

It's Complicated: The Role Complex Trauma Plays in Child Development

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ABSTRACT

This paper serves as a review of the literature regarding the effects of traumatic stress on child development and functioning across life domains. Differentiation is drawn between the types of trauma (single event versus persistent or chronic events.) Limitations of the posttraumatic stress disorder diagnosis are discussed, as well as recent theories regarding the scope of childhood trauma symptoms and characteristics. Particular attention is paid to the theories of complex trauma and developmental trauma disorder as examples of holistic views of the pervasive effects of persistent or chronic childhood traumatic events. Literature reviews of the research regarding physiological and neurobiological effects, difficulties with memory and cognition, and issues pertaining to attachment and adjustment appearing in children who have experienced trauma are included. Mental health outcomes in adulthood resulting from childhood trauma are reviewed. Research findings which support the necessity of trauma-informed, systemic work, and implications for the provision of Multi-Systemic Therapy as a preferred treatment modality are addressed.

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Though the term “trauma” encompasses a wide variety of experiences (including events such as accidents, natural disasters, and interpersonal violence), it has come to be generally understood that traumatic stress reactions may vary widely in their presentation, often due to the types of trauma endured. Those working with children have been concerned with both the difference in expression of post-traumatic stress in chronically traumatized children, and with the aftermath of this stress on their developing systems. While adults who have experienced trauma have (for the most part) fully developed behaviorally, socially, emotionally, cognitively, and have achieved their developmental milestones before the event occurs, we cannot say the same for children. The effect of continuous trauma on these life domains is ultimately devastating, and continues to affect the child significantly long after the abuse or neglect has ended. This paper will focus not on consequences of one-time events, but of traumatic events that continue on in a persistent or chronic nature, which will be referred to as “complex trauma.” Specifically, it will serve as a review of the ways in which these chronic events affect the development of several domains in young and school-aged children.

Diagnosing Children with Post Traumatic Stress Disorder

Traumatic stress reactions are now commonly associated with a diagnosis of posttraumatic stress disorder (PTSD.) This diagnosis does well in describing the response of adults to situations such as singular events, time spent in service during wartime, and brief exposure to life-threatening situations. The application of the PTSD diagnosis to children has been a subject of debate for quite some time. Originally, PTSD was not diagnosed in children due to the belief that one must remember the traumatic event in order to suffer from the syndrome. The rationale was that children have no memory at the earliest ages, and when they are old enough to remember events, the parents’ nurturance would serve as protection from lingering effects (Scheeringa, 2008). We have since learned that children can and do remember early events, even if they do not yet have the language to express their reflections. Gaensbauer (2002) described several case studies in which children were the victims of various forms of trauma, with the events occurring in infancy. He found that not only were there fear reactions occurring shortly after the event, but these children expressed their fear in non-verbal ways before the development of language, and once they were able to speak, many used words and play to express what they remembered. This information was compared to caregiver reports and was found to be accurate.

In addition to child-specific expressions of traumatic stress, we also need to account for differences in children based on one-time events versus chronic situations. With the publication of the Diagnostic and Statistical Manual of Mental Disorders (DSM), 4th edition (American Psychiatric Association, 2000), came age-appropriate qualifiers to the adult symptom criteria, as it was accepted that children express their symptomatology in different ways than

adults. However, due to the limitations of the diagnostic criteria, it is possible that some children who are clearly exhibiting effects of traumatic stress may not meet the criteria for PTSD due to individual differences in stress expression or age/developmental level (Scheeringa, 2008). Some attempts at categorizing child-specific criteria and symptomatology for long-term traumatic episodes (such as neglect, physical or sexual abuse, and life in volatile communities) include terms such as complex trauma, complicated traumatic stress reactions, type II trauma, disorders of extreme stress, not otherwise specified, and developmental trauma disorder (Faust and Katchen, 2004). The complex trauma theory breaks down symptoms into six life domains which are affected (Cook et al., 2005). Developmental trauma disorder (van der Kolk, 2005), though it was denied inclusion in the forthcoming DSM revision, presents a comprehensive view of the ways in which a child's entire world is affected by trauma and can be used as a model through which we see the broad range of effects on life domains. Both Cook and van der Kolk use the term "complex trauma" to describe what they see as: "The experience of multiple, chronic and prolonged, developmentally adverse traumatic events, most often of an interpersonal nature (e.g., sexual or physical abuse, war, community violence) and early-life onset". (van der Kolk, 2005, p. 401)

Theories of Trauma

Complex trauma is said to affect the child in seven domains of functioning. We can see the dysfunction in affect regulation, where there is an inability to regulate emotions such as anger or "acting out" behaviors like destructiveness. There are problems with the information processing functions of attention, concentration, and learning difficulties. Dissociation may play a role in consciousness, amnesia or impaired memory. Traumatized children may have negative self-concept, internalizing feelings of guilt or shame. Behavioral control is poor, evidenced by impulsivity. Improper attachments are formed, leading to mistrust in relationships and troubles with intimacy. Further, biological processes may be interrupted or inhibited (Cook, et al., 2005).

Van der Kolk (2005) outlined three areas of dysfunction in his developmental trauma disorder theory: triggered patterns of dysregulation following trauma cues; persistently altered attributions and expectancies; and functional impairment. Triggered patterns of dysregulation include changes in the areas of affect, somatic complaints, behavior, cognition, relational patterns, and self-attribution. These patterns are seen in somatic complaints (headaches and gastrointestinal problems), re-enactment of the trauma, self-harm, confusion and dissociation. Traumatized children have significantly altered attributions and expectations, and tend to believe that they are the cause of, or reason for, abuse or neglect. They often feel that they are to blame for the trauma, and have some degree of self-hate (Coates and Gaensbauer, 2009). They may experience a loss of trust or belief that social agencies or law enforcement will protect them. They feel a lack of recourse to social justice or retribution and

feel that future victimization is inevitable (van der Kolk, 2005). Often, these children experience functional impairment in educational, legal, or vocational settings, and struggle in family and peer relationships (Mathews, Dempsey and Overstreet, 2009). They often may be involved in conflicts with others due to poor social skills and trouble accepting authority, leading to students being susceptible to suspensions from school (Mathews et al., 2009).

These theories provide a clear overview of the ways in which trauma informs functioning across settings, beyond what is outlined in the PTSD literature, and in a way that is more developmentally-appropriate for young children. Posttraumatic stress disorder appropriately refers to an adult's experience with a one-time event, whereas developmental trauma disorder and complex trauma theory more clearly indicate a child's experience with on-going events. When we look at trauma through this lens, we begin to see the full range of the havoc it wreaks, beyond it being a mental disorder or simply a stress reaction. De Bellis (2001) described the psychobiological effects of trauma as "an environmentally induced complex developmental disorder". (p. 540.) This differs greatly from the early theories which claimed that childhood trauma is mediated by parental nurturing. We now know that the persistent nature of complex trauma can cause difficulties and dysfunction in the domains of physiology, neurobiological growth, cognition and memory, and attachment and adjustment.

Physiology and Neurobiology

A great deal of research has indicated physical differences in brain development and nervous system function of children who have experienced trauma. Magnetic Resonance Imaging (MRI) studies of children's brains, with and without a diagnosis of PTSD, show that children with the disorder have overall smaller cerebral volumes, smaller corpus callosum size, and larger ventricles (De Bellis, et al., 1999). Reduced hippocampus size is also found to occur in children with a history of trauma, and this reduced volume seems to affect the hippocampus's ability to manage emotional responses to stress, memory, and overall learning. Trauma reactions such as intrusive thoughts, avoidance, hyperarousal, and dissociation tend to correlate strongly with increased ventricle size (De Bellis et al, 1999). Children with a trauma history also present with sustained levels of cortisol, the "stress hormone." In an unaffected person, when presented with a threatening or stressful situation, cortisol levels are temporarily elevated and typically resolve following resolution of the stimulus. In PTSD-affected persons, cortisol levels tend to be chronically elevated, with no sharp increase or decrease following resolution (MacMillan et al., 2009). Children with consistently elevated cortisol levels may not visibly appear to be stressed, as we do not see the typical rise and fall of cortisol levels and their physical concomitants. In fact, it is because they are constantly on high alert that we do not see any noticeable change when children with PTSD are faced with a fearful situation (MacMillan et al., 2009). These children are

consistently stressed, which interferes with their ability to react to new situations. They struggle with impulsiveness, managing their emotions, and their ability to learn, in addition to the symptoms of trauma.

Memory and Cognition

Eisen and colleagues (2007) showed that memory tests and school functioning were compromised in traumatized children. Further, the severity of the trauma affected the level of memory performance. Those who experienced greater variety of trauma tended to have poorer scores on memory tests (Elbert, et al., 2009). When administered to children who were known to have trauma exposure and a diagnosis of PTSD, the results of the WISC-III (Wechsler Intelligence Scale for Children, third edition) showed significantly lower scores in areas of verbal intelligence, and in IQ overall, than children who were not exposed to trauma in some way. Verbal functioning is largely controlled by the left hippocampus, which is underdeveloped in individuals diagnosed with PTSD. Maltreated children, specifically neglected children, have been known to experience delayed language development compared with their non-maltreated peers (Eisen et al., 2007).

Interruptions of the developing cognitive processes at the time of the trauma may lead to generalized fears (Saigh, Yasik, Oberfield, Halamandaris, and Bremner, 2006). A child who was abused may not only fear the abuser, as would be expected, but also those who resemble, represent or somehow trigger memories of the abuse or the event (Coates and Gaensbauer, 2009). The ways by which traumatized children cognitively process emotion appear to be connected to the higher levels of anxiety found in this population (Shackman, Shackman and Pollak, 2007). Beers and De Bellis (2002) found that children with PTSD had issues with frontal lobe functioning, suggested by weakness in the areas of abstract reasoning and attention. Cook et al. (2005) found that children who have been exposed to trauma have inappropriate functioning in the pre-frontal cortex. Weaknesses in executive functioning, which is controlled by this region of the brain, appear as difficulties in self-awareness, meaningful involvement with others, assessing complex emotional experiences, and using past experiences to determine courses of action or frames of reference (Cook et al., 2005). Child victims differ from their peers with respect to verbal intelligences, memory, difficulty sustaining attention, being generally fearful, and in gauging emotions and relationships.

Attachment and Adjustment

Children who have experienced trauma have been found to demonstrate insecure attachment styles. Cicchetti and Barnett (1991) used Ainsworth's Strange Situation to show that when parents simultaneously are a source of danger and a source of safety, as in the case of abuse, there is disorganized/insecure attachment. Avoidant/insecure attachment tends to be

present in the case of neglectful parents. Overall, dysregulated attachment develops when the child is susceptible to stress, cannot regulate emotions, and has an altered help-seeking strategy, which may be expressed as either clinging and dependant, or isolated and disengaged, behavior (Cook et al., 2005). Children, aged 1-3 years, were seen to have greater levels of adjustment difficulties when they had witnessed violence against a family member, or inter-family conflict. Results indicated that there are greater levels of attachment insecurity, emotional dysregulation, and anxiety in these children (McDonald, Jouriles, Briggs-Gowan, Rosenfield and Carter, 2007). These children are not learning how to attach to caregivers in a healthy way, nor are they able to learn to regulate their own emotional states or get their needs met appropriately, which sets them up for trouble in later developmental stages.

Complications for School-Aged Children

Research has shown that students with a history of trauma have overall poor school performance when compared with their non-traumatized peers (Elbert et al., 2009). Specifically, these children suffer from attentional and organizational weaknesses. These children are more likely to be referred to the school's special education services due to these weaknesses and a general failure to progress academically at the same rate as their peers (Shonk and Cicchetti, 2001). Many are diagnosed with learning disorders. There is a great deal of crossover when it comes to the symptoms of Attention-deficit/hyperactivity disorder (ADHD), and accepted results of trauma. Some disagreement exists as to whether these children actually suffer from true ADHD, or effects of trauma leading to attentional and behavioral characteristics that may mimic ADHD (Daud and Rydelius, 2009). Coates and Gaensbauer (2009) suggest that problems with impulse control and behavior regulation, which are diagnostic criteria for ADHD, may be an effect of the hyperarousal seen in traumatized children. Many times, these children have disciplinary infractions for refusal to cooperate or follow rules, and may be labeled as disruptive, disrespectful or defiant and oppositional (Mathews et al., 2009).

Another major area of difficulty children with affected by trauma have is in the domain of peer relations and acceptance of authority. Traumatized children play in ways that appear odd to other children, with trauma themes and repetitive actions, and an apparent lack of enjoyment (American Psychiatric Association, 2000). As young children build relationships with peers through play, they are often ignored by peers in favor of other playmates with more typical play behavior. When it comes to accepting authority, this may be a fearful undertaking for children who have been harmed in the past by authority figures (van der Kolk, 2005).

Traumatized children more often end up being diagnosed (ADHD, oppositional-defiant disorder, conduct disorder) or labeled ("special education," "learning

disordered.”) They resist adult intervention and have few, if any, friends. Children spend at least 7 hours per day in school and combined with after-school activities and homework, this is how they spend the majority of their waking hours. If the school setting is not informed and supportive, there is a lost opportunity to help these children grow and their impacted socialization continues into adolescence.

Mental Health Outcomes in Adulthood

Research has uncovered links between early pervasive trauma and the development of mental health disorders in adolescence and adulthood. Some “internalizing” disorders such as depression and anxiety may show up in early childhood. There is also a high prevalence of “externalizing” disorders, where we see defiant, oppositional or aggressive behaviors. Both these internalizing and externalizing disorders can continue into adulthood, though the presentation or clusters of symptoms may change (Kaplow and Widom, 2007). Many others, such as borderline or antisocial personality disorders, are not seen until late adolescence or early adulthood. One of the hallmarks of borderline personality disorder and dissociative identity disorder is the presence of early interpersonal trauma in childhood (American Psychiatric Association, 2000). When assessing adults with a history of having been maltreated before age 12, those who were maltreated earlier tended to have higher rates of anxiety and depression (internalizing disorders), whereas those who were maltreated later in childhood have higher rates of behavioral disorders (externalizing disorders) and also a greater probability of not having graduated from high school (Kaplow and Widom, 2007). We can see that the effects of trauma do not only cause distress at the time of the event, but as illustrated by this study, this distress can reach far into adulthood.

Treatment Implications

The last decade has been a time of growth and discovery in the area of chronic trauma in children. From theories such as complex trauma and developmental trauma, which attempt to organize the broad range of symptoms that can be seen, to research into the physiological differences of traumatized children, we can begin to grasp just how the developmental stages can be disrupted by the experience of complex trauma. There truly is a multi-dimensional effect, and when we consider treatment for these clients, each dimension must be taken into account. Though the first step should always be to ensure the safety of the child, once that is addressed, therapy must work within a holistic view of the child’s world. The link between environment, development and dysfunction are so strongly linked that none should be addressed beyond the context of the others. Swenson, Schaeffer, Heggeler, Faldowski, and Mayhew (2010) make a strong case for the use of trauma-informed, Multi-Systemic Therapy (MST) in families where there is abuse or neglect of a child. The MST treatment team (consisting of several therapists) can address such issues by providing services

in homes and the community, work with the family's entire social ecology, help to foster positive relationships with social service agencies and schools, and provide therapy to the family and the child. The family is further engaged by the therapist's ability to provide support at times convenient for the family, and with 24 hour, 7 day per week crisis support. As this particular modality treats the child within the context of their environments, the results of this study showed greater results than even trauma-informed outpatient therapy (Swenson et al., 2010). Regardless of the therapeutic modality, treatment should always be provided with an ear to the particular traumatic event that occurred in the child's life, and with knowledge of the full breadth of the complications of complex trauma.

Conclusion

While there is much we don't know about trauma and the mechanism of its effects on child development, what we do know makes it imperative that we take consideration when treating a client with a history of trauma. What may be seen as symptoms of co-morbid disorders may in fact be symptoms of the trauma itself. When diagnosing, we are at the mercy of the accepted standard, the DSM, but we must also be aware that the DSM gives us guidelines, yet does not outline the whole picture. There are few standardized ways of looking at childhood trauma, and without a model to reference the impairments seen across life domains, clinicians may be missing pieces of the puzzle. Whether using the developmental trauma disorder theory or the complex trauma theory, one should keep in mind the range of areas of impairment and remember that it is not only the child and family of origin that need therapeutic intervention. The child and his/her family need support in a variety of settings, as the child grows within his/her environment. Multi-Systemic Therapy is strongly recommended, and the presence of a therapist who understands the widespread effects of trauma on child development is imperative in helping the child to heal from the trauma and regain lost developmental milestones.

References

- American Psychiatric Association. (2000.) *Diagnostic and statistical manual of mental disorders* (4th ed., text revision.) Washington, D.C: American Psychiatric Association.
- Beers, S. R., & De Bellis, M.D. (2002). Neuropsychological function in children with maltreatment-related posttraumatic stress disorder. *The American Journal of Psychiatry*, 159(3), 483-6. doi:10.1176/appi.ajp.159.3.483.
- Coates, S., & Gaensbauer, T. J. (2009). "Event trauma in early childhood: Symptoms, assessment, intervention": Erratum. *Child and Adolescent Psychiatric Clinics of North America*. 18(4), 1027. doi:10.1016/j.chc.2009.06.001.
- Cicchetti, D., & Barnett, D. (1991). Attachment organization in maltreated preschoolers. *Development and Psychopathology*, 3(4), 397-411. doi:10.1017/S0954579400005009.
- Cook, A., Spinazzola, J., Ford, J., Lanktree, C., Blaustein, M., Cloitre, M., DeRosa, R., Hubbard, R., Kagan, R., Liautaud, J., Mallah, K., Olafson, E., & van der Kolk, B. (2005). Complex Trauma in Children and Adolescents. *Psychiatric Annals*. 35(5), 390-398. Retrieved October 2, 2010 from from Psychology Module. (Document ID: 844412901).
- Daud, A., & Rydelius, P. (2009). Comorbidity/overlapping between ADHD and PTSD in relation of IQ among children of traumatized/non-traumatized parents. *Journal of Attention Disorders*, 13(2), 188-196. doi:10.1177/1087054708326271.
- De Bellis, M. (2001). Developmental traumatology: The psychobiological development of maltreated children and its implications for research, treatment, and policy. *Development and Psychopathology*, 13(3), 539-64. Retrieved October 25, 2010, from Psychology Module. (Document ID: 1409746501).
- De Bellis, M., Keshavan, M., Clark, D., Casey, B., Giedd, J., & Boring, A., et al. (1999). Developmental traumatology: II. Brain development. *Biological Psychiatry*, 45(10), 1271-1284.
- Eisen, M. L., Goodman, G. S., Qin, J., Davis, S., & Crayton, J. (2007). Maltreated children's memory: Accuracy, suggestibility, and psychopathology. *Developmental Psychology*. 43(6), 1275-1294. doi:10.1037/0012-1649.43.6.1275.
- Elbert, T., Schauer, M., Schauer, E., Huschka, B., Hirth, M., & Neuner, F. (2009). Trauma-related impairment in children--A survey in Sri Lankan provinces affected by armed conflict. *Child Abuse & Neglect*. 33(4), 238-246. doi:10.1016/j.chiabu.2008.02.008.
- Faust, J., & Katchen, L. B. (2004). Treatment of Children With Complicated Posttraumatic Stress Reactions. *Psychotherapy: Theory, Research, Practice, Training*. 41(4), 426-437. doi:10.1037/0033-3204.41.4.426.

- Gaensbauer, T. (2002). Representations of trauma in infancy: Clinical and theoretical implications for the understanding of early memory. *Infant Mental Health Journal*, 23(3), 259-277. doi:10.1002/imhj.10020.
- Kaplow, J.B., & Widom, C.S (2007). Age of onset of child maltreatment predicts long-term mental health outcomes. *Journal of Abnormal Psychology*. 116(1), 176-187. doi:10.1037/0021-843X.116.1.176.
- MacMillan, H. L., Georgiades, K., Duku, E. K., Shea, A., Steiner, M., Niec, A., Tanaka, M., Gensey, S., Spree, S., Vella, E., Walsh, C. A., De Bellis, M. D., Van der Meulen, J., Boyle, M. H., & Schmidt, L. A. (2009). Cortisol response to stress in female youths exposed to childhood maltreatment: Results of the Youth Mood Project. *Biological Psychiatry*. 66(1), 62-68. doi:10.1016/j.biopsych.2008.12.014.
- McDonald, R., Jouriles, E.N., Briggs-Gowan, M.J., Rosenfeld, D., & Carter, A.S. (2007). Violence toward a family member, angry adult conflict, and child adjustment difficulties: Relations in families with 1- to 3- year old children. *Journal of Family Psychology*. 21(2), 176-184. doi:10.1037/0893-3200.21.2.176.
- Mathews, T., Dempsey, M., & Overstreet, S. (2009). Effects of exposure to community violence on school functioning: The mediating role of posttraumatic stress symptoms. *Behaviour Research and Therapy*. 47(7), 586-591. doi:10.1016/j.brat.2009.04.001.
- Saigh, P. A., Yasik, A. E., Oberfield, R. A., Halamandaris, P. V., & Bremner, J. D. (2006). The Intellectual Performance of Traumatized Children and Adolescents With or Without Posttraumatic Stress Disorder. *Journal of Abnormal Psychology*. 115(2), 332-340. doi:10.1037/0021-843X.115.2.332.
- Scheeringa, M. S. (2008). Developmental considerations for diagnosing PTSD and acute stress disorder in preschool and school-age children. *American Journal of Psychiatry*. 165(10), 1237-1239. doi:10.1176/appi.ajp.2008.08070974.
- Shackman, J.E., Shackman, A.J., & Pollack, S.D. (2007). Physical abuse amplifies attention to threat and increases anxiety in children. *Emotion*. 7(4), 838-852. doi:10.1037/1528-3542.7.4.838.
- Shonk, S., & Cicchetti, D. (2001). Maltreatment, competency deficits, and risk for academic and behavioral maladjustment. *Developmental Psychology*, 37(1), 3-17. doi:10.1037/0012-1649.37.1.3.
- Swenson, C.C., Schaeffer, C.M., Henggeler, S.W., Faldowski, R., & Mayhew, A.M. (2010). Multisystemic therapy for child abuse and neglect: A randomized effectiveness trial. *Journal of Family Psychology*. 24(4), 497-507. doi:10.1037/a0020324.
- Van der Kolk, B. A. (2005). Developmental Trauma Disorder: Toward a rational diagnosis for children with complex trauma histories. *Psychiatric Annals*. 35(5), 401-408. Retrieved October 2, 2010 from Psychology Module. (Document ID: 844412541).

