interventions Designed for or Tested With Maltreated Children	14
Therapeutic Daycare Centers and Preschools	14
Foster Care Therapeutic Interventions	15
Clinic-Based Mental Health Treatment	17
Infant-Focused (Clinic- and Home-Based) Interventions	20
C. Interventions Designed for Other Purposes But May Be Useful for Maltreated Children	21
D. Future Research and Recommendations	23
Rigorous Program Evaluation: Identifying Effective Interventions	23
Translating Effective Treatments Into Community Practice	24
Keeping Maltreated Children and Their Families From Slipping Through the Cracks: Identifying, Enrolling, and Motivating Families	24
E. Conclusion	27
References	28

Introduction

Maltreated children younger than age 3 constitute a vulnerable group in America. Experts have argued that young children are particularly susceptible to the trauma of maltreatment because they rely on others for their basic survival and do not have the capabilities to flee, report, or protect themselves from abuse and neglect (Kaufman & Henrich, 2000; Smyke, Wajda-Johnston, & Zeanah, 2004). Statistics indicate that 79% of all abuse-related fatalities occur when children are the age of 48 months or younger (National Clearinghouse on Child Abuse and Neglect Information, 2005). Additionally, although the rate of substantiated child abuse and neglect for children ages 18 and younger has slightly decreased from 1990 to 2003, the rate of victimization of children younger than age 3 continues to be of concern. In 2003, the national rate of substantiated maltreatment for children younger than age 3 was 16.4 per 1,000 (National Clearinghouse on Child Abuse and Neglect Information, 2005). Moreover, evidence suggests that approximately 21% will experience subsequent maltreatment (Palusci, Smith, & Paneth, 2005). Infants and toddlers also constitute one of the fastest growing maltreated groups in Child Welfare Services (Berrick, Needell, Barth, & Jonson-Reid, 1998; Wulczyn, Barth, Yuan, Jones-Harden, & Landsverk, 2005).

The goal of this paper is to describe the most common problems that maltreated infants and toddlers experience and to highlight the benefits of early interventions for this population. In so doing, child welfare personnel and policymakers who are responsible for assessing, referring, and advocating for maltreated children can make more informed decisions. For the sake of clarity, the paper is divided into two parts—Part 1: Developmental Problems of Maltreated Children and Part 2: Early Intervention Options for Maltreated Children.

Part 1 highlights common developmental problems in health, cognitive, emotional, social, and psychological functioning of young maltreated children.¹ These developmental difficulties are often ignored because of other service needs, namely safety and permanency.

Part 2 discusses the potential benefits of early intervention options for maltreated children through highlighting common treatment formats. Included is a section on future research and recommendations. That section discusses ways to improve research designs that determine the effectiveness of various treatment programs, and it gives recommendations about how professionals can better recognize young maltreated children, more efficiently enroll them in treatment programs, and more strongly ensure their active participation in those programs.

1. Less frequent problems of young maltreated children (i.e., autism, cerebral palsy, vision and hearing impairments) are not discussed here. There is cursory evidence that these disabled children may be at higher risk for maltreatment.

Part 1: Developmental Problems of Maltreated Children

A. Developmental Problems

This section provides a review of the common problems associated with maltreatment in the first 3 years of life. In particular, it highlights health, cognitive, emotional, social, and psychopathological outcomes of young maltreated children. Each section starts with a bulleted list of key findings. When possible, known long-term problems are presented.

Health, Growth and Motor Delays, and Compromised Physiological Systems

These fast facts highlight key issues related to the occurrence of developmental problems for maltreated children younger than the age of 3:

- Twenty-two percent to eighty percent demonstrate acute and chronic health problems (Chernoff, Combs-Orme, Risley-Curtiss, & Heisler, 1994; Frame, 2002; Hochstadt, Jaudes, Zimo, & Schachter, 1987; Leslie et al., 2005; Silver et al, 1999; Sullivan & Knutson, 2000).
- Eleven percent demonstrate failure to thrive (FTT; National Survey of Child and Adolescent Well-Being, CPS Sample Component Wave 1 Data Analysis Report April, 2005).
- Twenty percent demonstrate growth delays (Silver et al., 1999).
- Four percent to forty-seven percent demonstrate gross and fine motor delays (Leslie et al., 2005; Reams, 1999; Silver et al., 1999).

Differences in rates are most likely caused by variations in methods used to document developmental delays. Information from numerous studies offers evidence that medical problems and growth delays may be not only outcomes of but also risk factors for maltreatment. In particular, physical injuries (both minor and serious), low birth weight, growth delays, and abnormalities in brain functioning are hypothesized outcomes of abuse and neglect (Beniot, 1993; Block, Kreb, American Academy of Pediatrics Committee on Child Abuse and Neglect, & American Academy of Pediatrics Committee on Nutrition, 2005; Crittenden, 1987; Zelenko, Lock, Kraemer, & Steiner, 2000). However, research indicates that children with medical problems and motor delays are at increased risk of being maltreated—primarily neglected (Famularo, Fenton, & Kinscherff, 1992; Miller, Fox, & Garcia-Beckwith, 1999; Sullivan & Knutson, 1998, 2000; Wu et al., 2004).

Recent research on the brain structure and brain functioning of maltreated infants may be able to explain how all these physical, social, and emotional problems are interrelated. Research using brain imaging data revealed that children who were maltreated during infancy and early childhood had noticeable differences in overall brain size; the same study found that the duration of maltreatment was associated with greater differences in brain structure (De Bellis et al., 1999). These differences in size and structure of the brain may affect the body's ability to grow, plan, and regulate stress. In other studies of the brain, children exposed to neglect and sexual abuse variously have demonstrated variations in cortisol levels, which affect reactions to stress (King, Mandansky, King, Fletcher, & Brewer, 2001; for a review, see Gunnar & Donzella, 2002).

Neuroscientists currently studying brain development and functioning are working to better understand the pathways by which stress and abuse impact overall brain structure and functioning.

Cognitive Disturbances

The occurrence of developmental problems for maltreated children younger than the age of 3 is summarized in these prevalence data:

- Twenty-three percent to sixty-five percent of maltreated children demonstrate cognitive delays (Egeland & Sroufe, 1981; Klee, Kronstadt, & Zlotnick, 1997; Leslie et al., 2005; Reams, 1999; Silver et al., 1999; National Survey of Child and Adolescent Well-Being, CPS Sample Component Wave 1 Data Analysis Report April, 2005).
- Fourteen percent to sixty-four percent of maltreated children demonstrate speech and language delays (English, Upadhyaya et al., 2005; Reams, 1999; Silver et al., 1999; National Survey of Child and Adolescent Well-Being, CPS Sample Component Wave 1 Data Analysis Report April, 2005).

Differences in rates most likely occur as a result of the type of cognitive assessment used (e.g., screener versus full battery); determination of mild, moderate, or severe forms of the delay; and type and severity of maltreatment in the study population. Nevertheless, these rates of cognitive and language delays in young maltreated children exceed those found in the general population (Simpson, Colpe, & Greenspan, 2003). In one study, abused preschoolers scored on average 20 points lower than nonabused preschoolers on the Stanford-Binet Intelligence Scales and the Peabody Picture Vocabulary Test (Hoffman-Plotkin & Twentyman, 1984). The majority of research also suggests that children who are physically abused or neglected have higher rates of cognitive language delays than those who experience other types of maltreatment (i.e., sexual and emotional abuse). Available studies of sexually abused children, although based on small samples, suggest that these children perform significantly lower on verbal and performance subtests than their nonmaltreated peers (Porter, Lawson, & Bigler, 2005). Despite lower scores on cognitive tests, sexually abused children still tend to have scores for verbal, performance and full-scale IQs that are in the normal range (Jones, Trudinger, & Crawford, 2004; Porter et al., 2005).

Although some studies demonstrated that, after controlling for socioeconomic status (SES), there were no differences in cognitive functioning between maltreated and nonmaltreated groups (e.g. Samet, 1997), most studies have found that maltreatment affects cognitive functioning, even after controlling for the influence of low SES (Beers & De Bellis, 2002; Yasik, 1998). Pears and Fisher (2005) compared the cognitive abilities of maltreated preschool children in foster care with a group of nonmaltreated preschoolers, all with similar SES backgrounds, and found that maltreated children exhibited significantly lower scores on visuospatial, language, and general cognitive functioning than nonmaltreated peers. Neglected and emotionally abused preschoolers performed much worse in visuospatial, language, memory, and executive functioning tasks than children who were physically or sexually abused.

Eigsti and Cicchetti (2004) also looked at language development among maltreated and nonmaltreated children while controlling for SES. The language skills of 5-year-old children

who had been maltreated before the age of 2 years (mostly neglect and physical abuse) were compared with nonmaltreated peers, all of whom had similar SES and demographic characteristics (e.g., age, gender, ethnicity, maternal education, financial assistance). Results indicated that both the maltreated and nonmaltreated groups demonstrated delays in expressive communication (i.e., words children are able to articulate) skills. Specifically, those in the maltreated group showed a 16-month delay in their use of syntax whereas those in the nonmaltreated group displayed a 13-month delay. However, maltreated children performed significantly worse than nonmaltreated children with respect to expressive syntax. The receptive vocabulary (i.e., words children are able to understand) of the maltreated group was in the low-average range whereas the nonmaltreated group performance was in the average range. Taken together, maltreatment may further impair the development of cognitive and language skill after controlling for the effects of SES.

As young maltreated children mature they begin to experience problems in school, maltreated children are less inclined to engage in autonomous academic exploration and require external motivation before they can initiate and engage in an educational task (Koenig, Cicchetti, & Rogosch, 2000; Toth & Cicchetti, 1996). They also exhibit poor work habits and receive lower grades in math and English during the elementary years (Rowe & Eckenrode, 1999). Maltreated children in foster care are more likely to receive special education services (Goerge, VanVoorhis, Grant, Casey, & Robinson, 1992) and are more likely than their nonmaltreated peers to be held back (Shonk & Cicchetti, 2001). Research has found that maltreated children are more likely to be retained in kindergarten and first grade than their nonmaltreated peers (Rowe & Eckenrode, 1999), although some of these effects may be attributed to disruptions in schooling that result from involvement with Child Welfare Services.

In brief, a large portion of maltreated infants, toddlers, and preschoolers may exhibit cognitive delays as well as problems with expressive and receptive communication, which is especially salient among young children with histories of physical abuse and neglect. The cognitive abilities of maltreated children are lower than nonmaltreated children from low socioeconomic backgrounds and drastically lower than their nonmaltreated middle-class peers. Cognitive and language delays become more apparent when children reach school age and those delays then negatively affect academic achievement.

Social-Emotional Disturbances

These examples highlight common problems seen in maltreated children younger than the age of 3:

- Poor emotional comprehension (Edwards, Shipman, & Brown, 2005; Pears & Fisher, 2005; Pollak, Cicchetti, Hornung, & Reed, 2000)
- Heightened arousal to negative emotions (Cicchetti, & Curtis, 2005; Pollak, Cicchetti, Klorman, & Brumaghim, 1997)
- Increased expression of negative emotion (Bennett, Sullivan, & Lewis, 2005; Egeland, Sroufe, & Erickson, 1983)
- Increased evidence of insecure attachment relationships (Barnett, Ganiban, & Cicchetti, 1999; Carlson, 1998; Cicchetti & Barnett, 1991)

- Poor peer relations and social competence (Darwish, Esquivel, Houtz, & Alfonso, 2001; Howe & Parke, 2001)

When infants do not experience responsive relationships; do not see adaptive regulation being modeled; are met with threats or criticism during emotional events; and are exposed to violence, intense anger, and fear, then social-emotional development may be thwarted (see Edwards et al., 2005; Howes, Cicchetti, Toth, & Rogosch, 2000; Shipman & Zeman, 2001).

Other studies demonstrate that varying types of abuse result in different abilities to recognize emotions. Having a history of neglect is a factor that has been related to a child's poor discrimination of all emotions (Edwards et al, 2005; Pollak et al., 2000) and to atypical emotional response such as less remorse or more fear (Smetana, Daddis et al., 1999). However, children with a history of being physically abused show specific problems associated with discriminating anger: they are as accurate as nonmaltreated children with respect to anger detection but have a tendency to guess that someone is angry during times of ambiguity (Pollak, Vardi, Bechner, & Curtain, 2005). These findings are similar to other studies showing that physically abused children are more likely to interpret ambiguous emotional stimuli and social transgression as being angry and intentional (Dodge, Pettit, Bates, & Valente, 1995; Weiss, Dodge, Bates, & Pettit, 1992).

In addition to the emotional problems discussed above, the ramifications of child maltreatment extend further to the social domain. Studies found that maltreated preschoolers characterized parents as being more negative than did nonmaltreated preschoolers (Toth, Cicchetti, Macfie, & Emde, 1997; Toth, Cicchetti, Macfie, Maughan, & Vanmeenen, 2000). Research has also shown that maltreated infants, toddlers, and preschoolers evidence avoidant, anxious, and atypical attachment relationships (Carlson, 1998; Cicchetti & Barnett, 1991). The underlying principle of these insecure attachment relationships is mistrust and, in some cases, fear of the mother–attachment figure. In other words, these children have difficulty trusting the primary caregiver to protect, comfort, or support them. Studies indicate that children who have experienced abuse or neglect have higher rates of disorganized (insecure) attachments (61%–86%), than their nonmaltreated peers (27%–36%), (Barnett et al., 1999; Cicchetti & Barnett, 1991).

However, attachment relationships may vary across the lifespan (Cicchetti & Barnett, 1991), which raises questions about the long-term effect of attachment relationships. Studies of high-risk groups have shown that attachment relationships can change over time (Vondra, Hommerding, & Shaw, 1999; Weinfield, Sroufe, & Egeland, 2000). Weinfield, Sroufe, and Egeland (2000) found that for a sample of high-risk adults in which 41% had been maltreated as children only 38.6%–50% continued to evidence signs of insecure attachment relationships into early adulthood. The preponderance of insecurely attached adults in this sample was related to a variety of stressful life events. Transitions from a pattern of insecure attachment relationships as infants to secure attachment relationships as adults did sometimes occur and were related to improvements in family functioning. Barnett et al. (1999) found that, for maltreated infants, disorganized attachment was quite stable between 12 and 24 months, with 87.5% of maltreated infants demonstrating attachment continuity. Taken together, it appears that maltreatment places infants at risk for developing tenuous relationships with their caregivers and that these insecure

attachment relationships have a tendency to persist, especially when negative parental characteristics and stressful life circumstances remain unchanged.

Research has also found that maltreated preschoolers exhibit not only poor relationships with the primary attachment figure but also poor relationships with peers. Studies indicate that maltreated children show less empathy during times of peer distress than nonmaltreated children (Howe & Parke, 2001; Klimes-Dougan & Kistner, 1990; Main & George, 1985). In other cases, maltreated children were found to cause conflict and distress in their peers (Klimes-Dougan & Kistner, 1990). Maltreated preschoolers have difficulty controlling their behavior in social situations and have problems initiating social interactions (Darwish et al., 2001; Howe & Parke, 2001; Maughan & Cicchetti, 2002). Neglected children, in particular, evidence withdrawn behavior and often play by themselves (Crittenden, 1992). Other studies indicate that abused and neglected children engage in more aggressive behavior than children of typical development, with physically abused children committing more aggressive acts than neglected children (Connor, Steingard, Cunningham, Anderson, & Melloni, 2004; Crittenden, 1992; Herrenkohl, & Russo, 2001). Sexually abused children (when compared with neglected, physically abused, and nonmaltreated children) also display problems in peer interaction and play and tend to include more sexually themed behaviors and more sexual exploration (Friedrich, 1993; Friedrich et al., 2001). Not surprisingly, teachers and children report that maltreated children are least liked and have fewer friends than nonmaltreated children (Cicchetti & Lynch, 1995; Rogosch, Cicchetti, & Aber, 1995).

In summary, maltreated children demonstrate deficits in emotional competence. Although children who have been physically abused tend to overidentify and overexpress anger, neglected children have trouble recognizing all emotions and show atypical emotional responses. This disturbed emotional development negatively affects peer relationships. Not surprisingly, the quality of relationships that are established within the family is also compromised. Maltreated infants, toddlers, and preschoolers show higher rates of insecure and disorganized attachment. These poor attachments—which are thought to be the foundation of other important social competencies—are fairly stable, especially if negative family circumstances persist.

Psychopathology

Many of the problems described in this section have been touched on in earlier sections (e.g., social-emotional problems) but this section specifically addresses diagnosable mental health difficulties in very young children. The occurrence of developmental problems for maltreated children younger than the age of 3 is summarized in these prevalence data:

- Fourteen percent to thirty-seven percent of maltreated children demonstrate externalizing problems such as aggressive behavior and oppositional behavior (Bennett et al., 2005; Black et al., 2002; English et al., 2005; Fontanella, Harrington, & Zuravin, 2000; Heflinger, Simpkins, & Combs-Orme, 2000; Toth et al 2000b; U.S. DHHS Child Maltreatment, 2005).
- Approximately 11% of maltreated children demonstrate internalizing problems such as depression, anxiety, and somatic complaints (Black et al., 2002; Culp, Howell, Culp, & Blankemeyer, 2001; Fantuzzo, Weiss, Atkins, Meyers, & Noone, 1998; Heflinger et al., 2000).

- Maltreated children exhibit the following specific disorders:
 - Reactive Attachment Disorder—approximately 7% (Reams, 1999; Zeanah et al., 2004)
 - Post Traumatic Stress Disorder (Reams, 1999) or the PTSD symptom of hypervigilance (Frankel, Boetsch, & Harmon, 2000; Pollak, Vardi, Bechner, & Curtin, 2000; Pollak et al., 2005)—approximately 7%
 - Adjustment Disorders—40% (Reams, 1999)
 - Regulatory Disorders—22% (Reams, 1999)

Research has estimated that 10% to 61% of maltreated children have mental health problems (Leslie et al., 2005a; Reams, 1999). Undoubtedly, differences in maltreatment status, duration, and severity as well as the way psychopathology was measured account for some discrepancies in prevalence. Maltreated boys display higher rates of aggression than maltreated girls whereas maltreated girls displayed higher rates of internalizing problems (e.g., depression, anxiety, somatic, etc.) than maltreated boys (Black et al., 2002; Fontanella et al., 2000; Heflinger et al., 2000; Litrownik, Newton, & Landsverk, 2005). Maltreatment that includes witnessing or experiencing painful events has been related to PTSD (Reams, 1999), hypervigilance (Frankel et al., 2000; Pollak, Vardi, Bechner, & Curtin, 2000; Pollak et al., 2005), and clinical levels of dissociation (Macfie, Cicchetti, & Toth, 2001a, 2001b).

Maltreatment occurring during the first few years of life may have enduring adverse influences on adult psychological health. Research has linked maltreatment in early childhood to adolescent and adult antisocial behaviors. In particular, recent studies indicate that physical abuse and neglect are positively related to aggression, arrests for violent crimes, and major and minor theft (Caspi et al., 2002; Jaffee et al., 2005; McCord, 1983; Moe, King, & Bailly, 2004; Widom, 1989; Widom, Weiler, & Cottler, 1999). Because these studies are mainly based on retrospective self-reports, these findings can be questioned. However, research using substantiated reports of abuse and prospective longitudinal designs provides more evidence that maltreatment in the early years is related to antisocial behavior (Jaffee et al., 2005; Koenig, Cicchetti, & Rogosch, 2004). In a lab-based study, Koenig et al. (2004) found that physically abused children engaged in more stealing than nonmaltreated children whereas neglected children displayed more cheating and less adherence to rules during a game situation. Egeland, Yates, Appleyard, and van Dulmen (2002), using a longitudinal design, found that 79% of children who had been maltreated in infancy and preschool exhibited clinically problematic externalizing behavior during adolescence, with 50% of these children meeting criteria for conduct disorder (see Keiley, Howe, Dodge, Bates, & Pettit, 2001). Moreover, they found that a child's resulting inability to trust and use parents for regulatory assistance was one consequence of maltreatment that led to antisocial behavior.

Other studies have found that early maltreatment is related to increased problems of internalizing in middle childhood and adolescence (Appleyard, Egeland, van Dulmen, & Sroufe, 2005; Dubowitz et al. 2005; Keiley et al., 2001; Manly, Kim, Rogosch, & Cicchetti, 2001). Appleyard and colleagues (2005) showed early childhood risk (e.g., maltreatment before the age of 64 months, low SES, life stress, interpersonal violence, and family disruption) to predict internalizing problems at age 16. Additionally, the relationship between early childhood risk and internalizing problems at age 16 continued to be significant after the effects of middle childhood

risks were removed, signifying that early childhood maltreatment and related risks directly affect adolescent functioning.

In brief, maltreated children are more likely to demonstrate both externalizing and internalizing behaviors. Although externalizing problems are more common than internalizing behaviors, the differences may be artificial because young children rarely report their internal states and internal disturbances are not easily observable. Nevertheless, maltreated boys show more problems with aggression than girls whereas girls show more withdrawn, sad behaviors than boys. These gender differences may point to genetic predispositions, distinct socialization experiences, differences in maltreatment histories, or some combination. Maltreatment, especially that which includes experiencing abuse and witnessing violence, is also linked with PTSD and pathological rates of dissociation in preschoolers. Early maltreatment also relates to psychological dysfunction and antisocial behavior later in life.

Summary of Developmental Problems

Maltreatment at an early age is related to poor developmental outcomes (Bolger, Patterson, & Kupersmidt, 1998; Keiley et al., 2001; Manly et al., 2001; McGee & Wolfe, 1994). Specifically, many maltreated infants, toddlers, and preschoolers present with physical, cognitive, socioemotional, relational, and psychological difficulties. These problems are not unlike those for children living in poverty; generally speaking, maltreated children have similar medical and health concerns, are less ready for school, have maladaptive coping styles, and experience problematic peer relationships. However, rates of these problems are higher and the dysfunctions are more severe among maltreated children.

Several reasons explain why maltreatment at an early age, in particular, has a lasting negative effect. First, maltreatment that begins at an early age often spans a longer duration than maltreatment that begins when children are older (Bolger et al., 1998; Bolger & Patterson, 2001; English, Upadhyaya et al., 2005). The longer duration alone does not, however, fully account for the lasting negative effects. Maltreatment during the first 5 years of life occurs during a period of rapid development (Cicchetti & Toth, 2000; Shonkoff & Phillips, 2000). For example, brain development, rapid physical growth, locomotor skills, object knowledge, language skills, emotion comprehension and regulation, attachment formation, emerging self-concept and self-esteem, initiative, behavioral control, and burgeoning social skills are among the developmental accomplishments of early childhood. Harsh parenting, including maltreatment during the earliest years, hinders normal development by retarding or prohibiting the progress toward appropriate milestones. Because the developments that occur during this period provide the foundation for subsequent cognitive and social-emotional developments (Cicchetti, 1991; Cicchetti & Rizley, 1981), their impairment can have particularly far-reaching effects (Cicchetti & Tucker, 1994; Sameroff, 1993; Sroufe & Rutter, 1984).

Not every young maltreated child, however, will exhibit problematic behavior and compromised functioning. Research suggests the some maltreated children show academic, emotional, and behavioral resiliency (Lansford et al., 2006; McGloin & Widom, 2001). Successful adaptation in the face of abuse and neglect is more likely, however, when maltreatment is isolated from other risk factors or when children possess or are surrounded by protective factors (Lansford et al.,

2006). Nonetheless, research has shown that young maltreated children typically face numerous additional factors known to negatively influence child functioning, factors such as low cognitive stimulation, poor parental education, parental psychopathology, low SES, inadequate social support, poor nutrition, insufficient health care, and preexisting disabilities (Kotch, Browne, Dufort, & Winsor, 1999; Palusci, et al., 2005; Sullivan & Knutson, 1998; Wu et al., 2004). These cumulating risk factors further complicate the development of cognitive and socioemotional functioning in maltreated children (Appleyard et al., 2005; Greenberg, Speltz, Dekyken, & Jones, 2001; Rutter, 1979).

B. Under-Utilization of Early Intervention Services

Research on maladaptive functioning and resiliency of maltreated children has contributed to the field of early intervention (Kinard, 1998). This research offers evidence of individual and situational protective factors that facilitate child development (Cicchetti & Rogosch, 1997; Haskett, Nears, Ward, McPherson, 2006; Lynskey & Fergusson, 1997). Intervention programs provide positive therapeutic and developmentally enriching experiences that attempt to ameliorate negative effects of maltreatment. It is believed, however, that interventions that occur as early as possible—before developmental delays and behavioral and relational dysfunction become further entrenched—offer the greatest potential for fostering maltreated children’s healthy development (Shonkoff & Phillips, 2000).

Under Part C of the Individuals With Disabilities Education Act (IDEA) of 1990, children needing services are to be identified, evaluated, and served, especially those children who are typically underrepresented (e.g., minority, low-income, inner city, Indian and rural populations) through an interagency, coordinated, multidisciplinary system of early intervention services. Each State’s early intervention system must include child find and public awareness activities that are coordinated and collaborated with all other child find efforts in the State. Part C recognizes the need for early referral and short timelines for evaluation as development occurs at a more rapid rate during the first three years of life than at any other age.

Children are to be evaluated to determine whether they are eligible for Part C services; however, eligibility requirements vary from state to state. Eligibility for Part C services entitles children to services as deemed necessary in the evaluation and documented in the Individualized Family Service Plan (IFSP) that is developed by Part C service providers and parents at the time of enrollment. Physical therapy, occupational therapy, speech and language therapy, and services provided by a developmental specialist, are among the most common Part C services used.

In 2003, the federal government amended the Child Abuse Prevention and Treatment Act (CAPTA) of 1974 through the Keeping Children and Families Safe Act of 2003, which requires states to have provisions and procedures in place for the referral of children younger than the age of 3 years with substantiated maltreatment to Part C. CAPTA does not specifically require that *every* child younger than the age of 3 who is involved in a substantiated case of child abuse or neglect *must* be referred to Part C services. States have the discretion to refer every such child

younger than the age of 3 for early intervention services or to first use a screening process to determine whether a referral is needed.²

Although this vehicle shows promise for better providing intervention services to maltreated infants and toddlers who have documented delays, there is evidence to suggest that Part C and other early intervention programs are underused (Horwitz, Owens, & Simms, 2000; Robinson & Rosenberg, 2004). This underuse is associated with (a) the failure of child welfare professionals to recognize potential developmental problems (which results in low referral rates) and (b) low intervention participation (and high attrition) among parents and guardians (Giardino, Hudson, & Marsh, 2003; Hurlburt et al., 2004).

2. Part C of the Individuals With Disabilities Education Act (IDEA) of 1990, which was reauthorized on December 3, 2004, by the IDEA Improvement Act of 2004, contains a provision very similar to the one in CAPTA. The conference report accompanying the IDEA legislation indicates that the conferees did not intend the IDEA provision to require every child under the age of 3 who is involved in a substantiated case of child abuse or neglect to receive an evaluation. Rather, the intention was that such children be screened to determine whether a referral to early intervention services is warranted (House Report No. 108-779, 2004).

Part 2: Early Intervention Options for Maltreated Children

Part 2 of this literature review focuses on early intervention options for maltreated children. Discussion is focused on intervention programs, but briefly considers prevention programs. Because these intervention programs are designed to address overlapping sets of problems using overlapping methodologies, they cannot be easily categorized according to their purposes or procedures. Instead, these treatments are grouped by treatment format: (a) therapeutic daycare centers and preschools, (b) foster care therapeutic interventions, (c) clinic-based mental health treatment, and d) infant-focused (clinic-and home-based) interventions. Also discussed are interventions designed for Attention Deficit/Hyperactivity Disorder and malnutrition programs that may be useful for young maltreated children. The section concludes with recommendations to increase recognition of young maltreated children and to promote the use of effective treatments.

A. Background

Awareness of the negative consequences of early child maltreatment calls for the continued development of intervention programs for young children and their families (Kaplan, Pelcovitz, & Labruna, 1999). Both prevention and intervention programs are necessary components in enhancing the development of children.

Prevention programs, timed to take place before the appearance of undesirable outcomes, are important because they have the potential to decrease the number of child maltreatment victims and avoid a number of associated problems (Braden & Hightower, 1998). Prevention efforts such as home visitation programs, parent education programs (with or without home visits), and comprehensive early education programs that use a number of therapeutic components (e.g., parent education, child individual and group therapy, social support, etc.) are directed toward families at risk. *Risk* is variably defined, although common examples of child risk factors include low birth weight, presence of a single parent, financial disadvantage, and low-educated or young mothers (or both). Of important interest, home visitation programs (Heinicke, Fineman, Ponce, & Gutherie, 2001; Olds, Henderson, Chamberlain, & Tatelbaum, 1986, 1988; Olds, Henderson, Kitzman, & Cole, 1995;) as well as parent education intervention and comprehensive early education programs (Cowen, 2001; Reynolds, Temple, & Ou, 2003) have demonstrated success in improving parental sensitivity, educating parents about child development, and ultimately reducing cases of maltreatment. In some cases, these home visitation prevention programs produce long-term effects, for example, positive results 15 years after the program (Olds, et al., 1997).

Intervention programs, in contrast, take place after the maltreatment (and its consequent negative effects) is revealed (Braden & Hightower, 1998). A strength of intervention programs is that they can be directed at children and families who already demonstrate problematic functioning, thus increasing the efficiency with which limited treatment resources are distributed (Offord & Bennett, 1994). In this way, more of the children who actually need help receive assistance and corrective support. As discussed in Part 1, maltreated children younger than the age of 3 display a number of medical, physical, cognitive, social, and emotional problems. Although it is not known whether these problems are caused by the maltreatment itself, evidence suggests that

these early problems impair important areas of functioning and that their effects can be long lasting. Early intervention efforts are needed to address these problems and keep them from further disrupting other developmental achievements. Reynolds et al. (2003) defined early childhood intervention as the “provision of educational, family, health, and/or social services in the first five years of life to children at risk of poor outcomes due to socioenvironmental disadvantages or developmental disabilities” (p. 634). Using this definition, the early intervention programs and psychotherapeutic interventions highlighted in this paper will concentrate on those programs with demonstrated efficacy, effectiveness, or both that are designed to help children from birth to age 3.

Most of the programs reviewed here are designed to improve multiple aspects of child functioning (i.e., the social, behavioral, and emotional functioning of young maltreated children; fewer programs concentrate on cognitive and physical development). Because most of these programs seek to address numerous problems at the same time, it is difficult to neatly categorize interventions based on desired outcomes. Rather, within the section, discussion considers the interventions by the type of treatment used, including both the intervention setting and the targeted population. These different types of early intervention programs include (a) therapeutic daycare centers, preschools, or both; (b) foster care therapeutic interventions; (c) clinic-based mental health services; and (d) infant-focused interventions. Through the review of the various programs for maltreated infants, toddlers, and preschoolers, one is able to see the strengths of current early intervention programs. In summary, research on early intervention programs suggests that maltreated children and their families may receive benefit from these programs. These benefits are summed up in Table 1.

Although many useful early intervention programs exist, the need remains for more early intervention programs, more trained early intervention specialists to administer these programs, and more scientifically rigorous research (program evaluation) on the specific conditions under which these interventions can be most effective. These needs prompted two additional sections that are included at the end of this paper. One section reviews other early intervention programs for developmental delays and health-related problems that may be useful for maltreated children but which have not been exclusively tested with maltreated populations. The final section discusses future research and provides suggestions for (a) improving research designs to determine how effective various treatments are and (b) increasing the likelihood that young maltreated children who need services will be recognized and enrolled and will actively participate in those programs.

Table 1. Effective Maltreatment Interventions and Their Target Populations

Maltreatment Interventions	Target Population	Outcomes
<i>Daycare and Preschool Interventions</i>		
Therapeutic Daycare and Preschool	Abused infants and toddlers who have difficulty functioning in regular daycare	<ul style="list-style-type: none"> - Improved cognitive skills - Improved motor skills - Emotion regulation - Higher likelihood that child will be mainstreamed into regular classroom - Delinquency, drug use, arrest for violent crime all lower
<i>Foster Care Therapeutic Interventions</i>		
Early Intervention Foster Care	Maltreated preschoolers in foster care	<ul style="list-style-type: none"> - Foster parents—do more monitoring, more positive reinforcement, less discipline - Foster parents—less stressed - Children—better emotionally regulated, fewer behavioral problems - Children—less stressed
Attachment and Biobehavioral Catch Up	Maltreated infants and preschoolers in foster care	<p>(Based on case studies only)</p> <ul style="list-style-type: none"> - Foster parents—improved sensitivity - Children—more securely attached
<i>Clinic-Based Mental Health Treatment</i>		
Trauma-Focused Cognitive Behavioral Therapy (TF-CBT)	Sexually abused preschoolers with posttraumatic stress disorder (PTSD) symptoms and their nonoffending parent	<ul style="list-style-type: none"> - Parental guilt decreased - Parents—more empowered - Children—lower PTSD symptoms, depression symptoms - Children—improved coping and stress-management skills - Children—decreased inappropriate sexualized behavior - Children—increased self-worth
Abuse-Focused Cognitive Behavioral Therapy(AF-CBT)	Physically abused preschoolers and the offending parent	<ul style="list-style-type: none"> - Parental hostility, anger, poor interaction with child, negative perception of child, and harsh parenting all decreased - Child—behavioral problems decreased - Child—improved social skills and peer relations
Parent-Child Interaction Therapy (PCIT)	Physically abused 2- and 3-year-olds with behavioral problems	<ul style="list-style-type: none"> - Parents—improved positive interaction with child - Parents—reduced harsh

		parenting and coercive interactions - Child—increased compliance - Child—decreased oppositional and defiant behaviors
Resilient Peer Training Intervention	Withdrawn, maltreated preschoolers	- Improved social skills and peer relations
Child-Parent Therapy	Children with PTSD symptoms from witnessing domestic violence and the non-offending parent	- Child—behavioral problems and PTSD symptoms decreased
The Incredible Years Parenting Program	Maltreating parents of preschoolers	- Parent—positive interaction with children increased - Child—behavior unchanged
<i>Infant-Focused Interventions (Clinic- and Home-Based)</i>		
Infant-Parent Psychotherapy	Maltreated infants	- Increased quality of child attachment, emotional expression and regulation, eating and sleeping patterns - Parents—sensitivity and responsive behaviors increased

B. Interventions Designed for or Tested With Maltreated Children

Therapeutic Daycare Centers and Preschools

Often maltreated children have difficulty functioning in a regular daycare or preschool setting because of problem behavior. As a result, therapeutic daycare centers and preschools were created and are commonly recommended for abused infants and preschoolers (Brown, 1995). These programs offer children a supportive, nurturing environment and individualized service to address these children's emotional, developmental, and social needs through the collaboration of a multidisciplinary treatment team. Children may receive social skills training, modeling, individual therapy, group therapy, nutrition, medical referrals, and pharmacological assistance. Their parents may also receive parent training, social support, and child development education.

Despite their popularity, these programs are rarely evaluated for their efficacy by using sound methodological evaluation designs (Wolfe & Wekerle, 1993). However, one experimental study found that maltreated children in therapeutic daycare demonstrated better functioning 12 years later with respect to drug use, delinquency, and arrest for violent crime than maltreated children who received regular daycare (Moore, Armsden, & Gogerty, 1998).

Although the majority of studies use nonexperimental designs and unstandardized assessment measures, those evaluation studies that have used before and after measures (without control groups) have found that maltreated children enrolled in therapeutic preschools show improved cognitive skills, social competence, and emotion regulation (Anderson, 1981; Wolfe & Wekerle,

1993). Nonexperimental research suggests that therapeutic preschools are associated with the reduction of problem behaviors (Anderson, 1981; Whitemore, Ford, & Stack, 2003) and improved cognitive functioning (Whitemore et al., 2003). Additionally, this research has found that a majority of participants of therapeutic preschools are able to function in a regular classroom after they graduate from the therapeutic preschool (Gray, Nielson, Wood, Andresen, & Dolce, 2000; Oates, Gray, Schweitzer, & Kempe, 1995; Whitemore et al., 2003). This finding is thought to be an unlikely outcome for untreated children, although no comparison with a control group is available.

Although scientific rigor is often lacking with respect to evaluations of therapeutic daycare, nonexperimental investigation suggests that children enrolled in these programs do show improved motor, social, cognitive, and emotional functioning at the program's end. One experimental study showed that children who participate in these programs demonstrate fewer conduct problems in adolescence than their maltreated peers who did not receive therapeutic services in a daycare or preschool milieu (Moore et al., 1998). The meaningfulness of this single study on therapeutic daycare is buttressed by long-term findings for other, similar early interventions with high-risk children (albeit not children selected because they were maltreated), including the Abecedarian Project (Campbell, Pungello, Miller-Johnson, Burchinal, & Ramey, 2001), the Perry Preschool Project (Brooks-Gunn, 2000), and the Chicago Child-Parent Centers (Smokowski, Mann, Reynolds, & Fraser, 2004).

Foster Care Therapeutic Interventions

Maltreated infants and young children may need to be removed from their homes to increase safety. When this action is taken, a number of other concerns become prevalent. For example, child welfare workers must develop placements for children that will adequately address those children's needs (shown in Part 1 of this review to be quite substantial) and must mitigate the possibility that these children's preexisting developmental and behavioral problems might become worse in response to the combined trauma of abuse and removal from the home. Additionally, child welfare workers must begin permanency planning—a goal for stable, long-term residence. Nevertheless, many of these children have serious emotional and behavioral problems that make finding permanent homes and appropriate intervention programs difficult to attain.

Treatment foster care (TFC) has recently achieved more recognition for its potential role in assisting behaviorally troubled young children. Although TFC was once an intervention used only for older troubled children (Hahn et al., 2004), it is now a viable early intervention program for younger maltreated children with serious emotional, behavioral, and developmental problems (Fisher & Chamberlain, 2000; Fisher, Ellis, & Chamberlain, 1999). In the past, seriously disturbed and developmentally delayed preschoolers had limited residential options, including (a) restrictive, expensive institutions or (b) foster care that often resulted in multiple failed placements. Now, with TFC, these preschoolers can receive multidisciplinary therapeutic assistance for their developmental delays, emotion regulation difficulties, and behavioral problems while living in a family setting. Within TFC programs such as Oregon's Early Intervention Foster Care program, highly individualized and intensive treatment plans are created based on the in-depth assessments done during screening (Fisher et al., 1999). Each foster parent,

trained in behavior modification, serves as a central and functional member of a multidisciplinary team, which includes a clinical team supervisor, an early interventionist, a family therapist, and a foster parent consultant. Children participate in weekly home visits from an early interventionist consultant and in weekly therapeutic play groups, and they receive services from a behavioral specialist in preschool to focus on remediating developmental delays and addressing emotional, behavioral, and social concerns. Foster parents receive support and guidance from a 24-hour, on-call crisis intervention system; weekly support group; and daily communication with the foster parent consultant. These services are needed to assess the child's level of functioning and progress toward goals and to make necessary changes in the child's treatment.

Long-term placement planning is also a goal of TFC. Fisher, Gunnar, Chamberlain, and Reid (2000) evaluated the effectiveness of an early intervention foster care program with respect to parenting skills of foster parents and children's behavioral adjustment. Using questionnaires, foster parents involved in the TFC reported that they engaged in more monitoring and more positive reinforcement than regular foster parents. Additionally, TFC parents engaged in less discipline and were less stressed over time. Despite having more troubled behavior at the beginning of the study, TFC preschoolers made improvement in behavioral functioning over 3 months (measured by parent report and cortisol levels) whereas the behavior of preschoolers in regular foster care evidenced more maladjustment over time. These findings suggest that Oregon's early intervention foster care is a beneficial program (Fisher Burraston, & Pears, 2005); however, dissemination and more research and program evaluation is needed to determine whether positive results can be replicated in other therapeutic foster care programs.

The Attachment and Biobehavioral Catch Up intervention is another treatment for maltreated infants and young children in foster care who display relational, behavioral, and biobehavioral dysregulation. In the intervention, which relies on foster parent diaries, infants placed after their first birthday engage in resistant-avoidant behavior with their new foster parent, and the foster parents—despite their optimal adult attachment style—begin to withdraw from the infant (Stovall & Dozier, 2000; Stovall-McClough & Dozier, 2004). The 10-session therapy, complete with manual, has been created to help foster parents engage in optimal sensitive parenting behavior (Dozier, Higley, Albus, & Nutter, 2002), which helps infants depend on external regulation assistance and learn self-regulation strategies. Under normal circumstances, demonstrating love and concern in response to an infant's (or toddler's or preschooler's) behavioral expression of a desire to be left alone can be considered insensitive. In this treatment, however, it is this "insensitivity" that helps infants learn how to trust and rely on the care of their foster parent. Thus, the treatment centers on teaching foster parents how to manage their own emotional reactions to infant rejection while continuing to provide love and support for the maltreated infant. Although an evaluation of the efficacy of this intervention is underway, several case illustrations have suggested that positive relational, emotional, and behavioral outcomes can be received through this intervention. Dozier and colleagues, however, have elucidated how multiple disruptions in foster placement (Dozier, Albus, Fisher, & Sepulveda, 2002) and foster parent's comfort with attachment issues (Dozier & Sepulveda, 2004) may negatively influence the effectiveness of the treatment. Thus, although a treatment manual has been disseminated for research and clinical purposes, the authors respectfully suggest that clinicians should use an individualized approach to treating maltreated infants in foster care.

Because an unstable home environment undermines development, especially during infancy, early intervention services are also used to help infants and young children achieve placement stability and permanency. Numerous interventions have been created specifically to help child welfare workers deal with the permanency issues of foster care. Although keeping children with their biological families (or reunifying them with biological parents) is the desired goal, intervention is usually needed to help parents remediate their own problems (e.g., drug dependency, serious mental illness, poor parenting skills) before either potential reunification or identification of alternative permanent living arrangements. Although all programs claim that safe placement is top priority, some programs such as intensive family preservation services (Kinney, Haapala, & Booth, 1991) favor preserving the family unit. Other programs such as family-focused, child-centered treatment intervention in child maltreatment (Swenson & Ralston, 1997) and family resolution therapy (Saunders & Meinig, 2000) are more open to alternative placements.

Recently, Zeanah and colleagues created an intervention program to help facilitate permanency decisions and arrangements for infants and toddlers (Larrieu & Zeanah, 1998; Zeanah et al., 2001). Intervention included behavioral, relational, and developmental assessment of the infant and intensive treatment for the parent that included following a court-ordered plan and helping parents accept responsibility for their child's maltreatment through individual psychotherapy, dyadic psychotherapy with parent and infant, medication, and crisis intervention. In comparisons of families involved in the permanency intervention with families receiving standard care, intervention infants were cleared for adoption more (control 20.7% vs. intervention 44.2%) but were reunified less (control 49% vs. intervention 34.7%) and experienced fewer subsequent maltreatment incidents than regular foster care infants (control 14.1% vs. intervention 5.2%). In a randomized study, Fisher et al. (2005) discovered that preschool children involved with early intervention foster care had fewer failed permanent placements when compared with children in regular foster care.

Clinic-Based Mental Health Treatment

As discussed previously (see Part 1), a substantial proportion of maltreated preschoolers exhibit disruptive behavior, anxiety, and relational problems. For these children with emotional and behavioral disorders (or heightened symptomatology), specialized treatment is warranted. At this time, many empirically supported treatments are available for older maltreated children, but treatments for children younger than age 3 are limited. A committee of scholars from a number of abuse-related programs, universities, and hospitals recently identified three psychotherapy interventions as best practices (Chadwick Center for Children and Families, 2004): trauma-focused cognitive behavioral therapy (TF-CBT), abuse-focused cognitive behavioral therapy (AF-CBT), and parent-child interaction therapy (PCIT) (although these interventions are yet to be tested for a variety of different ethnic populations and their efficacy is also unknown when these treatments are delivered by practitioners with less formal training and experience). The panel of scholars came to consensus that these interventions had empirical support from efficacy and effectiveness studies, had sound theory, were unlikely to do harm, had a manual, and could be used in an office setting (Saunders, Berliner, & Hanson, 2003). Of important note, the CBT

treatments can be used for maltreated children who are age 3 years whereas the PCIT may be used for children ages 2 years and older. These treatments and others are discussed below.

TF-CBT and AF-CBT both use cognitive behavioral theory and principles as the foundation of treatment. Specifically, both of these treatments normalize the emotional and behavioral reactions of young maltreated children and their families as well as seek to change maladaptive behavior by providing or taking away reinforcements or punishments (behavioral theory) while altering distorted perceptions by stopping, challenging, correcting, and replacing beliefs that maintain dysfunction (cognitive therapy). TF-CBT, in particular, is designed for children who have posttraumatic symptoms as a result of sexual abuse. Maltreated children and their nonabusing family members learn various stress management skills (e.g., focused breathing, muscle relaxation, stopping disturbing thoughts, and replacing abuse-related thoughts with appropriate cognitions) and practice these techniques during graduated exposure to abuse-constructed trauma. Parents learn how to address their own emotional reactions and guilt in response to their child's sexual abuse and are taught how to help their children discuss or cope with abuse-related reactions (or both). Children who participate in TF-CBT show significant improvement in their fear reactions, depressive symptoms, inappropriate sexualized behaviors, and poor self-worth or self esteem compared with children receiving nondirective supportive therapy (Cohen, 2003; Cohen & Mannarino, 1997; Deblinger, Stauffer, & Steer, 2001).

AF-CBT treatment is designed to help physically abused children and their offending parents by targeting underlying contributors to maltreatment. Specifically, changing parental hostility, anger, maladaptive coercive family interactions, negative perceptions of children, and harsh parenting are the targets of treatment. The treatment protocol has individual child and caregiver components as well as dyadic work. Abused children are helped to view abuse as wrong and illegal and are taught emotional comprehension, expression, and regulation as well as needed social skills. Parents learn proper emotion regulation skills, how to avoid potentially abusive situations, and healthy child management and disciplinary techniques. Dyadic work, when offered, gives families an opportunity to measure progress, help identify and clarify family miscommunication, and establish a family no-violence agreement. The major outcome of this therapy is changing parental behavior that is associated with maltreatment. That is, parents decrease escalating behavior and harsh physical discipline. Benefits to children include a decrease in behavioral problems (e.g., defiant, oppositional, and aggressive behaviors), increased social skills, and improved peer relations (Chalk & King, 1998; Kolko, 2002).

PCIT was originally created for children with oppositional defiant disorder (ODD). However, because children with ODD and preschoolers who are physically maltreated are similar in the difficulty they experience when complying to parental commands, their engagement in frequent negative interaction with parents, and their exposure to coercive and harsh parenting practices, PCIT treatment has translated well for use with physically abused children (ages 2–8) and their families. The foundation of this treatment is to establish and strengthen the positive relationship between parent and child. From this healthy, enjoyable relationship, both parents and children are motivated to engage in behavior that maintains positive interactions. Through real-time coaching (i.e., a listening device in the parent's ear or in-the-room coaching), parents are trained to become more sensitive and child-focused. Parents are encouraged to praise, reflect, imitate, and describe their child's behaviors while being emotionally positive. Parents are also reminded

to avoid over-initiation and to refrain from giving commands (e.g., No, don't, stop, quit, not) while interacting with the child. Only after a positive relationship is formed does the treatment focus on child compliance issues. In a later stage of treatment, parents learn how to give clear commands.

Parents practice newly learned skills while interacting with their child, both under the watchful eye of the therapist in session and independently at home. Results have shown that families who participate in this treatment increase positive interaction and reduce harsh, coercive interactions (Chaffin et al., 2004). Additionally, child benefits include improved compliance and reduced problem behaviors (Timmer, Urquiza, Zebell, & McGrath, 2005). It is important to note that the benefits of this treatment have been shown to generalize to other children in the family, indicating that parents use these effective strategies with their other children. Despite its usefulness, this treatment was designed for children between the ages of 2.5 and 8 years and is not indicated for sexually abusive parents; parents who have limited contact with the child; or parents who have hearing or language disorders, hallucinations, or delusions. However, PCIT has now been adapted for children between the ages of 12 and 30 months (Dombrowski, Timmer, Blacker, & Urquiza, 2005). Using this treatment for toddlers has promise; nevertheless, more research is needed.

There exist other treatments designed for maltreated toddlers and preschoolers, which—although not yet given the best practices seal—are gaining empirical support. For instance, resilient peer training intervention, using CBT principles, has been used to improve the social involvement of withdrawn maltreated preschoolers (Fantuzzo, Jurecic, Stovall, & Hightower, 1988; Fantuzzo, Manz, Atkins, & Meyers, 2005). This treatment involves allowing inhibited maltreated preschoolers to play with more socially skilled peers while getting verbal encouragement and praise from an adult. Results show that the inhibited and withdrawn preschoolers increase social overtures during the play session with the peer and show increased social interaction outside the session (compared with control group children who received play time without the prompting and encouragement of a socially skilled peer and adult). The second promising treatment for maltreated preschoolers is child-parent therapy. This treatment is designed for preschoolers suffering from PTSD symptoms after having witnessed domestic violence, and it has been found to be successful (Lieberman, Van Horn & Ippen, 2005). In particular, child behavior problems, traumatic stress symptoms, diagnostic status, and exacerbating maternal symptoms were significantly lower than for children and families who received regular case management plus community referrals for individual treatment. Finally, the Incredible Years Parenting Program—an efficacious parent training program for nonmaltreated children with conduct problems (Taylor, Schmidt, Pepler, & Hodgins, 1998)—is shown to prevent problem behavior in Head Start populations (Webster-Stratton, Reid, & Hammond, 2001) and in preschoolers with older siblings who exhibit conduct problems (Brotman et al., 2005; Brotman et al., 2003). It has been further tested with maltreating parents (Hughes & Gottlieb, 2004). Results of the study demonstrated that mothers who participated in the program increased their positive involvement with children, compared with waitlisted control group mothers, although child behavior did not change as a result of the intervention. Further research is needed to ascertain whether maltreated children and their parents may need a higher treatment dose of The Incredible Years program, whether opportunities for individualized attention are needed to alter maladaptive child behaviors, or both. The call for further research applies to this and other promising interventions.

Specifically, more research is needed to determine whether and how these treatments will benefit maltreated children and how these treatments compare with other known efficacious treatments involving similar treatment outcomes.

Additionally, as the pressure increases to offer young maltreated children and their families empirically supported treatments, researchers have identified treatments that demonstrate efficacy and utility that is questionable or poor. For example, trauma-focused play therapy (Gil, 1991, 1998)—which has been used—has not been empirically tested and, therefore, has unknown clinical utility (Saunders et al., 2003). Some therapies designed to improve abnormal or pathological attachments (often seen in maltreated parent-child dyads) have been deemed potentially dangerous, as in the case of attachment or holding therapies (Hanson & Spratt, 2000; Lieberman & Zeanah, 1999; Saunders et al., 2003), or deemed less effective, as in the case of therapies that seek to change parental mental representations rather than increase parental sensitivity (Bakermans-Kranenburg, Van IJzendoorn, & Juffer, 2005).

Infant-Focused (Clinic- and Home-Based) Interventions

Therapies specifically designed for maltreated infants are also available; however, the use of these treatments is limited by the lack of infant mental health training among therapists. Because most of the emotional and behavioral problems in maltreated infants (e.g., problems with eating, sleeping, emotion regulation, and attachment) are seen as relational, infant mental health interventions mainly focus on improving the infant-parent relationship. Interventions using attachment, social learning, object relations theories, or some combination have been created to alter the interaction style of the parent to resemble more sensitive, responsive behaviors and thus remediate infant difficulties (for a description of different theories of attachment, social learning, and object relations, see Ainsworth, 1969). Effectiveness studies usually incorporate pre- and posttest design or case illustration, and this research has suggested that infant-parent psychotherapy may improve poor attachment quality, emotional expression and regulation, and eating and sleeping patterns that are frequently seen in neglected and abused infants (Fraiberg & Adelson, 1976; Fraiberg, Lieberman, Pekarsky, & Pawl, 1981; Green & Meersand, 1994; Hopkins, 1992; Lieberman, Weston, & Pawl, 1991; Slade et al., 2005). In one study, a treatment that acknowledged and then focused on the role of past experience in shaping maternal response to infant's cues and behavior gave positive results (Robert-Tissot et al., 1996). The same study also showed similar positive results for interventions that focus only on altering observable present-day mother-infant interactions and maternal thoughts—positive results that included reducing infant presenting problems, improving dyadic interaction, and improving maternal self-confidence and satisfaction with parenting. More recently, a study conducted by Cohen et al. (1999) compared an infant-led psychotherapy, Wait, Watch, and Wonder, with a more psychodynamic infant-parent therapy that included transference work. The two interventions were compared with respect to attachment behaviors, presenting problems, and infant cognitive development. Although both treatments were effective in decreasing the severity of infant problems (i.e., feeding, sleeping, behavioral regulation problems), more of the Wait, Watch, and Wonder infants moved toward security or organized attachment and had higher cognitive scores at the end of treatment. Nevertheless, 6 months after treatment, the differences between these two interventions disappeared; both intervention groups demonstrated similar levels of improvement in infant symptoms; attachment related behaviors; cognitive development; and

maternal depression, stress, and competence (Cohen Lojkasek, Muir, Muir, & Parker, 2002). This study suggests that infant-parent therapies are effective in helping maltreated infants and their families and that these effects are maintained for some time after treatment. Further research and program evaluation on infant-parent therapies for maltreated dyads are currently being investigated by the Infant Parent Program at the University of California-San Francisco (Mahler, Kreader, Godber, Knitzer, & Douglas-Hall, 2002) and by other university-based mental health centers (Cicchetti, Toth, & Rogosch, 1999).

C. Interventions Designed for Other Purposes But May Be Useful for Maltreated Children

This section highlights interventions that may be advantageous for maltreated children between birth and the age of 3 years. Although not tested exclusively with maltreated children, these treatments show promise because existing research either included mixed populations of both maltreated and nonmaltreated children or included populations with individual and family characteristics that were similar to maltreated populations.

As discussed in Part 1 of this literature review, there is a strong relationship between maltreatment and developmental delays. Prevention programs and early childhood education programs that focus on improving academic achievement and well-being of populations considered at risk (e.g., young, single, and poor parents, infants with low birth weight) may also have clinical utility for maltreated children. These treatments—hospital-based prevention programs (Kleberg, Westrup, Stjernqvist, & Lagercrantz, 2002; Ment et al., 2003), The Infant Health Development Program (IHDP, 1990), the Prenatal Early Infancy Project (Olds, Henderson, & Kitzman, 1994), the Child Abecedarian Project (Campbell et al., 2001), the Chicago Child-Parent centers (Reynolds et al., 2003), state funded preschools (Gilliam & Zigler, 2000), and Early Head Start programs (Love et al., 2005)—have had treatment effects that have ranged from small to large. Specifically, children receiving the intervention demonstrated higher IQ and achievement scores as well as lower rates of developmental delay, need for special education, and need for remediation than children from similar backgrounds who did not receive the intervention. Despite improvement (i.e., differences between control group and treatment group) signaling success, the overall cognitive performance of children receiving intervention still usually places them in the below-average-to-average range (Campbell et al., 2001; Love et al., 2005; Ment et al., 2003).

The effectiveness of large, community-based systems such as state-funded preschools and Early Head Start was found to be lower and to diminish faster over time than smaller “model” programs because model programs use consistent protocols and more sophisticated intervention science (Barnett, 1995; Guralnick, 2005; Reynolds, 1994). The superior effectiveness of model programs versus large, community-based programs can be partially explained by differences in populations (risk), program quality, adherence to therapeutic elements, quality of elementary and high schools attended after intervention ended, and attendance and participation in intervention programs (Gilliam & Zigler, 2000; Hill, Brooks-Gunn, & Waldfogel, 2003; Ou, 2005). Further research suggests that children with the most severe risks and cognitive deficits—compared with children who start out with less severe deficits—may receive more benefit and improved cognitive functioning across all such model and community-based programs (Bradley, Burchinal,

& Casey, 2001; Kolko, Baumann, & Caldwell, 2003; Lawrence & Blair, 2003). Thus, in some cases, maltreated children may gain valuable cognitive and developmental skills from these prevention and early childhood programs, reducing the risk of developmental delays or decreasing their severity. When maltreated children have serious emotional and behavior problems (e.g. delusions, sexualized behavior, or dangerous aggressive behavior) however, they may be better served in a therapeutic daycare or preschool or in a home-based program.

Finally, young maltreated children often display medical problems or health risks. Regardless of whether the health concern is directly related to the abuse and neglect, these children need medical attention and various health interventions. Beneficial health and medical interventions may include education about general hygiene; nutrition; and basic child care; and how to obtain nutritional assistance and supplements, immunizations, medical and therapeutic assistance for minor and chronic conditions, or some combination. Because of growing appreciation that health and well-being is related to many important domains of functioning, including school readiness and cognitive development, health components have been integrated into prevention and early intervention programs. For example, the Abecedarian Project (Campbell et al., 2001) assessed whether dietary differences could explain differences in cognitive development by giving infants in the treatment group healthy meals at the center and giving infants in the control group iron-fortified formula. Within the Chicago Child-Parent Centers (Reynolds et al., 2003) the treatment included preschoolers' receiving health screenings, nursing services, and free or reduced-price meals (Ou, 2005). These projects showed success in improving preschooler's educational attainment; however, because of the comprehensive nature of these programs, it is difficult to isolate the benefits of the physical health component. Furthermore, because these projects were interested in improving cognitive development of at-risk children, the effects on general health and medical conditions were not measured.

Still other programs are designed to promote health and nutrition in at-risk populations. The Prevention-Oriented System for Child Health Project (PORSCHE) is a nurse-run home visitation program designed to improve nutritional status of at-risk children younger than the age of 5 (Worobey, Pisuk, & Decker, 2004). Risk could include poverty status along with one other risk factor, including a child with iron deficiency or lead burden, parents with history of maltreatment, inappropriate parent-child interactions, or a teenage parent with poor social support. The program focused on improving the child's caloric intake, hand washing, increasing iron intake, using vitamins for supplementing the diet, avoiding dehydration, eating more healthy snacks, and reducing lead consumption (through avoiding high-fat moist snacks, which grab paint particles when placed on the counter or floor). Although the study had no control group, after 6 months of program participation, children's caloric intake met recommended daily allowances; children received adequate amounts of calcium, iron, and zinc; and children's levels of physical activity increased. The PORSCHE program, however, was not related to changes in cognitive development. Similar health programs for infants and young children are currently being evaluated (Coleman, Horodynski, Contreras, & Hoerr, 2005). Of particular interest (because of its inclusion in an already comprehensive child education program) is the Hip Hop to Health Jr. program, an obesity prevention program recently under way with Head Start children; that is, baseline characteristics have been collected and the intervention has started (Stolley et al., 2003). It appears that young maltreated children at risk for diet and health-related problems may receive help through these federal and community-based programs.

D. Future Research and Recommendations

Ways to improve research designs that determine the effectiveness of various treatment programs are discussed in this section. In addition, recommendations are given about how to better recognize and enroll young maltreated children in those programs and how to ensure their active participation.

Rigorous Program Evaluation: Identifying Effective Interventions

At present, the majority of studies investigating the effectiveness of early intervention programs are plagued with shortcomings in research design. Namely, most of these studies do not have control and comparison groups, do not use random assignment, have small sample sizes, and have high dropout rates (Finkelhor & Berliner, 1995; Gilliam & Zigler, 2000; Kaplan et al., 1999; MacMillian, 2000). Additionally, studies often use proxy variables such as placement status (e.g., whether the child is placed in the home, foster care, etc.) as an indicator of treatment effectiveness, instead of measuring objective child and parenting outcomes such as improved parenting behaviors and the child's social, cognitive, emotional, and behavioral functioning (see Clyman, Harden, & Little, 2002). Future program evaluations should strive to correct these limitations by using control groups and measuring more direct child outcomes.

Empirical efforts are also needed to examine which interventions are beneficial for specific populations (Fisher et al., 2005; Guralnick, 2005). In particular, specific maltreatment type, child age, presenting problems, and family characteristics are all potentially important conditions. In addition, identifying specific treatment components ("active ingredients") responsible for producing desired effects will further advance our understanding of treatment outcomes. These streams of research not only will inform which treatments to pursue, replicate, and encourage but also will identify which treatments will benefit which group of maltreated children most. Information gathered concerning treatment components and subgroups of maltreated populations can lead to more efficient use of limited financial and human resources.

Nevertheless, the available research offers significant reason to believe that a variety of gains are achievable from well-conceptualized, well-delivered, and enduring interventions for maltreated children, particularly when these interventions are started as early as possible. It is impractical to think that participation of maltreated infants, toddlers, and preschoolers in an abbreviated early intervention program will prepare them for school and inoculate them from all problematic behavior. Rather, benefits are likely to emerge when children receive a large dose of high-quality, comprehensive, early intervention treatment that lasts throughout the elementary school years (Brooks-Gunn, 2003). Lasting gains that maltreated children younger than the age of 3 years may receive from early intervention are likely to be undermined if environmental circumstances remain inadequate. Therefore, issues related to poverty (e.g., lack of quality public education, lack of safe housing, unemployment, low wages, stress, dysfunctional coping) are all important components to consider when attempting to increase the likelihood of short-term and long-term early intervention success (Brooks-Gunn, Fuligni, & Berlin; 2003; Espinosa, 2002; McAlpine, Marshall, & Doran, 2001).

Translating Effective Treatments Into Community Practice

Once an intervention proves its effectiveness, another important goal involves bringing such programs to scale such that others are able to benefit from its use. Currently, there is a gap between advances in basic science (what we believe works) and what is provided (Chadwick Center for Children and Families, 2004; Wolfe & Wekerle, 1993). Although most practitioners who work with maltreated children and their families want to provide the best treatment possible, they do not have the opportunity, financial resources, knowledge, training, or incentives to provide best practices. Suggestions for closing the gap have included (a) financial changes and incentives (e.g., increased programmatic funding for education and direct costs for hiring more educated workers, higher reimbursement for empirically based treatments, payments for only empirically based treatments) and (b) a variety of dissemination plans, including providing materials, training, supervision and consultation opportunities from universities, research society conferences, and in-house training facilities (Brown, Zaslow, Weitzman, 2005; Chadwick Center for Children and Families, 2004; Mahler, Kreader, Godber, Knitzer, & Douglas-Hall, 2002; Malone, McKinsey, Thyer, & Straka, 2000).

One example of bringing an intervention program to scale that targets at risk, low income first time parents involves the dissemination of The Prenatal and Early Childhood Nurse Home Visitation Project, now called the Nurse Family Partnership (Olds, Hill, & Rumsey, 1998).³ The Nurse Family Partnership is being established in numerous states around the country. Interestingly, because this program has demonstrated benefits for mothers and children (e.g., health, child abuse prevention, cognitive, language), multiple public and private funding sources have been recruited as sponsors (e.g., Temporary Assistance to Needy Families, Medicaid, Robert Wood Johnson Foundation, and various child-abuse and crime-prevention dollars). Presently, however, this model has proved effective with families that meet certain criteria (namely, low-income, first time parents). Innovative policies and ways for funding interventions for children have been suggested elsewhere (Johnson & Knitzer, 2005; Mahler et al., 2002). As researchers and program administrators are working to test the effectiveness of intervention strategies aimed at reducing child abuse and neglect, important lessons can be learned from the important work done assessing the effectiveness of the Nurse Family Partnership program and understanding what it takes to bring an intervention to scale in communities across the country.

Keeping Maltreated Children and Their Families From Slipping Through the Cracks: Identifying, Enrolling, and Motivating Families

Although establishing effective interventions for young maltreated children and their families in their communities is essential, it is not sufficient (Conroy & Brown, 2004). There is evidence to suggest that maltreated children may slip through the cracks because of various factors, including young age, ethnicity status, military status, lack of health insurance, misinformation with respect to early intervention eligibility and policy, and inadequate coordination of services (Lane, Rubin, Monteith, & Christian, 2002; Leslie et al., 2000; Harbin et al., 2004; Horwitz et al., 2000; Koyanagi & Semansky, 2002; Rosenberg, Smith, & Levinson, 2006; Shapiro & Derrington, 2004). Although the previous research suggests that these factors interfere with the process of

3. For more information, go to www.nursefamilypartnership.org.

identifying and enrolling children in early intervention programs, research also suggests that motivating children and their families to attend and participate in early intervention programs, regardless of maltreatment status, is a challenge (Brotman et al, 2005; Faver, Crawford, & Combs-Orme, 1999; McGoey, DuPaul, Eckert, Volpe, & Van Brakle, 2005; Zahr, 2000; Zeanah et al., 2001). Consequently, children still face obstacles to receiving developmentally beneficial treatments. Research and policy efforts are now shifting toward addressing these limitations and hindrances.

Identifying Maltreated Children

Communication campaigns, training, and specific interventions have been created to promote intervention for maltreated infants and children and remedy disparities in access to services. The goal of these projects is to raise awareness concerning common symptoms of child abuse and neglect, reporting protocol, and early intervention policy among those people most apt to notice or witness child maltreatment. For instance, an education intervention for maltreatment has been created for police officers who investigate domestic violence (Osofsky, 2004). Goals include equipping police officers with information that they can provide to families about crisis services, shelters, and early intervention opportunities as a way to help infants and young children who are exposed to domestic violence. Physicians, teachers, psychologists, and social workers are professionals who have also benefited from educational interventions with respect to maltreatment (Malone et al., 2000; Shapiro, Derrington, & Smith, 2003). There is also evidence that increasing parental education with respect to normal development as well as early intervention and prevention-based programs for maltreated infants, toddlers, and preschoolers increases enrollment and parental involvement in early intervention programs (Baxter & Kahn, 1999; Burgess & Wurtele, 1998).

Further, the importance of using proper diagnostic tools cannot be overstated. Standardized, reliable diagnostic assessments and evaluations during intakes are critical in identifying maltreated children, determining eligibility, and ascertaining who are the most likely to benefit from intervention because of medical, social, and emotional needs (Kolko et al., 2003). Policies mandating that assessments be conducted in a timely fashion, combined with adequate infrastructure, can help ensure that children receive quick professional attention (Mahler et al., 2002; Silver et al., 1999). Nevertheless, not every maltreated child demonstrates a need for intervention. Likewise, maltreated children with intervention needs should be matched to the appropriate services. As research begins to identify child and family characteristics that contribute to treatment success, the ability to create individualized treatment plans for maltreated children increases (Bradley et al., 2001). Unfortunately, this line of research has become increasingly important just as early intervention and prevention programs face resource limitations.

Enrolling Maltreated Children

Interventions to reform systems have also been implemented to more quickly assess maltreated infants and enroll them in the appropriate early intervention programs. In Miami-Dade County, Florida, juvenile judges and various child development specialists are working together to ensure that maltreated infants and toddlers entering the Juvenile and Family Court system are assessed

and receive comprehensive care to address their problems (Malik, Lederman, Crowson, & Osofsky, 2002; Osofsky & Lederman 2004). Interventions may include infant-parent psychotherapy, Early Head Start, medical treatment, occupational therapy, and social services, along with substance abuse programs and mental health services for parents. The multidisciplinary team monitors infant and family progress toward specific goals through monthly meetings. Although program evaluation is forthcoming, creating a team of judicial and child development professionals who are dedicated to the development and safety of maltreated infants has proven to be effective in quickly identifying and enrolling maltreated infants to the appropriate services. Building on the work in Miami-Dade County, ZERO TO THREE has created the Court Teams for Maltreated Infants and Toddlers Project in Fort Bend County, Texas; Hattiesburg, Mississippi; and Des Moines, Iowa (Yousha, Hudson, Rappaport, 2006). Continued efforts on this front will increase the number of referrals to prevention and early intervention programs. It is important to note that enrolling children in programs designed to support their development is only half the battle. In many instances, especially in rural settings increasing the knowledge, skills and expertise of needed services provides such that they are able to provide services to the youngest children is a constant challenge. This is especially true in rural settings where there are simply not enough trained professionals to deal with needs as was discovered through focus group discussions with experts from around the country concerned about the meeting the needs of maltreated young children.

Motivating Maltreated Children and Their Families

Research on treatment attendance has highlighted ways to keep maltreated children and families participating in early intervention, a known factor related to treatment effectiveness (Hill et al., 2003; Shonkoff & Phillips, 2000). Protecting continuity of care is one important factor. Reducing failed placements and employee staff turnover are two ways to increase the likelihood that children with developmental needs have their intervention plans reviewed, managed, and followed (Clyman et al., 2002). Another method to increase treatment participation is to reduce the stress and obstacles families face in coming to treatment. Suggestions include providing transportation to and from the treatment center (Kuchler-O'Shea, Kritikos, & Kahn, 1999) and creating a culturally sensitive climate that is free of judgment (Unger, Jones, Park, & Tressell, 2001). When necessary, involving the entire family in treatment or providing babysitting is also a helpful technique (Turbiville & Marquis, 2001). Finally, placing effective treatments within systems in which parents are already involved is another way to increase attendance. The Resilient Peer Mediated Treatment (Fantuzzo et al., 2005) and Webster-Stratton Parenting training (Hughes & Gottlieb, 2004; Webster-Stratton, 1998) are particularly promising in this regard because these treatments can be incorporated into an existing child development program (i.e., Head Start) with which parents and children have extensive contact. This factor increases the likelihood that children and their parents will receive the needed treatments at the appropriate doses. Finally it is important to reiterate that in instances where children require placement in foster care, it is important to address the overall level of training and support foster parents require to meet the needs of children in their care as discussed on pages 15-17 of this review.

E. Conclusion

Early intervention programs for young maltreated children and their families are critical to improving social, emotional, cognitive, and physical development. Fortunately, those in the field of maltreatment have identified early intervention treatments, prevention programs, and psychosocial treatments that show promise for maltreated children between birth and age 3 years. However, more research is needed to identify further beneficial treatments, test the limits of treatment effectiveness, and inform how to best apply these treatments without compromising their effectiveness. Also, research is needed to assess specific treatment components and program costs. This process will take considerable time, effort, and financial as well as political support, but it will enhance the lives of numerous individuals and benefit the community at large. In the meantime, we can deliver to maltreated children the early intervention services reviewed in the current document, with substantial confidence that the available research evidence is likely to apply. Additional information from empirical work completed for this study will help refine our ability to select the most applicable methods.

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