



The Impact of neglect and abuse on learning and performance in adolescents

Terrain Chambers Reeves

Abstract

I have noticed in children, especially adolescents, over the years, that when there is poor parenting or maltreatment, such as in the cases of neglect and abuse, the child's only recourse is to act out. For many, this maltreatment ultimately impacts their learning and academic performance, and unless they receive the treatment and support they need and deserve, the long term psychological and sociological impacts can be irreversible. In 1984 The U.S. Department of Education published research about the decline of learning in our schools, one of the reasons cited for this decline is the fact that parents have not been as involved in the education of their child as they should be. While the research cites that neglect and abuse are contributing factors to high school dropout, we have seen still today that finding a resolution in combating neglect and abuse at home has not been like running into a brick wall. There have been many things that have been pointed at or blamed for the reasons of poor parenting: decay in family structure- most families have now become single parent families, this being primary as well as parents whose jobs take up more time than normal, or the continuous cycle of trauma and abuse that is never-ending. Should any of these be blamed? How do these things impact the learning and performance of the adolescent child? Over the years, we see where various studies have tried to understand how maltreatment (i.e. neglect and abuse) of children impact their learning and performance academically, in the hope that we can help to change the trajectory of the lives of future generations to come.

Keywords

academic achievement, maltreatment, brain development, cognitive ability, neurons, pruning, psychosocial, synapses, pruning

Child abuse and neglect refers to any behavior by parents, caregivers, other adults or older adolescents that is outside the norms of conduct and entails a substantial risk of causing physical or emotional harm to a child or young person. Such behaviors may be intentional or unintentional and can include acts of omission (i.e., neglect) and commission (i.e., abuse). The five main subtypes of child abuse and neglect are physical abuse, emotional maltreatment, neglect, sexual abuse, and witnessing family violence. Studies show that children/adolescents who have suffered from neglect exhibit lower academic achievement than children/adolescents who were physically abused. Mistreated children/adolescents have a greater instance of exhibiting poor social skills and classroom behavior problem. Maltreatment in the early years of life increases a child's likelihood of having academic problems. These children/adolescents are far likelier to drop out of school before completing high school. According to research, children/adolescents with special education needs are more than seven times more likely to suffer physical abuse and neglect. Lower academic success can cause lifelong, negative psychosocial and economic consequences. While adapting is normal in the development of every human being, add to that adjusting to school, which is often a struggle for many students, to then having to deal with maltreatment in the form of neglect and abuse at home.

The ability to adapt to our environment is a part of normal development. Children growing up in large cities, in cold climates, on rural farms, or in large sibling groups learn how to function in those environments. Regardless of the general environment, though, all children need stimulation and nurturance for healthy development. If these are lacking (e.g., if a child's caretakers are indifferent, hostile, depressed, or cognitively impaired), the child's brain development may be impaired. Since the brain adapts to its environment, it will adapt to a negative environment just as readily as it will adapt to a positive one (Understanding the Effects of Maltreatment on Brain Development, 2015).

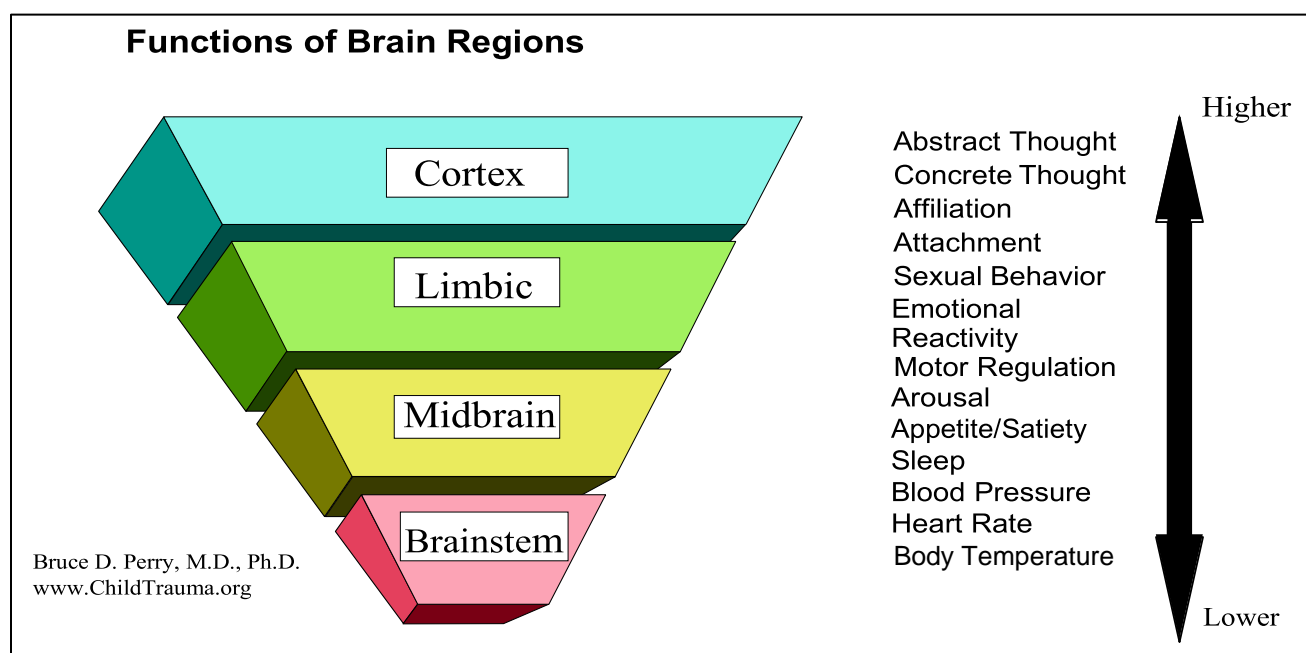
Children/adolescents with complex trauma histories may have problems thinking clearly, reasoning, or problem solving. They may be unable to plan, anticipate the future, and act accordingly. When children/adolescents grow up under conditions of constant threat, all their internal resources go toward survival. When their bodies and minds have learned to be in chronic stress response mode, they may have trouble thinking a problem through calmly and considering multiple alternatives. They may find it hard to acquire new skills or take in new information. They may struggle with sustaining attention or curiosity or be distracted by reactions to trauma reminders. They may show deficits in language development and abstract reasoning skills. Many adolescents who have experienced complex trauma during their childhood have learning difficulties that may require support in the academic environment.

Brain Development in Children/Adolescents

Brain development, or learning, is the process of creating, strengthening, and discarding connections among the neurons; these connections are called *synapses*. Synapses organize the brain by forming pathways that connect the parts of the brain governing everything we do—from breathing and sleeping to thinking and feeling. This is the essence of postnatal brain development, because at birth, very few synapses have been formed. The synapses present at birth are primarily those that govern our bodily functions such as heart rate, breathing, eating, and sleeping.

The development of synapses occurs at an astounding rate during a child's early years in response to that child's experiences. At its peak, the cerebral cortex of a healthy toddler may create 2 million synapses per second (ZERO TO THREE, 2012).

By the time children are 2 years old, their brains have approximately 100 trillion synapses, many more than they will ever need. Based on the child's experiences, some synapses are strengthened and remain intact, but many are gradually discarded. This process of synapse elimination—or pruning—is a normal part of development (Shonkoff & Phillips, 2000). By the time children reach adolescence, about half of their synapses have been discarded, leaving the number they will have for most of the rest of their lives (Understanding the Effects of Maltreatment on Brain Development, 2015).



Studies using MRI techniques show that the brain continues to grow and develop into young adulthood (at least to the mid-twenties). White matter, or brain tissue, volume has been shown to increase in adults as old as 32 (Lebel & Beaulieu, 2011). Right before puberty, adolescent brains experience a growth spurt that occurs mainly in the frontal lobe, which is the area that governs planning, impulse control, and reasoning.

During the teenage years, the brain goes through a process of pruning synapses—somewhat like the infant and toddler brain— and also sees an increase in white matter and changes to neurotransmitter systems (Konrad, Firk, & Uhlhaas, 2013). As the teenager grows into young adulthood, the brain develops more myelin to insulate the nerve fibers and speed neural processing, and this myelination occurs last in the frontal lobe. MRI comparisons between the brains of teenagers and the brains of young adults have shown that most of the brain areas were the same—that is, the teenage brain had reached maturity in the areas that govern such abilities as speech and sensory capabilities. The major difference was the immaturity of the teenage brain in the frontal lobe and in the myelination of that area (National Institute of Mental Health, 2001). Normal puberty and adolescence lead to the maturation of a physical body, but the brain lags behind in development, especially in the areas that allow teenagers to reason and think logically. Most teenagers act impulsively at times, using a lower area of their brains—their “gut reaction”—because their frontal lobes are not yet mature. Impulsive behavior, poor decisions, and increased risk-taking are all part of the normal teenage experience. Another change that happens during adolescence is the growth and transformation of the limbic system, which is responsible for our emotions. Teenagers may rely on their more primitive limbic system in interpreting emotions and reacting since they lack the more mature cortex that can override the limbic response (Chamberlain, 2016).

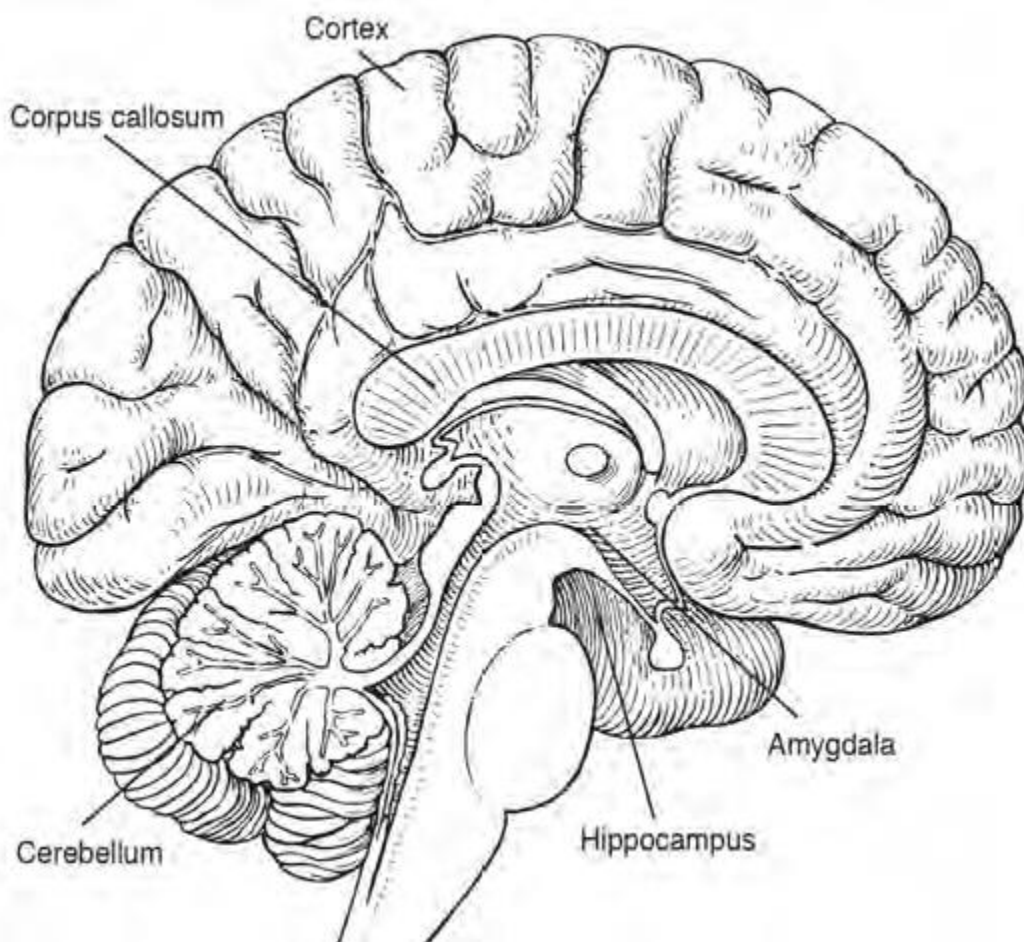
Since the brain develops in a hierarchical manner, where development begins from the brainstem and ends with the prefrontal cortex, it is understandable that at a young age, children do not fully understand adverse circumstances, or how to respond

to them, especially when their parents might be the root cause. The impact of these adverse circumstances on the developing brain, increases the risk for problematic outcomes over time. In understanding the development and function of the brain, we see where any form of trauma or perceived disruption to the normal activities of a child, from birth to adolescence greatly impacts their overall function. In thinking about this, we also must wonder about the impact that the coronavirus will have on children, birth to adolescence, in the future.

Maltreatment and Brain Development

Experiences that impact you on a biological level can certainly change the direction of your life, and impact your health, behavior and/or learning. The impact of neglect and abuse on the brain, while seen outwardly through the behaviors and actions of the child, has an unforeseen impact on the brain itself. In many cases there is:

- Decreased size of the corpus callosum; the primary function of the corpus callosum is to integrate cortical functioning—motor, sensory, and cognitive performances—between the hemispheres
- Decreased size of the hippocampus, which is important in learning and memory
- Dysfunction at different levels of the hypothalamic-pituitary-adrenal (HPA) axis
- Less volume of the prefrontal cortex, which affects behavior, balancing emotions and perception
- Overactivity in the amygdala, which is responsible for processing emotions and determining reactions to potentially stressful or dangerous situations
- Reduced size of the cerebellum, which can affect motor skills and coordination



Brain Diagram

Credit: Tapert, S. F., Caldwell, L., & Burke, C. (2004/2005). Alcohol and the adolescent brain: Human studies. *Alcohol Research & Health*, 28(4), 205–212.

Child abuse, neglect, and trauma in changing brain structure and chemical function, can also affect the way children behave, regulate emotion and function socially. These potential effects include:

- Being constantly on alert and unable to relax, no matter the situation
- Feeling fearful most or all the time
- Finding social situations more challenging
- Learning deficits

- Not hitting developmental milestones in a timely fashion
- A tendency to develop depression or an anxiety disorder
- Low self-esteem
- A weakened ability to process positive feedback

These effects are causally related to how well a child/adolescent can learn and will perform academically. If a student is not engaged because they are dealing with maltreatment, that becomes a distraction to their learning process. Despite the scope of the problem of child maltreatment, the long-term effects of early physical maltreatment remain unclear.

A personal story

I was 13 years old when my mother started to abuse me. My brother was 9. I was her target, for more reasons than one. The woman who I felt should have protected me from the man who raped me, took the anger she felt about the whole incident, out on me. Being one of the youngest students in my high school, adjusting to the anger my Mom was inflicting on me with the 4 am beatings, while adjusting to a new country, is not what anyone wants to be faced with at any point in time in their life, yet here I was in the thick of it. I was awakened almost every morning at 4 am to the pounding of my mother's fists to my head or backed in a corner of the bathroom while I got myself together for school, to fists that took aim at my head. School became my only hope and escape from everything that was going on at home.

My teachers saw in me, the person I hoped my mother knew, and if not, would someday see. Academically, I excelled and looked forward to everyday that I would be in classrooms where my teachers never became angry. In my mind, if I were to fail in school, I would blow any chance I would have to attend college, and I would end up dead. I had educators who took the time to nurture us as students, taking the time to guide us, to make us learn and understand. However, I had very few friends, and spent most of my time either in the library, or in the Research Chemistry Lab. I felt that if any of the students in the school knew what I was going through, they would make fun of me. I also knew, that while I was quiet, and kept to myself, there was a rage growing inside me that I would not be able to control if triggered by the wrong thing. The adults who knew, ensured that I received the counseling I needed, and when they made their reports to children's services and saw how they were handling the case, they worried about my safety.

Fortunately, because of my hard work in school, the support of the educators in my school, and a judicial system that took the time to understand what I had suffered through for three years, I embarked on one of the greatest experiences of my life, I started college. For my brother, it was vastly different.

Bearing witness to the abuse my mother inflicted on me, affected him as much as it affected me. Add to that the fact that my mother really did not give us the time or even wanted to get to know us or what we were doing in school. The phone calls to home would come about my brother, but my mother was never there to answer them. He started hanging with a group of children who did not want to be in school and were runners for a drug dealer. While my brother was never being physically abused by my

mother, she did not spend the time to nurture him as he navigated throughout his childhood. I became his mother and protector, returning calls to his teachers and checking his homework, begging my mother not to let him see her beat me. By the time I went to college, my mother sent my brother to live with one of my uncles in Pennsylvania while she moved to Florida. He acted out in school, and by the time he became a teenager, had been in more fights than I could count on both hands. When I turned 21 and found him after years of not seeing him, I was able to get him some help to manage and deal with his anger, for him to finish high school, after bringing him to live with me.

Over the years, the impact of the rape and abuse did not impact me in a negative way academically, but privately, it has impacted my sleep patterns and the way in which I have done things throughout my life. As for my brother, the abandonment, coupled with the neglect from his mother and witnessing my abuse, has had lasting effects on him, even today.

Conclusion

In several studies it revealed that neglected and abused children performed more poorly than children who did not experience maltreatment. In many cases of maltreatment, the children/adolescents had low academic performance, getting low grades in school, more suspensions, more disciplinary referrals, and or repeated grades. While children/adolescents who suffered from neglect alone and neglect in combination with physical and sexual abuse received lower grades and more suspensions, the combination of abuse and neglect had a particularly strong effect on the number of

disciplinary referrals and grade repetitions. As many of these children who experienced neglect and abuse got older, the number of disciplinary referrals increase, which ultimately impact their learning, exacerbating a decline in academic performance causing many of them to drop-out of school. The long-term effects of maltreatment on psychological, behavioral, and academic progress, while they might vary, in many cases can be treated to prevent the maladaptive outcomes for which they are at risk.

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