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Creative Therapies, Complex Childhood Trauma, and Neurological Improvement: How the Arts
can Enhance Neuroplasticity: A Literature Review

Capstone Thesis

Lesley University

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Expressive Art Therapy

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Abstract

This literature review examines the ways in which creative arts therapy can enhance neuroplasticity after experiencing chronic and severe trauma. Trauma that occurs in childhood can negatively impact neurotypical brain development. Trauma experienced in childhood often leads to dysregulation or deficits in attachment, executive functioning, memory, and emotion regulation. This review outlines and defines complex developmental trauma, neurotypical brain development and brain structure, neurological impacts of trauma, and examines the use of single creative arts modalities for therapeutic treatment. This literature review shares research on the creative therapies focusing on single modalities such as: dance/movement, music, drama, and art, and investigates the use of a multimodal expressive arts approach for the treatment of childhood trauma.

Creative Therapies, Complex Childhood Trauma, and Neurological Improvement: How the Arts
can Enhance Neuroplasticity: A Literature Review

Introduction

This thesis capstone sought to examine the ways in which trauma - that is either physical, emotional, or sexual in nature, experienced in childhood - negatively impacts brain structure and functioning. This literature review will examine the ways a creative arts approach can enhance neuroplasticity and aid in the current understanding of trauma informed care.

Brain function and development can shift in a variety of ways due to the severity of the trauma response; however, what is important is the neurological rehabilitation that comes afterwards. The brain is a complex organ responsible for our decision making, visual and verbal processing, memory, emotions, movement, and so much more. So, how does the brain respond when something compromises its neurological health? For example, what is the brain's response when impacted by emotional, psychological, sexual, physical, or verbal abuse or neglect?

The Diagnostic and Statistical Manual of Mental Disorders – Fifth Edition (DSM-5) outlined “trauma and stressor-related disorders include disorders in which exposure to a traumatic or stressful event is listed explicitly as a diagnostic criterion. These include reactive attachment disorder, disinhibited social engagement disorder, posttraumatic stress disorder (PTSD), acute stress disorder, and adjustment disorder” (APA, 2013).

How can the current understanding of trauma-informed treatment, integrated into the current understanding of creative arts therapy, enhance the impact of neuroplasticity?

Neuroplasticity is defined in Klorer (2005) as “the brain's ability to change its structure in response to environmental stimuli” (Klorer, p. 214). While most changes happen before birth through the first four years of life, the brain remains plastic and transforms throughout the

lifespan. Depending on environment and early childhood experiences, however, the brain will either take on maladaptive responses or will become more enhanced (Dieterich-Hartwell, 2017). If the brain responds negatively to perceived threat or danger or to a history of abuse and neglect, therefore, the brain should, in turn, respond positively to therapies.

The method of neuroenhancement depends on the individual and the individual condition. Lusebrink (2010) found the utilization of the arts is integral in activating specific sections of the brain such as the occipital lobe, basal ganglia, along the limbic regions and sensory areas of the cerebral cortex. “Art therapy accesses sensory and affective processes on basic levels that are not available for verbal processing. Experiences, images, thoughts, and feelings are expressed using formal art elements and their variations in different combinations” (Lusebrink, p. 176).

This topic is important because examining the way the brain responds to the creative therapies after trauma occurs can play a role in the therapies offered during an individual’s neuroenhancement. Additionally, examining the neurological responses after engaging in the arts can add further validity to the field of creative therapies as a legitimate form of therapy.

Literature Review

In this literature review I examine the ways in which trauma plays a negative effect on brain structure and functioning and the ways that the creative therapies can aid in the current treatment of trauma. This review will examine the research that has been gathered about neuroimaging, brain structure and functioning, creativity, complex developmental trauma, and visual and verbal processing. Additionally, this paper will examine the use of single modalities such as music therapy, art therapy, dance/movement therapy, and drama therapy working with those who have experienced psychological, emotional, and physical trauma.

This paper will share research that supports the benefits of utilizing the creative therapies in treatment of trauma and argue for the benefits of an multimodal approach. This literature review has been broken up into three categories: Impacts of trauma, the use of the creative therapies in treatment of trauma, and areas for further research. The literature included was found through research utilizing the Lesley University Library online database.

Impacts of Trauma

Trauma can be experienced in varying ways and severity. This thesis will focus on four different forms of maltreatment: neglect, physical abuse, emotional abuse, and sexual abuse. Due to the amount of literature found, this thesis will focus on trauma specifically experienced in childhood, and the lasting effects trauma has from the time experienced leading into adulthood.

The Diagnostic and Statistical Manual of Mental Disorders – Fifth Edition (DSM-5) currently does not include Complex Developmental Disorder separately but does categorize it with the diagnosis of Post-Traumatic Stress Disorder (PTSD) (Wamser & Vandenburg, 2013). Given the complexity of trauma and the growth and changes the developing brain experiences in childhood, there has been a need to advocate for a separate definition for PTSD in children. Much of the reviewed literature argues for the categorization of complex developmental trauma. Wamser & Vandenburg (2013) defines complex trauma as “chronic, interpersonal traumas that begins in childhood. It includes child sexual, physical, and emotional abuse; neglect; or witnessing domestic violence” (Wamser & Vandenburg, 2013, p. 672). “The World Health Organization (WHO) cites the global impact of violence on children is a public health issue” (Evans & Coccoma, 2014, p. 49).

Evans and Coccoma (2014) stated “an estimated 150 million girls and 73 million boys have been victims of some sort of sexual violence; this form of violence most commonly occurs

within the home by a perpetrator known to the child” (p. 49). Van der Kolk (2014) noted the different ways that children and adults witness or experience trauma in varying relationships stating “research done by the Centers for Disease Control and Prevention has shown that one in five Americans was sexually molested as a child; one in four was beaten by a parent to the point of a mark being left on their body... A quarter of us grew up with alcoholic relatives, and one out of eight witnessed their mothers being beaten or hit” (p. 1).

Complex trauma differs from PTSD because complex trauma specifically refers to repetitive traumatic events experienced in childhood. These events are chronic, interpersonal, and extensive and can influence healthy brain development which can cause more severe symptoms into adulthood, whereas PTSD does not distinguish between traumatic exposure and is typically diagnosed after single traumatic events rather than chronic traumatic events (Wamser & Vandenberg, 2013). “A more complex PTSD caused by neglect, abuse, violence, and betrayal during childhood or repeated traumatic events can lead to chronic traumatization. Common symptoms of complex post-traumatic stress disorder are dissociative symptoms, feelings of shame, fear of others and self, leading to isolation from social interaction” (Gerge, 2017, p. 107).

When examining the prevalence of a PTSD diagnosis in children versus adults, childhood prevalence has been found to be lower than that of adults. This is not to say that children do not experience PTSD or trauma-related difficulties but rather the experienced trauma may cause developmental modifications. This does not negate the diagnosis of PTSD, but rather argues that the PTSD diagnosis is not enough to truly capture the effects of prolonged trauma experienced in childhood (Wamser & Vandenburg, 2013). Terr (2003) defined two types of trauma in childhood: “the first is where a single event delivers a blow that reorients the child away from safety and security, and the other where childhood is a series of unrelenting repeated ordeals.

Fryman and McClellan (2014) stated that experienced trauma often impacts a child's executive functioning within the brain. Executive functioning (EF) is a set of cognitive skills that allow individuals to process or organize experiences. Therefore, this represents the way information is interpreted, absorbed, and processed from the world (Fryman & McClellan, 2014).

Neurotypical Brain Development

In order to truly understand the ways in which trauma negatively impacts the brain, it is important to note the ways in which the brain typically develops. Before birth and throughout the first four years of childhood, the brain has its most rapid development with more than 80% of structural changes.

Van der Kolk (2014) outlined the development of the brain starting in utero. The brain typically develops in three parts, developing from the bottom up, starting with the brain stem. The brain stem, also known as the reptilian brain, is responsible for the most basic needs such as sleep, hunger, breathing, and chemical balance. The brainstem remains responsive to threat throughout the lifespan.

After the development of the brainstem follows the development of the limbic system. The limbic system mainly develops throughout the first six years of life but continues to evolve as it takes in new information. The limbic system is responsible for emotional relevance, categorization, and perception. Trauma can impact this section of the brain in significant ways throughout the lifespan (Van der Kolk, 2014). When a child experiences chronic sexual abuse, gray matter reduces in volume by 14.1%

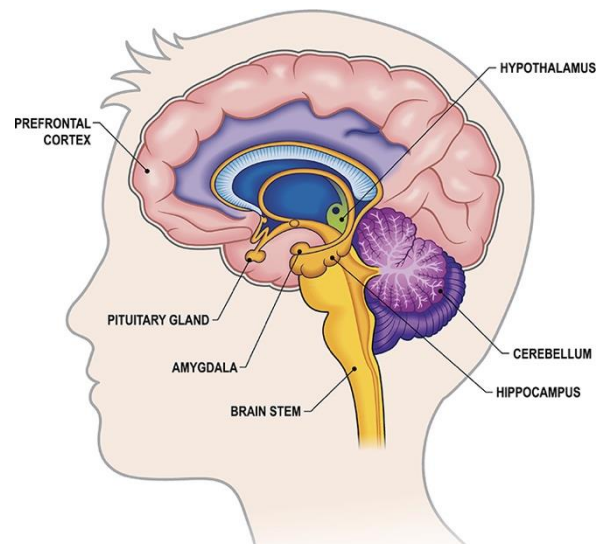


Figure 1 The Limbic System (Queensland Brain Institute, 2019)

in the left primary and secondary visual cortex of the brain. Additionally, when a child experiences chronic verbal abuse, gray matter reduces in volume by 11.4% in the left superior temporal gyrus, which is the part of the brain that is responsible for speech, language, and communication (Bray, 2016). The limbic system is comprised of the basal ganglia (movement, rewards, habits), thalamus (sensory processing), hippocampus (memory and learning), amygdala (emotion), and the hypothalamus (body function regulation i.e. thirst, hunger) (Queensland Brain Institute, 2019). Lastly comes the development of the prefrontal cortex. This section of the brain is responsible for planning, empathy, time and context, and the filtering of inappropriate actions. This section of the brain is also significantly impacted by trauma by being unable to filter out the irrelevant information. “Throughout life it is vulnerable to go off-line in response to threat” (Van der Kolk, 2014, p. 59).

Attachment

Klorer (2005) noted that when a baby is born 100 billion neurons are present in the brain. When a neuron is stimulated it becomes a neuropathway. If it is not stimulated, it withers away. This can be true for many different aspects of development. Additionally, normal brain development relies heavily on the relationship between infant and the primary caregiver. Through attachment the baby’s brain learns emotional surroundings within the attachment relationship, psychological and physiological development, affect regulation for coping and survival, self-regulation to stress, and visuospatial and language abilities (Klorer, 2005).

Throughout development when a child is in a secure environment, the interactions act as an organizational tool for the child’s biobehavioral regulation, therefore, helping the brain develop appropriately (Klorer, 2005). Additionally, violence can “literally change the structure of the brain which can result in dysfunction in fear extinction, cognitive reasoning, emotion

regulation, and attachment (Evans & Coccoma, 2014, p. 49-50). Pur (2014) noted that attachment bond is formed during the very early and non-verbal developmental stage of infancy, therefore, right brain development cues potential danger which is processed and later becomes triggers of a danger response in later years of life (Pur, 2014).

Neurological Impacts of Trauma

Children who experience trauma have the most microarchitecture and structural changes within their brain. These changes can lead to deficits in impulse control, mood regulation, and learning difficulties. “Complex trauma events are theorized to impair self-regulation, resulting in problems with regulation in affect, behavior, impulses, attention, and consciousness, as well and interpersonal and identity problems” (Wamser & Vandenberg, 2003, p. 672).

Examining the ways in which the brain develops with poorly attached or traumatized children, Klorer (2005) states, “traumatic attachment histories affect the development of frontolimbic regions of the brain, especially in the right vertical areas that are prospectively involved in affect regulating functions. Evidence shows that early relational trauma is expressed in the right-brain which can create deficits in the processing of social, emotional, and bodily information” (Klorer, 2005, p. 214).

In order to understand the best ways to treat trauma, it is important to understand how trauma is stored in the brain. Klorer (2005) noted “traumatic memories may be stored in the right cerebral hemisphere, which would make verbal declarative memory of the trauma more difficult” (p. 216). Research shows through positron emission tomography (PET) scans, the right brain is dominant until the age of three. Developmental changes happen in the right hemisphere – responsible for visuospatial, then the left hemisphere - responsible for language abilities. Left hemisphere equals logic and reasoning and right hemisphere equals emotional regulation and

creativity. The brain processes memories and attachment in the right hemisphere of the brain. Additionally, the right hemisphere controls sensorimotor perception and integration, and social-emotional input. The right hemisphere of the brain is dominant for the first three years of life. Since experiences are processed through the part of the brain that is either preverbal or nonverbal, nonverbal therapy methods are effective, including Theraplay, sandplay therapy, dance and movement therapy, touch therapy, eye movement therapy, nondirective therapy, nondirective play therapy, and others (Klorer, 2005).

Chugani et al. (2002) as cited in Klorer (2005) applied PET scans to a group of 10 adopted Romanian children all over the age of 6. Upon reviewing the neuropsychological assessments, it showed that the adoptees had attention and social deficits, impulsivity, and mild neurocognitive impairment along with deficits in memory, language processing, and executive functioning (Klorer 2005). Additionally, other studies conducted with severely maltreated children have found “the earlier during childhood the abuse occurs, the more severe the effects on intracranial volumes....and that may have a cumulative effect on adverse aspects of brain development” (Klorer, 2005, p. 215). Bremner (2001) found there was “a 12% reduction in left hippocampal volume in patients with abuse-related PTSD” (p. 171).

Oftentimes when met with a traumatic experience our brains react to survive: fight, flight, or freeze. In order to understand survival reactions in the context of processing trauma experiences, it is important to know how experiences are processed throughout the brain. When experiencing trauma, our “thinking brain” (neo-cortex) shuts down and the mid-brain (reptilian brain and mammalian brain) takes over. This means the amygdala is alerted and signals the sympathetic nervous system to release chemicals to the limbic system, engaging either a flight, fight, or freeze response. Additionally, the amygdala assigns an emotional response to the

perceived threat or danger (Richardson, 2016). The hippocampus is responsible for cognitive reasoning and emotion regulation. When the hippocampus experiences negative stimuli, it results in hippocampal dysfunction. This dysfunction has been linked to issues such as depression and bipolar disorder (Evans & Coccoma, 2014).

“In trauma, the main goal is survival; thus, children respond to threat through adaptive responses, including various degrees of hyperarousal or hypoarousal. This arousal continuum ranges from states of high nervous system activation, creating symptoms of chaos such as anxiety, aggression, or agitation, to the other end of the continuum of hypoarousal or disassociation (Richardson, 2016, p. 36).

Emotion Regulation

Badour and Feldner (2013) defines emotional regulation as “the ability to identify, evaluate, and modify the experience and the expression of affect” (p. 70). Badour and Feldner (2013) conducted a study to examine the correlation between PTSD symptoms, that are also common with complex trauma, such as emotion regulation difficulties.

“Emotion regulation may be a mechanism for functional impairment that has not been well researched. Rumination, in particular, is a maladaptive emotion regulation strategy consisting of repetitively mentally reviewing the negative, self-focused causes and consequences in an attempt to problem solve” (Szabo et al., 2019, p. 1).

Creative Therapies

By understanding the ways in which trauma negatively impacts the brain, this can influence the current understanding of treatment in trauma-informed care, therefore, opening the door to alternative treatments such as creative arts therapies. In this section different forms of creative therapies will be explored in order to understand the beneficial role the creative

therapies can play in enhancing neuroplasticity in the treatment of trauma. The creative therapies modalities include dance/movement, visual art, drama, music, and expressive arts therapy.

Dieterich-Hartwell (2017) noted the ways in which the creative therapies can be utilized in the therapeutic process. Dieterich-Hartwell (2017) stated “the creative arts therapies (CAT) have also been successfully employed with a variety of trauma populations. These types of therapy are right brain dominant as they engage nonverbal communication and multisensorial experiences and are thus able to promote right-brain integration. When words are not available, trauma may be accessed through kinesthetic sensory processes, including movement, art, music, drama, and poetry (p. 39). Klorer (2005) stated “nonverbal, expressive therapy approaches are highly effective interventions ...because they do not rely on the client’s use of the left brain and language for processing” (Klorer, 2005, p. 216).

Through the examining the collected data, researchers have found, in recent years, the importance of body-based therapies for treating individuals with PTSD symptoms. The creative therapies have been shown to have positive effects on the physical wellbeing of individuals, specifically those who have experienced trauma (Dieterich-Hartwell, 2017). Art materials provide a relaxing impact to lower stress levels, music therapy plays a role in an individual’s physical state by reducing blood pressure and heart rate, and drama therapy has been shown to increase humor and spontaneity of individuals, specifically veterans with PTSD (Dieterich-Hartwell, 2017).

Dance/Movement Therapy

According to the American Dance Movement Therapy Association (ADTA), DMT is defined as “psychotherapeutic use of movement to promote emotional, social, cognitive and

physical integration of the individual” (ADTA, 2019, para 1). One of the core beliefs of DMT is that the body and mind are in relationship with one another and cannot be separated.

Dieterich-Hartwell (2017) examined the ways in which Dance/Movement Therapy can aid in the treatment of PTSD. “Gradual changes in one’s movement repertoire can lead to changes in one’s inner landscape This points to movement being a channel that may stimulate brain plasticity and modulate brainstem dysregulation” (p. 40-41). “Dance and movement being one of the most primary modes of communication (beginning in utero) and acting as vessels for symbolism and imagination, cannot only unlock the memories but can also ‘access the imaginations that support a restoration of well-being’” (Dieterich-Hartwell, 2017, p. 41).

Berrol (2006) examined the ways in which neuroscience and mirror neurons meet Dance Movement Therapy (DMT) and aid in the therapeutic process of empathy. The brain utilizes emotion and affect regulation which are developed during the formative years of life. Early studies have examined the brain of monkeys and found the same pre-motor neurons (located in the frontal lobe of the brain) are activated in both the monkey performing an action but also in the brain of the monkey witnessing the action. “Like a mirror image, the same sets of neurons are activated in an observer as in the individuals actually engaged in an action or the expression of some emotion of behavior” (Berrol, 2006, p. 303). This finding allows us to assume that by witnessing or mirroring other individuals’ actions, this allows us to create empathy and further build attachment, thus opening the door for dance and movement to be utilized in a therapeutic setting.

Researchers have found that humans and subspecies are biologically wired with this set of specific brain cells and mirror neurons to fire automatically, whereas other neurons may need activation and stimulation. “Thus, mirror neurons are currently being linked to psycho-affective,

social and cognitive development, attachment, attunement, empathy, social cognition, and morality” (Berroll, 2006, p. 307).

Music Therapy

Music therapy is defined by the American Music Therapy Association (AMTA) as an established health profession that uses clinical and evidence-based music interventions within a therapeutic relationship to address physical, emotional, cognitive, and social needs (AMTA, 2020). “Modern music therapy is based on the premise that we are all innately musical and that this musicality is robustly rooted in our brain, surviving even significant neurological trauma and impairment” (Robarts, 2006, p. 250).

Music therapy promotes more non-verbal forms of processing of emotions surrounding trauma and the relationship between control and empowerment. Soldiers with PTSD diagnosis have had success with utilizing music therapy and drumming to increase intimacy and openness and help them safely access traumatic memories. Additionally, music therapy has been shown to be helpful to reduce symptoms of PTSD for individuals who did not previously respond to Cognitive Behavioral Therapy (CBT) (Dieterich-Hartwell, 2017). CBT is form of therapy that challenges one’s negative thinking, therefore, it requires a fair amount of cognitive processing (Evans & Coccoma, 2014).

Robarts (2006) outlined music therapy work conducted with children who have experienced sexual abuse. Music plays a large role in daily life and “is part of our humanness, intrinsic to our emotional and social everyday living, and not dependent on acquired musical skills” (p. 249). Robarts (2006) discussed how music can aid in building a therapeutic relationship and assist in self-regulation and development of meaning. Additionally, Robarts

recounts music therapy work with Sally, a child who experienced a significant amount of sexual abuse.

From the start, Sally was stuck in her trauma and it was often replayed. She would have sudden shifts in mood, either having severe impulses or withdrawal. She would often throw herself on the floor, scream, or kick the instruments. Over the span of three years, Sally was able to better regulate impulses and feelings through sensory experiences. Music was used to work directly with Sally's feelings and engage new experiences of her feelings and herself within relationships (Robarts, 2006).

Music therapy allows the child and the therapist the opportunity to create attachment and empathy by creating a shared beat or "pulse" that often mimics the mutuality between the development between infant and caretaker. Music can help a child regulate their emotions and help build interpersonal relationships and find meaning in relationships. Through music improvisation, music can provide interpersonal framework and a living experience of interpersonal connectedness (Robarts, 2006). "Music can both reach and regulate the core of our beings, for the traumatized child it can work to support and transform the distorted and disrupted foundations of the bodily emotional self" (Robarts, 2006, p. 265).

Drama Therapy

Drama therapy is defined by the North American Drama Therapy Association (NADTA) as an intentional and embodied approach of drama that is active and experiential. Drama therapy allows participants the space and opportunity to tell their stories, set goals and problem solve, express feelings, or achieve catharsis (NADTA, 2020). Drama therapy has been shown to have a positive effect when working with survivors of trauma by allowing individuals to safely work

through revenge fantasies while simultaneously supporting reflection and self-regulation (Dieterich-Hartwell, 2017).

When utilizing the arts in trauma-informed care, drama therapy can be beneficial due to the fact that it utilizes metaphor and an embodied approach. Work has been done at Creative Alternatives of New York (CANY) utilizing drama therapy with individuals who have experienced complex trauma. The CANY model utilizes three core principles: creativity as health, metaphor as a healing tool, and group as therapeutic agent (Fryman & McClellan, 2014). When complex trauma occurs in a developing brain, it alters normal cognitive abilities and executive functioning. Drama therapy “allows for a symbolic and embodied working through of traumatic experience, necessary when the cognitive process responsible for linear and organizing interpretations of incoming stimuli become impaired” (Fryman & McClellan, 2014, p. 153).

One of the largest tools used in drama therapy is the use of metaphor and role playing. When working with individuals who have experienced traumatic events, it is important to allow the individual space to work through and process that trauma without having them experience retraumatization. Therefore, the use of metaphor as a therapeutic tool plays an important role in processing traumatic events. “Metaphor serves as a protective factor, allowing real-life feelings and experiences to be embodied within a parallel realm, thereby reducing the risk of retraumatization” (Fryman & McClellan, 2014, p. 154). The use of metaphor in drama therapy allows the individual the opportunity to create distance from the actual traumatic event, therefore creating a safer space to process and work through the experienced trauma.

Additionally, drama therapy allows the individual the opportunity to create new roles and scenarios within the therapeutic playspace. “The individual is invited to explore roles of resilience that directly contrast with traumatic fallout, perhaps that of hero, villain, artist, or

helper, tapping into a capacity for transformation and growth” (Fryman & McClellan, 2014, p. 154).

Art Therapy

Art therapy is defined by the Art Therapy Association (ATA) as mental health and human services profession that utilizes art-making, human experience, the creative process, and applied psychological theory with individuals and groups to improve cognitive and sensory-motor functions, enhance social skills, resolve conflict, and promote insight and foster therapeutic change (ATA, 2017). Art therapy establishes an order within the brain that can help individuals process traumatic events through the use of symbols and externalized sensations. Art therapy has been shown to assist individuals such as veterans with PTSD and traumatic brain injuries (TBI), and refugee survivors of political violence by creating tools for safety, resilience, and overcoming loss (Dieterich-Hartwell, 2017).

Eisenbach, Snir, and Regev (2015) examined the use of spontaneous artwork of 10 female participants who experienced some type of childhood trauma involving either loss or sexual abuse. This study focuses on a Jungian approach to trauma which heavily relies on symbolism and the unconscious. The created artwork was analyzed along with a semi-structured, in-depth interview with each creator. Upon analysis Eisenbach et al. (2015), found seven main visual symbols: red and black color combination, figure and ground, decomposition, forest, death, body in fetal position, and body-tree. It is noted that all the symbols appeared more frequently in the artwork of the women who experienced sexual trauma than those that experienced the trauma of grief and loss.

Through the created artwork, the findings provide a clearer image of trauma and the effects it has on the psyche. “Use of the symbolic approach can also be harnessed to examine

development and encourage recovery through the creative process” (Eisenbach et al., 2015, p. 55). Gerge (2017) utilized art assessment tools to address regulation focus. This study aimed to understand how depicted images, affect and emotions, and metaphors could be depicted in participants created images the context of neuroconception.

Art therapy is an action-oriented therapy that involves the movement of the hands and arms along with processing of visual images. When processing movement, this utilizes the motor association cortex and the somatosensory cortex which are both connected within the basal ganglia and thalamus through the brain (Lusebrink, 2010). “It seems possible to find signs and states of safety in artwork, which consciously can be activated and lay the ground for changed inner working models, more secure attachment-patterns, and heightened capacity of soothing and self-regulation in the here and now” (Gerge, 2017, p. 117).

Klorer (2005) conducted a study with a young girl who suffered severe abuse and neglect. This young girl, Tammy, entered into the foster system and therapy at the age of 4. She was continually abused over a long period of time in which much of the abuse likely happened prior to the preverbal stage of development. Therefore, many of her memories did not have words attached but her memories were stored in the nonverbal parts of the brain as sensory and emotional (Klorer, 2005). Tammy struggled with attachment to others and emotion regulation. Through Tammy’s time in therapy, two pieces of visual art created by Tammy stood out. First, Tammy created a “sister” out of art materials, Tammy had no sister in either her biological family or in her foster home. Tammy created this life-sized doll, brought her home, and named her “Tina” whiling having Tina take on various roles. Tina often asked to sleep with the foster parents, engage with the foster mother, and even told the foster mother that she loved her. Tammy had created this other self to allow for attachment to her foster family without feeling

like she was betraying other relationships in her life. Through this art making, Tammy was able to create distance and allow for resolution and allow her to try on a different role and see how it would feel to be a member of the family (Klorer, 2005).

Additionally, Tammy created a second art piece as she was dealing with the idea of being adopted and feeling like she was betraying her biological family. Tammy began creating small pieces of paper and collecting them into a coffee can. Tammy stated she was recreating ashes to represent her mother. While Tammy's mother had not died, she created these ashes as a way of conceptualizing letting go and allowing her to move on with her own life.

Expressive Arts Therapy

Expressive arts therapy is a creative arts approach that utilizes more than one creative arts modality. The International Expressive Arts Therapy Association (IEATA) describes expressive therapies as a multimodal approach rooted in psychology that combines visual arts, movement, drama, music, and writing to foster personal growth and development (IEATA, 2020).

Richardson (2016) utilized a four-phase model when utilizing expressive arts therapy with traumatized children and adolescents. Richardson has found that many children's experience of trauma is sensory and somatic. This means that treatment should focus on the felt sense that is experienced in the body and requires modalities that focus on taste, touch, see, hear, and smell. "Sensory intervention and a sensory awareness attitude adopted by the therapist are some of the basics of treating trauma within this expressive arts framework" (Richardson, 2016, p. 35).

Richardson (2016) notes that childhood trauma often affects implicit and explicit memories making it difficult for declarative recall. Understanding that it may be difficult, the therapeutic work is providing a space for the traumatic event to be encoded and given a language

in order for it to be processed as an explicit memory. “Expressive arts have the ability to access implicit memory, which is coded in sensation and imagery, and offer nonverbal processes to express these iconic portrayals through dance, drawing, sculpture, or sound of the drum. There is no need for cognitive process” (Richardson, 2016, p. 40).

Pur (2014) sought to develop an attachment-based psychological intervention model for street children in Turkey who have experienced complex developmental trauma in childhood. Pur defines a “street child” in a loose context stating it may be a child who is either homeless or working on the streets. (Pur, 2014). Participants included eight boys between the ages of 14 and 17 years old. Throughout the project, the participants engaged in activities such as art, computer, dance, and music workshops throughout three years” (Pur, 2014)

The boys were involved in an emotional regulation group that spanned the length of ten sessions. The first two sessions focused on assessments and establishing a secure base to allow for safety and security. The following six to seven sessions were “based upon emotion regulation intervention focusing on emotion identification, modulation, and expression” (Pur, 2014, p. 699). The final session prepared for the separation anxiety and preparing the group for separation (Pur, 2014).

The goal of the group was to establish attachment security and utilize emotion regulation skills among group members. Pur found group members either denied emotions or “avoided negative emotions such as unhappiness or hopelessness by avoiding the subject completely” (Pur, 2014, p. 700). Through the utilization of the group, after “learning about emotions, their effects on body, attachment traumas, and their results, the boys started to accept that they may experience negative emotion, and it is okay to talk about them when they feel safe” (Pur, 2014, p. 700).

Oftentimes, creative therapies use what is called the Expressive Therapies Continuum (ETC). Lusebrink (2010) defines the Expressive Therapies Continuum (ETC) as a framework for arts-based assessments and applications along with the three levels of the ETC:

Kinesthetic/Sensory, Perceptual/Affective, and Cognitive/Symbolic. (Lusebrink, 2010).

Lusebrink sought to examine how art therapy interventions that promote transitions between the levels of ETC may relate with the different brain structures used in both handling visual information and emotions (Lusebrink, 2010). The brain processes both visual and sensory information making this of importance when utilizing art therapy techniques.

Fuster (as cited in Lusebrink, 2010) states “The multi-modal association cortex is the structure that processes and forwards information to the prefrontal cortex, which coordinates the processes that are associated with attention, emotion, cognition, and action.” Art therapy techniques touch on many of those processes, therefore, activating those sections of the brain.

When examining the relationship between elements of the brain and the therapeutic applications of the ETC, Lusebrink examined a case-study of Betty, an eight-year-old girl, and her visual art expressions. Betty was being seen at a children’s mental health clinic for separation anxiety. When starting the session, she began on a more cognitive/symbolic level. The following sessions were based more on a kinesthetic/sensory level (Lusebrink 2010). Throughout the sessions and the sequence of visual expressions through the ETC, change was cultivated through kinesthetic and sensory modalities. Therefore, a change had occurred within Betty’s brain functioning and processing of visual information (Lusebrink, 2010).

Discussion

As previously noted, childhood trauma plays a major role in altering neurotypical brain development as well as social relationships and executive functioning. It is now known that

chronic trauma could leave the child with the inability to regulate emotions, form lasting and healthy attachments, and process and verbalize traumatic memories.

Childhood abuse is associated with a variety of psychiatric diagnoses in adulthood, such as depression, anxiety, PTSD, and affective cognitive reactivity. Upon examining the emotional regulation and developmental trauma, it may be important to be aware of the potential psychiatric diagnosis given in adulthood. McCormack & Thomson (2017) sought to understand “whether receiving a psychiatric diagnosis in light of childhood trauma supports or impedes psychological wellbeing in adult life” (p. 156). Researchers stated, “there is the potential for many who have experienced childhood trauma to be revictimized by having their distress labeled with a mental health diagnosis” (McCormack & Thomson, 2017, p. 157).

A method was created to recruit participants for this study such as, older than 25, self-reported history of childhood trauma, psychiatric diagnosis received in adulthood related to childhood trauma, and not currently in crisis. Due to the criteria, this yielded a sample size of two males and three females between the ages of 38 and 62. Both males had the same diagnosis as Major Depressive Disorder, whereas all three females received the same diagnosis of Posttraumatic Stress Disorder.

Upon interviewing the participants, researchers found “one superordinate theme – Childhood Betrayal, Identity, and Worthiness” (McCormack & Thomson, 2017, p. 159). Through various interview questions with the study’s participants, researchers found that “while diagnosis served as a useful descriptor of symptoms and could be intellectualized, being a recipient of a psychiatric label was ‘resented’ and heralded systemic neediness” (McCormack & Thomson, 2017, p. 160). Additionally, this study offers insight into ways complex trauma affects both emotional and affect regulation and healthy attachments. “In the aftermath of childhood

trauma, participants characteristically struggled to form a coherent sense of self, which left them vulnerable to difficulties forming and maintaining healthy relationships, in managing emotions, and in identifying and enacting values” (McCormack & Thomson, 2017, p. 162).

When examining the literature on childhood trauma populations, this leaves room for the idea of utilizing the creative arts with other trauma populations such as those who are prior military or those who have experienced some type of domestic violence or intimate partner violence. If a creative arts approach to treatment works to rewire the brain after childhood trauma, it would be a logical assumption that this form of treatment would work for trauma that is experienced in adulthood. Murray, Spencer, Strickl, and Crowe (2017) noted that trauma experienced in domestic violence relationships can also make declarative memory of the trauma difficult. By allowing survivors the opportunity to process emotional responses through art, they can express difficult or intense emotions such as anxiety or fear, in symbolic and indirect ways. Additionally, the creation of the artwork can provide clients with a sense of mastery and accomplishment. Oftentimes, domestic violence is chronic in nature and this speaks to the chronic abuse that is often experienced in childhood complex trauma.

Evans and Coccoma (2017) examined the ways in which trauma affects military veterans and the process of trauma. They specifically note that military veterans with a PTSD diagnosis have correlation with neurological symptoms. There is a large interplay between the amygdala, the hippocampus, and the prefrontal cortex which is complex and adapts to stressors and survival. Due to the brain reacting in similar ways to trauma experienced in childhood verses adulthood, this allows us to assume that similar creative arts approaches would be applicable to traumatic events experienced in adulthood.

Through the research, the creative therapies have shown to be instrumental in the treatment of complex trauma allowing the child to process, create distance, and assign feelings to the traumatic experiences. This research outlined the use of single modalities such as music, art, dance, and drama along with examining a multimodal, expressive therapies approach in the treatment of trauma. While there are many different forms of therapy that can be utilized to promote positive growth and healing, creative therapies serve as a way to process traumatic experiences and aid in the process of self-regulation and enhancing neuroplasticity. One specific approach does not meet the needs of every person; therefore, it is important to understand and investigate other therapies offered.

While there has been a great deal of research in the context of single creative arts modalities, the research is limited on the use of expressive arts multimodal approach. Further research would be needed in order to truly know if an expressive arts therapy approach would be beneficial to children who have experienced complex developmental trauma. However, it is my belief that if single modalities have shown to be beneficial, then the use of a multimodal approach would either serve a similar purpose or enhance the creative arts treatment.

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