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The Neurobiology of the Healing Arts: Expressive Arts Therapy as an Effective Treatment for Adults Diagnosed with Complex PTSD due to Complex Trauma in Childhood: A Literature Review

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The Neurobiology of the Healing Arts: Expressive Arts Therapy as an Effective Treatment for
Adults Diagnosed with Complex PTSD due to Complex Trauma in Childhood:

A Literature Review

Capstone Thesis

Lesley University

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Expressive Arts Therapy

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Abstract

Empirically based therapies for posttraumatic stress disorder (PTSD) have been found to be less effective in treating more severe trauma presentations such as complex PTSD (CPTSD).

Neurobiological investigation provides a framework for examining the physical and psychological effects of trauma on brain and nerve structures and provides insight into how to effectively treat CPTSD. This literature review examined symptomology of CPTSD resulting from complex trauma in childhood, neurobiological effects of trauma and their implications for treatment, and the efficacy of the current treatment models, primarily those of eye movement desensitization and reprocessing (EMDR), narrative exposure therapy (NET), and somatic psychotherapies. Significant findings revealed that symptomology can be generalized into three treatment constructs: exposure, regulatory, and attachment techniques, and that all three must be included into treatment models for maximum efficacy. However, few models address all areas of symptomology in one cohesive treatment model and combining treatment methods requires special attention to the neurological processes underlying the presentation of symptoms found in CPTSD. The author offers an original, 4-phase model which combines these elements into one cohesive treatment model utilizing the expressive arts therapy (ExAT) modality: 1) Regulation of affect and arousal states, 2) exposure to traumatic memories and experiences through artistic expressions, 3) re-processing and re-writing personal narratives through artmaking, and 4) sharing arts products for compassionate witnessing. Further research into the CPTSD diagnosis, symptomology, and the hypothesized therapy offered is recommended, with special emphasis on investigating the effects of the proposed treatment model on neurobiological processes.

Keywords: CPTSD, Expressive Arts Therapy, complex trauma, neurobiology, treatment efficacy, exposure, regulatory, attachment, autonomic nervous system, creative expression.

The Neurobiology of the Healing Arts: Expressive Arts Therapy as an Effective Treatment for Adults Diagnosed with Complex PTSD due to Complex Trauma in Childhood: A Literature Review

“There is more to trauma than PTSD.”

(Shapiro, 2010, p.11, as cited in Kezelman & Stavropoulos, 2012, p. 46).

Introduction

Complex posttraumatic stress disorder (CPTSD) is a distinct disorder comprised of the classic PTSD symptoms of re-experiencing, avoidance, and hypervigilance, along with the additional symptom cluster of disturbances of self-organization (DSO), which includes: dysregulated affect, negative self-concept, and interrelational disturbances (Cloitre et al., 2018; Giourou et al., 2018; Jowett et al., 2020; Litvin et al., 2017). These symptoms have been shown to endure without effective treatment (Brown, 2020). The main cause of CPTSD is hypothesized to be complex trauma with an onset in early childhood due to chronic and severe abuse and neglect (Brown, 2020; Cloitre et al., 2009; Jowett et al., 2020). CPTSD affects adult populations and is called developmental trauma disorder in children (Cloitre et al., 2009).

Complex trauma in childhood, as the cause of CPTSD in adults under investigation in the current writing, results in measurable and observable neurobiological changes to the structure and functionality of the brain (Gerge, 2020b; Goodman, 2017; Van der Kolk, 2014). Understanding these structures allows researchers to treat CPTSD symptoms at the biological level, engaging brain structures and nerve pathways directly linked to behavioral, relational, affective, and arousal expressions in the individual. Engaging these brain structures through exposure techniques, creative and body-based regulatory techniques, and attachment therapies, leads to increased interconnectivity and a reorganizing of brain processes which results in a

reduction of symptoms (Ogden, 2020; Van der Kolk, 2014). Exposure treatments paired with arousal regulation techniques have been shown to have the most positive outcomes (Cloitre et al., 2010; Gerge, 2020a; Gerge 2020b; Van der Kolk, 2014). Incorporating attachment therapies, which address relational issues, may increase these positive results (Johnson et al., 2019; Laughlin & Rusca, 2020; Ogden, 2020).

Expressive arts therapy (ExAT) may be one way in which clinicians can effectively answer all of the previously mentioned considerations for the effective treatment of CPTSD. ExAT has the unique ability to provide exposure to trauma content while simultaneously regulating brain structures. Due to the versatility of ExAT, multiple brain pathways can be traversed through creative techniques (Lusebrink, 2010), allowing for movement between cognitive-regulatory structures and sensory-emotion structures, increasing connectivity and regulatory capabilities (Gerge, 2020b; Richardson, 2016; Sagan, 2019; Van der Kolk, 2014). Additionally, providers and significant others compassionately witnessing the products of artistic explorations may allow attachment healing to occur, reinforcing co-regulation of affective and arousal states, and enhancing improved self-concept (Ducharme, 2017; Johnson et al., 2019; Laughlin & Rusca, 2020; Van der Kolk, 2014).

The purpose of this literature review is to present expressive arts therapy as an effective treatment for adults suffering from the symptom clusters of CPTSD due to complex trauma in childhood. In the following pages CPTSD and complex trauma will be defined. A brief discussion regarding symptoms and related considerations of treatment will follow. Next, the neurobiological effects of trauma will be examined, as it will be the theoretical framework through which treatment efficacy will be explored. Findings on the efficacy of current treatment models in relation to treatment constructs, including eye movement desensitization and

reprocessing (EMDR), narrative exposure therapy (NET), and body-based therapies will be discussed. This section will be organized into three sections: 1) exposure, which explores treatments which address re-experiencing and avoidance symptoms; 2) regulatory, which explores treatments addressing hypervigilance and affective dysregulation symptoms; and 3) attachment, which explores treatment of negative self-concept and interrelational disturbance symptoms. Finally, ExAT's efficacy for addressing treatment constructs of CPTSD at the neurobiological level will be examined, as well as the author's proposed four-phase treatment model.

Literature Review

Complex Posttraumatic Stress Disorder (CPTSD)

Complex posttraumatic stress disorder (CPTSD) is defined in the ICD-11 as “Exposure to an event(s) of an extremely threatening or horrific nature, most commonly prolonged or repetitive, from which escape is difficult or impossible” (Giourou et al., 2018, Table 1). The original concept for the disorder was proposed as:

A clinical syndrome following precipitating traumatic events that are usually prolonged in duration and mainly of early life onset, especially of an interpersonal nature and more specifically consisting of traumatic events taking place during early life stages (i.e., child abuse and neglect). (Herman, 1992, as cited in Giourou, 2018, p.13).

Complex Trauma

“Complex trauma in childhood is defined as ‘the experience of multiple, chronic and prolonged, developmentally adverse traumatic events, most often of an interpersonal nature, often within the child’s caregiving system’ (van der Kolk, 2005, p.2, as cited in McCormack & Thomson, 2017, p.156). It is this process which directly translates to the defining symptom

clusters comprising CPTSD. “Repetitive and various forms of maltreatment negatively impact a child’s developing sense of self, impairing crucial domains of development for example attachment, biological or physical functioning, affect regulation, dissociation, behavioral control, cognition, and self-concept” (McCormack & Thomson, 2017, p. 156).

Symptoms and Their Implications for Treatment

Complex PTSD differs from PTSD in part due to the inclusion of three major diagnostic criteria which comprise what is called disturbances in self-organization (DSO); affective dysregulation, negative self-concept, and disturbances in relationships (Cloitre et al., 2018; Litvin et al., 2017). These three markers are in addition to the classic PTSD domains of re-experiencing, hypervigilance, and avoidance. For the purposes of the current paper, these symptoms can be generalized into three targeted treatment constructs which also generalize models of treatment based on their treatment goals: exposure, which targets symptoms of re-experiencing and avoidance; regulatory, which targets symptoms of arousal and affect dysregulation; and attachment, which addresses symptoms of self-concept and interrelational disturbances. Litvin et al. (2017) explain that the results of their research not only support CPTSD and PTSD as “two highly correlated but distinct trauma disorders” (p. 609), but also that the CPTSD diagnosis applies only when both the PTSD symptoms and DSO symptoms are present. Therefore, effective treatment of the DSO symptoms, as well as the PTSD symptoms, is vital for the well-being of individuals suffering from the disorder (Cloitre et al., 2009; Ducharme, 2017; Kumar et al., 2019; Litvin et al., 2017).

CPTSD is the only diagnostic label that encompasses all 6 of the symptom domains within two clusters. Nevertheless, CPTSD is not fully recognized as a distinct diagnosis (Cloitre et al., 2018; Friedman, 2013; Litvin et al., 2017). Although the International Classification of

Diseases eleventh edition (ICD-11) categorizes CPTSD as a distinct and separate disorder (Cloitre et al., 2018; Litvin et al., 2017), the Diagnostic and Statistical Manual fifth edition (DSM-5) does not (Friedman, 2013). Instead, the DSM-5 considers it a more severe form of PTSD (Brown, 2020, Friedman, 2013). However, empirically based treatment models which partially address symptom domains found in classic PTSD have shown to be less effective for individuals who could be diagnosed with CPTSD (Jowett, 2020; Van der Kolk, 2014).

Individuals are often given multiple diagnostic labels to address symptoms and resulting behavioral complexities which are directly related to their trauma histories but are not accurately reflected in those diagnostic labels (Cloitre et al., 2009; Dervishi et al, 2019, Jowett et al., 2020; Kumar et al., 2019). For example, although CPTSD and borderline personality disorder both include DSO symptoms, their expression of these symptoms is fundamentally different (Jowett et al., 2020, p. 37; see also Giourou et al., 2018). Individuals may receive diagnoses including dissociative identity disorder (Ducharme, 2017; Sagan, 2019), anxiety, depression, borderline personality disorder (Jowett et al., 2020), PTSD, and somatization disorders (McCormack & Thomson, 2017). These discrepancies in diagnostic labeling can have negative effects, including rendering treatment ineffective or even harmful (Ducharme, 2017; Kumar et al., 2019). Additionally, co-morbidities, such as eating disorders and substance use disorders, which are quite common among this population, are treated without regard to CPTSD symptoms, with little success (Goodman, 2017; Kumar et al, 2019; Olofsson et al., 2020).

It is the dimension of DSO which differentiates “classic” PTSD from CPTSD most clearly, but these criteria seem to be predicated on the interpersonal nature of the traumatic experiences, in addition to the frequency of trauma exposure. “Individuals who met the criteria for CPTSD... had the highest levels of lifetime interpersonal trauma” (Cloitre et al, 2018, p.

544). Multiple or repeated traumas “can lead to outcomes that are not simply more severe... but are qualitatively different in their tendency to affect multiple affective and interpersonal domains” (Cloitre et al., 2009, p. 405). This claim is further supported in additional research:

Individuals with complex trauma histories often display greater complications involving cognitive (including dissociative), affective, somatic, behavioral, relational, and self-attributional problems beyond symptoms of the “classic” form of PTSD, which need to be specifically addressed to render treatment both comprehensive and effective. (Courtois & Gold, 2009, as cited in Kumar et al, 2019, paragraph 1).

The DSO symptoms consistent with the CPTSD criteria are directly related to an increased risk of suicide (Grandison, 2019), as is a history of complex trauma resulting from abuse, especially emotional abuse, in early childhood (Dervishi et al., 2019). Grandison states; “a negative self-concept and relational disturbances will reduce the pool of coping mechanisms available to an individual, while emotional hyperactivation and deactivation will both exacerbate the need for coping mechanisms to be employed” (p. 177). It is one’s inability to effectively cope with and regulate one’s arousal states that results in a predisposition for suicidality, yet the precipitating stressor needs to occur before suicidal tendencies will be engaged (Grandison, 2019). “Suicide risk emerges when life stressors and pre-existing vulnerabilities coalesce to produce unbearable affective arousal (Williams, 1997). Suicidal ideation is then taken to develop through instances where escape from the affective states brought on are deemed inescapable” (Williams, 2001, as cited in Grandison, 2019, p. 174). With this understanding of the risk associated with DSO symptoms, specifically those found in CPTSD diagnostic criteria, the need for effective treatment is abundantly clear.

Lived Experience of Trauma: In the Body, Brain, and Psyche

Understanding the neurobiological experience of complex trauma is a prerequisite to examining effective treatment. This is because trauma profoundly disrupts normal functioning of the brain and nervous system. (Gerge, 2020b; Van der Kolk, 2014). Psychological experiences of trauma result in physical alterations and functional disturbances, which in turn manifest the symptom clusters previously discussed. If the neurobiological system is repaired, the symptom is removed. Therefore, without an understanding of the neurobiological systems involved in an individual's stress responses, one cannot effectively understand how to affect change within such responses. The following section will describe the functional changes which occur due to complex trauma and will lay the framework for conceptualizing treatment requirements for improved functional processes.

Autonomic Nervous System

Dana (2018) states that the autonomic nervous system (ANS) is the body's threat detection and response system. Through a process called "neuroception" (Porges, n. d., as cited in Dana, 2018, p. 4), the ANS translates sensory input from the body, environment, and relationships. This process is subcortical and happens without conscious thought. The ANS is comprised of two main nerve systems, the sympathetic (SNS) and parasympathetic nervous systems (PNS). The sympathetic nervous system is commonly referred to as the fight or flight response and is responsible for mobilizing the individual when danger is sensed. In contrast, the parasympathetic system can be further divided into two distinct pathways: one of immobilization but also one of connection and safety.

According to Porges' polyvagal theory (Dana, 2018), the vagus nerve is the main nerve associated with the parasympathetic nervous system. It consists of bundles of nerve fibers, 80% of which send sensory information to the brain, with the remaining 20% sending motor

information to the body from the brain. The vagus has two pathways: the dorsal vagal and the ventral vagal. When there is no threat obvious to the senses, the ventral vagal pathway allows the individual to focus on connecting and being social, because the body is safe and calm. In contrast, the dorsal vagal pathway is responsible for responding to sensations and bodily signals of extreme stress which appear life-threatening and inescapable. This is commonly referred to as the freeze response, “a protective state of collapse” (p. 9). This response is analgesic, allowing the individual to escape perception of physical and psychological pain.

Researchers (Dana, 2018; Van der Kolk, 2014) argue that normal functioning of the ANS involves moving through these arousal responses and coming back to the ventral vagal state of homeostasis. When the system is chronically activated, however, movement between states is restricted. A brief stress response results in the release of adrenaline and cortisol into the bloodstream, which activates the SNS and facilitates the individual’s fight or flight capability (Dana, 2018). However, Van der Kolk (2014) states that “the stress hormones of traumatized people...take much longer to return to baseline and spike quickly and disproportionately in response to mildly stressful stimuli” (p. 46). If the stress response is unresolved, as is often the case in traumatic experiences, the individual remains in a state of autonomic arousal. Chronic activation of the ANS system results in a system that is constantly on alert, unable to enter the ventral vagal state of relaxation and connection. Furthermore, if the threat becomes overwhelming or movement is restricted, the body moves from the SNS response into the dorsal vagal freeze response. In this stage, the brain and body begin to shut down through numbing, cognitive decline, and in extreme cases, dissociation.

Neurobiological Systems and Trauma

Van der Kolk (2014) asserts that humans have evolved to develop a hierarchical and triune (three-part) brain. The oldest and most primitive portion is the brain stem. This brain structure is responsible for basic survival functions and biological drives, such as thirst and hunger, sleep-wake cycles, elimination needs, and sexual reproduction. It is developed first and is fully functional at birth. The next section of the brain to develop is the limbic system, responsible for monitoring danger, emotion, and how an individual interprets the world around them. This system is shaped by experience, a process called neuroplasticity. For example, “if you feel safe and loved, your brain becomes specialized in exploration, play, and cooperation; if you are frightened and unwanted, it specializes in managing feelings of fear and abandonment” (p. 56). Together the limbic system and brain stem comprise what is referred to as the emotional brain. The top layer of the brain, and the last to develop, is called the neocortex, or the rational brain. These structures are responsible for language, impulse control, abstract and complex concepts, and social connection. This area of the brain houses the orbital prefrontal cortex, which “retains the plastic capacities of early development’ even into adulthood” (Schore, 2003, p. 265, as cited in Bath, 2008, p. 20). This means that the prefrontal cortex structures maintain their neuroplasticity throughout the lifespan, allowing for continued development of these structures and their functions.

Van der Kolk (2014) describes the way in which these three layers of the brain come together functionally. Sensory input travels from the body to the thalamus, an area of the limbic system that transforms the disjointed sensory information into a cohesive narrative of what the organism is experiencing. This information moves forward along two separate paths, the “low road” towards the limbic system, and the “high road” towards the frontal cortex (p. 60). The first path, which is much faster, moves information to the amygdala, whose primary function is

survival of the individual. With the help of the hippocampus, which compares incoming sensory input with past experiences and memory, the amygdala interprets the emotional significance of the incoming information. If the amygdala determines there is danger, it sends a signal to the hypothalamus and brain stem, which together regulate homeostasis and control endocrine systems. This signal from the amygdala activates the ANS and fight or flight responses, including hormonal secretions of adrenaline and cortisol. This process can happen before the frontal cortex has even received the sensory input, which is what makes this process automatic and reactionary rather than rational.

The second pathway also moves through the hippocampus, but from there moves through the anterior cingulate, which “coordinates emotions and thinking” (Van der Kolk, 2014, p. 93). It is part of a larger system which orients the individual to the internal experience of the self. From the anterior cingulate, input moves into the prefrontal cortex, specifically the medial prefrontal cortex (MPFC). According to Samara et al. (2017), the MPFC is a subregion of the orbital and medial prefrontal cortex (OMPFC). This region is responsible for “goal-directed decision making, reward representation, and emotional processing” (p. 2941). When examining this structure by subregion, “the ‘orbital’ network was thought to be a sensory-related system involved in integrating multi-modal stimuli, whereas the ‘medial’ network was conceived as an output system involved in modulating the expression of emotion and action” (Price and Drevets, 2010, as cited in Samara et al., 2017, p. 2942).

The MPFC is responsible for assessment and rational response to the sensory input. The MPFC regulates the amygdala and the ANS response, helping to distinguish between real threats to the self or misinterpretations (Van der Kolk, 2014). This area also helps one make conscious decisions about how to respond to threats. Another area which helps with these processes is the

dorsolateral prefrontal cortex (DLPFC), which is located on the sides of the brain in relation to the MPFC. While the MPFC is concerned with an individual's inner experience, the DLPFC focuses on one's relationship with the outer world and helps with the concept of time. Together with the hippocampus, the DLPFC gives context and meaning to the sensory input, especially how it relates to the past and what it means for the future.

According to Van der Kolk (2014), there are multiple ways that trauma interferes with this processing, both at the initial moment of the trauma experience and during reexperiencing events such as flashbacks and intrusive memories. If the sensed threat is too overwhelming, the thalamus shuts down and cannot form a narrative of experience. Instead, it passes along disjointed images and fragments of sensory information as a jumble of vivid sensations. Unable to distinguish relevant information, the thalamus causes a sensory overload for the individual. The amygdala becomes hyper-vigilant, responding to more and more as though it were a life-threatening event, even innocuous and neutral stimuli. The prefrontal cortex's ability to regulate the amygdala deteriorates, as the MPFC and DLPFC areas shut down, resulting in the sense that the threat is overwhelming as well as enduring and never-ending. Furthermore, Broca's area, which is found in the left prefrontal area and is responsible for language and speech, also shuts down, inhibiting the individual's ability to verbalize their experiences.

In addition, Gerge (2020b) states that "Under prolonged stress the hippocampus shrinks and loses memory-sorting function. ...This contributes to difficulties in handling painful memories, concentration difficulties, and a reduced ability to process experiences" (Section 3.2). This memory and sensory processing may be further inhibited due to loss of functioning in the orbital prefrontal region of the OMPFC. "The orbital cortex is responsible for the representation and updating of stimuli and their associated (primary and abstract) reward and affective values"

(Samara et al., 2017, p. 2942). In other words, neuroplasticity capabilities are inaccessible, and sensory input cannot be interpreted in novel and adaptive ways. This may contribute to the enduring sense of threat elicited by stimuli which may not be threatening in different contexts.

These negative responses are further affected by one's ability to respond to the threat (Van der Kolk, 2014). If one can utilize movement and escape from the threat through fighting or running away, the stress response completes and moves into the recovery phase, or the ventral vagal response of connection and safety. However, if the individual is trapped or immobilized, as is often the case for children living with an abusive caretaker, the stress response endures. In extreme cases, the dorsal vagal response kicks in and the individual begins to shut down in more profound presentations of dissociation.

The neurobiological framework of the triune brain model just discussed helps providers conceptualize therapeutic approaches as either "top down or bottom up" (Lusebrink, 2010; Ogden, 2020; Van der Kolk, 2014). Bottom-up approaches involve therapies which start in the emotional brain of the limbic and survival systems and focus on the body and sensation. Top-down therapies begin in the neocortex and are cognitive in nature, such as most talk therapies. Those whose limbic systems are in a heightened state of autonomic arousal have difficulty utilizing top-down approaches because of the deactivation of cognitive processing centers in the brain. Regulating the limbic system through bottom-up approaches is the first step, but because the MPFC and cortical structures regulate the amygdala, reactivating these cognitive functions requires a top-down approach as well. Therefore, effectively treating trauma requires a dual pathway approach, both top down and bottom up. The next section will describe existing treatment models and their efficacy in addressing both symptomology and the neurobiological processes of trauma.

Effective Treatment: Targeting Injured Systems; What Works and What is Missing

Jowett et al. (2020) state that “there has been no systematic investigation into CPTSD interventions” (p. 43). This is due in part to the lack of diagnostic recognition of CPTSD as a distinct disorder, as Van der Kolk (2014) laments, “You cannot develop a treatment for a condition that does not exist” (p. 145). However, by examining existing research on trauma, complex trauma, and PTSD, one can find data relevant to CPTSD symptoms, treatment, and interventions. Furthermore, by examining treatment models which are currently recommended, one can explore what aspects are effective and what needs further development. Effective treatment for CPTSD involves addressing all the presenting symptoms; however, there are few models which address all the symptom domains of CPTSD as one unified treatment. Studies suggest that combining treatment models can be effective (Brown, 2020; Cloitre et al., 2010; Dana, 2018; Gerge, 2020a; Van der Kolk, 2014) but this process is complicated and may be less effective without careful consideration about how treatments are combined, including in what order interventions are administered (Van Minnen et al., 2020).

Additionally, many widely accepted treatments, which are effective for the treatment of PTSD, are not as effective in the treatment of CPTSD or complex trauma presentations (Gerge, 2020a; Jowett et al., 2020; van der Kolk, 2014). For example, “CBTs [cognitive behavioral therapies] were designed specifically to resolve PTSD symptoms. They do not include interventions that explicitly address the additional interpersonal and emotion regulation problems observed among those with PTSD stemming from childhood abuse” (Cloitre et al., 2010, p. 915). Van der Kolk (2014) makes a similar assertion discussing EMDR: “EMDR is a powerful treatment for stuck traumatic memories, but it doesn’t necessarily resolve the effects of the betrayal and abandonment that accompany physical or sexual abuse in childhood” (p. 257). Here

again, by examining current PTSD treatments, one can build an understanding of what constitutes effective treatment for CPTSD presentations.

So how does one effectively treat CPTSD resulting from complex trauma in childhood? It will be shown in the following discussion that treatment should include exposure to traumatic memories with the goal of processing and re-integrating traumatic memories. This allows for resolution of re-experiencing and avoidance symptoms. Affect and arousal systems which are either over or under active, must be regulated, so that individuals are able to tolerate exposure to traumatic content, therefore regulatory approaches should be included in treatment. Finally, attachment injuries which result in disturbances in self-concept and interpersonal relationships must be addressed in order to heal feelings of shame and guilt, increase social support networks, increase sense of worth and competence, and to foster co-regulation of affect and arousal systems.

Exposure Techniques

According to Van Millen et al. (2020) there are two models of exposure therapy regarding trauma processing. The first, found in treatments such as prolonged exposure (PE), aims to desensitize individuals to trauma cues and associated contextual triggers through continuous exposure. The goal is to neutralize the trauma content through “habituation or extinction” (paragraph 3). However, Van der Kolk (2014) states that “simply exposing someone to the old trauma does not integrate the memory into the overall context of their lives” (p. 258). In contrast, some therapies utilize exposure to traumatic content with the goal of integrating or reprocessing the traumatic memories and related associations. Such processes are found in therapies like EMDR and NET, where traumatic content is examined and then reinterpreted. This process may aid the hippocampal function of memory processing and organizing, a process

which becomes damaged as a result of trauma. This memory reprocessing may also decrease amygdala reactivity and inhibit threat responses through neutralizing sensory input.

EMDR has been shown to increase interconnectivity of brain structures, as well as overall activity in areas associated with trauma, in as few as the first three sessions (Van der Kolk, 2014). Van Minnen et al (2020) found that EMDR can result in a decrease in fear levels when paired with a more intensive exposure technique. Their study paired EMDR treatment with PE, in an exploration of treatment sequence on PTSD symptoms. While both groups showed a significant reduction of symptoms, self-reports showed a greater reduction in PTSD symptoms in the group in which EMDR followed PE, and less reduction in the group in which EMDR preceded PE. The researchers proposed that their findings were the result of the working mechanisms of the exposure techniques utilized. PE sessions focused on activating fear responses through traumatic content recall, whereas EMDR sessions sought to decrease fear responses through memory processing and resolution of trauma content. In this way, EMDR provided relief from distressing activation.

While these findings are promising, the study did not explore more complex PTSD presentations. Van der Kolk (2014) reported that EMDR was far less effective as a treatment for populations who experienced complex trauma in childhood as compared with PTSD with adult onset. Additional research into the efficacy of EMDR with severely traumatized patients includes pairing EMDR with regulatory therapies aimed at affect and arousal regulation prior to initiating memory re-processing (Gerge, 2020a). Therefore, further investigation into EMDR therapies will continue later in the current paper, during discussion of regulatory constructs.

NET Exposure Techniques. According to Lely et al. (2019):

In NET, therapist and patient collaboratively develop a chronological narrative of the patient's life, emphasizing memories of trauma and perceived support. Developing and revising this autobiographical narrative allows the patient to re-experience avoided traumatic experiences in imaginal exposure. This procedure is considered to modify the patient's neural fear networks and to reorganize autobiographical memories, reducing symptoms and restoring narrative continuity. (p. 370).

Kaltenbach et al. (2020) states that "NET was especially developed for individuals with multiple traumatic experiences" (paragraph 2), and "shows sustained effects on PTSD symptoms as well as on comorbid disorders and functioning" (paragraph 2). The researchers examined the use of NET as an exposure technique in the treatment of refugees suffering from PTSD. Their results showed that over half of participants showed improvement in PTSD symptoms, even at 3- and 6-month follow-up assessments. In a similar study (Lely et al., 2019), researchers compared NET with present centered therapy (PCT), which is a non-trauma-focused approach to treating PTSD that does not utilize exposure techniques. Although the researchers concluded that both NET and PCT are effective treatments for older adult populations with PTSD diagnoses, the study only looked at PTSD criteria of avoidance, arousal, and re-experience, without the additional DSO criteria.

Lely et al. (2019) reported a faster decline in all PTSD symptoms in the PCT group at pretreatment and post-treatment stages but showed a partial symptom relapse of re-experiencing and avoidance symptoms at the four month follow up assessment. This was compared to the NET group, which showed a continuing decline in symptoms into the follow-up assessment. Although these differences were not statistically significant, the researchers state that "repetitive alternation of trauma exposure and cognitive elaboration (in the chronological narrative) is seen

as effective memory processing” (p. 374), which “might imply that addressing re-experiencing and avoidance is required for a sustained treatment effect” (p. 374). PCT specifically addresses relieving daily stress and maladaptive relational patterns, utilizing problem-solving techniques in a present-centered context (Lely et al., 2019), suggesting that this model may address the regulatory and attachment considerations without resolving exposure related symptoms.

The partial relapse seen in the Lely et al. (2019) study was also reported in a study exploring the efficacy of combining non-specific exposure therapies and regulatory skills training (Cloitre et al., 2010). In this randomized controlled trial, women with PTSD resulting from childhood abuse were placed in one of three 2-phase treatment groups. The first group received skills training in affect and interpersonal regulation (STAIR) in phase one, followed by exposure techniques in phase 2 (STAIR/Exposure). The control groups received either supportive therapy followed by exposure (Support/Exposure), or skills training followed by non-exposure supportive therapy (STAIR/Support). Results of this study showed multiple implications for treatment. First, findings showed that the STAIR/Exposure group had a greater overall symptom reduction than did the Support/Exposure group. In addition, the STAIR/Exposure group maintained symptom reduction/remission, with continued improvement into the 6-month follow-up assessment, compared to both control groups. These findings suggested that the most effective treatment models included regulatory and relational skills, in addition to exposure, for effective and sustained symptom reduction.

Limitations to Exposure Techniques. Researchers report that adults with a history of childhood traumatization, CPTSD, and dissociative disorders do not tolerate exposure techniques, including those of EMDR, as well as those suffering from PTSD with adult onset or PTSD due to combat (Gerge, 2020a; Van Minnen et al., 2020; Van der Kolk, 2014). This may be

due in part to the potentially overwhelming emotional responses eliciting traumatic memories may cause (Cloitre et al., 2010). While two of the previously mentioned NET studies included their findings that only temporary symptom increases were experienced during treatment with exposure techniques for both elderly (Lely et al., 2019) and refugee populations (Kaltenbach et al., 2020), these studies did not explore the effects of exposure techniques on more complex symptom presentations, such as those found in CPTSD. However, these studies did show that NET was an effective exposure technique for memory reprocessing and may support both hippocampal and OMPFC functioning. If they can be paired with regulatory techniques, they may also provide these benefits for CPTSD presentations. Kumar et al. (2019) states,

Survivors of complex trauma have difficulty with regulating emotions and trauma-related symptoms, as well as managing self-destructive behaviors including nonsuicidal self-injury, suicide attempts, substance abuse, and other dangerous behaviors. Therefore, the treatment of complex trauma usually requires stabilizing safety and improving the ability to regulate emotions as primary tasks early in treatment before any past-focused explorations of trauma. (Paragraph 8).

As previously stated, when regulatory skills training precedes exposure techniques, individual outcomes are better and enduring (Cloitre et al., 2010). Furthermore, “symptom exacerbation in the STAIR/Exposure condition during phase 2 was lower than that for phase 2 of the Support/Exposure condition and did not differ from phase 2 of the STAIR/Support condition” (p. 922). In other words, the regulatory skills training mitigated the negative arousal responses to exposure techniques, rendering these potential responses non-existent by comparison to non-exposure techniques. “Before being stabilized, neither a relational therapeutic approach, interpretations, or exposure will be particularly effective in work with patient [sic]

with complex traumatization” (Gerge, 2020b, section 4.1, paragraph 4). It is for this reason that regulatory techniques must be included in treatment models prior to exposure work, but that both must be present for the greatest benefits to individuals.

The importance of an individual’s regulatory capacity is further demonstrated when considering co-morbidities such as substance abuse. Experiencing childhood trauma, specifically emotional child abuse, results in impaired self-regulation and emotional dysregulation, due to “adverse impact on brain structure and development” (Goodman, 2017, p. 192). This leads the individual to use substances as a coping tool for self-regulation. “Drug and alcohol abuse is perceived as the person’s attempt to cope with these deficiencies not in order to make the person ‘feel good’ but in order to make the person feel ‘normal’ —or not feel at all” (p. 193). These attempts to regulate through substances is a form of self-medication, as the substance stands in for absentee coping abilities. Until these individuals develop alternate coping and regulatory strategies, effective treatment of the substance use disorder, and the underlying trauma, remains unlikely.

Regulatory Techniques

As has been previously discussed, one must be able to tolerate exposure in order to experience its benefits. “No healing from trauma can occur until a client experiences a sense of safety in their body” (Levine, 1997, as cited in Brown, 2020, p. 115). When the neurobiological response to the exposure is beyond the “window of tolerance” (Siegel, 1999, as cited in Gerge, 2020b, section 1.1), arousal and affect dysregulation sabotage exposure therapies. According to Gerge (2020b), those with CPTSD have even more amygdala activity than those with PTSD alone. The increased amygdala activity increases avoidance of the traumatic material explored during exposure techniques, rendering them less effective. Furthermore, hippocampal memory

processing and integration is inhibited, and the sensory content remains unprocessed. “Trauma processing occurs when old memories are reactivated and linked to a new emotional experience that contains the experience of mastery. This creates space for old memories to be stored again, with new meaning” (Section 5.1). However, “A common error for the practitioners involves beginning to work on memories before the client has developed appropriate skills for maintaining safety and self-management” (Ducharme, 2017, p. 153). Regulating the amygdala and other damaged limbic brain structures, as well as increasing the connectivity to regulatory cortical structures, is required for individuals to approach and then tolerate distressing memories. Only then can memories be integrated and processed.

As was previously mentioned, pairing EMDR with regulatory therapeutic practices may increase the efficacy of EMDR for CPTSD, and lead to greater likelihood of a reduction of symptoms. Gerge (2020a) states that “although exposure therapy is effective in reducing symptoms of simple PTSD, many patients who [sic] complex PTSD and dissociative disorder appear to have difficulties coping with exposure” (paragraph 3). One must work within the individual’s “window of tolerance and the regulatory capacity available” (paragraph 2). Neurofeedback therapy (NFT) is one potential therapeutic intervention which can help repair the damaged regulatory capacity. Utilizing EEG biofeedback, individuals can retrain brain signals through a computer program measuring brain functioning in real time, with results showing improvement in functional connectivity of brain structures after the first session (Gerge, 2020a; Gerge, 2020b; Van der Kolk, 2014). Connectivity is important because it is proposed that traumatic experiences are held isolated in neural areas and are unable to connect with other areas of the brain that are responsible for memory consolidation and processing (Gerge, 2020a). EMDR has been shown to activate brain areas which are “associated with a significant relief

from negative emotional experiences” (Gerge, 2020a, section 1.3.1., paragraph 2). Regulation improves connection and being able to connect to these brain areas is important for effective memory reprocessing.

Gerge (2020a) examined the use of NFT combined with EMDR in the treatment of CPTSD in a case study with an individual suffering from complex PTSD and an unspecified dissociative disorder. Ten sessions of NFT were followed by one EMDR session. NFT provided the regulatory repair so that EMDR could be utilized. After treatment, the individual in the case study was no longer symptomatic. Her regulatory capacity had been restored enough that she was able to tolerate the exposure elements of the EMDR treatment without an increase in trauma-related arousal or flashbacks and other re-experiencing symptoms.

The researcher (Gerge, 2020a) states that NFT would not have been effective alone, as the individual had a basis of relational support in the form of one attachment figure from her childhood, as well as from previous counseling. She also had knowledge of traumatization through psychoeducation, and the EMDR session seemed to be valuable to her treatment, according to the researcher, as well as self-reports from the client in the case study. While NFT has promising results when combined with other therapies, Van der Kolk (2014) reports that the technique itself is not widely available due to health insurance coverage limitations and lack of research funding to garner support for its efficacy.

Fortunately, there are other methods to achieve regulation in affect and arousal systems. Somatic, or body-based, practices are among them. Ogden (2020) describes how sensorimotor psychotherapy aids regulatory capacity by first taking a bottom-up approach to trauma. Part of how this is achieved is through the completion of stress response cycles that have been previously unresolved. As has been previously discussed, immobilization results from an

inability to fight off or escape from threat through SNS activation. If the individual is able to escape the threat, the ANS returns to a neutral state. In immobilization, the body stays in the stress response, releasing stress hormones and remaining in a state of hypervigilance indefinitely. It is the inability to return to homeostasis which manifests itself in trauma responses, as the body and subcortical brain structures continue to sound the alarm because they have not received the all-clear signal from either the MPFC or the return of ventral vagal functioning (Van der Kolk, 2014).

In sensorimotor psychotherapy “we work with the body to stimulate incomplete defensive responses that were evoked but not successfully executed during the original traumatic events” (Ogden, 2020, paragraph 52). Ogden goes on to say, “In addressing the effects of trauma, the first task is to develop resources to regulate dysregulated arousal, then complete actions related to truncated defensive responses, and recalibrate the nervous system so that arousal can remain in a window of tolerance” (paragraph 55). It is at this point that Ogden suggests top-down interventions may be utilized, in order to address cognitive distortions resulting from relational trauma, such as complex trauma in childhood at the hands of a primary caregiver. Ogden states that it is in the combination of top down and bottom-up strategies which results in the greatest efficacy of the treatment of such trauma experiences.

Ogden (2020) also discusses another crucial element of regulation, which directly relates to treatment efficacy in CPTSD: attachment injuries. Resolution of attachment injuries is an essential element of effective treatment in CPTSD, regarding self-concept and interrelational considerations (Dana, 2018; Ogden, 2020; Van der Kolk, 2014). “Treatment needs to address not only the imprints of specific traumatic events but also the consequences of not having been mirrored, attuned to, and given consistent care and affection” (Van der Kolk, 2014, p. 124).

Attachment and CPTSD

Ogden (2020) and others (George & Buchheim, 2014; Jowett et al, 2020; Van der Kolk, 2014) emphasize the connection between complex traumatization and attachment injury in early childhood. The infant relies on caregivers to provide regulation of both physical and emotional needs and sensations. As the child develops, they learn to associate these sensory cues with satisfaction, as their needs have been met. This is known as co-regulation, and is the foundation of self-regulation (Van der Kolk, 2014, p. 115). Without this co-regulation, one cannot develop the self-regulatory skills with which the individual regulates their affect and arousal states. “Experiences of trauma and relational dynamics are the blueprints for children’s developing cognition, affect array, regulatory ability, and physical tendencies” (Ogden, 2020, paragraph 10). This need for attachment to caregivers is part of the survival system, as researchers state:

The founding premise of attachment theory is that...traumatic stress, produces a strong desire for proximity to and comfort by attachment figures; this desire is built into human biology as a survival safety mechanism [which remains] unchanged throughout the lifespan. (George & Buchheim, 2014, paragraph 16).

In addition to these regulatory deficiencies, attachment injuries affect the development of a negative self-concept. George and Buchheim (2014) state that “Early trauma has the most debilitating consequences because, traumatic experience threatens the stability and the differentiation of the personality structure” (paragraph 42). According to Brown (2020), one of the ways that children attempt to meet their need for attachment with a caregiver who is unsafe and dangerous is to internalize abuse or neglect. They rationalize their caregiver’s failings as deserved, which results in experiences of deep shame and contributes to difficulty in forming relationships later in adulthood (Brown, 2020). This can lead to structural dissociative

phenomenon, in which an integrated development of the self is inhibited. This is often as a result of rejecting parts of the self which represent the internalized abuse resulting from attachment trauma (Brown, 2020). This splitting into parts of the self can be as profound as the development of dissociative disorders, such as dissociative identity disorder (DID), but often some element of dissociation is found in the presentation of complex trauma resulting from early childhood abuse (Brown 2020; Sagan, 2019).

An important aspect of healing is to integrate these rejected parts of the self into the whole of the personality (Brown, 2020, Van der Kolk, 2014). This does not involve rejection or erasure of these parts, simply radical acceptance and compassion. However, this is no small feat for the individual, as the rejection of these parts was a necessity of survival in order to maintain the attachment relationship. Van der Kolk (2014) states, “Children are... fundamentally loyal to their caretakers, even if they are abused by them. Terror increases the need for attachment, even if the source of comfort is also the source of terror” (p. 135). George and Buchheim (2014) expanded on this when they stated that attachment needs are so important to the individual that they are “not subservient to a [sic] physiological needs (e.g., hunger)” (paragraph 9).

One proposed method of repairing attachment injuries due to CPTSD is through internal family systems (IFS) (Brown, 2020). Brown discussed utilizing IFS in combination with EMDR in the treatment of CPTSD, stating “targeting attachment-related memories with EMDR should have a positive impact on the individual’s internal working model. The IFS model depathologizes trauma-related splitting and empowers the client to ensure that deeper healing can occur” (p. 120). Through a process of dialoging with rejected and separate parts of the self, the individual learns to accept those rejected parts which were scapegoated into taking the blame for abuse. EMDR allows for a process of imaginal reintegration. These processes can result in

improvement of self-concept, and a recognition of the self as deserving of love and care. This new view of the self can then translate to improved relationships with others, potentially relieving symptoms of interrelational disturbances.

Additional research into attachment and trauma involves including one's romantic partner in the therapeutic process (Laughlin & Rusca, 2020; Johnson et al., 2019). Narrative couples therapy involves compassionate witnessing by one's significant partner or important others and can include the partner in creating a new narrative of wholeness for the abuse survivor.

Exploring and sharing one's story of trauma provides opportunities for positive attachment with important figures from one's personal life. In two studies, (Laughlin & Rusca, 2020; Johnson et al., 2019) researchers explored the proposed application of narrative therapies involving adult survivors of sexual abuse in childhood and their romantic partners. The authors assert that the act of sharing one's story correlates with better treatment outcomes and lends support to the idea that sharing traumatic experiences in relationship is significant in the treatment of complex trauma in childhood. This assertion is further supported in additional research. "Feeling listened to and understood changes our physiology; being able to articulate a complex feeling, and having our feelings recognized, lights up our limbic brain and creates an 'aha moment'" (Van der Kolk, 2014, p. 234).

This emphasis on sharing one's trauma narrative also applies to the relationship with the therapist or provider. "Studies have found that clients with a history of trauma wish therapists would directly inquire about their traumatic experiences" (Kumar et al., 2019, paragraph 3). Ducharme (2017) states, "A significant component of treatment involves assisting clients to put to words their experiences, thus allowing a story to be told" (p. 153). It is not enough to simply organize one's experiences of trauma into a narrative for the individual. Clearly, part of the

healing process involves having one's experience witnessed by a compassionate other.

Therefore, in addition to the exposure and regulatory techniques previously described, it is important to include attachment experiences of being accepted and cared for, as Van der Kolk eloquently described:

...the essence of a therapeutic relationship: finding words where words were absent before and, as a result, being able to share your deepest pain and deepest feelings with another human being. This is one of the most profound experiences we can have, and such resonance...is fundamental to healing the isolation of trauma— especially if other people in our lives have ignored or silenced us. Communicating fully is the opposite of being traumatized. (Van der Kolk, 2014, p. 237)

Expressive Arts Therapy: Bringing it All Together

Based on the aforementioned considerations, one can posit that expressive arts therapy (ExAT) be used as an effective and comprehensive solution to the treatment of CPTSD. Steven Levine, one of the leading contributors to the field of ExAT, “identifies that suffering, while part of the human condition, can be reshaped and transformed through the imagination and creativity” (Levine, 1992, 2009, as cited in Richardson, 2016, p. 5). In the following section, it will be shown how expressive arts therapy addresses neurobiological processes through exposure, regulation, and attachment opportunities. This will be followed by the current author's theorized four-phase treatment model, as an example.

“Expressive arts therapy ... is the practice of using imagery, storytelling, dance, music, drama, poetry, movement, horticulture, dreamwork, and visual arts together, in an integrated way, to foster human growth, development, and healing” (Appalachian Expressive Arts Collective, 2003, pp. 3-4; as cited in Richardson, 2016, p. 3). Multiple researchers (Gerge,

2020b; Richardson, 2016; Sagan, 2019; Van der Kolk, 2014) support the use of ExAT in the treatment of trauma resulting from childhood abuse. They propose that the non-verbal, sensory approaches found within creative expression may support integration and interconnectivity between limbic and cortical brain structures, as well as memory reprocessing in hippocampal structures. Richardson (2016) states that “expressive arts offers the kind of repetitive and sensory experiences necessary” (p. 39) to regulate ANS arousal systems. Gerge (2020b) adds support to these claims, stating:

Experience-based therapies such as body-oriented therapy, EMDR, and art-based psychotherapies can contribute to changed and reestablished narratives through; (a) activating flow and positive experiences and (b) calming experiences in altered states of consciousness. This leads to (c) increased access to internal images and (d) memory reconsolidation through activation of nonverbal memory. (p.4).

One of the additional ways that ExAT regulates arousal and affective states is through movement. Movement helps in the discharging of stress-response energies which were unexpressed due to immobilization and a sense of helplessness (Dana, 2018; Lusebrink, 2010; Ogden, 2020; Richardson, 2016; Van der Kolk, 2014). According to George and Buchheim (2014), helplessness complicates one’s relationship with traumatic memories due to conflicting desires to both avoid and make sense of the threatening experience. Creative expression may help with this conundrum. Small movements, such as those utilized in drawing, writing, and painting, begin to unlock dorsal vagal freeze responses, moving the individual towards a more regulated state (Dana, 2018; Lusebrink, 2010; Van der Kolk, 2014). The act of creatively expressing the intrusive sensory data allows the limbic systems to express and begin to make sense of the confusing experience. However, it is hypothesized that the artmaking allows for

distance from the traumatic content through the act of creating, as opposed to reliving the memory inside the imagination, evoking once again the stress response cycle. In this way the desire to avoid may be mitigated. The inclusion of movement allows for resolution of the before mentioned confounded urges to fight or flee, and the tangible separateness of the created product provides safe distance from the traumatic content so that avoidance strategies are not activated due to becoming overwhelmed by traumatic sensations.

The concept of dual awareness (Gerge, 2020b), which is the ability to attend to “one or more experiences simultaneously” (Gerge et al., 2019, paragraph 36) may also explain how creative expression helps with trauma processing by providing “flexible pathways between the physical, emotional, and cognitive aspects of traumatic experiences” (Gerge et al., 2019, paragraph 37). The individual is able to approach and process the traumatic content without re-experiencing it, potentially activating the cortical DLPFC structures in the process, therefore helping to regulate affective and arousal states because the ANS is not being activated. Gerge et al. (2019) reports that “Both inner images and created pictures supposedly represent processes in the implicit realm and correspond in multifaceted ways with affects and arousal levels of the body” (paragraph 17). These processes support both top down and bottom-up pathways simultaneously. “Neural wiring is available for parallel processing, as well as for integration and distribution of information in both directions, that is, bottom-up and top-down” (Fuster, 2003, p. 67, as cited in Lusebrink, 2010, p. 169).

Additionally, individuals can engage different brain pathways or brain structures, based on the art-forms with which they engage. According to Lusebrink (2010), “The three levels of the expressive therapies continuum (ETC) (kinesthetic/sensory, perceptual/affective, and cognitive/symbolic) parallel the three hierarchical levels of sensory information processing in the

occipital, temporal, and parietal lobes” (p. 170). ExAT differs from other arts-based therapies because all forms of creative expression are utilized, without placing emphasis on one modality. This allows for individuals to choose how to engage creatively, through kinesthetic activities such as movement and drumming, or cognitive activities such as writing. In addition, ExAT encourages intermodal transfers in the creative process, which is the process of moving from one art form to another within the same creative expression (Richardson, 2016). For example, after drawing a picture, one could write a poem or create a dance from the perspective of the picture. The dance may engage limbic areas, while the poetic expression engages cortical structures. It is a process which encourages deeper exploration of creative products and expressions through the engagement of multiple neurobiological systems, but also a process which responds to the unique needs and interests of the individual client.

ExAT processes may also foster attachment healing. Dana (2018) states, “[The] ability to self-regulate continues to develop throughout childhood supported by social engagement with autonomically regulated others” (p. 73). In those with traumatic childhood attachment injuries, one may be able to compensate for missed opportunities in childhood by engaging in such relational experiences within the therapeutic relationship. According to Dana (2018), “Ongoing opportunities for co-regulation, reliable relationships based on reciprocity, and time spent with safe people engaging in shared activities are all important elements of an enlivened neuroception of safety” (p. 42). ExAT provides these kinds of opportunities through the creative process. Collaborative, responsive, or synchronistic artmaking between therapist and client provides relational opportunities for shared experiences and empathetic witnessing. Furthermore, mutual acceptance of and appreciation for art products fosters a sense of accomplishment and pride in

traumatized individuals. This leads to experiences of competency and success, which over time encourages positive self-conceptualization.

In addition, the experience of compassionate witnessing of traumatic content provides individuals the opportunity to see themselves as deserving of care and compassion, allowing for the release of self-blame and feelings of worthlessness which often result from relational trauma. Finally, the therapeutic relationship can help increase self-awareness, which leads to increased ability to express and regulate internal states and diminished vulnerability to dorsal vagal collapse. “The capacity to fully experience one’s feelings, particularly when they are intense and/or painful, is greatly enhanced by being able to do so with a supportive, empathetic and emotionally present other” (Fosha, 2001, p. 229, as cited in Dana, 2018, p. 73).

Theoretical Four-Phase Treatment Model: Expressive Trauma Processing

To illustrate how ExAT may address efficacy issues in the treatment of CPTSD, I offer my four-phase model which I propose as treatment recommendations for CPTSD. This model was constructed and explored through coursework in Imaginal Psychology and constitutes the arts-based inquiry which led to the research explorations of the current writing. In addition, these explorations were based on my own experiences with complex trauma. These arts explorations utilized elements of active imagination, upon which EMDR was partially based (Swan-Foster, 2018). Additionally, elements of NET were utilized in the memory re-processing activities. However, instead of purely linguistic expressions, creative media was employed as the “language” through which somatic experiences of trauma were “spoken” and through which meaning making was employed.

Based on my own preferences, I utilized poetry and visual arts as my primary modalities in the following exercises. However, the combination of the two art forms may have implications

beyond mere preference. Brilliantes-Evangelista (2013) examined the effects of visual art making and poetry in the treatment of symptoms of depression and PTSD in adolescents with a history of abuse. Findings showed that a significant reduction of PTSD symptoms occurred only in the visual arts group, while a significant reduction of depressive symptoms was observed only within the poetry group. Potentially, combining these treatments could lead to combined benefits, as I experienced for myself as a result of my inquiry.

In the following section I will describe my four-phase model as an art-based inquiry and explore its hypothesized neurobiological working mechanisms, as well as potential treatment implications for CPTSD. While I utilized visual art and poetry as the modalities for creative expression in the final projects, one could adapt these concepts to incorporate other artforms. Furthermore, I incorporated somatic expressions of “truncated defensive responses” (Ogden, 2020), which I synchronistically explored while compiling the visual and poetic expressions. These supplementary expressions informed and deepened the process but were not included in the final arts products, and so they are not presented as interventions in the subsequent section.

Phase 1) Regulation of Affect and Arousal States

Establishing a sense of safety and calm is the first step in approaching trauma. Swan-Foster (2018) states that neural pathways can be redirected using the imagination, and one can calm an overstimulated nervous system as well. Through the process of creating a “Safe Haven” altar (Figure 1), one can physically create a representation of the sensation of safety. The act of constructing a tangible representation allows for tactile contact with calming stimuli. This process provides an embodied experience of safety, one which the individual provides for themselves, empowering their sense of agency as well. The altar can be an ongoing work as individuals can continue to add sensory elements which provide a sense of safety as they are

identified. Dana (2018) describes developing and identifying “glimmers” which are “cues of safety arising from a ventral vagal state of health, growth, and restoration” (p. 67). Dana states that these cues are “often sensed in micro-moments of ventral vagal activation... [and] can calm a nervous system in survival mode and bring a return of autonomic regulation” (p. 68). I included comforting sensory elements such as soft cloth cushions, a cup of coffee, the warmth of a fire, writing and creative tools, and elements of nature, to construct a “home” that provided the sense of safety that was lacking in my own experiences with complex trauma (Figure 2).

Engaging in this process provides practice experiences of calm and regulation within the body and brain structures of the individual. Working with these pleasurable elements provides calming sensory input for thalamic processing and narrative construction. This in turn allows the amygdala to activate ventral vagal connection, signaling to the brain stem and hypothalamus that there is no danger, allowing for the cessation of hormonal secretions of adrenaline and cortisol. Furthermore, the hippocampus can integrate experiences of calm and safety, strengthening its ability to process memories while building positive experiences upon which it can draw from in the future. Finally, the regulated limbic system facilitates cortical functioning, as the stress response has not engaged and shut down the prefrontal structures. Individuals can think more clearly and have conscious experiences of regulation and safety. The MPFC is given the opportunity to experience modulating emotional experiences of calm and safety, while the DLPFC gains experiences of moving into a state of regulation, orienting itself to the possibility that the individual may experience calm again in the future.

Phase 2) Exposure to Traumatic Memories and Experiences Through Artistic Expressions

Traumatic content intrudes upon the individual through intrusive memories and flashbacks. While constructing the altar and enhancing one’s ability to regulate, memories and

sensory overload may continue to intrude. An additional regulatory art process involves crafting a journal in which these memories and sensory stimuli can be illustrated or written, as the memories come (Figure 3). This process could be adapted to a series of dances or musical compositions. This is not a process of actively seeking traumatic content, rather it is the process of containing it as it is experienced in daily life. As such, this phase is client-led and empowers the individual's "expert" knowledge of their own needs and limitations to guide treatment. This process allows for regulation of arousal and affective states during intrusive exposure re-experiencing events, while preventing avoidance reactions. This process mimics thalamic functioning and provides support for the overwhelmed structure through actively engaging in this sensory collection. Furthermore, the amygdala can convey an "all-clear" signal to the ANS, because the act of creating may facilitate energetic expression of the threat response. As content is collected, examination of the traumatic material can begin at a distance, through the representational expressions of the art products. Dual awareness is achieved through this process of externalizing as well. Creating the symbolic representation of traumatic experiences allows the DLPFC to differentiate between memories and present situations, preventing re-experiencing as though the trauma is being relived in the present moment (Figure 4).

Phase 3) Re-processing Memories Through Re-storying Personal Narratives

As traumatic sensory content is collected and expressed through symbolic representation, top-down and bottom-up processing can occur simultaneously. According to Lusebrink (2010), the symbolic component of the ETC "emphasizes global processing involving input from sensory and affective sources, autobiographic processing, and symbolic expressions" (pp. 171 & 173). Furthermore, utilizing symbolism in the ECT "appears to primarily reflect the 'top-down' processes of the orbitofrontal cortex.... [whose function] includes the retrieval of

autobiographical consciousness” (p. 173). However, one may be able to utilize a dual top-down and bottom-up approach if the symbolic content represents sensory input from the limbic system. Sensory input engages bottom-up systems, and symbolic processing engages top-down systems. This may constitute a whole-brain approach as the systems are recruited collectively in the expressive art making. Then, OPFC processing of sensory data allows for “updating” of the sensory input, providing the opportunity for the individual to re-story their personal narrative, and make new meaning from the old memories and sensory input from the limbic structures of the thalamus and hippocampus.

The third phase of the current model provides an example of how this process may work. Once traumatic content has been expressed and collected, deeper processing of the symbolic material occurs through the construction of a second book, in which the unorganized intrusive content expressed in the first book can be formed into a narrative of one’s experiences and given new meaning through their expression (Figure 3). This utilizes NET principles of memory re-processing, while simultaneously aiding in thalamic, hippocampal, and OPFC functioning. As was previously quoted, “Trauma processing occurs when old memories are reactivated and linked to a new emotional experience that contains the experience of mastery. This creates space for old memories to be stored again, with new meaning” (Gerge, 2020b, Section 5.1). Old memories are evoked through the sensory content of the thalamus and hippocampus and are then linked to the positive experience of “mastery” through the creative act. The creative act transforms the painful experience into a work of art and becomes a source of pride and accomplishment for the individual (Figure 5 & 6). This new meaning is then linked to the old memory, and stored in the hippocampus, ready to be drawn upon in the future. The updated narrative of the OPFC is shared with neighboring MPFC systems which regulate the limbic

system with new meaning from which to draw upon. As more memories are processed, the cycle repeats, strengthening the process through the neuroplasticity of the OPFC.

Phase 4) Sharing Arts Products for Compassionate Witnessing

The previous phases have provided examples of processes which may lessen exposure and regulatory symptoms in CPTSD, while the fourth phase addresses the attachment symptoms. Some improvement in self-concept will have likely occurred in the previous phases due to the positive experiences of creating works of art. This can be amplified through the process of sharing these art products. The act of creating in the first two stages is free from aesthetic critique, but the third stage of re-storying provides opportunities to revise creative products into aesthetically pleasing products, which still contain the affective and expressive qualities of their original emergence. This may increase a sense of pride and accomplishment. The act of sharing these art-products, even if only within the therapeutic relationship, may further increase positive self-concept, as well as address interrelational disturbances. As has been previously described, compassionate witnessing of art-products provides opportunities for co-regulation and positive relational experiences. These art products can be further shared with significant others in the individual's personal life, or even shared as part of a community presentation, depending on the desires of the individual and available opportunities.

Discussion

It has been shown throughout the current literature review that effective treatment of CPTSD resulting from complex trauma in childhood has many elements. Exposure to traumatic events addresses issues of re-experiencing, and as one gains control over these intrusive memories, one is less likely to seek to avoid traumatic material. Regulation of affect and arousal states addresses the neurobiological injuries caused by traumatic experiences, allowing for a

more functional brain and nervous system. This regulatory capacity aids in memory processing, which in turn aids regulation. Improved regulatory capacity also extinguishes the need to avoid distressing sensory stimuli, further addressing avoidance symptoms. Attending to attachment injuries provides opportunities for co-regulation for further improvement of regulatory capabilities. Furthermore, healing attachment injuries provides the groundwork for improving interrelational issues through positive interactions with compassionate others and improves self-concept through acceptance and compassionate witnessing.

The interconnected nature of the symptoms of CPTSD is echoed in the interconnected qualities of the treatments explored. It has been shown that attempting to treat one element of traumatic experience is at best inefficient, and at worst, causes additional harm to the individual. However, it has also been shown that effectively attending each treatment construct positively influences the other domains, resulting in healing effects that are exponential. Here again, it is shown that treatment of all symptom domains exhibited in CPTSD is vital for effective treatment, therefore acknowledgement of and accurate identification of CPTSD is the first step towards effective treatment, both of CPTSD and its co-morbidities.

Several limitations to research were identified in the current paper. Diagnostic inconsistencies made research difficult and forced generalization between PTSD and CPTSD. A lack of empirical research into CPTSD, as well as ExAT, means that the hypothesized conclusions are currently unproven. Further research is needed, in all areas of CPTSD research, including diagnosis, treatment, and neurobiological considerations. Additionally, examining the effects of ExAT on neurobiological structures, and symptoms of CPTSD, is recommended.

This literature review attempted to provide a glimpse into the current body of knowledge on CPTSD, as well as how ExAT may be an effective treatment. Identification of CPTSD and its

requirements for effective treatment was the first step. The author's hypothesized treatment model was offered, but vigorous testing and further development is required. It is imperative that continued investigation occur, that theories be tested, and treatment models be designed and critiqued based on empirical evidence. Research has only just begun.

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Figures



Figure 1. Safe Haven Image 1



Figure 2. Safe Haven Image 2



Figure 3: Collecting imaginal explorations into art journals allowed for a narrative organization of traumatic experiences and memories. This expression led to the integration of and the opportunity to make new meanings of my traumatic experiences. Left: first book collecting intrusive memories and sensory experiences of trauma. Right: second book in which images were reorganized into a narrative and given new meaning.



Figure 4. Intrusive thoughts and trauma images. This image expressed the emotional and sensory experiences of a traumatic memory, through active imagination.



Figure 5. Her Untouchable Purity. Making new meanings from past experiences.

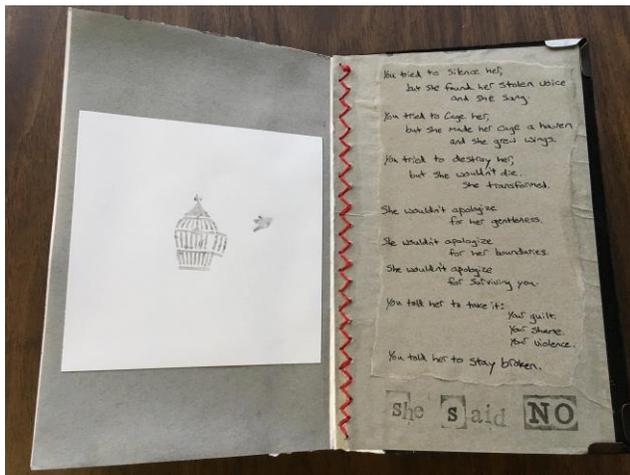


Figure 6. A New Ending. Writing and dialog with the images led to empowerment, and the opportunity to reclaim my truth and honor my experience of survival.

THESIS APPROVAL FORM

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