

Chapter 2

The Impact of Trauma on Brain Development: A Neurodevelopmentally Appropriate Model for Play Therapists

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ABSTRACT

As many as four million children experience trauma every year, and some children experience multiple traumas over time. In this chapter, the authors provide an overview of the scope and the impacts of trauma on young children. The types of experiences that may be traumatizing to children and the potential effects of these experiences were included. A synopsis of the neurodevelopmental process was also provided along with the impact of trauma at the various neurodevelopmental stages. A neurodevelopmentally appropriate treatment model was described, and the model included the three neurosequential phases of regulate, relate, and reason. In the final section, a review of the impacts of trauma on school performance was provided, and suggestions for advocacy with classroom teachers were included.

INTRODUCTION

The National Child Traumatic Stress Network (NCTSN) defines trauma as a single time-limited event (acute trauma) or as multiple events occurring over time (chronic trauma). Trauma occurs as the result of violence, abuse, neglect, loss, disaster, war and other emotionally harmful experience. Perou et al. (2012) stated in a report titled *National Survey on Children's Health* that nearly 50%, or 1 in 2, children

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The Impact of Trauma on Brain Development

experience at least one traumatic event in their lifetime. Many children experience multiple traumatic events over their childhood (Anda et al., 2006; Kalmakis & Chandler, 2013).

Anda et al. (2006) reported as the number of adverse childhood events in a child's life increases so does the likelihood of mental health disorders and physical health problems (including panic reactions, depressed affect, anxiety, hallucinations, sleep disturbance, severe obesity, multiple somatic symptoms). The neurodevelopmental effects of maltreatment and trauma on the developing brain became visible to affective neuroscientists beginning in the 1990's, with the introduction of complex imaging techniques. The neuroscientists noted trauma related changes in brain architecture as well as processing alterations within the brain and persist over a lifetime (Anda et al., 2006; DeBellis, 2001; Delima & Vimpani, 2011; Perry & Pollard, 1998; Perry, Pollard, Blakely, Baker, & Vigilante, 1995; Watts-English et al., 2006). In addition, trauma adversely impacts cognitive, emotional, behavioral, social, sensory-motor, and physical health functions (Felitti et al., 1998; Perry, 2006, 2008, 2009; Perry & Dobson, 2013; van der Kolk, 2002).

The United States General (U. S. Public Health, 2000) estimated that 4 million children experience trauma each year. In 2010, The Centers for Disease Control and Prevention (CDC) estimated the lifetime economic consequences of the maltreatment of children in the United States at \$124 billion dollars (Fang, Brown, Florence, & Mercy, 2012). These costs lead the Substance Abuse and Mental Health Services Administration (SAMHSA, 2014) to describe trauma as "a widespread, harmful, and costly public health problem." (p. 2).

Children become traumatized due to a variety of experiences. These experiences include obvious traumas such as physical, emotional, sexual abuse, neglect, experiencing a natural disaster or becoming the victim of a criminal act (Felitti et al., 1998). Children can also be traumatized by witnessing domestic violence, witnessing neighborhood or community violence and other adverse childhood events such as living in a home where mental or physical illness is present, having an incarcerated parent or family member, and by living in a family where substance abuse is occurring (Felitti et al., 1998; Edwards, Holden, Anda, & Felitti, 2003).

In this chapter, the authors describe a neurodevelopmentally-informed play therapy approach. In the first section of the chapter, an overview of childhood trauma, neurodevelopment and the effects of trauma on children's brain development will be provided. In the second section of the chapter, the authors include suggestions for the incorporation of play therapy and play activity adaptations based in neuroscience. The second section also provides possible activities for each of Perry's (2008) three-step treatment approach: Regulate, Relate, and Reason. In the final section, information regarding special considerations for school-based play therapists will be included and a discussion will be provided for practical school classroom adaptations for traumatized children.

BACKGROUND

Childhood Trauma

The Federal Child Abuse Prevention Act (CAPTA, 2010) defines child abuse and neglect as "a recent act or failure to act on the part of a parent or caretaker which results in death, serious physical or emotional harm, sexual abuse or exploitation" or "an act or failure to act, which presents a imminent risk of serious harm." (p. 6)

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