The Effects of Psychological Trauma

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Abstract

Psychological trauma affects individuals of all ages and cultures with lasting consequences that can be damaging and detrimental to one’s health and well-being. The purpose of this literature review is to analyze the neurological changes that occur in response to psychological trauma, specifically examining the differences between childhood, adolescent, and adulthood trauma through a neurological and Adlerian lens. In addition, the physiological components of the brain will also be explored. The amygdala and the hippocampus are two brain structures involved in emotional processing and memory that are particularly important in the processing of trauma. The Adlerian conceptualization of trauma will be discussed; along with the Adlerian concepts of lifestyle, mistaken beliefs, and private logic, and how they all contribute to the individual’s response to psychological trauma.
The Effects of Psychological Trauma

There are many types of trauma. Trauma can occur at any stage in life and can include emotional, physical, and psychological trauma. Psychological trauma occurs when an event or events of high stress occur and create long-term effects. Often serious psychological trauma is referred to as complex trauma. Some examples of psychological trauma can be caused by sexual abuse, physical abuse, verbal abuse, or life threatening situations. For example, experiences in the war or severe car crashes. During childhood and adolescence, the brain is still developing; as the brain develops it is more sensitive to psychological trauma as the neurological structures of the brain are vulnerable. Trauma has long term effects that may begin in childhood, but can still impact the neurological structures of the adult brain, leading to cognitive distortions and physiological symptoms.

Psychological trauma is common among youth and has long-term effects. According to Garret et al. (2012), “more than 68% of youth had experienced a traumatic event by 16 years of age, and more than 20% of these children subsequently suffered from problems in school, emotional difficulties, and physical ailments” (p. 449). Based on these statistics, it is important for mental health practitioners to understand the effects of psychological trauma. Because neurological differences are difficult to detect, it is also important for mental health practitioners to be able to recognize the symptoms and effects (e.g., Post Traumatic Stress Disorder) of trauma as outlined in the Diagnostic Statistical Manual of Mental Disorders, 5th ed. (DSM-5; American Psychiatric Association, 2013), as well as the neurobiological components of trauma. This literature review will provide an overview of PTSD, the neurobiological components of trauma, and finally how trauma is viewed, through the lens of Adlerian Psychology for children, adolescents, an adults. First, it is important to define some key Adlerian Psychology terms.
Major Concepts and Terms

The following definitions are given to provide clarity of major Adlerian terms and concepts that were used in writing this literature review:

**Adlerian Psychology:** Adlerian psychology is a strength-based and holistic psychology

**Early Recollections:** Technique used by Adlerians to explore an individual’s childhood. The events that occur in childhood influence an individual’s core beliefs. These beliefs guide the individual’s movement through life. Early recollections demonstrate an individual’s connecting themes that unify his/her actions.

**Lifestyle:** An individual’s approach to life based on patterns of beliefs, perceptions, attitudes, relationships, and actions formed throughout life. The lifestyle reflects the meaning individual’s give himself/herself and the meaning individual’s give to the world.

**Private Logic:** The individual perspective based upon the unique thoughts, beliefs, and life-style of an individual. The private logic is the reasoning an individual creates to justify his/her lifestyle.

**Mistaken Belief:** Distorted beliefs based upon what an individual has concluded about himself/herself, the world, and relationships.

**Post Traumatic Stress Disorder**

Psychological trauma is likely to lead to post-traumatic stress disorder (PTSD), a psychological disorder that severely impairs one’s functioning. PTSD is a severe emotional reaction to trauma, which severely impairs the person, causing problems with his/her psychological and physiological well-being. According to the DSM-5, PTSD occurs when an individual has been exposed to actual or threatened death, serious injury, or sexual violence (American Psychiatric Association, 2013). This could be first-hand experience, witnessing, or
learning that someone close has experienced a trauma. The individual must also experience either recurrent distressing memories of the traumatic event, recurrent distressing dreams about the event, dissociative reactions in which the individual feels the traumatic event is recurring, intense psychological distress at internal or external cues representing the traumatic event, or marked physiological reactions to internal or external cues that represent the traumatic event (American Psychiatric Association, 2013). The individual must also demonstrate avoidance of stimuli related to the traumatic event. Individuals also suffer from negative alterations in mood, such as depression or extreme anxiety. The duration of these disturbances must surpass one month, and cause clinically significant distress that cannot be attributed to a substance. What mental health practitioners cannot see is the neurological components of trauma and how these influence the symptoms as outlined above.

**Neurological Components of Trauma**

According to Daniels, Lamke, Gaebler, Walter, and Scheel (2013), “It [trauma] is a severe stressor known to result in a cascade of physiological, neurochemical, and hormonal changes, which in turn can lead to enduring alterations in brain structure and brain function” (p. 207). Two of the main neurological structures impacted by psychological trauma is the hippocampus and the amygdala. Both structures are located in the limbic system, which consists of the hypothalamus, hippocampus, amygdala, and locus coerulues (See Figure 1). The amygdala is involved in fear conditioning and emotional processing and interpreting. The hippocampus stores cognitive aspects of memory and plays a role of integrating short-term memories into long-term memories (Painter & Scannapieco, 2013). The hippocampus plays a role in memory and learning. During repeated stress or an event of high stress, the development of neurons becomes inhibited. The inhibition leads to functional problems of memory and learning. The
hippocampus and the amygdala are particularly important in the physiological changes that coincide with trauma.

*Figure 1. Diagram of the Limbic System. Adapted from Intro to the Brain, by J. Alexander, Retrieved June 11th from http://jwalexander3.com/limbic/index.htm.*

**Amygdala**

The amygdala is a small almond shaped structure found in the temporal lobe of the brain. It is located in close proximity to the hippocampus, is involved in emotional functions and emotional processing. The amygdala becomes activated during times of stress, excitement, or heightened emotion. During a time of stress, the activation of the amygdala triggers the individual to have a fight or flight response. The function of the fight-or-flight response is used to assess a situation—such as an impending car crash—and react quickly. Individuals who have experienced trauma demonstrate an increased activation or reactivity in the amygdala (Rinne-Albers, van der Wee, Lamers-Winkelman, & Vermieren, 2013). According to Garret et al.
amygdala activation is associated with perceiving the emotional saliency of stimuli, and has a central role in fear conditioning and memory” (p. 450). The over activation of the amygdala may be related to an over processing of irrelevant stimuli (Depue et al., 2014). Over processing can cause an individual to be on high-alert at all times and can produce an increase in anxiety.

Individuals that have experienced psychological trauma also demonstrate a lower activation of the amygdala in response to perception of happiness (Felmingham et al., 2014). This implies that individuals that have undergone psychological trauma have a diminished positive affect and have a lack of response to positive events. Rather than having an increase or decrease in amygdala activation, there is dysregulation in amygdala activity (Nooner et al., 2013). The dysregulation can be either an increase or a decrease in amygdala activity; the dysregulation is not limited to one or the other. Aside from the Amygdala, the hippocampus undergoes structural changes when exposed to extreme stress.

**Hippocampus**

The hippocampus demonstrates reduction in structure size, and is common to see this reduction in individuals that have experienced psychological trauma (Starcevic et al., 2014). According to Astur, Germain, Tolin, Ford, Russell, and Stevens (2006):

The hippocampus has been shown to be critical for memory functioning and is damaged by chronic stress… research with rodents has shown that chronic stress damages the hippocampus. Because of this, it has been hypothesized that these structural abnormalities may be a consequence of the chronic stress that PTSD individuals undergo. (p. 235)
A reduction in hippocampal volume may result in failure to process contextual information (Levy-Gigi, Szabo, Richter-Levin & Keri, 2015). Failure in processing contextual information may cause an individual to be unable to differentiate a stressful event from a non-stressful event. The inability to differentiate these situations may lead to an increase in arousal known as hyper arousal. The increase in arousal would then trigger the amygdala to become activated and create a state of hyper vigilance. Barker and Hawes (1999) stated:

The hippocampal system, which receives information from the amygdala, plays an important role in processing and categorizing information cognitively as well as evaluating information temporally and spatially. Brain imaging studies show that the hippocampus has less volume in persons with posttraumatic stress disorder (PTSD)… This lowered hippocampal volume may particularly explain the difficulty that individuals with the disorder exhibit in distinguishing threatening from neutral stimuli and in reliving past events as if they were occurring in the present. (p. 148)

**Cause of Change in Hippocampus and Amygdala**

The hippocampus and amygdala are involved in the psychological symptoms of trauma due to a change in neurological structures. However, neurological structures do not change without a trigger. During a traumatic event a neurochemical influx occurs creating a change in the amygdala and hippocampus, as the stress of a traumatic event is not enough to create these changes.

Among the neurochemicals that are produced include the neurotransmitter glutamate, an amino acid known to play a role in neural communication, memory formation, and regulation. Glutamate is found throughout the human body as well as the brain. Glutamate functions as a excitatory [stimulating] neurotransmitter as well as the precursor for an inhibitory [inhibiting]
neurotransmitter. Because of this, glutamate can have both excitatory and inhibitory effects on neural structures. When an individual experiences a traumatic event or traumatic stress, the body produces high amounts of glutamate causing neural toxicity. According to Weniger, Lange, Sachsse, and Irle (2008):

Hyperglutamatergic activity may contribute to neural toxicity (i.e. hippocampal degeneration) in individuals who have been exposed to traumatic stress. Animal studies demonstrated that N-methyl-D-aspartate (NMDA) glutamate receptor activation inhibits hippocampal neurogenesis and increases the excitability of amygdala neurons. (p. 287)

Thus, high levels of glutamate are released during times of traumatic stress. The increase in glutamate creates neurotoxicity, which increases the excitability in the amygdala, causing an individual to become hyper vigilant. The increase in glutamate leads to inhibited neurogenesis in the hippocampal region causing a decrease in hippocampal volume. The decrease in hippocampal volume and increase in excitability in the amygdala translate difficulty engaging in social interest as well as hindered empathy toward others.

Another neurochemical, catecholamine, has an important role in the stress and fear response. Catecholamine is not a singular amino acid; it is a group of neurotransmitters. Included in the catecholamine group are epinephrine, norepinephrine, and dopamine. Catecholamines are involved in the stress and fear response in the brain. During times of stress, catecholamine production increases. When the production increases, an excitatory effect occurs on the amygdala. When the amygdala experiences an excitatory force, it is more likely to engage in heightened arousal. Although the neurological components of psychological trauma are vital toward understanding trauma, a psychological perspective can lead toward a better understanding of psychological trauma.
Effects of Psychological Trauma: Through an Adlerian Lens

Psychological trauma consists of events of high stress that involve heightened emotion, and a sense of peril. The effects of psychological trauma vary from person to person. Although neurochemistry plays a role in the effects an individual will experience after a traumatic event, neurochemistry cannot attest to all of the effects. All individuals view the world differently from their own subjective conscious and unconscious. By combining Adlerian concepts and neurochemical information, both the physiological and psychological elements of psychological trauma can be understood through a holistic lens.

Adlerian psychology is a strength-based and holistic psychology. Despite the negative effects of psychological trauma, Adlerians do not conceptualize trauma as a disability, but rather an opportunity:

[Trauma] patients possess a history of traumatic experiences. They may, however, learn to use their experiences for socially constructive ends… Taking into account the marvelous human adaptive capacity, compensation, in the Adlerian sense, may lead to exceptional capability rather than disability. (Blackburn, O’Connell, & Richman, 1984, p. 326)

According to Adler, traumatic events can affect individuals differently based on their life-style and private logic:

No experience is a [direct] cause of success or failure. We do not suffer from the shock of our experiences –the so-called trauma- but we make out of them just what suits our purposes… There is probably always something of a mistake involved when we take particular experiences as the basis for our future life. (Ansbacher & Ansbacher, 1956, p. 208)
Similar to the Adlerian concept of life-style, the individual’s interpretation of a traumatic event builds on his/her private logic. According to Maschi, Baer, Morrissey, and Moreno (2012), “A person’s subjective response to traumatic events can be psychological, and/or physiological and survivors may be affected in a variety of ways across the different stages of the life span: childhood, adulthood, and other adulthood” (p. 49).

**Trauma and Children**

Childhood is a time when individuals are the most vulnerable to the impact of trauma, both neurologically and psychologically (Lawson & Quinn, 2013). As stated by Rinne-Albers, van der Wee, Lamers-Winkelman, and Vermieran (2013) “The maturation of the human brain is a complex process which lasts into early adulthood and can be strongly influenced by experiences” (p. 745). A crucial time for brain development, trauma can cause alterations in neurochemistry that result in changes in brain structures. The neurotransmitters that fall into the category of catecholamines have an impact on the amygdala and hippocampus. High levels of stress—such as trauma—lead to an increase in catecholamine production. The increase in production strengthens fear conditioning that is mediated by the amygdala (Painter & Scannapieco, 2013). Strengthened fear conditioning during childhood can lead to a state of hypervigilance throughout adulthood. Similar to the Adlerian concept of early recollections, the events that happen during childhood influence an individual’s methods of operation in life (Hyer, Woods, & Boudewyns, 1989).

The hippocampus is constantly developing during childhood. Similar to the amygdala, the increase in catecholamine activity influences the hippocampus. Aside from an increase in catecholamine production, chronic stress in childhood creates an increase in glutamate production. The increase in glutamate leads to neurotoxicity, which inhibits neurogenesis. By
inhibiting the neurogenesis, the hippocampus experiences deficits. The deficits translate to difficulty with memory and children may have a difficult time transferring short-term memory into long-term memory as memory consolidation is hindered.

**Effects of Childhood Trauma**

The combination of increased sensitivity in the amygdala and deficits in the hippocampus can lead to a state of hypervigilance or hyperarousal. Because of this, memories can be imprinted with the corresponding emotion. This can cause a child to re-experience a traumatic event or portions of the traumatic event in response to a single trigger. For example, if a trauma occurred to a child while in a car, the sound of a car horn could trigger the child to re-experience the feelings he/she experienced during the trauma. As stated by Painter and Scannapieco (2013):

> Children who have experienced a serious traumatic event or events remain in a state of hyperarousal or dissociation. Hyperarousal occurs when children who are exposed to chronic, traumatic stress develop pathways in their brain for fear response and create memories that automatically trigger the response without cognitive thought. (p. 280)

When a child is in a state of hyper arousal, his/her level of affective and physiological arousal lead to a tendency to interpret small demands as dangerous and anxiety provoking (Lawson & Quinn, 2013). When a child has an increased level of anxiety, the level of focus for tasks such as schoolwork decreases. The smallest tasks that may be easy for children can create great levels of anxiety in a child that has experienced abuse. Edwards and Karnilowicz (2013) stated, “A child’s capacity for thinking and reflection is impaired by physical abuse and neglect” (p. 324). Although psychological trauma is not necessarily physical abuse or neglect, a child is impacted by the trauma. According to Levy-Gigi, Szabo, Richter-Levin and Keri (2015), “Human models argue that hippocampal deficit may result in failure to process contextual information” (p. 151).
A difficulty in processing contextual information may present itself as a learning disability in a child.

Aside from a difficulty with tasks such as those found in a classroom, a child that has experienced trauma may present with physical symptoms. During childhood, language is still developing and young children may not have the ability to express their feelings or fully understand the traumatic event. According to Liebenberg and Papaikonomou (2010), “Emotional pain among traumatized individuals, who had lost the ability to put words to their traumatic experiences, could result in physical symptoms as a symbolic way of communicating their inner emotional distress” (p. 333).

Adlerian Conceptualization of Childhood Trauma

Childhood is a time where development occurs in all aspects of a child’s life. Particularly, social interest is being developed and nurtured. In childhood, social interest translates to childhood friendships, the desire to be a part of a group and contribute to the well-being of the group. Part of social interest is the development of empathy for others. According to Ansbacher and Ansbacher (1956) the development of empathy depends on the degree of social interest, which is essential to the achievement of social living. Childhood trauma can impact and hinder the development of social interest. As the ability to have empathy must be taught, according to Ansbacher and Ansbacher (1956) “[children must] grow up in relation to others and feel a part of a whole” (p. 136). When children are exposed to trauma, the ability to develop empathy is hindered. While in a state of hyper arousal or hyper vigilance, the child is unable to focus on the emotions others. Over time, this can be detrimental to the emotional well-being of the child.
During childhood, children observe the world and create subjective beliefs of the self, others, and the world. The beliefs then create the foundation for the child’s lifestyle. According to Adler:

Because the individual adopts a certain particular approach, a certain attitude, a certain relation toward the problems of the outside world (the outside world includes the experience of one’s own body), anything that does not fit in this early-adopted attitude is more or less excluded, or it is wholly or in part stripped of its intellectual content and objective meaning and is interpreted in accordance with the individual’s view of the word.

(Ansbacher & Ansbacher, 1956, p. 191)

Thus, the child forms his or her lifestyle at an early age. Over time the lifestyle becomes an automatic reaction to the world the child experiences. A belief formed early on in life can be a mistaken belief. That belief becomes automatic and the child will subconsciously hold that belief into adulthood.

**Trauma and Adolescents**

The neurological changes in adolescents are very similar to the neurological changes seen in children. While the brain is still developing, it remains more vulnerable than the adult brain, though less vulnerable than the child brain. As the brain develops, cells travel and grow, a process called myelinization helps speed up the process. Myelinization is when a waxy substance called myelin coats the neurons as a way to speed up the transmission of cells. During adolescence, the myelinization occurs in higher brain centers, such as the prefrontal cortex. The prefrontal cortex —located in the frontal lobe— is responsible for higher-level activities, such as strategic planning, organization, and analysis of information. At times, the brain will engage in synaptic pruning, which is a reorganization of cells. Pruning allows the brain to reorganize and
specialize, thus leading to an increase in prefrontal activity and higher-level thinking (Shaffer & Kipp, 2010). Due to trauma, the pruning process is hindered, and prefrontal activity is delayed. This presents itself in the individual responding emotionally rather than rationally and thoughtfully. Specifically, the adolescent may react and say things without thinking them through.

In response to trauma, the neurotoxicity leads to a reduction in hippocampal volume, affecting memory storage. The decrease in hippocampal volume will continue over time into adulthood, as it is not reduced immediately. The amygdala becomes over-activated in response to the high levels of catecholamine and glutamate. The increase in catecholamine production is responsible for the strengthened fear conditioning, and the increase in glutamate is responsible for the neurotoxicity. The effects of catecholamine and glutamate can impact the individual’s journey toward autonomy during adolescence.

Effects of Adolescent Trauma

During adolescence, the life a child becomes autonomous, striving to develop a unique identity. Adolescents have a more developed language, and thus can have a better understanding of trauma and are more likely to verbalize his or her experiences. Adolescents can present with symptoms such as stomachaches or headaches as adolescents can somaticize the trauma. Although adolescents have language, the frontal lobe, which is responsible for reasoning, is not fully developed. Because of this, adolescents may not be able to fully process the trauma verbally and thus present with physical symptoms, such as irrational or acting out behavior. (Cromer & Sachs-Ericsson, 2006).

Similar to children, adolescents may enter a state of hyper arousal. The hyper arousal increases the reactivity of the adolescent and in turn can affect the individual’s school-work
(Lawson & Quinn, 2013). When an adolescent is in a state of hyper arousal, the individual’s level of focus decreases. Because the individual is constantly on high-alert, it is difficult to maintain focus for prolonged periods of time. Unlike children, adolescents are required to focus for longer periods of time and focus more in-depth. Thus, it may appear that adolescent’s demonstrate a higher decrease in schoolwork than children. Adolescents that demonstrate a low tolerance for managing stress are less likely, and at times unwilling, to seek assistance from others “when their own resources are depleted” (Green & Myrick, 2014, p. 142.) Because of this, adolescents may internalize the trauma, which can lead to a decrease in peer involvement as well as a decrease in self-esteem.

**Adlerian Conceptualization of Adolescent Trauma**

Social interest is vital at this stage in life. When an adolescent is involved in extracurricular activities, the individual maintains a healthy level of social interest, which in turn leads to a healthy self-esteem. Individual’s engaged more in social interest demonstrate higher levels of resilience. Resilience consists of the capacity and skills needed to overcome obstacles.

In adolescence, the individual experiences many changes both psychologically and physiologically. As the individual develops, he or she becomes more set in his or her ways. The interpretation the adolescent gives to the trauma can impact how the trauma will affect the individual. According to Adler:

> It is not the child’s experiences which dictate his actions, it is the conclusions which he draws from his experiences… there are no reasons for the development of character; rather, a child can make use of experiences for his goal and turn them into reasons. We cannot say, for example, that if a child is badly nourished he will become a criminal. We
must see what conclusion the child has drawn [from this experience]. (Ansbacher & Ansbacher, 1956, p. 209)

Based upon this concept, an adolescent’s experiences and the interpretation of these experiences contribute to the beliefs the adolescent has. Adolescents have a more mature brain than children, to develop beliefs and conclusions that becomes part of his or her identity. Thus, the adolescent’s lifestyle is more concrete than the child’s and the reaction to trauma is more likely to reflect his or her beliefs.

**Trauma and Adults**

Similar to the neurological effects of trauma in children and adolescents, the changes in neurotransmitter levels lead to a change in the functioning of the amygdala and hippocampus. While the brain is not in a crucial stage of development, the brain is constantly in a stage of change. Responding to the environmental and neurochemical changes, the brain adjusts accordingly. Hyper-arousal in the amygdala can occur, making an adult feel “on edge” which can translate to a sense of paranoia. Difficulties in consolidation of memories in the hippocampus can also occur. Due to the age of an adult he or she is more likely to experience problems with physical health. This is due to the increase in neurotransmitters that can lead to neurotoxicity. The neurotoxicity does not solely affect areas in the brain; the entire body is affected by an increase in neurotransmitters. High levels of glutamate and cortisol are detrimental, during adulthood the human body takes longer to recover, and thus may demonstrate an increase in physical problems. Thus, adults may experience significant ailments.

**Effects of Adulthood Trauma**

Despite the increased ability to understand and process the trauma, psychological trauma still affects an individual in adulthood. In adulthood, language has developed significantly;
adults are able to explain his or her symptoms through a wide array of vocabulary. Because of this presence, adults are less likely to somaticize their symptoms and are more able to discuss and understand the traumatic event. It is more likely an adult will present with symptoms of depression and anxiety. As noted by Winje (1996), “post-traumatic stress symptoms are primarily related to the processing of the traumatic event itself, whereas depression and anxiety are more closely related to adjustment to loss and the shattering of the person’s assumptions about the world as safe, just, and predictable” (p. 1038). This can lead to a shattered sense of personal identity, worth and belonging (O’Connell & Hooker, 1996).

In adulthood, when an individual experiences trauma, their ability to handle life-stressors decreases. For example, a study by Regehr et al. (2007) found that after an adult is exposed to a trauma, he/she experiences higher levels of psychological distress following an acute stress situation. Because of the lowered tolerance for stress, an adult may present with difficulties completing every-day tasks. For example, an adult with a lowered tolerance for stress may overreact and become distraught if the vacuum breaks while cleaning his or her house.

**Adlerian Conceptualization of Adulthood Trauma**

In adulthood, the adult’s lifestyle and level of resiliency can be an indicator of the individual’s ability to cope with trauma. An individual that presents with anxiety symptoms prior to a traumatic event will be more likely to amplify negative emotional reactions (Ogle, Ruben, & Siegler, 2014). Similar to the Adlerian concept of early recollections, the way an individual views the world during childhood is directly correlated with the way an adult views the world.

Adlerians do not conceptualize an experience as a direct cause of failure. For example, an individual that experiences difficulties after enduring a psychological trauma possess the
ability to transfer the negative event and the effects of the trauma to an exceptional capability. Similar to the Adlerian concept that things can also be different, the effects of the trauma do not need to be debilitating. Human beings possess the ability to adapt in response to environmental factors. Working through the mistaken beliefs of the lifestyle, an individual can over-come the negative effects of psychological trauma.

**Conclusion**

As children, the brain is still developing. This leaves the brain more vulnerable than the adult brain to neurological changes. However, the adult brain is also vulnerable to the effects of trauma. Although the neurological changes cannot attribute for all of the psychological distress of trauma, the changes certainly play a key role. During a highly stressful event, the body creates an excessive amount of glutamate. In excess, glutamate can lead to neurotoxicity. The neurotoxicity plays a role in the inhibition of hippocampal growth and the excitability of the amygdala. Increased catecholamine production can attribute to the increase in excitability experienced by the amygdala. The neurochemical changes in reaction to a traumatic event lead to a reduction in hippocampal size, which can lead to difficulty with memory consolidation and retrieval as well as difficulty differentiating a stressful event from a non-stressful event. The neurochemical change can lead to a heightened reactivity of the amygdala. When the amygdala becomes aroused easily, the individual experiences a state of hyper arousal where it is difficult for him or her to relax, leading to tense and terse behaviors.

In children, trauma can be expressed in the form of somatization such as constant stomachaches or recurring bed-wetting. The child may be disengaged from peer relations. From an Adlerian perspective, the desire to engage in peer relations as a child is a form of social interest. Trauma can hinder the development of empathy, which is necessary for the
development of social interest. Adolescents demonstrate similar manifestations of trauma, such as somatization or a decrease in school performance. Adolescent brains are less susceptible to neurological change than children, yet more susceptible than adults. In adults, trauma typically presents itself in the form of anxiety or depression. Adults that have experienced trauma demonstrate a decreased ability to handle stress.

In conclusion, psychological trauma affects individuals at any stage of life. From an Adlerian perspective, one’s lifestyle can impact the severity of the symptoms. The culture and context in which an individual experienced trauma is important to note as this can change the impact of the trauma. Psychological trauma is both a neurological and psychological change that has a substantial impact on individuals. It is important for mental health practitioners to understand the neurological changes that occur when an individual is exposed to trauma. When mental health practitioners have a better understanding of the effects of trauma, he/she will be able to help the patient in a more effective manner. It is also important to understand that the effects of trauma are more than lingering thoughts and disturbances; it involves a chemical change that can affect functioning as well.
References


Liu, L., Sun, T., Liu, Z., Chen, X., Zhao, L., Qu, G., & Li, Q. Traumatic brain injury dysregulates microRNAs to modulate cell signaling in rat hippocampus. *Public Library of Science, 9*(8), 1-19.


