

## The devastating effects of ignoring child maltreatment in psychiatry

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Commentary on “The enduring neurobiological affects of abuse and neglect”

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In their landmark article on “The enduring neurobiological affects of abuse and neglect” (this issue) Teicher and Sampson suggest that many structural and functional brain abnormalities hitherto thought to characterize various psychiatric diagnoses may, in fact, be the direct consequence of childhood maltreatment. For the past three decades they have researched the effects of exposure to various forms of childhood maltreatment, such as parental verbal abuse, witnessing domestic violence and sexual abuse in non-clinical samples, and have consistently found that maltreatment at different sensitive exposure periods is associated with reliable morphological alterations in the anterior cingulate, dorsal lateral prefrontal and orbitofrontal cortex, as well as in brain areas that transmit visceral feelings and emotions that accompany and define terror. More specifically, maltreatment targets brain regions and pathways that process and convey the aversive experience. Thus, Teicher and his colleagues confirm that, following abuse and neglect, the world is experienced with a different nervous system.

A recent meta-analysis of thirty-eight reports with quality data from 96 countries on past-year prevalences of violence against children showed that a minimum of 50% or more of children in Asia, Africa, and Northern America experienced past-year violence, and that globally over half of all children—1 billion children, ages 2–17 years—experienced such violence.<sup>1</sup> Research has consistently shown that child maltreatment alters brain systems devoted to appraisal of risk and safety and results in enduring difficulties regulating biological homeostasis and emotional responses throughout life. However, despite the numerous studies over the past thirty years that have clarified the devastating effects of child maltreatment on mental and physical health, the role of trauma within the caregiving system remains unrecognized both in our diagnostic systems and in our dominant treatment paradigms. Research of people with histories of parental abuse and neglect consistently demonstrates problems with concentration, anger, panic, depression, food intake, drugs, and sleep, as well as decreased Heart Rate Variability, higher levels of stress hormones, and reduced or impaired immune response<sup>2,3</sup>. As Teicher and Sampson point out: “Childhood maltreatment exerts a prepotent influence on brain development and has been an unrecognized confound in almost all psychiatric neuroimaging studies. These brain changes may be best understood as adaptive responses to facilitate survival and reproduction in the face of adversity. Their relationship to psychopathology is complex as they are discernible in both susceptible and resilient individuals with maltreatment histories”.

The Center for Disease Control’s Adverse Childhood Experiences (ACE) study<sup>4</sup> revealed that traumatic life experiences during childhood and adolescence are far more common than expected. The study respondents were mostly white, middle-class, middle-aged, well-educated, and financially secure enough to have good medical insurance, and yet only one-third of the respondents reported no adverse childhood experiences. Of the two-thirds of respondents who reported one adverse experience, the vast majority scored

two or more others. The ACE study concluded that child maltreatment was the most costly public health issue in the United States, calculating that the overall costs exceeded those of cancer or heart disease, and that eradicating child abuse in America would reduce the overall rate of depression by more than half, alcoholism by two thirds, and suicide, serious drug abuse, and domestic violence by three quarters. It would also have a significantly positive effect on workplace performance, and vastly decrease the need for incarceration.

Starting in 1975, and continuing for almost 30 years, Alan Sroufe and his colleagues tracked 180 high-risk children and their families through the Minnesota Longitudinal Study of Risk and Adaptation.<sup>5</sup> They found that nothing about human development starts off being written in stone: neither the mother's personality nor the infant's reactivity to stress predicted later problems. Neurological anomalies at birth, IQ and infant temperament—including infant activity level—none of these predicted whether a child would develop serious behavioral problems in adolescence. However, insensitive, pushy and intrusive behavior on the part of the parents at 6 months predicted hyperactivity and attention problems in kindergarten and beyond. By early adulthood most maltreated children met criteria for one or more psychiatric diagnosis.

In 1987 Frank Putnam and Penelope Trickett at the National Institutes of Mental Health initiated the first longitudinal study of the impact of sexual abuse on female Development.<sup>6</sup> Compared with girls of the same age, race and social circumstances, sexually abused girls suffer from a range of profoundly negative effects: cognitive deficits, depression, dissociative symptoms, troubled sexual development, high rates of obesity, and self-mutilation. They dropped out of high school at a higher rate than the control group and had more major illnesses and healthcare utilization. They also showed abnormalities in their stress hormone responses, an earlier onset of puberty, and a host of different, seemingly unrelated, psychiatric diagnoses.

In the early 1980s Karlen Lyons-Ruth started to collect videotapes of face-to-face interactions between 56 two- and three-year-olds and their mothers.<sup>7</sup> Some eighteen years later disrupted emotional communication observed at 18 months predicted problems in young adults, particularly behaviors typical of Borderline Personality Disorder: frantic efforts to avoid abandonment, dissociation, an unstable sense of self, self-damaging impulsivity (e.g., excessive spending, promiscuous sex, substance abuse, reckless driving, binge eating), inappropriate and intense anger, and recurrent suicidal behavior. These findings underscore the fact that assuring the quality of early caregiving is critically important in preventing mental health problems, independent of environmental traumas.<sup>8</sup>

These findings from attachment research have not been well integrated into clinical teaching, diagnosis and treatment intervention. Safe and protective early relationships are critical to protect children from long-term problems. If the parents themselves are the source of distress, the child has no one to turn to for comfort and restoration of biological homeostasis. Since infants are programmed to turn towards their care givers to deal with their fears and distress, when the parents themselves are the source of terror children are left to their own devices: they “can neither approach (the secure and ambivalent "strategies"), shift [their] attention (the avoidant "strategy"), or flee” Disorganized attachment has been called “fright without solution”<sup>9</sup>.

Maltreatment and chronic misattunement negatively impact the long-term capacity for self-care: in their attempts to manage unbearable emotions and sensations

maltreated individuals are at high risk to experiment with drugs, alcohol, binge eating, or self-mutilation to find relief<sup>2,3,4,10</sup>. Teicher and Sampson's article once again confronts us with the vital question how many mental health problems, from drug addiction to self-injurious behavior, start off as attempts to cope with unmanageable emotions. Stifling inner cries for help does not stop the mobilization of stress hormones. Somatic symptoms for which no clear physical basis can be found are ubiquitous in individuals with histories of maltreatment, including chronic back and neck pain, fibromyalgia, migraines, digestive problems, spastic colon/irritable bowel syndrome, chronic fatigue, and some forms of asthma.

Individuals who have developed in the context of ongoing danger, maltreatment and disrupted caregiving systems are being ill served by the current diagnostic systems as long as the perceptual and regulatory changes associated with the brain abnormalities articulated in Teicher and Sampson's article remain unrecognized, and as long as treatment emphasizes behavioral control, rather than restoration of the underlying brain abnormalities articulated in Teicher and Sampson's work.

Studies on the sequelae of childhood trauma in the context of caregiver abuse or neglect consistently demonstrate chronic and severe problems with emotion regulation, impulse control, attention and cognition, dissociation, interpersonal relationships, and self and relational schemas<sup>10</sup>. A survey within the US's National Child Traumatic Stress Network showed that maltreated children are currently diagnosed with an average of 3-8 co-morbid disorders<sup>3</sup>. The continued practice of applying multiple distinct co-morbid diagnoses to traumatized children has grave consequences: it defies parsimony, obscures etiological clarity, and runs the danger of relegating treatment and intervention to a small aspect of the child's psychopathology rather than promoting a comprehensive treatment approach. Approaching their problems from a framework of memories of discreet traumatic events isn't enough – the damage goes in the neural circuitry as articulated by Teicher and Sampson, go well beyond dealing with discrete painful events. Nor do the labels “depression”, “oppositional defiant disorder”, “intermittent explosive disorder”, bipolar disorder, or any of the other options our diagnostic manuals offer us. These diagnoses describe surface behaviors and steer us away from underlying causes. The US National Child Traumatic Stress Network has proposed a provisional diagnosis of Developmental Trauma Disorder to capture the clinical sequelae of chronic maltreatment<sup>11</sup>.

A mislabeled patient is likely to become a mistreated patient. If one pays selective attention to faulty biology and defective genes as the cause of mental problems, and ignores the role of abandonment, abuse and deprivation, one are likely to run into as many dead ends as previous generations did blaming it all on terrible mothers. Both the DSM5 and the RDoC framework conceptualize mental illnesses as brain disorders in the hope that the clarification of the brain circuits that underlie mental problems will lead to the sort of “precision medicine that has transformed cancer diagnosis and treatment”. However, mental illness is not really like cancer: everything about us--our brains, our minds, and our bodies--is geared towards being integrated members of social groups, able to share, nurture and collaborate. This is the key to our success as a species, and this is what breaks down in most forms of mental illness. Clarifying the neuronal connections associated with mental illness is vitally important, but it is equally critical to recognize that those neuronal connections are, in large part, the result of early caregiving

interactions that shape our minds and brains when we are young, and that continue to underpin the fundamental substance and meaning of our lives.

People with histories of abuse, neglect, chronic misattunement, or severe deprivation will remain mysterious and largely untreated unless we heed the admonition of Minnesota attachment researcher Alan Sroufe: “To fully understand how we become the persons we are—the complex, step-by-step evolution of our orientations, capacities, and behavior over time— requires more than a list of ingredients, however important any one of them might be. It requires an understanding of the process of development, how all of these factors work together in an ongoing way over time.”

#### Future directions

The recognition of the pervasive effects of abuse and neglect on neuronal organization should focus research and treatment on the central principles organizing the protean symptoms of chronically traumatized children and adults: pervasive biological and emotional dysregulation, failed or disrupted attachment, and a hugely deficient sense of coherent personal identity and competence. These issues transcend and include many different diagnostic categories, but treatment that doesn't put them front and center is more than likely to miss the mark. Our great challenge is learn to utilize the brain's neuroplasticity to reorganize defective brain circuits. How that is best done, whether through re-education, corrective experiences, pharmacological manipulation, or brain/computer interface technology is, to my mind, probably the greatest challenge facing psychiatry.

Social support is a biological necessity—not an option, and this notion should be the backbone of all prevention and treatment. Recognizing the profound effects of trauma and deprivation on brain development need not lead to blaming parents. We can assume that parents do the best they can, but all parents need help to nurture their kids. Early stimulation and sensitive parenting are fundamental to successful growth and development. John Heckman, winner of the 2000 Nobel Prize in Economics, has shown that quality early childhood programs that involve parents and promote basic skills in disadvantaged children more than pay for themselves in improved outcomes.<sup>12</sup> Economists have calculated that every dollar invested in high-quality home-visiting, daycare, and preschool programs results in \$7 in savings on welfare payments, health care costs, substance abuse treatment, and incarceration, plus higher tax revenues due to better-paying jobs.

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