SPECIAL SECTION ARTICLE

Trauma in early childhood: Empirical evidence and clinical implications

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Abstract

Children in the birth to 5 age range are disproportionately exposed to traumatic events relative to older children, but they are underrepresented in the trauma research literature as well as in the development and implementation of effective clinical treatments and in public policy initiatives to protect maltreated children. Children from ethnic minority groups and those living in poverty are particularly affected. This paper discusses the urgent need to address the needs of traumatized young children and their families through systematic research, clinical, and public policy initiatives, with specific attention to underserved groups. The paper reviews research findings on early childhood maltreatment and trauma, including the role of parental functioning, the intergenerational transmission of trauma and psychopathology, and protective contextual factors in young children’s response to trauma exposure. We describe the therapeutic usefulness of a simultaneous treatment focus on current traumatic experiences and on the intergenerational transmission of relational patterns from parent to child. We conclude with a discussion of the implications of current knowledge about trauma exposure for clinical practice and public policy and with recommendations for future research.

The recent publication by the American Academy of Child & Adolescent Psychiatry (AACAP, 2010) of the updated Practice Parameter for the Assessment and Treatment of Children and Adolescents with Posttraumatic Stress Disorder highlights the centrality of trauma exposure as a pathogenic event with potentially severe sequela for the mental health of children across the developmental continuum. In keeping with advances in the field since the previous Practice Parameter was published in 1998, the new document includes important new recommendations among the minimum standards of care supported by rigorous empirical evidence and/or overwhelming clinical consensus. These recommendations include the routine inclusion of questions about trauma exposure and symptoms of posttraumatic stress disorder (PTSD) in the psychiatric assessment of children and adolescents; the inclusion of parents or other caregivers in the child’s assessment; the assessment and treatment for comorbid disorders in children diagnosed with PTSD; and the use of trauma-focused psychotherapies as first-line treatments for children and adolescents diagnosed with PTSD, with the key elements of direct attention to the trauma, engaging the parent(s) as important agents of change, and a focus not only on symptom improvement but also on enhancing functioning and developmental trajectory as treatment goals. The present paper examines the relevance of these recommendations to the field of infant mental health in light of the high incidence of trauma exposure in the first 5 years of life. We discuss research findings on early childhood maltreatment and trauma, including the role of parental functioning, the intergenerational transmission of trauma and psychopathology, and protective contextual factors in young children’s response to trauma exposure. We describe the therapeutic usefulness of a simultaneous treatment focus on current traumatic experiences and on the intergenerational transmission of relational patterns from parent to child. We conclude with a discussion of the implications of current knowledge about trauma exposure for clinical practice and public policy and with recommendations for future research.

Contextual Factors in Maltreatment, Traumatic Exposure, and Infant Mental Health

The first 5 years of life have the highest incidence of child maltreatment, as attested by national statistics showing that children aged birth to 5 represent 36% of those entering foster care, 75.7% of the children who died from child abuse or neglect were younger than 4 years old, and the highest maltreatment death rate occurs between birth and 12 months of age, with an overall victimization rate of 21.9 per 1000 children (US Department of Health and Human Services [USDHHS], 2009). Children in this age range are also more likely than older children to reside in homes with domestic violence (Fantuzzo & Fusco, 2007). Whether from accidents, neglect, or inappropriate supervision, children under age 5 are dispro-
portionately hospitalized and more likely to die from drowning and submersion, burning, falls, suffocation, choking, and poisoning when compared to children in any other age group (Grossman, 2000). A sample of 305 children aged 2–5 recruited from a public pediatric clinic showed that 52.5% of the children had experienced at least one severe traumatic stressor in their lifetime; 20.9% had experienced the loss of a loved adult; 16% had been hospitalized; 9.9% had been in a motor vehicle accident, 9.5% had a serious fall, and 7.9% had been burned. Contrary to the widespread belief that young children are not affected or recover quickly from stressful experiences, there was a strong association between the number of stressors experienced by a child and the likelihood of a psychiatric disorder, with 17.4% of the children showing such a disorder (Egger & Angold, 2004). These findings converge with a growing body of research and clinical findings about the prevalence of mental health disorders in the first years of life, making it imperative to develop and disseminate trauma-focused treatment approaches that are solidly grounded in theoretical models and supported by empirical evidence of efficacy.

Infant mental health is a multidisciplinary and pluralistic field of inquiry, practice, and policy concerning the wellbeing of young children in the prenatal to 5-year age range and defined by five organizing premises: early experiences matter, quality of caregiving relationships is a key factor in the child’s psychological health, normative developmental trajectories need ongoing support, infants and young children may suffer from psychiatric disorders, and early psychopathology may be enduring (Zeanah & Zeanah, 2009). In light of the high rates of maltreatment and accidental injury among young children, these premises have significant implications for the identification of traumatic exposure and the treatment of its sequelae in infancy and early childhood. Although infant mental health interventions share a common therapeutic focus on enhancing the child’s primary caregiving relationships, they differ substantially in the etiological role attributed to the intergenerational transmission of psychopathology versus real-life experiential events (Lieberman & Amaya-Jackson, 2005). The role of trauma in infant mental health disorders is beginning to be addressed in treatment approaches that show empirical evidence of efficacy, such as child–parent psychotherapy (CPP; Lieberman & Van Horn, 2005, 2008) and cognitive behavioral therapy (CBT; Cohen, Mannarino, & Deblinger, 2006; Scheeringa et al. 2007).

These treatment approaches are at the forefront of efforts to implement the AACAP practice parameter in clinical settings. The contextual framework for the findings of early child maltreatment and traumatization provides strong support for an ecological–transactional model of development and psychopathology (Bronfenbrenner, 1979; Cicchetti & Lynch, 1993; Sameroff & Fiese, 2000). Poor and minority children are more likely to report that they experienced or witnessed violence at home (Finkelhor, Ormrod, Turner, & Hamby, 2005), and children from families in poverty have greater lifetime exposure to physical abuse, sexual abuse, and witnessing family violence (Turner, Finkelhor, & Ormrod, 2006). Young children living in poor and dangerous neighborhoods are also frequently exposed to community violence, with very high percentages of preschool children witnessing muggings, fights, shootings, or knifings; hearing gun shots; or seeing a dead body on the way to school (Linares et al., 2001; Shahinfar, Fox & Leavitt, 2000; Taylor, Zuckerman, Harik, & Groves, 1994). Adversity takes a toll on young children’s emotional wellbeing. Among children in poverty, one in five has a diagnosable mental health disorder (Masi & Cooper, 2006; Mills et al, 2006), and children in the child welfare system, who come primarily from poor families, have a greater prevalence of mental health problems compared with those in the general population (Dore, 2005; Leslie, Hurlburt, Landsverk, Barth, & Slymen, 2004). The overlap between poverty and health problems originates in early childhood, with the association mediated by increased child exposure to chronic physical and emotional risk factors, including substandard housing, lack of access to resources such as high-quality childcare and safe, stimulating neighborhoods, and environmental toxins as well as child abuse and neglect, severe maternal depression, parental substance abuse, harsher parenting, and family and community violence (Anda et al, 2006; Evans, 2004; Repetti, Taylor, & Seeman, 2002). The prevalence of risk factors and the scarcity of protective factors conspire to create toxic ecological systems for children from poor and disempowered families, creating a “supraclinical” problem that includes but supercedes the mental health domain (Harris, Lieberman, & Marans, 2007).

Although cultural considerations are crucial for understanding the context of traumatic exposure and its meaning for the family and community, research findings about cultural/ethnic differences in rates of child maltreatment are inconsistent and at times contradictory as the result of definitional differences and methodological limitations across studies (Chu & Lieberman, 2010; Elliott & Urquiza, 2006). Nevertheless, maltreatment reports to child protective services show clear group differences, with African American, American Indian or Alaska Native, and multiracial children comprising the groups with the highest rates of reported maltreatment, and Asian children having the lowest report rate (Hill, 2007; USDHHS, 2009). Once a maltreatment report is made, the outcome for the child and the family also differs according to ethnic group. African American and Latino young children are more likely to be placed out of home, stay longer in foster care, have more placement changes, and are less likely to be reunified with their parents (Hill, 2007). It is likely that environmental factors such as poverty and homelessness interacts with minority group status to mobilize heightened attention from mandated reporters and state authorities, disproportionately increasing the number of cases reported among marginalized ethnic groups. Once a report is made, unconscious bias toward marginalized minority groups may interact with lack of resources in the child’s family, neighborhood, and community to perpetuate differential reunification and permanency planning outcomes for children in these minority groups. The overlap of poverty, minority status, and child victimization has far-reaching public policy implications because of the enduring gap between need and
access to care repeatedly identified in federal reports about the state of mental health in the country (USDHHS, 2003). Despite these findings, there is a pervasive failure to include services for infants, toddlers and preschoolers among the systems of care charged with addressing the needs of children at risk (Osofsky & Lieberman, in press).

Cumulative versus single traumatic stressors

Assessment for traumatic exposure is often restricted to single sources of trauma that are determined by the assessor’s expertise or focus of inquiry (Finkelhor, Ormrod, & Turner, 2007a). This research preference for focusing on single trauma persists despite long-standing scientific evidence documenting the importance of cumulative risk factors in predicting long-term outcomes that can be traced back to the classic Isle of Wight Study (Rutter, 1979) and the Rochester Longitudinal Study (Sameroff, Seifer, Zax, & Barocas, 1987). The Adverse Childhood Experiences study found that individuals who reported childhood exposure to four or more of nine risk factors related to child maltreatment and severely impaired household environment had a 12-fold increase in risk for alcoholism, drug abuse, depression, and suicide, and were more likely to suffer from ischemic heart disease, cancer, stroke, and diabetes (Dubé, Felitti, Dong, Giles, & Anda, 2003; Felitti et al., 1998). The National Comorbidity Replication Study found a similar pattern in a large, nationally representative sample that showed an association between cumulative risk score of childhood adversities and a greater number of adult psychiatric diagnoses, with four or more adversities associated with an average of more than six psychiatric diagnoses (Putnam, Perry, Putnam, & Harris, 2008). A literature review of adult outcomes shows that repeated childhood victimization is associated with more severe symptoms and negative outcomes than one such episode or no victimization (Marx, Heidt, & Gold, 2005). Moreover, repeated exposure seems to be the norm rather than the exception. In a sample of 2,000 children, aged 2–17, selected for a telephone survey through random digit dialing, 70% of the respondents (either the child or the parent in the case of younger children) reported at least one episode of exposure, with 64% of these children reporting at least one additional, different source of victimization during the same time period and a mean of 2.8 for number of victimizations. In addition, four or more episodes of violence significantly predicted trauma symptoms in structured interviews conducted 1 year later, controlling for prior victimization and prior mental health status (Finkelhor, Ormrod, & Turner, 2007b). These findings suggest that a pattern of repeated trauma exposure is significantly represented in the general population and is not limited to poor and underserved children. Although socioeconomic adversity contributes significantly to cumulative traumatization and abuse, repeated victimization is not limited to single, discrete demographic or psychological patterns (Cicchetti & Aber, 1980).

The pattern of co-occurrence of traumatic events is also reflected in the literature on the comorbid overlap between child maltreatment and witnessing domestic violence. One literature review of 35 published studies found that child maltreatment and exposure to domestic violence ranged from 30% to 60% (Edleson, 1999). Another review showed that 45% to 70% of children exposed to domestic violence were also victims of physical abuse, and about 40% of physically abused children were also exposed to domestic violence (Margolin, 1998). The growing evidence for the pervasiveness of cumulative exposure to violence as contrasted to exposure to a single discrete episode of maltreatment or family violence led Finkelhor et al. (2007a) to postulate that victimization is a “condition” rather than an “event.”

These findings have important implications for the practice of infant mental health. Young children tend to be referred for treatment either because of behavior problems or because of known exposure to a discrete pathogenic event, but exposure to previously unreported stressful and traumatic events often emerges only when the initial assessment incorporates a structured questionnaire probing for this possibility. In our clinical sample of young children referred for treatment due to trauma exposure, the referral information identified exposure to a single traumatic event in 53% of the children referred; only 6% were identified by the referral source as being exposed to four or more traumatic events. However, after the administration of a standardized screening instrument during the initial assessment, it emerged that the majority of the children (70.3%) had experienced four or more traumatic events by mother’s report, and only 3% had a single traumatic exposure (Ghosh Ippen, Harris, Van Horn, Guendelman, & Lieberman, 2009). This stark difference supports the AACAP (2010) Practice Parameter’s recommendation of systematic screening for traumatic exposure as well as the crucial role of the parent as a source of information about the child.

Quality of attachment and children’s response to trauma

Young children’s sense of safety and wellbeing is organized around the availability and responsiveness of the attachment figure, whom they approach for protection and reassurance when frightened or in need (Bowlby, 1969). Traumatic experiences may damage the child’s trust in the reliability of the attachment figure as a protector. The overpowering sensory stimulation associated with traumatic exposure may take the forms of pain and/or frightening visual, auditory, olfactory, and tactile sensations and is associated with a collapse of coping mechanisms when the attachment figure is absent, unable to help, or is the perpetrator of the trauma. Traumatic expectations become the norm when the child encounters chronic and multiple traumas, leading to generalized traumatic responses such as hypervigilance; constriction of play, exploration, and motivation to learn; reexperiencing of the trauma in the form of traumatic play, nightmares, and distress at trauma reminders; and new symptoms (Zero to Three, 2005). Long after the child has apparently recovered from the event, reminders of the trauma can trigger a more attenuated version of the strong negative emotions evoked by the original event (Pynoos, Steinberg, & Placanici, 1999).
Quality of attachment influences the child’s response and subsequent recovery from a stressful event. Securely attached infants are better able to modulate their physiological stress response when compared to infants in insecure attachment relationships, and disorganized attachment is associated with even greater physiological dysregulation (Gunnar & Cheatham, 2003; Gunnar & Quevedo, 2007). Maltreated children are much more likely to have insecure attachments (Crittenden, 1992; Lyons-Ruth & Block, 1996), as much as 5.3 times more than comparison children (Carlson, Cicchetti, Barnett, & Brauwald, 1989; Main & Goldwyn, 1984). Traumatic stress reactions are found more often among traumatized children with insecure attachments, suggesting that they may have difficulty eliciting supportive exchanges from the parent that could buffer the impact of the trauma (Lynch & Cicchetti, 1998).

Threat to the mother has been identified as a traumatic stressor in young children, suggesting that in infancy danger to the mother is equated with danger to the self. Among young children exposed to a severe trauma prior to 48 months of age, PTSD was diagnosed more often and children had more symptoms of aggression, fear, and hyperarousal when they witnessed threat to the mother as compared to children exposed to other traumas (Scheeringa & Zeanah, 1995). In a subsequent replication study with children aged birth to 18 years admitted to an inpatient unit in a Level 1 trauma center for physical injuries, the authors found that witnessing a threat to the caregiver was the only predictor of PTSD symptoms out of seven different risk factors that included younger age, female gender, minority group membership, prior traumatization, pretrauma externalizing behaviors, and pretrauma internalizing behaviors (Scheeringa, Wright, Hunt, & Zeanah, 2006). These findings suggest that the safety of the mother figure may have long-term repercussions across childhood.

Given the centrality of the parent figures in young children’s emotional lives, traumatic events may simultaneously affect both the child and the caregiver, creating complex changes and adaptations in the parent–child relationship, a situation we refer to as a “bimorbid condition” (W. W. Harris, private communication, January 3, 2011). After reviewing the empirical evidence showing the co-occurrence of traumatic stress in mothers and their young children, Scheeringa and Zeanah (2001) proposed a relational PTSD model with four different types of association between the traumatic stress symptoms experienced by the child and by the parent. The moderating effect postulates that the quality of the child–caregiver relationship may affect the intensity of the association between the traumatic event and the child’s response. The caregiver’s accuracy and sensitivity in reading and responding to the child’s signals of need may exacerbate or alleviate the adverse effect of the traumatic event on the child’s functioning. The vicarious traumatization effect describes situations where the caregiver’s responsiveness to the child is affected by a traumatic event experienced by the caregiver but not directly by the child. The compound effect is postulated when both caregiver and child were exposed to the traumatic event, and the symptoms of one member of the dyad exacerbate the symptoms of the other. This condition may be manifested through several mechanisms. Traumatized adults may experience posttraumatic stress symptoms such as avoidance, withdrawal, and hyperarousal, which limit their availability and/or distort their responsiveness to the child. Simultaneously, the child’s trauma exposure generates symptoms that are exacerbated by the indirect effect of the caregiver’s compromised responsiveness. Children’s symptoms of traumatic stress may further burden an already overtaxed caregiver and aggravate the adult’s posttraumatic responses. Another possibility is that parents may become anxiously restrictive and overprotective in their parenting, also intensifying the child’s maladaptive stress responses. Finally, an imitative effect is seen if a young child becomes increasingly symptomatic from observing, being affected by, and imitating a parent who shows reexperiencing symptoms and is emotionally dysregulated or preoccupied with the trauma.

Research findings that traumatized young children often have traumatized parents (for a review, see Chu & Lieberman, 2010) suggest that the assessment and treatment of young children with mental health problems should incorporate attention to the interface between traumatic experiences and the quality of the parent–child relationship as an integral component of the clinical process. It is now well established that the quality of the child–parent relationship affects young children’s capacity to process and resolve traumatic experiences. Traumatic events may introduce unmanageable stress in the parent–child relationship and damage the quality of existing attachments, particularly when the parent’s functioning is also negatively affected by past or concurrent trauma. Assessing the etiology of infant mental health disorders should include an assessment of exposure to traumatic events in the child and the parents, and traumatic stress in the first years of life should be treated in the context of the child’s primary attachments.

Intergenerational transmission of psychopathology: Clinical and research perspectives

The processes linking maladaptive functioning in the parents with maladaptive functioning in the child have been the focus of intense scrutiny both in clinical practice and in research, leading to fruitful cross-pollination between both methods of inquiry. Perhaps the most compelling metaphor describing the phenomenon of transmission is Selma Fraiberg’s “ghosts in the nursery” (Fraiberg, Adelson, & Shapiro, 1975), credited with marking the birth of infant mental health by Daniel Stern (1995). In clinical work with infants and their caregivers, Fraiberg and her colleagues noted that many mothers who experienced multiple chronic risks repeated with their infants the patterns of rejection and maltreatment that had shaped their lives, whereas other mothers with similar backgrounds did not relate to their infants through a perceptual lens shaped by these experiences. What is it, they asked, “that determines whether the conflicted past of the parent will be repeated with this child?” (Fraiberg et al., 1975, p. 388). In their seminal effort to find answers, they hypoth-
esized that the mother’s ability to access, process, and resolve painful affect associated with past experiences influences her current functioning, perceptions of the child, and quality of the parent–child relationship. This conceptual framework had profound generative repercussions for clinical practice, leading to the creation of infant–parent psychotherapy as a treatment focused on the mother’s reenactment with her baby of negative attributions and damaging interactions originating in disowned, unresolved, and unprocessed past experiences, with the goal of guiding the mother to a new understanding of herself and her baby and restoring the positive developmental momentum of the mother–child relationship (Fraiberg, 1980).

Key elements of this framework were adapted and operationalized by researchers working within the paradigm of attachment theory, who emphasized the intergenerational transmission of the mother’s unresolved childhood fears through affected behaviors vis-à-vis the baby (Lyons-Ruth, Bronfman, & Atwood, 1999; Main & Hesse, 1990). The relationship diathesis model proposes three factors in vulnerability to stress-related dysfunction: the characteristics of the stressor, the individual’s genetic vulnerability to stress, and the capacity of the attachment system to modulate the high levels of arousal that accompany stress. Children become symptomatic either when the stressor is too overwhelming or when the attachment relationship is unable to modulate the child’s intensely negative affective response. Parents whose unresolved fear dates back to their childhood may have difficulty helping their children modulate fear and other strong emotions because they curtail their conscious attention to the child’s signals of need in an effort to protect themselves from reexperiencing their early traumatic responses (Lyons-Ruth et al., 1999). Building on Fraiberg’s hypothesis of disowned and unresolved maternal affect related to childhood maltreatment, Fonagy and colleagues (1995) suggested that victims of unresolved childhood trauma may protect themselves from its associated painful affects by failing to develop mentalization as a reflective self-function that enables them to attribute mental states to themselves and others. Empirical findings link maternal state of mind in relation to attachment to their infants’ quality of attachment and suggest that infants develop disorganized attachment when they cannot rely on the parent to modulate their fear (Lyons-Ruth, Yellin, Melnick, & Atwood, 2005; Schechter et al., 2001). The role of maternal dissociation, which can also be conceptualized as a failure of mentalization, has been raised as an explanatory mechanism by several studies, including findings that maternal dissociation scores predict infant disorganized behavior (Main & Hesse, 1996) and findings from the Minnesota Parent–Child Project longitudinal study that attachment disorganization in infancy predicts increased dissociation in adolescence, mediated by maternal unavailability and quality of caregiving (Carlson, 1998; Ogawa, Stroufe, Weinfield, Carson, & Egeland, 1997), suggesting a link between maternal dissociation and later dissociative behavior in the child. Putnam et al. (2008) propose that maltreatment, high levels of maternal dissociation, and disorganized attachment are intergenerationally connected. This premise is supported by findings from the Minnesota Parent–Child Project showing that high maternal dissociation scores differentiated between mothers with a history of childhood abuse who went on to abuse their own children and mothers with a similar child abuse history who were able to break the cycle of abuse. The abused mothers who did not abuse their children had lower dissociation scores, suggesting that they were able to integrate their childhood abuse experiences into their adult sense of self (Egeland & Susman-Stillman, 1996).

Efforts to measure the scope and prevalence of the intergenerational transmission of maltreatment and maladaptive patterns of functioning have a long history fraught with conceptual and methodological problems. Criteria for the “perfect” study of intergenerational transmission were proposed by Ertem, Leventhal, and Dobbs (2000), who acknowledged that the basic criterion of random group assignment could not be met on ethical, as well practical, grounds but singled out a study from the Minnesota Parent–Child Project sample (out of 200 studies reviewed) as fulfilling or approximating their criteria. The study found that first-time mothers of lower socioeconomic status who met clearly defined criteria for severe childhood physical abuse were 12.6 times more likely to abuse their children by the time the child was 24 months old when compared with mothers from similar demographic backgrounds who had emotionally supportive parents (Egeland, 1979; Egeland, Jacobvitz, & Sroufe, 1988). More recent studies provide confirmation that childhood abuse victims tend to abuse their own offspring at higher rates than the national average (DiLillo, Termblay, & Peterson, 2000; Dixon, Hamilton-Giachritsis, & Browne, 2005).

Findings supporting the concept of intergenerational transmission are not restricted to maltreatment. Extensive empirical evidence links the child’s stress response to a variety of traumatic conditions or events with the quality of the child–parent relationship. Maternal distress mediated the relationship between child exposure to community violence and problem behaviors in a study of preschoolers living in high-crime neighborhoods (Linares et al., 2001). Maternal psychological functioning predicted concurrent and longer term child behavioral problems in a longitudinal study of Israeli preschoolers whose homes were damaged by SCUD missiles during the first Gulf War (Laor, Wolmer, & Cohen, 2001). The association between maternal functioning and child outcome has also been demonstrated with clinical samples. Lieberman, Van Horn, and Özer (2005) showed that among preschoolers referred for treatment after witnessing their mothers’ battering by their father figure, there was a significant association between maternal life stress and child behavior problems, and the association was mediated both by maternal functioning and by the quality of the mother–child relationship.

Intergenerational transmission processes unfold within a larger ecological context characterized by complex transactions between proximal and distal influences, risk and protective factors, and transient versus enduring stresses, all of
which influence children’s development and the quality of the parent–child relationship (Bronfenbrenner, 1979, 1986; Cicchetti & Lynch, 1993). Prevailing economic conditions strongly influence the rates of maltreatment, including physical abuse and neglect (Berger, 2005; Paxson & Waldfogel, 2002; Waldfogel, 2005). The epidemiological findings from the Smoky Mountain longitudinal study provide compelling evidence of the transformations in individual and family functioning that take place with improvements in social and economic conditions (Costello, Compton, Keeler, & Angold, 2003; Costello, Erkanli, Copeland, & Angold, 2010) and serve as a powerful reminder that infant mental health practice at its best incorporates efforts to help the family with the concrete problems of living posed by poverty and marginalization (Fraiberg, 1980).

The extensive literature linking trauma exposure and poverty, community violence, and belonging to a marginalized ethnic or racial group is beyond the scope of this paper, but it is now evident that Winnicott’s (1964) much-quoted dictum that “There is no such thing as a baby . . . A baby cannot exist alone, but is essentially part of a relationship” (p. 88) needs to be embedded within a broader ecological framework. We can now say on the basis of decades of research that “There is no such thing as a family . . . A family cannot exist alone, but is essentially part of a social, economic, and cultural system.”

Preschooler Socioemotional, Cognitive, and Behavioral Outcomes

The few studies specifically targeting preschool children show significant associations between trauma exposure and maladaptive socioemotional and behavioral outcomes at this age. Preschoolers exposed to domestic violence showed significantly more negative affect, more peer aggression, less appropriate responses to situational challenges, and more ambivalent relationships with their caregivers than their peers when observed in group play and in interaction with their preschool teachers (Graham-Bermann & Levendosky, 1998). Traumatized preschoolers also have frequent co-occurrence of different psychiatric diagnoses, with children diagnosed with PTSD having significantly higher rates of separation anxiety disorder, oppositional defiant disorder, more separation anxiety disorder and oppositional defiant disorder symptoms, and higher scores on the Child Behavior Checklist (Achenbach & Rescorla, 2001) internalizing and total subscales when compared to healthy controls and to preschoolers who had been exposed to traumatic events but showed no evidence of PTSD (Scheeringa, Zeanah, Myers, & Putnam, 2003).

The effects of traumatic exposure in the first 5 years may continue to be evident at later ages. A community sample of children, followed prospectively for 9 years from the time they entered kindergarten, showed that children who experienced physical abuse before age 5 were at greater risk for developing internalizing and externalizing behavior problems than children who experienced physical abuse after age 5 (Kelley, Howe, Dodge, Bates, & Pettit, 2001). Eigsti and Cicchetti (2004) found that preschool aged children who had experienced maltreatment prior to age 2 exhibited language delays in vocabulary and language complexity. The mothers of these maltreated children directed fewer utterances to their children and produced a smaller number of overall utterances compared to mothers of nonmaltreated children, with a significant association between maternal utterances and child language variables. There are indications that young children’s cognitive deficits are linked to exposure to violence and to the quality of children’s caregiving relationships. Domestic violence exposure was uniquely associated with IQ suppression among 5-year-old monozygotic and dizygotic twin pairs in England, with a dose–response relationship so that children exposed to high levels of domestic violence had IQs that were eight points lower on average than nonexposed children (Koenen, Moffitt, Caspi, Taylor, & Purcell, 2003). Domestic violence exposure is also negatively correlated with preschool children’s performance on explicit memory tasks, with children exposed to higher levels of violence performing more poorly and with this association moderated by the mothers’ positive parenting practices (Jouriles et al., 2008). The role of maternal functioning as an influential factor in the association between child trauma exposure and cognitive performance was also found in a clinical sample of preschoolers referred for treatment after witnessing domestic violence where children had lower IQ scores when their mothers were rated as unclassifiable, unresolved/insecure, or had lower coherence scores on the Adult Attachment Interview after controlling for maternal education (Busch & Lieberman, 2010). These findings point to the intricate interconnections linking children’s emotional, social, and cognitive functioning to maternal functioning and to the quality of caregiving they receive, and highlight the importance of targeting maladaptive caregiving patterns in the treatment of infant mental health problems.

The biological substrate of the behavioral outcomes identified in traumatized children is the focus of extensive research, but studies to date have included school-aged children and adolescents rather than infants, toddlers, and preschoolers, so that an extrapolation of the findings to this age range would be speculative. Brain areas and systems consistently implicated in traumatized older children and adults include the amygdala, medial prefrontal cortex, dopamine system, norepinephrine/epinephrine (adrenergic) system, hypothalamic–pituitary–adrenal axis, hippocampus, and corpus callosum, serotonin system, and the endogenous opiate system, all of which show dysregulations in patients with PTSD. Although the specific findings vary across studies and different patterns have been found for children and adults, physiological and anatomical irregularities are consistently associated with earlier age of maltreatment, longer duration of maltreatment, and greater severity of PTSD (DeBellis, Hooper & Sapia, 2005). The plasticity of the brain makes it difficult to interpret the findings with any certainty because children’s neural systems are under development, areas of the brain may reach their peak volume in late childhood or adoles-
Trauma in early childhood

According to the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)*: American Psychiatric Association, 2000), PTSD is characterized by the onset of clusters of characteristic symptoms following exposure to an event that threatens the life or physical integrity of the self or others (Criterion A). The clusters of symptoms involve reexperiencing of the traumatic event (Criterion B); avoidance of stimuli associated with the trauma and numbing of general responsiveness (Criterion C); and increased arousal (Criterion D). Each of these criteria contains specific symptoms, and a logarithm is provided to determine whether the person meets sufficient criteria for a clinical diagnosis: at least one symptom from Criterion B (reexperiencing), at least three symptoms from Criterion C (avoidance), and at least two symptoms from Criterion D (arousal). The full symptom picture must be present for longer than 1 month (Criterion E), and the disturbance must cause clinically significant distress or impairment in important areas of functioning such as work or social relations (Criterion F).

There is widespread consensus that the *DSM-IV-R* list of symptoms for PTSD does not include behavioral manifestations that are developmentally appropriate for infants, toddlers, and preschoolers, and empirical findings have provided evidence that alternative PTSD criteria are needed for children aged birth to 5 years. In a study comparing traumatized and nontraumatized children aged 20 months to 6 years using parental interviews and behavioral checklists, Scheeringa et al. (2003) found that none of the traumatized children met the *DSM-IV* criteria for PTSD, but 26% of these traumatized children met diagnostic criteria when alternative, developmentally appropriate criteria and a revised algorithm were used, consisting of one symptom from cluster B (reexperiencing) symptom, one symptom from cluster C (avoidance/numbing) symptom, two symptoms from cluster D (arousal), and four novel symptoms. The children diagnosed with PTSD using the revised criteria had significantly more comorbid symptoms (separation anxiety disorder; oppositional defiant disorder; major depressive disorder; attention-deficit/hyperactivity disorder; Child Behavior Checklist internalizing, externalizing, and total problems) when compared to children in the trauma/no PTSD group or the no trauma group. During a follow-up study of the same children conducted 1 and 2 years after the initial assessment, the researchers found that the children originally diagnosed with PTSD showed significantly more PTSD symptoms and functional impairment in more domains over the course of 2 years than children not diagnosed with PTSD during the initial study (Scheeringa, Zeanah, Myers, & Putnam, 2005). Subsequent studies also support the importance of developmentally appropriate symptoms and an altered algorithm for diagnosing PTSD in young children (Meiser-Stedman, Smith, Glucksman, Yule, & Dalgleish, 2008; Scheeringa et al., 2006).

These research efforts and the development of the alternative criteria and algorithm received impetus from a multidisciplinary Diagnostic Classification Task Force established in 1987 by Zero to Three: National Center for Infants, Toddlers and Families and cochaired by Stanley Greenspan and Serena Wieder in response to the need for a developmentally appropriate instrument to diagnose mental health problems in infancy and early childhood. This effort led to the publication of the Diagnostic Classification of Mental Health and Developmental Disorders of Infancy and Early Childhood (DC:0–3; Zero to Three, 1994), which included a diagnostic category for traumatic stress disorder that followed the criteria of the DSM-IV but included developmentally appropriate behavioral symptoms within each criteria. The manual was revised under the leadership of Robert Emde and published as the revised version of DC:0–3 (DC:0–3R; Zero to Three, 2005). The mutual influences between infant mental health researchers and clinicians resulted in modifications in the DC:0–3R that changed the nomenclature of the original diagnostic category of traumatic stress disorder to align it with the *DSM-IV* usage of PTSD and the adoption in the DC:0–3 R of the algorithm developed by Scheeringa and colleagues: at least one reexperiencing symptom (posttraumatic play, recurrent and intrusive recollections of the traumatic event outside play,
repeated nightmares, physiological distress, and episodes of flashbacks or dissociation), at least two hyperarousal symptoms (sleep problems, concentration problems, hypervigilance, exaggerated startle response, irritability/anger), and at least one numbing of responsiveness/interference with developmental progress symptom (increased social withdrawal, restricted range of affect, markedly diminished interest or participation in significant activities, and efforts to avoid trauma reminders). The diagnostic criteria also include associated symptoms (regression of developmental skills, new aggression, new fears, and inappropriate sexual behaviors). This pattern of symptoms should last for at least 1 month.

The DC:0–3R change of nomenclature from the original traumatic stress disorder to PTSD is worth noting. The diagnosis of PTSD is predicated on the notion that trauma continues to have psychological sequelae after the traumatic event is no longer present. This assumption does not reflect the everyday reality of millions of children exposed to ongoing maltreatment and community violence, as well as recurrent exposure to other traumatic stressors. Although there is much value in adopting a single nomenclature for mental health disorders, researchers and clinicians should incorporate an awareness of present trauma in their research designs and clinical interventions, and monitor for the ever-present possibility of new traumas in the lives of the children and families they study or treat.

Diagnosing young children exposed to trauma remains a challenge, complicated by the rapid developmental changes in the first 5 years of life, the influence of observational context on the young child’s behavior, the lack of verbal self-report capacities in preverbal children, the limitations of parents and caregivers as accurate observers and reporters, and the time and expense involved in observing young children in a variety of settings and for appropriately long periods of time to gain a detailed understanding of their functioning in the relevant developmental domains. Current research relies on parent reports of children’s posttraumatic symptoms using semistructured or behavior checklists, which can be biased, subjective, or insufficiently detailed. There remains a need to have standardized instruments that improve reliability and validity, with objective and precise reports of symptoms. Progress in this area is under way. The Preschool Aged Psychiatric Assessment is a structured psychiatric assessment interview showing sound psychometric properties (Egger et al., 2006; Sterba, Egger, & Angold, 2007). The widely used Child Behavior Checklist (Achenbach & Rescorla, 2001) has been modified to assess PTSD in young children, with promising results showing significantly higher scores in attached children (Keller et al., 2005).

In summary, although knowledge in the area of the impact of trauma on young children’s biological makeup and developmental course is still in its early stages, there is robust evidence that children’s development is negatively affected by traumatic exposure and that the brain structure and physiology are implicated in these outcomes. These findings highlight the urgency of preventing child victimization, screening for early trauma identification, developing effective treatments that include both the child and the parent, and deploying the public health resources needed for these treatments to be administered in a timely and effective manner.

**Cumulative protective factors and resilience**

Resilience in the face of childhood adversity has been defined as a multifaceted amalgamation of genetic predispositions and personal, familial, and environmental risk and protective factors (Rutter, 1999). There is an extensive literature upholding the importance of protective psychological factors in the prevention of negative outcomes (Taylor, Kemeny, Reed, Bower, & Gruenewald, 2000), and children exposed to different kinds of adversity frequently show resilience in the form of protective characteristics that follow multiple pathways to foster their positive development (Bonanno, 2004; Garmezy, 1991; Luthar, Cicchetti, & Becker, 2000; Luthar & Goldstein, 2004; Masten, 2001). Resilient maltreated children have been characterized as showing positive self-esteem, ego flexibility, and ego overcontrol (Cicchetti & Rogosch, 1997).

Quality of attachment seems to operate in conjunction with ecological factors such as personal and contextual risk to influence child resilience. A prospective study with a community sample of adolescent mothers recruited during their first pregnancy and followed up during the first 3 years of their child’s life found that most children showed a normative trajectory of decline in problem behaviors over the preschool years, but securely attached children whose mothers engaged in positive parenting behaviors were significantly less likely to develop a problem behavior trajectory when compared to their anxiously attached peers (Keller, Spieker, & Gilchrist, 2005). A small proportion of children evidenced high initial levels of disruptive behaviors that escalated over time. Specifically, insecurely attached children with high levels of infant negativity had a significantly greater likelihood of having a high behavioral problem trajectory compared to securely attached children with similarly high levels of infant negativity. Children with avoidant attachment had a significantly higher risk of a problem trajectory than children with any other attachment classification, and three times the rate of securely attached children (Keller et al., 2005).

Mothers who were maltreated as children but are able to break the cycle of abuse when raising their own children constitute an important group in understanding resilience, and their experiences are particularly relevant to the practice of infant mental health. The Minnesota Child–Parent Project study provides some illuminating findings in this regard. The original study recruited 267 primiparous women living in poverty and with a history of childhood physical abuse, and followed them prospectively from the third trimester of pregnancy until their children were 24 months old. Sixty-two percent were single mothers and over 85% of the pregnancies were unplanned. Forty-four of the women in the sample had maltreated their children by the time the child was 2 years old. A subsample of the mothers was interviewed about their childhood history by
coders who did not know whether the mothers had abused their children. The mothers who had continued the abuse cycle described their childhoods in fragmented, disjointed, inconsistent, and often highly idealized ways that were not congruent with the factual events. In contrast, mothers who had discontinued the abuse cycle provided coherent narratives of their lives and were forthright in discussing their childhood abuse with the interviewer, acknowledging what had happened as an integral part of their identity but also adopting a future-oriented stance toward their lives (Egeland & Sussman-Stillman, 1996).

Clinical implications and empirically supported treatment

The findings about the predictors of resilience and interruption of the intergenerational transmission of trauma are consistent with current clinical best practice in trauma treatment, which consistently encourages the development of a trauma narrative as a core component of the therapeutic process, along with building a therapeutic working alliance, affect modulation, trust in bodily sensations, realistic appraisal of danger, ability to differentiate between reliving and remember, clinical stabilization, capacity for safe intimate relationships, and placing the traumatic experience in the context of creating positive engagement with developmentally appropriate goals (AACAP, 2010; Marmar, Foy, Kagan, & Pynoos, 1993). The AACAP Preschool Psychopharmacology Working Group reviewed existing literature to develop treatment recommendations for preschool children with a range of psychiatric disorders, and its recommendations for the assessment and treatment of PTSD include made recommendations for the assessment and treatment of PTSD in preschool children (Gleason et al., 2007), including the adoption of developmentally sensitive use of the DSM-IV criteria in assessing PTSD in preschoolers, regular monitoring for baseline symptoms with a structured measure, and the use of CPP and preschool-specific CBT as first-line therapeutic interventions for preschoolers exposed to traumatic events (Gleason et al., 2007). In light of the empirically documented treatment effects of psychotherapeutic interventions for preschoolers with PTSD, the Preschool Psychopharmacology Working Group did not recommend the use of psychopharmacological treatment for PTSD in preschoolers. These recommendations are consistent with those included in the 2010 AACAP Practice Parameter for the assessment and treatment of PTSD.

CPP is a relationship-based intervention grounded in psychoanalytic, attachment, and trauma theory that also includes social learning and cognitive behavioral intervention strategies as vehicles for change (Lieberman & Van Horn, 2005, 2008). CPP is guided by the core premise that young children rely on their parent(s) or primary attachment figures for protection and safety, and that trauma shatters the child’s perception of the parent as a competent and reliable protector. In the context of joint child–mother sessions, the CPP therapist supports the dyad in using play, words, and other forms of interaction to express and respond to emotional needs, cocreating a narrative of their lives that includes the traumatic event with the goal of breaking the taboo of silence about the trauma, helping to modulate unmanageable traumatic stress, and restoring trust in the attachment relationship. The efficacy of CPP is supported by several randomized clinical trials with samples varying in child age, referring problems, and ethnic and socioeconomic backgrounds in two separate university settings. The samples include maltreated infants in the child protection system (Cicchetti, Rogosch, & Toth, 2006), anxiously attached toddlers of low-income, recently immigrated and often undocumented Latina mothers (Lieberman, Weston, & Pawl, 1991), toddlers of middle-class depressed mothers (Cicchetti, Toth, & Rogosch, 2000; Toth, Rogosch, Manly, & Cicchetti, 2006), maltreated preschoolers in the child welfare system (Toth, Maughan, Manly, Spagnola, & Cicchetti, 2002), and preschoolers who witnessed domestic violence against the mother in addition to other violence-related traumatic stressors (Lieberman, Van Horn, & Ghosh Ippen, 2005). Outcome findings include reductions in child and maternal psychiatric symptoms; more positive child attributions of parents, themselves, and relationships; improvement in quality of child–mother relationship and measures of security of attachment; and improvements in child cognitive functioning. In a randomized trial with preschoolers who witnessed domestic violence, the children in the CPP treatment group not only maintained their therapeutic gains, but their mothers continued to improve in their global psychiatric symptoms when compared with mothers in the comparison group, who received monthly case management as well as individual treatment in the community (Lieberman, Ghosh Ippen, & Van Horn, 2006).

These findings are important because they indicate that relationship-based, trauma-focused treatment can lead to lasting improvements in the mother’s individual functioning and buttress her emotional capacity to provide appropriate care for the child.

Trauma-focused CBT (Cohen & Mannarino, 2008) is a multicomponent model that can be summarized by the acronym PRACTICE, which stands for the following components: parental treatment, including parental skills; psychoeducation; relaxation and stress management skills; affective expression and modulation skills; cognitive coping skills; trauma narrative and cognitive processing of the child’s traumatic experiences; in vivo desensitization to trauma reminders; conjoint child–parent sessions; and enhancing safety and future development. The parental treatment components parallel the child components, with the parent and the child learning their respective skills in separate sessions. Toward the end of treatment, child and parent meet in joint sessions to enable the child to share the trauma narrative with the parents and to engage in tasks that build communication, enhance safety, and communicate and address remaining questions and concerns. Trauma-focused CBT for preschoolers is supported by a randomized trial with sexually abused children, who showed significant improvements in PTSD, internalizing, and sexual behavior symptoms when compared with
a control group receiving nondirective supportive therapy (Cohen & Mannarino, 1996, 1997, 1998). A second, recently published randomized study with preschoolers exposed to events ranging from single-blow trauma to exposure to domestic violence and victimization by Hurricane Katrina showed that children in the trauma-focused CBT condition showed significant improvement on symptoms of PTSD but not on depression, separation anxiety, oppositional–defiant, or attention-deficit/hyperactivity disorders (Scheeringa et al., 2010).

Conclusions and Future Directions

Children in the birth to 5 age range are disproportionately vulnerable to traumatic events in the forms of inflicted and accidental injury, and there is substantial overlap among different forms of traumatization, with high percentages of traumatized children exposed to more than one traumatic event and more than one type of trauma and with interpersonal violence comprising the most frequent form of trauma exposure. Reviewing the incidence and developmental and social sequelae of children’s exposure to interpersonal violence, Steve Sharfstein (2006) concluded that this form of trauma is “the largest single preventable cause of mental illness” and made the analogy that “What cigarette smoking is to the rest of medicine, early childhood violence is to psychiatry.” Research, clinical intervention, and public policy need to respond to this challenge within their own domains and through systematic collaboration across areas of specialization. The special needs of children in the birth to 5 age range should be systematically incorporated in each of these efforts.

Research efforts should move away from focusing on single sources of trauma and adopt methodologies that incorporate structured assessments for the range of traumatic stressors that are common in infancy and early childhood, from accidents such as dog bites, severe burns, cuts and falls, car accidents, and near drownings to witnessing domestic and community violence, enduring physical and/or sexual abuse, and death of a primary caregiver, sibling, or another person with whom the child had close emotional ties. Although the long-term repercussions of cumulative adversities and traumatic exposures has been studied among adults and older children, there is at present no systematic assessment of the differential impact of cumulative trauma exposure on young children. Epidemiological surveys and longitudinal studies that investigate the impact of different forms of trauma should include the birth to 5 age range as a separate category to better understand the role of the early years in children’s long-term developmental trajectory. Clinical and research priorities converge in pointing to the need for more accurate and developmentally sensitive screening and assessment measures for trauma histories, symptomatology, and general functioning for children in the birth to 5 age range. Closer research attention is needed to the cultural dimensions of exposure to trauma and adversity, traumatic stress, and coping mechanisms that promote resilience in different ethnic, racial, and socioeconomic groups. Researchers should continue their efforts to develop and refine comprehensive, standardized screening assessment instruments for early childhood. The ethical challenges involved in these efforts need to find a forum for debate and consensus in the field because there are legal repercussions among mandated reporters who know about child abuse but do not report it. Researchers may choose to not inquire about trauma exposure in order to bypass the obligation to report abuse, an understandable self-protective response that may have the unintended effect of impeding scientific progress. The problem of false-positive screens that misidentify a child as being abused is a related concern that can be minimized through the use of multiple evaluations that increase the specificity of the screen (Harris, Putnam, & Fairbank, 2006).

Appropriate clinical responses to trauma exposure for young children are undermined by a “don’t ask, don’t tell” approach where clinicians fail to probe systematically for the child’s possible exposure to traumatic events. The AACAP Practice Parameter (2010) recommendation of routinely asking for trauma exposure and PTSD symptoms whenever a child is referred for mental health services is in urgent need to widespread implementation. Although there is progress in developing and implementing empirically supported forms of treatment for traumatized young children, there are important limitations related to attrition rates, length of follow-up, fidelity, treatment effect size, efficacy versus effectiveness when research-based treatment is disseminated to heterogeneous community-based clinical settings, and the unanswered question of “what works for whom?” (Roth & Fonagy, 2005). The problem of access to mental health care for poor and minority children and their families is serious and protracted (President’s New Freedom Commission on Mental Health, 2003). There is a significant lag time between initial identification of children’s mental health or developmental impairment and the beginning of appropriate interventions, a situation that may lastingly derail the child’s healthy developmental trajectory because early dysfunction can trigger a cascade of maladaptive consequences that become progressively more entrenched and resistant to intervention (Duncan, Tildesley, Duncan, & Hops, 1995; Pynoos et al., 1999). The lag between initial referral and treatment is particularly glaring for children in the child welfare system, with 75% of diagnosed children not having received treatment 12 months after initial diagnosis (National Research Council and Institute of Medicine, 2006). A powerful obstacle to mobilizing trauma resources for young children is the erroneous but persistent assumption among practitioners and the public at large that young children are not affected by trauma and adversity (National Research Council and Institute of Medicine, 2000).

The problem of access to timely and effective treatment is compounded by the scarcity of mental health providers skilled in treating children in the birth to 5 age range. The core curriculum for graduate studies in psychology, psychiatry, social work, and other mental health disciplines do not systematically incorporate developmental psychopathology of infancy and early childhood, and child mental health providers are generally trained in individual treatment approaches that do include
parents and are therefore not well suited for young children. The shortage of infant mental health providers from minority groups has a particularly negative impact on immigrant and minority children and families, who need interventions that are provided in their native language by practitioners who understand their cultural values and childrearing practices. The current economic downturn aggravates this situation because drastic staff layoffs in community programs and the child welfare system create higher case loads, lower morale, and increase staff vicarious traumatization. Specialized training and technical assistance are needed to create the workforce capacity to close these service gaps (President’s New Freedom Commission on Mental Health, 2003).

Public policy is an essential instrument to implement beneficial change. The mental health service gaps deficits and efforts to remedy them must engage a partnership between professionals working with young children, elected representatives, and public interest advocates (Harris et al., 2007, 2006). A focus on reducing significant stress and adversity in early childhood has been proposed as an alternative to the traditional reliance on pharmacological interventions to prevent disease and promote health (Shonkoff, Boyce, & McEwen, 2009). Public policy must systematically address the deficits in access to services for traumatized young children and their families. Most traumatized young children and families are not found in mental health clinics but are users of pediatric care, childcare, the child welfare system, and the law enforcement and the courts, as well as family resource programs, domestic violence shelters, and other community-based services. Each of these systems represents a significant entry point for intervention, and their effectiveness can be significantly enhanced by adapting the principles of trauma-focused infant mental health for use by the providers in these systems (Osofsky & Lieberman, in press). The SAMHSA-funded National Child Traumatic Stress Network represents a comprehensive federal effort to increase access to service and raise the standard of care for children and their families across the United States (see http://www.nctsn.org). As a center within this initiative, the Early Trauma Treatment Network is a collaborative of four university-based infant and early childhood trauma programs at the University of California, San Francisco, Boston Medical Center, Louisiana State University Medical Center, and Tulane University that has the goal of creating, evaluating, and disseminating effective forms of intervention with traumatized young children and their families across systems of care. Large randomized studies are the gold standard in research and must be promoted with the goal of making empirically supported treatment available for young traumatized children. Simultaneously, there is an urgent need to bring up to scale public policy efforts to translate effective treatment to community settings in order to bridge the long-standing gap in services for traumatized and underserved young children and their families.

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