Expanding Trauma Care:

Somatic Experiencing for Anxiety Outside PTSD

by

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Abstract

This capstone explores the potential application of Somatic Experiencing (SE), a body-oriented therapeutic method, for treating anxiety disorders that do not meet the diagnostic threshold for Post-Traumatic Stress Disorder (PTSD). The literature review examines the neurobiological and psychophysiological impacts of trauma, highlighting how unresolved trauma can manifest as anxiety through chronic nervous system dysregulation, especially if chronic trauma was experienced in childhood. This capstone posits four purpose statements, which includes (1) what the essence of trauma is and its impact on an individual's nervous system, (2) how trauma can manifest into an anxiety disorder, (3) is SE efficacious for individuals with trauma-related anxiety disorders, and lastly (4) I will discuss a potential framework regarding the use of SE for anxiety disorders for mental health professionals to utilize in therapy sessions with clients. Additionally, the framework presented, the RESTORE Model, is based on the current research in the mental health field regarding SE, trauma, anxiety, and the nervous system. With that said, since the framework is completely conceptual, there are no research findings. However, based on the research presented, SE has been shown to be an effective treatment option to regulate one's nervous system when exposed to trauma. The implications of this capstone and the framework presented aims to expand trauma care and inform mental health practitioners about the potential benefits of integrating SE practices into their sessions with clients struggling with trauma-related anxiety disorders.

Keywords: Somatic Experiencing, Polyvagal Theory, anxious attachment, trauma, anxiety

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Chapter One: Background and Rational

Trauma is an intense and universal human experience that can involve personal suffering, witnessing a distressing event, or learning about harm to close individuals. It is subjectively perceived as psychologically and physically painful, leading to significant mental and physical impairments that may develop immediately or slowly over time (Feriante & Sharma, 2023). A central theme among traumatic experiences is the adoption of a *victim* identity, resulting from feelings of fragility and instability (Perrotta, 2019). Notably, trauma experienced in childhood tends to lead to worse long-term outcomes compared to trauma in adulthood (Feriante & Sharma, 2023).

Traumatic experiences are broadly categorized as *single* or *Type 1* if they are infrequent or *repeated* or *Type 2* if their effects persist and are expressed behaviourally or emotionally (Perrotta, 2019). Additionally, acute trauma, characterized by an immediate, short-lived fight-or-flight response, engages the sympathetic nervous system to aid survival. However, if this intense reaction is unresolved or prolonged, it can evolve into a chronic trauma response (Perrotta, 2019). Chronic trauma can result in feelings of emptiness, despair, hostility, derealization, loss of self-coherence, irritability, emotional dysregulation, and self-injurious tendencies. This can ultimately develop into what is known as post-traumatic stress disorder (PTSD) (Perrotta, 2019).

The neurobiological impacts of trauma can help us to understand how it can significantly contribute to its lasting effects. The brain's innate fight-or-flight response can become dysregulated post-trauma, leading to physiological impairment and PTSD symptoms like flashbacks, hyperarousal, insomnia, numbing, and avoidance (Thomason & Marusak, 2017). These symptoms, persisting for over a month, indicate neurobiological changes. Following this concept, I will discuss neurobiological factors affected by trauma such as how the hypothalamic-

pituitary-adrenal (HPA) axis, a central stress-regulating system, is often disrupted by trauma, imbalances in brain chemicals like norepinephrine, which are crucial for the fight-or-flight response, serotonin activity, decreased gamma-aminobutyric acid (GABA) activity (an inhibitory neurotransmitter), and structural and functional changes in key areas like the hypothalamus and amygdala.

I will further discuss how the nervous system profoundly impacts our stress response and is deeply affected by trauma. The Polyvagal Theory provides an integrative framework for understanding how the autonomic nervous system (ANS) responds to threat and safety (Agorastos et al., 2019). After trauma, this system can become hypersensitive, causing the body to react to safe situations as if they were dangerous, leading to chronic, unhealthy stress responses (Conroy & Perryman, 2022). This explains why mental health professionals often utilize Somatic Experiencing (SE) or other somatic related therapies for trauma patients, as these modalities directly target the dysregulated physiological symptoms rooted in the ANS. By working directly with autonomic activation clients can learn to increase their interoceptive awareness, regulate bodily sensations, and restore a sense of internal safety (Conroy & Perryman, 2022).

Furthermore, I will discuss how trauma can manifest as an anxiety disorder, particularly due to the long-term impact of childhood trauma on adulthood and the role of anxious attachment style. Early traumatic experiences can disrupt the development of a stable internal sense of safety, making the nervous system more reactive to a perceived threat. Individuals with childhood trauma often exhibit low self-esteem, developing feelings of vulnerability and incompetence, especially if caregivers were the source of trauma, which can lead to an anxious attachment (Downey & Crummy, 2022). Although an anxious attachment does not necessarily

lead to an anxiety disorder, research has shown that it increases the vulnerability to anxiety symptoms, as well as showing a strong correlation between anxious attachment and higher rates of anxiety disorder (Blake et al., 2025). As a result, everyday stressors may trigger excessive worrying, hypervigilance, and fear of abandonment. To cope, survivors may construct a *false self-image* to mask their vulnerability, seeking validation and reassurance from others (Downey & Crummy, 2022). Childhood trauma is also strongly correlated with social anxiety, including fear of positive evaluation (FPE) and fear of negative evaluation (FNE), where individuals struggle to process social information (Downey & Crummy, 2022). Additionally, emotional abuse in childhood is a key predictor of adulthood anxiety, leading to severe stress, unhappiness, and internal regulation difficulties (Turki et al., 2024).

Given the deep, body-level impacts of trauma, SE has emerged as a body-oriented therapeutic method developed by Peter Levine to address and resolve these lasting effects (Brom et al., 2017). SE is based on the core belief that trauma symptoms arise because the body's instinctive *fight, flight, or freeze* reactions were not fully completed or *discharged* during the traumatic incident, resulting in an activated or dysregulated nervous system (Brom et al., 2017). Unlike traditional *top-down* cognitive therapies, SE utilizes a *bottom-up* approach, which targets the nervous system and structures like the brainstem and limbic system (Levit, 2018). The theory states that the body *stores* traumatic memories as trapped energy (Brom et al., 2017). The primary goal of SE is to modify the trauma-related stress response by gradually releasing this *stuck* activation, helping clients increase their tolerance for uncomfortable and distressing sensations and emotions, and help re-regulate their nervous system (Brom et al., 2017).

To better understand the utilization of SE with individuals who have encountered trauma, I discuss the mind-body connection. Trauma profoundly disrupts this connection, storing

overwhelming emotional reactions not as integrated memories but as visceral sensations or surreal images, and creates a disconnect that leaves individuals in either a state of high alert or emotional numbness (Nixon, 2024). Therefore, effective interventions for trauma-related anxiety disorders must address this bodily impact to facilitate physiological processing and restore a healthy sense of self. The body's sensory systems, including the vestibular system (balance, safety, grounding) and somatosensory system (touch, proprioception), are deeply affected (Kearney & Lanius, 2022). Trauma can amplify feelings of danger through the vestibular system. Since the vestibular system helps the brain determine whether the body is safe, stable, and oriented, trauma to this area can create persistent feelings of imbalance or danger, leading to hypervigilance and dissociation (Kearney & Lanius, 2022). For the somatosensory system, because trauma heightens sensitivity to bodily signals, gentle affective touch that releases oxytocin may feel uncomfortable or threatening for trauma survivors, triggering a defense response rather than comfort (Papi et al., 2025). SE directly addresses these bodily impacts, helping individuals reconnect with their bodies in a safe and titrated manner through mindfulness, breathwork, and movement (Papi et al., 2025). Clinical trials and case studies demonstrate promising results in reducing PTSD symptoms and improving nervous system regulation with SE. I further discuss these clinical trials and case examples in chapter two.

The Problem: A Gap in the Literature for Anxiety Disorders Not Meeting PTSD Diagnostic Thresholds.

While the current body of evidence strongly supports the efficacy of SE in reducing trauma-related symptoms and restoring nervous system regulation within the context of PTSD, there is a significant gap in the literature regarding its application to other anxiety disorders that do not necessarily meet the diagnostic threshold for PTSD. Due to the very limited empirical

research, it is very difficult to draw firm conclusions on the efficacy of SE on anxiety related disorders such as social anxiety, attachment-related anxiety, generalized anxiety disorder (GAD), and panic disorder. For example, an individual who may have had a traumatic experience in their childhood may suffer from social anxiety in adulthood rather than PTSD. With SE research focusing on symptoms related to PTSD, this implies a significant lack of recognition for its use for social anxiety, relationship anxiety, and other related anxiety disorders that may stem from trauma but do not meet a PTSD diagnosis. This gap in the literature is a critical concern as it may limit a therapist's willingness to implement SE for these conditions, thereby potentially depriving individuals of a beneficial, body-centered approach to healing.

Purpose Statements

To address this oversight in the literature, this capstone addresses four purpose statements/questions. I will discuss (1) what the essence of trauma is and its impact on an individual's nervous system, (2) how trauma can manifest into an anxiety disorder, (3) is SE efficacious for individuals with trauma-related anxiety disorders, and lastly (4) I will discuss a potential framework regarding the use of SE for anxiety disorders for mental health professionals to utilize in therapy sessions with clients. By discussing these statements, this capstone ultimately aims to argue for the expansion of SE's application beyond its established role in PTSD treatment, revealing its potential efficacy to address conditions such as social anxiety, attachment-related anxiety, GAD, and panic disorder. This research is primarily aimed at informing practicing mental health clinicians about the potential benefits of integrating SE's principles and techniques into their work with clients who present with a wide range of anxiety disorders. This capstone advocates for a more holistic, somatic approach to mental health care, specifically recognizing that anxiety that stems from previous trauma profoundly impacts the

entire psychophysical system and thus deserves interventions that address both mind and body.

Contribution to the Field

This capstone is aimed to encourage mental health professionals to consider SE as a practical and valuable intervention for a wider array of anxious clients. By thoroughly outlining the neurobiological and psychophysical pathways through which trauma contributes to anxiety, and SE's direct influence on these systems, this research provides a theoretical foundation for why SE may be efficacious for anxiety disorders beyond PTSD. This expands resources for therapists who encounter clients with anxiety rooted in nervous system dysregulation, regardless of a formal PTSD diagnosis.

Moreover, this capstone also advocates for a more holistic approach to the treatment of anxiety by looking into somatic therapy. This encourages a perspective away from cognitive approaches to a more body-centered approach, which might be more effective for individuals whose anxiety manifests somatically. The research and topics discussed in this capstone can provide a new framework for counsellors to use when sufficient relief from talk therapy has not been met. By understanding what goes on inside the body when encountering symptoms of anxiety, this can help clients learn how to regulate their nervous system. For example, in the case of attachment anxiety, by learning how to regulate one’s nervous system when anxiety symptoms come up in relationships, the individual can only then start to think logically and with compassion towards themselves. This can also help with relieving those *stuck* trauma memories as individuals learn to process and regulate their nervous system.

Finally, this research opens new possibilities for future studies by suggesting that SE may have a broader therapeutic function than currently acknowledged. By placing SE within the context of subthreshold trauma-related anxiety, this work encourages further investigation into

somatic and body-based therapies as viable interventions for diverse trauma-related anxiety disorders.

Reflectivity and Positionality Statement

The inspiration in part behind the topic of this capstone is from an individual who had been experiencing sexual anxiety sensitivity. Sexual anxiety sensitivity is fear of physiological sensations that occur due to sexual arousal (Byers et al., 2023). Symptoms include a rapid heartbeat, sexual avoidance, and reduced sexual pleasure. The person indicated that she would often experience terrible pelvic pain when being intimate with her partner, which is how this anxiety developed. After going to a pelvic floor specialist, she learned that her anxiety and pain was due to a traumatic experience she had with her pelvic floor when she was barely an adolescent. Even though she had forgotten about it and moved on, her body had not. The trauma to the pelvic floor caused the muscles there to become overly sensitive as a *defence mechanism* so the trauma does not happen again. This notion that the body *remembered* the trauma and had rewired itself fascinated me. This is when I learned about somatics and the different therapies that relate to it. As I was doing my research on somatic therapies, it became clear it was an effective treatment for addressing PTSD symptoms. PTSD symptoms are very somatic, so it makes sense to use somatic therapy to address these bodily responses. However, when remembering this person's experience, I realized that her symptoms were closely related to anxiety and fear rather than PTSD. Thus, I became curious to know if somatic therapy, specifically SE, would have also been an effective treatment for her. This is when I realized there was a gap in the literature regarding the use of somatic therapy in the treatment of trauma-related anxiety disorder that are not as extreme as PTSD.

Moreover, I became more intrigued with somatic therapy when my own therapist started using it with me to treat anxiety. As I started to practice her teachings, I gained significant perspective on what anxiety was doing to my body, along with learning self-compassion. By being more equipped to regulate my nervous system during high moments of anxiety, I became better at thinking logically and grounding myself. As I noticed somatic therapy working for my anxiety, I further became curious as to how effective somatic therapy can be for anxiety disorders that stem from trauma. For example, adults who experienced childhood trauma may have psychologically moved on, yet their bodies can still cling to defense mechanisms that once helped them survive but no longer serve them in adulthood (Cross et al., 2019). Because this situation is not specific to PTSD, somatic therapy may be overlooked. However, it could provide individuals with a clearer understanding of what is happening within their nervous system, thus serving as a starting point for addressing the underlying cause.

Furthermore, I must address my positionality within this research. As a student counsellor, my social location influences how I approach the research questions described in this capstone. I occupy the role of both learner and practitioner-in-training, which influences the way I integrate both theory and research. My academic background has exposed me to various treatment models, and I have developed a strong interest in the mind-body connection when it comes to trauma and anxiety. My interest in this research, from both academic curiosity and personal experiences, has led me to question how well diagnosis-centered approaches address the lived experience and struggles of clients, and how somatic therapy may offer an alternative approach to healing.

From a research paradigm perspective, I lean toward a constructivist worldview. I believe knowledge is shaped by social, cultural, and relational contexts rather than being a fixed reality.

Trauma itself is not only a neurobiological concept but also arises from cultural narratives, relational patterns, and different worldview understandings. This paradigm influences my approach by valuing subjective experiences. This means that not everyone will have the same trauma responses or respond the same to treatment. Thus, any therapeutic treatment must be adapted to the client. Additionally, I recognize that sociocultural factors influence how trauma and anxiety are experienced and treated. Gender expectations, systemic inequalities, and cultural stigmas around mental health shape the way trauma-related anxiety emerges. These realities allow me to understand that somatic therapy is not something that can be viewed on its own and must be practiced and understood within the cultural and social context of how the individual is receiving it.

Through this research, I hope to contribute to a growing conversation about expanding the use of somatic therapy beyond that of PTSD and include other subclinical forms of trauma-related anxiety disorders. My expectation is to not only address the gap in the literature, but to encourage mental health professionals to consider somatic therapy in the treatment of anxiety disorders to help further empower their clients and reconnect them with their bodies. By doing so, I hope to broaden clinicians' understanding of how somatic interventions can complement cognitive and emotional work, supporting a more holistic healing outcome.

Definition of Terms

To provide clarity for the reader, several key terms are defined below as they are used in this study.

Anxious Attachment

Individuals characterized by a negative view of themselves and an intense fear of interpersonal rejection and abandonment (Jiang, 2021).

HPA axis (Hypothalamic-Pituitary-Adrenal axis)

The HPA axis is the body's central stress response system. It involves communication between the hypothalamus, pituitary gland, and adrenal glands to regulate stress hormones (Chrousos et al., 2023; Murphy et al., 2022).

Hyperarousal / Hypoarousal

Hyperarousal refers to a state of heightened physiological activation, often involving hypervigilance, exaggerated startle responses, and sleep difficulties. Hypoarousal refers to reduced physiological activation, often involving emotional numbing, dissociation, or withdrawal. Both are forms of nervous system dysregulation commonly linked to trauma (Sherin & Nemeroff, 2011).

Polyvagal Theory

A framework proposed by Stephen Porges that explains how the vagus nerve regulates stress and safety responses through three branches of the autonomic nervous system, which include the sympathetic nervous system, parasympathetic nervous system, and the enteric nervous system (Kolacz et al., 2019).

Somatic Experiencing (SE)

A body-oriented therapeutic approach developed by Peter Levine, which focuses on resolving trauma symptoms by releasing incomplete fight-flight-freeze responses (Brom et al., 2017).

Subclinical trauma-related anxiety

Anxiety symptoms rooted in trauma that do not meet the full diagnostic criteria for PTSD but still impair functioning (Ross et al., 2021).

Outline of the Capstone Project Chapters

The rest of the capstone will include chapters two and three. Chapter two consist of an

introduction paragraph that will give readers an idea of the themes being explored. The first theme will address my first purpose statement: What is the essence of trauma and its impact on individuals' nervous system? I break this down into two sub-themes that include the two different types of traumas (acute and chronic) and the neurobiological impacts of trauma. The second theme addresses my second purpose statement: Can trauma manifest into an anxiety disorder? This is also broken down into two sub-themes where I discuss childhood trauma and anxiety in adulthood, and the impact of anxious attachment style in relationships. Lastly, my third theme will address my third purpose statement: Is SE efficacious for individuals with trauma-related anxiety disorders that do not meet a PTSD diagnosis? This is broken down into three sub-themes, where I discuss what SE is, trauma and the mind-body connection, and the use of SE for anxiety disorders.

Chapter three will consist of a discussion of the research and its future implications. Then, I will discuss a potential framework for mental health professionals to utilize regarding SE for trauma-related anxiety disorders.

Chapter 2: Literature Review

The following chapter will discuss the realities of trauma and the different types, its impact on the nervous system, effects of childhood trauma in adulthood, and the efficacy of SE for trauma-related anxiety disorders that do not meet a PTSD diagnosis.

What is the Essence of Trauma and its Impact on Individuals' Nervous System?

Types of Traumas

To fully understand the concept and underpinnings of SE, we must first understand the central features of trauma and how it connects to the mind and body. According to Perrota (2019), the word trauma itself comes from the Greek word for wound or hurt. Simple origin yet deep meaning. Psychologically, Perrotta defined it as an experience that can be something you go through yourself, witness, or even learn about happening to someone close. It is subjectively perceived as intensely painful or distressing (Perrotta, 2019). It is tied to significant severe distress and can lead to real, often debilitating mental and physical impairment, whether that's immediately after the event or something that lingers over time. The DSM-5 has defined trauma as experiencing death, possible death, severe injury, or sexual assault, either personally or by witnessing it (Feriante & Sharma, 2023). Additionally, you do not need to experience the trauma yourself. It can affect you whether you see the event or hear about it happening to someone else, especially when it involves harm. Also, due to the severe stress, trauma can even produce feelings of powerlessness and vulnerability (Perrotta, 2019). Traumatic events can range from the sudden loss of a loved one, physical or sexual abuse, and natural disasters to exposure to war and violence (Feriante & Sharma, 2023). What is similar between these traumatic events is that it changes the person's perception of their well-being, often leaving them feeling fragile and unstable (Perrotta, 2019). Moreover, Feriante and Sharma (2023) describe trauma as ubiquitous

as it is frequently encountered throughout life, especially childhood trauma. Current data strongly suggests that trauma experienced in childhood tends to lead to worse outcomes compared to trauma in adulthood (Feriante & Sharma, 2023), which I will get into more later in this chapter.

Acute Trauma. An acute trauma response or acute stress reaction is that immediate short-lived fight or flight surge. It is the sympathetic nervous system kicking into full gear in response to a real or perceived threat. It is designed to help one to survive right now (Feriante & Sharma, 2023). If that intense initial reaction does not resolve or if the threats keep coming or the experience is prolonged, that is when it can evolve into a chronic trauma response. Furthermore, traumatic events can be categorized into two sections. The first one being *single* or *type 1* if they are infrequent, and the second one being *repeated* or *type 2* if the effects of the trauma persist and are expressed repeatedly through linked behaviours (Perrotta, 2019). If the trauma is not processed in a healthy manner, this condition can rapidly become chronic, resulting in distress such as feelings of emptiness, despair, hostility, derealization, loss of self-coherence, irritability, emotional dysregulation, and self-injurious tendencies (Perrotta, 2019). With that said, when this type of trauma becomes long-term and overwhelming, it may develop into what is known as PTSD.

Beyond these classifications, the experiences of war survivors introduce complex notions of *double wounds* and *unknown trauma*. For example, Cathy Caruth, a leading theorist in trauma studies, theorized that trauma is not fully experienced at the time of the event due to it being "too soon, too unexpectedly, to be fully unknown," and that it returns later (Caruth, 1996, as cited in Ahmad et al., 2023, p. 4). That said, even if this *unknown* trauma remains in the unconscious, it can repeatedly interfere with our consciousness, often through nightmares and flashbacks. This

concept suggests that trauma survivors may not fully understand the nature of the traumatic event. Similarly, Francine Shapiro suggests that acute trauma can disrupt our brain mechanisms behind the adaptive information processing model (AIP) (Shapiro, 2018, as cited in Jarero & Artigas, 2022). This model suggests that our brains will naturally process and store information adaptively. When an acute trauma occurs, aspects of our memory might not be fully integrated from short-term to long-term memory, which leaves memories *stuck* in their original form (sounds, smells, emotions, sensations) (Jarero & Artigas, 2022). This model is relevant because it may help understand why individuals exposed to trauma will often mistake a stimulus, such as a loud sound or tone of voice, as threatening and not understand why, leaving them to react emotionally or physically. An effective intervention for this is EMDR therapy (Eye Movement Desensitization and Reprocessing), which was developed by Shapiro (2018). EMDR helps clients access and reprocess their stuck memories through techniques such as bilateral stimulation (e.g., eye movements) (Feriante & Sharma, 2023).

Lastly, another category of acute trauma is acute traumatic pain. This is defined as an unpleasant sensory and emotional experience due to actual or potential tissue damage (Zanza et al., 2023). Injuries can involve fractures, dislocation, sprain, strain, or damage of tissues involving bone, ligament, muscle, tendon, or joint (Zanza et al., 2023). A consequence of not controlling the pain after a traumatic event is the development of PTSD. Inadequate pain control is often attributed to cultural, professional, and systemic shortcomings, including disregard for patient distress, improper use of medications, limited interdisciplinary cooperation, and the absence of consistent pain assessment practices. Poorly managed acute pain significantly diminishes both clinical and psychological outcomes, as well as overall quality of life (Zanza et al., 2023).

Chronic Trauma. Chronic trauma refers to the repeated exposure to multiple types of traumas and is often ongoing. It is also referred to as *complex trauma* and often occurs during childhood and adolescence (Ross et al., 2021). Chronic trauma is viewed differently from other types of traumas such as trauma from natural disasters because it typically includes as least one interpersonal trauma. For example, physical or sexual abuse intentionally inflicted by another person is referred to as an interpersonal trauma (Ross et al., 2021). Furthermore, a study found that youth who experienced chronic trauma exhibited more PTSD symptoms and general emotional and behavioural problems than youth who experienced acute trauma. However, a different study found that a group who experienced acute trauma were rated higher on PTSD symptoms compared to a group who experienced chronic trauma who instead experienced more severe behavioural problems (Ross et al., 2021). Findings like these suggest that PTSD severity may not be correlated with chronic trauma but rather the difference in the type of trauma experienced. This tells us that treatments for treating chronic trauma may not hold the same efficacy as it depends on the level of PTSD the individual experiences. For example, someone who experiences a prolonged exposure to trauma can experience complex PTSD (C-PTSD). According to the International Classification of Diseases, 11th Revision (ICD-11), C-PTSD "is a disorder that may develop following exposure to an event or series of events of an extremely threatening or horrific nature, most commonly prolonged or repetitive events from which escape is difficult or impossible" (World Health Organization, 2019, 6B41 Complex post traumatic stress disorder). One study found that trauma-focused Cognitive Behavioural Therapy (CBT) was an effective form of treatment for individual with acute and chronic trauma, however the level of improvement varied based on the level of PTSD at baseline (Ross et al., 2021).

Moreover, individuals with chronic trauma may struggle mentally and physically when it comes to treatment. For example, individuals with chronic PTSD often find it challenging to give their full attention during treatment due to the time and emotional commitment required of them (Bisson et al., 2007). Additionally, some patients may even feel like their symptoms are worsening initially during the treatment due to re-experiencing the symptoms during exposure treatment. With that said, Bisson et al. (2007) suggest that physicians working with trauma patients should dedicate several of their sessions to building trust and safety within the relationship before moving into the traumatic event itself, as this may enhance their acceptability and engagement during treatment, as well as an awareness that they are in a safe space to be vulnerable.

Recognizing that trauma is carried not only in the mind but also in the body helps us understand the importance of SE in addressing both dimensions. The next section will go over neurological impacts. This is also important to acknowledge as it connects to the dysregulation of the nervous system when an individual experiences trauma. Since SE is rooted in how trauma disrupts regulation, understanding nervous system dysregulation is also essential to fully grasp its purpose and process.

Neurobiological Impacts

Brain Function. To better understand how the brain functions post-trauma, it will be divided into different sub-categories. I will go over the body's initial response and subsequent dysregulation, endocrine factors, neurochemical factors, and brain circuitry and structural changes.

Initial Bodily Responses and Subsequent Dysregulation. The fight-or-flight mechanism is the brain's innate response to perceived danger (Thomason & Marusak, 2017). However, when

experiencing trauma, this phenomenon can become dysregulated, resulting in physiological impairment and PTSD. This dysregulation can include reminders of the exposure, such as flashbacks or intrusive thoughts, hyperarousal or insomnia, and deactivation, including numbing or avoidance (Sherin & Nemeroff, 2011). When it comes to PTSD, these signs and symptoms continue for over a month and can emerge long after the initial traumatic event, indicating a neurobiological change (Sherin & Nemeroff, 2011). Previous research on PTSD assumed that neurobiological shifts and changes were a direct consequence of traumatic exposure. However, recent research suggests that these abnormalities might represent pre-existing conditions that become *unmasked* by trauma (Yuan et al., 2024). It has been found that an individual's vulnerability and resilience to developing PTSD can be influenced by factors such as gender, prior trauma, or genetic susceptibility (Yuan et al., 2024). This is a valuable insight with meaningful implications, highlighting that not all individuals exhibit similar physiological responses or dysregulation. As such, those who develop PTSD following trauma may respond differently to the same treatments, underscoring the need for personalized approaches to care.

Endocrine Factors. The hypothalamic-pituitary-adrenal (HPA) axis is often an affected system disrupted by trauma, specifically with PTSD (Giotakos, 2020). The HPA influences how the body regulates stress by releasing a hormone called corticotropin-releasing hormone (CRH). The CRH then signals the pituitary gland (located at the base of the brain) to release another hormone called adrenocorticotropin (ACTH) (Chrousos et al., 2023). ACTH then travels to the adrenal glands, prompting them to release glucocorticoids, the most important of which is cortisol in humans, as it helps the body manage stress (Thomason & Marusak, 2017). Cortisol itself also creates a *negative feedback* loop, telling the hypothalamus and pituitary to slow down when needed. In PTSD, this system often becomes dysregulated (Schumacher et al., 2019). Even

though stress typically activates the HPA axis, studies in people with PTSD frequently show lower-than-normal cortisol levels. This might be due to the HPA axis becoming overly sensitive to negative feedback, as in *shutting off* too easily, even when it shouldn't (Schumacher et al., 2019). This means a reduced ability to regulate and recover from stress, which keeps the nervous system in a chronic survival state. Additionally, chronic stress and elevated cortisol levels can cause the hippocampus to shrink in size in PTSD (Thomason & Marusak, 2017). This could contribute to the HPA axis dysregulation because a reduced hippocampal size may weaken its inhibitory control over the HPA axis.

Neurochemical Factors. Neurochemical factors refer to changes in the chemical messengers that nerve cells in the brain use to communicate. These chemicals play a critical role in regulating stress responses, emotions, memories, and behaviours. However, these brain chemicals often become imbalanced in individuals with PTSD (Schumacher et al., 2019). For example, norepinephrine is one of the many hormones crucial for our *fight-or-flight* response to danger and for regulating alertness and attention (Thomason & Marusak, 2017). People with PTSD often show increased levels of norepinephrine in their urine (Sherin & Nemeroff, 2011). They also have stronger norepinephrine responses when reminded of their trauma. This overactivity of norepinephrine is believed to cause classic PTSD symptoms like hyperarousal, exaggerated startle responses, and a stronger encoding of fear-filled memories (Bonne et al., 2003).

Additionally, neurotransmitters are also affected by trauma. Research on PTSD patients has shown evidence of changes in serotonin activity, including lower levels in the blood and altered responses in the brain (Katrinli et al., 2022). These changes may contribute to symptoms such as hypervigilance, increased startle responses, impulsive behaviours, and intrusive

memories (Katrinli et al., 2022). A common medication for the lack of serotonin are SSRIs (selective serotonin reuptake inhibitors), which are often used in the treatment of PTSD (Katrinli et al., 2022). Additionally in PTSD, there is evidence of decreased GABA (gamma-aminobutyric acid) activity and fewer GABA receptors in parts of the brain (Katrinli et al., 2022). GABA chemicals primarily help the body to calm down and reduce anxiety. However, a decrease in this chemical results in an inability to calm the brain, leading to heightened anxiety (Katrinli et al., 2022).

Brain Circuitry and Structural Changes. Brain scans have shown that people with PTSD often have changes in both the structure and function of certain key areas of the brain, such as the hypothalamus and the amygdala (Xiao et al., 2022). These regions work together to help the brain manage stress and learn how to respond to fear. When this network is altered, it can contribute to the development of PTSD (Xiao et al., 2022).

One common finding in PTSD is that the hippocampus, a part of the brain involved in memory and managing stress, tends to be smaller in size (Chrousos et al., 2023). In studies on animals, long-term stress and high levels of stress hormones have been shown to damage the hippocampus, making it harder for the brain to grow new connections and process information effectively (Sherin & Nemeroff, 2011). In humans with PTSD, lower levels of a chemical called N-acetyl aspartate (NAA), which reflects the health of brain cells, have also been seen in the hippocampus (Rosso et al., 2017).

The amygdala, which helps the brain recognize and react to danger, often becomes overactive in people with PTSD (Xiao et al., 2022). Trauma victims may respond more strongly to things like emotional faces, reminders of trauma, or stressful situations (Giotakos, 2020). Heightened activity of the amygdala thus means that even non-threatening situations can be

interpreted as dangerous, triggering the *fight or flight* response, which can look like anxiety, panic attacks, or dissociation (Sherin & Nemeroff, 2011).

On the other hand, parts of the brain that are meant to help calm down the stress response, particularly areas in the frontal cortex, don't function as well in PTSD. For example, the anterior cingulate cortex and other frontal regions are often smaller in PTSD patients, and this reduced size may be linked to how severe their symptoms are (Katrinli et al., 2022). These frontal areas are important for regulating emotions and helping people *turn off* fear responses when danger is no longer present (Katrinli et al., 2022). With that said, someone with PTSD may not be able to sense they are safe because their brain is on constant survival mode due to the trauma they experienced.

Autonomic Nervous System. The autonomic nervous system plays an important role in how we respond to stress and is profoundly affected by trauma. The body has evolved to stay in a healthy balance, constantly adjusting to changes. This is referred to as homeodynamics. This balance is managed mostly by the nervous system (Kolacz et al., 2019). But when we go through extreme stress or face long-term challenges, our ability to cope can become overwhelmed. When that happens, the body may shift into a different kind of balance, which could be one that is less healthy or more strained (Agorastos et al., 2019). This new state, known as allostasis or in more extreme cases cacostasis, means the body is still trying to cope but that it is doing so in a way that's more strained and less efficient than its normal healthy balance (Agorastos et al., 2019). In this section I will touch upon two crucial systems that have been extensively studied in response to trauma: the hypothalamic-pituitary-adrenal (HPA) axis and the autonomic nervous system (ANS). I will also discuss the Polyvagal Theory (PVT), which is an integrative framework for

understanding how the autonomic nervous system's evolutionary development influences responses to threat and safety.

The Human Stress Response. The HPA axis is a central system in the brain and body that plays a critical role in regulating stress (Agorastos et al., 2019). When early life stress (ELS) or childhood trauma (CT) occurs during key stages of development, it can disrupt this system in lasting ways, leading to psychologically and physiologically challenges in how a person responds to stress (Agorastos et al., 2019). Because of its central role in stress regulation, and the extensive research surrounding it, the HPA axis is recognized as one of the most significantly impacted biological systems by early adversity (Agorastos et al., 2019). There are two main activity types of the HPA axis: hyperactivity and hypoactivity.

HPA axis hyperactivity is commonly observed in adults with depression and anxiety, as well as in individuals who appear healthy but have experienced ELS or childhood trauma (CT) (Murphy et al., 2022). This hyperactivity is often seen reflected in elevated cortisol levels in the bloodstream, a stronger cortisol response upon waking, and increased levels of stress hormones like ACTH and cortisol when responding to emotional or physical stress (Conroy and Perryman, 2022). Over time, repeated activation of the stress system can lead to the brain's stress-regulating centers (especially the hypothalamus and pituitary gland) to release excessive amounts of corticotropin-releasing hormone (CRH), arginine vasopressin (AVP), and ACTH (Terpou et al., 2019). Due to the body’s normal stress hormone regulation system becoming less responsive, cortisol levels remain chronically high. This means that the body stays alert and vigilant even when there's no obvious threat (Murphy et al., 2022). This pattern of HPA axis overdrive is commonly seen in conditions such as depression, anorexia nervosa, obsessive-compulsive disorder, panic disorder, alcohol withdrawal, excessive physical exercise, poorly controlled

diabetes, and hyperthyroidism (Agorastos et al., 2019).

In contrast to hyperactivity, several studies on ELS and CT have reported HPA axis hypoactivity. This is typically seen as lower circulating cortisol levels and a reduced cortisol response to stress (Murphy et al., 2022). One possible explanation for this is that it reflects a compensatory physiological adaptation. This means that it may be due to increased sensitivity of the body's negative feedback system, driven by an upregulation in the number and sensitivity of glucocorticoid receptors (GRs) on immune cells (Murphy et al., 2022). Additional mechanisms may include reduced secretion of CRH and AVP from the hypothalamus, or a long-term decline in cortisol breakdown (catabolism) in the liver and kidneys—allowing active cortisol to persist in the body without raising overall blood levels (Kageyama et al., 2021). HPA axis hypoactivity has been observed in individuals with conditions such as PTSD, atypical depression, chronic fatigue syndrome, fibromyalgia, and hypothyroidism (Agorastos et al., 2019). Importantly, both insufficient and excessive glucocorticoid (GC) signaling can negatively affect health. For instance, PTSD is often associated with HPA hypoactivity, while melancholic depression is linked to hyperactivity—both suggesting that disruptions in GC signaling during development may play a key role in long-term stress-related health outcomes (Kageyama et al., 2021). What this means is that when trauma leads to HPA axis hypoactivity, the body's *stress brakes* are faulty, leading to chronic internal inflammation and an imbalanced fight-or-flight system (Kageyama et al., 2021).

Polyvagal Theory. When it comes to trauma, distress, anxiety, or depression, a framework that is often used by mental health professionals to help clients understand what is going on for them somatically is the PVT. The PVT helps explain how our body's autonomic nervous system (ANS) has evolved to respond to safety and danger (Kolacz et al., 2019). It

describes three key pathways of the vagus nerve, each with a different role in how our body and behaviour react to stress or calm. The first pathway, called the Ventral Vagal Complex (VVC), is the most recent in human evolution and works the fastest because it is covered in a protective coating called myelin (Kolacz et al., 2019). The HPA axis communicates with the brain by sending electrical signals through myelinated nerves (Murphy et al., 2022). If the myelin coating is too thin, damaged, or missing, it can slow down the movement of the electrical signals, leading to delayed communication (Antontseva et al., 2020). Thus, trauma victims with low or damaged myelination can experience overreactions to mild stress, difficulty calming down, or persistent anxiety (Antontseva et al., 2020). Moreover, the VVC controls areas above the diaphragm, such as the face and throat, and supports social behaviours like facial expressions, swallowing, chewing, and hearing social cues in noisy environments. It also helps slow the heart rate and maintain internal balance (homeostasis), without directly affecting digestion (Kolacz et al., 2019).

The second system is the Sympathetic Nervous System (SNS), which becomes active during danger and triggers the body's fight-or-flight response. It derives from the middle section of the spinal cord and activates many parts of the body, such as the heart, intestines, blood vessels, and glands. This is to help one to run from or face a threat (Scott-Solomon et al., 2021).

The third system, the Dorsal Vagal Complex (DVC), is the oldest in evolutionary terms and focuses on organs below the diaphragm, especially those involved in digestion. It can help conserve energy during extreme stress by shutting down non-essential functions like digestion—this is what is known as the *freeze* response (Kolacz et al., 2019).

The nervous system is constantly scanning for danger or safety without us even realizing it, through a process called neuroception (Conroy & Perryman, 2022). This process gathers

signals from the brain and body and determines how we should respond physically and emotionally. When someone experiences trauma, this system can become overly sensitive, causing the body to react to safe situations as if they were still dangerous, which can lead to ongoing, unhealthy stress responses (Conroy & Perryman, 2022). This is why many mental health professionals often turn to SE when treating clients with PTSD, as it helps them understand what is going on somatically and learn how to use therapy tools to regulate themselves. This will be discussed further in the upcoming sections.

Can Trauma Manifest into an Anxiety Disorder?

So far, we have established that trauma can significantly dysregulate stress response systems, increasing vulnerability to the development of PTSD, while triggers may perpetuate heightened nervous system reactivity. In the following section I will address the long-term impact of childhood trauma on adulthood, followed by a consideration of the role of anxious attachment style in interpersonal relationships. The purpose of the following section is to allow us to understand how anxiety disorders can be formed from previously experienced trauma.

Childhood Trauma and Anxiety in Adulthood

Psychological and Behavioural Elements. Childhood trauma can have a negative impact on an individual's psychological and behavioural well-being later in adulthood. We have already discussed the neurobiological components of trauma, so now we will discuss psychological and behavioural components.

Self-Image. Individuals who experienced childhood trauma often exhibit low self-esteem (Downey & Crummy, 2022). For example, if the trauma was caused by primary caregivers, it can trigger an insecure attachment style and a loss in a sense of protection (Downey & Crummy, 2022). In these situations, individuals may develop feelings of vulnerability and incompetence,

which can contribute to low self-esteem, depression, and anxiety (Downey & Crummy, 2022). Thus, unhealthy early relationships can destroy self-worth and self-identity.

To cope with these feelings, trauma survivors may construct a *false self-image* (Downey & Crummy, 2022). This false self allows them to mask their vulnerability and feelings of depression or worthlessness by presenting as someone with very high self-esteem, or in modern terms, *cocky* (Downey & Crummy, 2022). They may seek validation and approval from others as a coping mechanism to feel better about themselves. This coping mechanism is often developed when children believe that changing who they are will make their parents love them (Downey & Crummy, 2022).

Furthermore, individuals with childhood trauma may also struggle with processing and evaluating information during social interactions, which can contribute to social anxiety (Zhang et al., 2025). Childhood trauma is both significantly and positively correlated with both fear of positive evaluation (FPE) and fear of negative evaluation (FNE) (Zhang et al., 2025). Fear of negative evaluation refers to the discomfort or distress individuals feel when worrying about receiving criticism or negative judgments from others, while FPE refers to anxiety or distress in response to positive feedback or approval, possibly due to heightened expectations or perceived competition. Studies show that FPE may predict social anxiety slightly better than FNE. (Zhang et al., 2025). Additionally, somatic neglect (a neuropsychological condition where a person fails to attend to or acknowledge sensations on one side of their body) has shown to have the strongest correlation with social anxiety and FPE and FNE (Zhang et al., 2025).

Emotional Abuse and Coping Mechanisms. One key predictor of anxiety later in adulthood is emotional abuse in childhood (Turki et al., 2024). Emotional abuse involves diminishing and using hurtful words intended on decreasing an individual's self-esteem (Turki et

al., 2024). This form of emotional abuse can include constant criticism, humiliation, blaming, or manipulation. Emotional abuse is deceptive because unlike physical abuse, its impacts are less visible. However, it is equally damaging to mental health. This can lead to feelings of severe stress, unhappiness, feelings of betrayal, and internal regulation difficulties (Turki et al., 2024). A study on university students in Tunisia found that children who experienced emotional abuse in childhood were six times more likely to experience adulthood anxiety compared to those who did not experience childhood emotional abuse (Turki et al., 2024).

In conclusion, childhood trauma, particularly emotional abuse and neglect, stands as a critical and pervasive risk factor for a spectrum of adverse psychological outcomes in adulthood, especially anxiety.

Impact of Anxious Attachment Style in Relationships

Having explored how trauma can manifest as anxiety in adulthood, this section will now take a detailed look on the impact of anxiety on relationships. Specifically, we will discuss anxious attachment style. Anxious attachment style strongly influences an individual's experiences across various types of relationships, from intimate partnerships to professional interactions (Jiang, 2021). This section will explore the multifaceted impact of anxious attachment, detailing its formation, core characteristics, and specific effects on intimate relationships and other general relationships. First, I will provide some background of how anxious attachment style emerges and what it entails.

Formation and Core Characteristics of Anxious Attachment. Attachment styles are patterns of relating to others that typically form during infancy and continue through childhood due to interactions with primary caregivers (Jiang, 2021). John Bowlby's attachment theory suggests that individuals develop these styles based on their early experiences with caregivers,

specifically their responsiveness to the child's needs during times of distress (Guo & Ash, 2020). For example, when caregivers are insensitive, unpredictable, or inconsistent, a child may develop an anxious attachment style (Yilmaz et al., 2022). The severity of which the child experienced the insensitivity, unpredictability, or inconsistency from the caregiver will likely relate to how traumatic the experience was for the child. Nevertheless, in such cases, the child learns that their needs for comfort and security are not reliably met, which can lead to a fear of abandonment and difficulty trusting others (Colonnesi et al., 2011). Childhood trauma, including emotional neglect and abuse, has been identified as a significant factor in the development of an insecure attachment style (Yilmaz et al., 2022). More specifically, childhood trauma can lead to anxiety in adulthood (Yilmaz et al., 2022).

Individuals with an anxious attachment style are characterized by a negative view of themselves and an intense fear of interpersonal rejection and abandonment (Jiang, 2021). They often feel self-doubting, misunderstood, underappreciated, and unworthy of love (Guo & Ash, 2020). This perception of themselves can contribute to low self-esteem and vulnerability to various psychological issues (Yilmaz et al., 2022). Their lack of security in relationships leads to a dependency on intimate relationships that is far greater than people who are secure in their relationships (Jiang, 2021). Despite a desperate desire for closeness and the hope that others will fulfill their emotional needs, Jiang also found that anxiously attached individuals often hold suspicions and fears that their partners do not wish the same level of intimacy or love them the same way. Jiang suggests that this internal conflict results in unsettled feelings, persistent or even paranoid attitudes towards partners, and constant worry about all aspects of the relationship. Moreover, Virga et al. (2019) found that anxious attachment is associated with high anxiety and low avoidance, along with higher levels of neuroticism, and influences emotional reactions in

stressful situations.

Impact on Intimate Relationships. As noted previously, anxiously attached individuals tend to hold negative self-views. Additionally, in intimate relationships this can also look like constant worry about failing to meet their partner's expectations and fearing abandonment (Gehl et al., 2023). Their concerns and needs for their partner reflects those they had for their parents in childhood. They may expect their partners to invest more into the relationship, as they fear neglect due to their childhood experiences. This behavioural pattern adds great distress within the relationship and can lead to an emotional burden (Gehl et al., 2023). Consequently, this can lower relationship closeness as they struggle to control their emotions and adopt a distrustful view of their partners (Jiang, 2021). Moreover, trust is a significant challenge for anxiously attached individuals in intimate relationships (Çetinkaya-Yıldız et al., 2025). Experiencing distrust makes them more prone to jealousy and psychological abuse. Jealousy itself is strongly associated with low self-esteem, low self-confidence, low generalized trust, and depression, creating a cycle where negative feelings prolong more jealousy (Çetinkaya-Yıldız et al., 2025). This continual suspicion and fear affect their ability to appreciate positive aspects of their partners, hindering overall relationship happiness. A study on Turkish couples found that husbands who were anxiously attached affected their wives' marital satisfaction, possibly due to conflicts with traditional gender expectations (Çetinkaya-Yıldız et al., 2025). Some couples may separate not because love is absent but because the challenges associated with anxious attachment become overwhelming in the absence of effective coping strategies (Gehl et al., 2023).

Impact on Relationship with Work. Research has consistently shown a positive link between attachment anxiety and burnout (Virga et al., 2019). Burnout is characterized by

emotional exhaustion. Individuals with anxious attachment often overinvest in their work by seeking recognition and approval from colleagues or supervisors (Virga et al., 2019). This increased effort can be emotionally draining and physically exhausting, leaving them vulnerable to self-doubt. Additionally, they tend to evaluate workplace stressors as more severe, which further amplifies how much effort they put into their jobs. Employees experiencing elevated burnout often demonstrate reduced functioning, lower commitment, diminished engagement, and psychological withdrawal from their work (Virga et al., 2019). For anxiously attached individuals, ongoing concerns about their unmet attachment needs and difficulties in regulating negative emotions can weaken focus and concentration and further contribute to decreased effectiveness at work (Virga et al., 2019).

From the above discussion, anxious attachment style, typically formed in early childhood due to the trauma from inconsistent or neglectful caregiving, significantly impacts individuals across various relationships throughout their lives. Thus, trauma can manifest into an anxiety disorder. Now that we have established the essence of trauma and how it can manifest into an anxiety disorder, we will now discuss if and how SE can be helpful for individuals living with trauma-related anxiety.

Will SE be Efficacious for Individuals with Anxiety Disorders That do not Meet a PTSD Diagnosis?

Up to this point, we have examined how trauma develops, how it can give rise to anxiety, and the ways in which this anxiety may manifest in adulthood. The following sections will focus on a more recent approach to trauma treatment: SE. We will further evaluate its potential efficacy in addressing anxiety disorders that stem from trauma. We will begin by outlining the principles and techniques of SE. Next, we will consider the connection between trauma, the mind, and the

body to get a better understanding as to why this approach may be effective in the treatment of trauma. Finally, we will examine the application of SE specifically in the treatment of anxiety disorders that do not meet the diagnostic requirements for PTSD and if this type of treatment for anxiety has effective and beneficial outcomes.

Understanding SE

SE is a distinctive, body-oriented therapeutic method specifically developed by Levine to address and resolve the lasting impacts of trauma and other forms of psychological and physiological imbalance (Brom et al., 2017). It operates on the core belief that trauma symptoms arise because the body's instinctive *fight, flight, or freeze* reactions were not fully completed or *discharged* at the time of the original incident (Brom et al., 2017). This leaves traumatized individuals with an activated or dysregulated nervous system, contributing to ongoing distress (Kuhfuß et al., 2021).

Moreover, SE differs from traditional therapies by using a *bottom-up* approach to healing (Levit, 2018). Rather than beginning with cognitive and emotional processes, known as a *top-down* method, SE targets the nervous system and bodily sensations related to interoception and proprioception by focusing on structures of the brain, such as the brainstem and limbic system (Kuhfuß et al., 2021). The theory hypothesises that the body literally *stores* traumatic memories, and symptoms are a manifestation of this trapped physiological energy (Brom et al., 2017). With that said, the primary goal of SE is to modify the trauma-related stress response by facilitating the gradual release of this *stuck* activation and helping clients increase their tolerance for inner physical sensations and related emotions which in turn allows the nervous system to re-regulate itself and restore healthy functioning in daily life. This in turn enhances the client’s self-regulation abilities (Brom et al., 2017).

How SE is Practiced. There are many ways SE is practiced and taught. A core principle of SE is developing mindful awareness of internal bodily sensations, commonly called the 'felt sense.' With the therapist's guidance, clients learn to observe small shifts, movements, and sensations within the body, which are seen as carriers of the traumatic memory (Brom et al., 2017). Therapists will spend most of the session on this and on practicing mindfulness. This could include breathing exercises, a body scan, or just practicing being aware of the sensations occurring in the body in the present moment. Additionally, titration and pendulation are also incorporated. These are crucial for managing the intensity of traumatic material. Titration involves introducing traumatic content in manageable doses, ensuring the client's arousal remains at a low, tolerable level (Levit, 2018). Pendulation is the technique of gently fluctuating the client's attention between sensations of distress and sensations of safety. This rhythmic back-and-forth helps the client develop a greater capacity to tolerate distress and return to a regulated state (Brom et al., 2017). Furthermore, psychoeducation in SE is also effective. Therapists often provide clients with a physiological understanding of trauma, explaining how it impacts the nervous system and the body. This helps clients make sense of their symptoms and trust the body-centered approach to healing (Kuhfuß et al., 2021). For example, learning about the window of tolerance can help client's get a better picture of their dysregulation or activation, such as how wide or narrow their window of tolerance is.

Research Study on SE. To get a better understanding of how SE is researched, I will discuss a research study. Brom et al. (2017) conducted a study that was the first randomized controlled trial specifically designed to assess the efficacy of SE as a treatment for individuals with PTSD. The study included 63 participants, equally split between men and women, all of whom met the DSM criteria for full PTSD stemming from various single traumatic events such

as vehicle accidents, assaults, terrorist attacks, and combat. These participants, aged 18 and older, were randomly divided into two groups: an intervention group (33 participants) that received 15 weekly, one-hour SE sessions, and a waitlist control group (30 participants) that waited for the same duration without receiving treatment. Both groups underwent initial evaluations at baseline, followed by a second evaluation after 15 weeks, at which point the waitlist group then began their own 15 weeks of SE therapy, leading to a third and final evaluation for all participants. The therapeutic approach in the SE sessions focused on integrating body awareness, gradually introducing traumatic memories, and teaching self-regulatory mechanisms like identifying and utilizing positive sensations and resources to manage arousal and facilitate release of stress activation (Brom et al., 2017).

The results of the study demonstrated significant positive outcomes for those who received SE. The intervention group showed considerable reductions in both PTSD symptoms and depression severity compared to the waitlist control group. The effect sizes, which refers to how significant this difference is, were notably large. Furthermore, a significant clinical improvement was noted, with 44.1% of the participants in the SE intervention group no longer meeting the diagnostic criteria for PTSD, a benefit that remained stable over time. This study concluded that SE appears to be an effective therapeutic method for PTSD. However, it should be noted that the study also acknowledged the study's small sample size and naturalistic setting as limitations (Brom et al., 2017).

Trauma and the Mind-Body Connection

Having reviewed what SE is and how it is applied, we will now turn to the relationship between trauma, the mind, and the body to better understand why SE has been effective for individuals with PTSD and which specific areas it targets.

We know that trauma is a deeply upsetting and disturbing experience that affects people on many levels. While it is often thought of in terms of mental health symptoms like anxiety, flashbacks, or nightmares, trauma also leaves lasting effects on the body itself, disrupting the mind-body connection (Nixon, 2024). It can change how the body reacts to stress and even alter a person's sense of self (Kearney & Lanius, 2022). As early as 1889, Pierre Janet noticed that the overwhelming emotional reactions during traumatic events interfere with the brain's ability to integrate these experiences into existing memory systems and instead store them as visceral sensations or surreal images (van der Kolk, 1994). This creates an ongoing *disconnect* between the brain and body, leaving the person stuck in a state of high alert or emotional numbness long after the event has ended (Nixon, 2024).

Literature has increasingly recognized that trauma can be somatically stored in the body, especially when individuals are unable to escape or respond effectively to the threat (Nixon, 2024). Natural physiological responses to threat, such as fighting or fleeing, are often inaccessible during extreme helplessness like sexual assault, leading the body to enter an immobilized or dissociative state (Nixon, 2024). When these survival-oriented actions are prevented or incomplete, the body can become *stuck* in defensive states, leading to persistent psychological and physical suffering (Nixon, 2024). Consequently, interventions for trauma-related anxiety disorders need to address this bodily impact to facilitate the physiological processing of trauma and restore a healthy relationship with one's body and sense of self (Nixon, 2024).

Biological Components. To understand how trauma disrupts the connection between mind and body, it is important to look at the brain and body's underlying biological systems. The body's sensory systems, such as the vestibular system (which helps with balance) and the

somatosensory system (which processes touch, movement, and bodily sensations), play a central role in regulating arousal, emotions, and actions (Kearney & Lanius, 2022). These systems are some of the oldest in human development. Because they are designed primarily for survival, they react quickly and automatically, often before our thinking brain has a chance to catch up (Kearney & Lanius, 2022).

Vestibular System. The vestibular system, located in the inner ear, helps us stay oriented by constantly signaling how our head is moving and where it is in relation to gravity (Kearney & Lanius, 2022). This system is vital for our sense of balance, safety, and grounding, influencing how we move through space and feel secure in our body. When trauma disrupts this system, it can amplify feelings of danger and contribute to symptoms such as hypervigilance and exaggerated startle responses (Rabellino et al., 2023). In dissociative conditions, reduced vestibular activity to brain areas can create a strong sense of disconnection from the body or surroundings, leading to experiences of depersonalization (feeling detached from oneself) and derealization (when the world seems surreal) (Rabellino et al., 2023).

Somatosensory System. The somatosensory system is made up of the skin, muscles, and joints. It helps us sense things like light touch, pressure, pain, temperature, and where our body is in space (called proprioception). This system not only tells us what is happening around us but also what is going on inside our body (Papi et al., 2025). A special type of touch, known as *affective touch*, comes from gentle, pleasant contact, like a hug or a soft caress, and can release the *love hormone* oxytocin (Papi et al., 2025). This kind of touch helps reduce stress, ease pain, and strengthen social connections. However, for people with PTSD or a history of trauma, this kind of touch can feel uncomfortable, overwhelming, or even threatening (Papi et al., 2025). This is especially true if they did not experience much safe, nurturing touch as children. Over time,

this can reduce their sensitivity to the positive, social value of touch and affect how they relate to others (Papi et al., 2025). Meanwhile, proprioception works closely with the vestibular system (which helps with balance) at the brainstem level. Together, they give us the ability to know whether we are moving ourselves or being moved, which is key for feeling stable and secure in our body (Kearney & Lanius, 2022).

SE Intervention for Trauma. As mentioned earlier, there needs to be interventions for trauma-related disorders that help individuals feel reconnected to their bodies. This is why SE can make a beneficial contribution to this healing. The efficacy of SE for individuals with trauma-related anxiety disorders depends on their ability to facilitate a reconnection with the body in a safe and titrated manner. Clinical trials and case studies of SE have shown promising results in reducing PTSD symptoms and improving nervous system regulation (Kearney & Lanius, 2022). Through practices such as mindfulness, breathwork, and intentional movement, individuals can begin to reconnect with their bodies. These approaches help them notice and respond to their bodily sensations, develop self-soothing strategies, and regulate their physiological state (Smith & Hartelius, 2020). By doing so, they are better able to reduce overwhelming stimulation and lessen the likelihood of dissociation or flashbacks. By grounding themselves in the present moment, they create the safety needed to process painful emotional and bodily memories. This process builds an *inner scaffolding* that supports long-term healing and allows individuals to re-establish a sense of safety within their own body (Smith & Hartelius, 2020). Additionally, reconnecting with bodily experiences can help individuals become more self-aware of surface emotions that were previously held within the body. Engaging in this process often allows for the release of emotions that previously were *stuck* and linked to traumatic memories (Smith & Hartelius, 2020). As these emotions are released, the pain

associated with them begins to ease, starting the healing process. This shift in awareness fosters greater stability and allows the individual to feel whole again (Nixon, 2024).

In conclusion, SE has shown to be an effective treatment method for trauma victims experiencing PTSD by directly engaging with the body's physiological responses to trauma. These methods support the reintegration of mind and body, allowing the nervous system to complete the survival responses that were interrupted during the traumatic experience. Through this process, individuals can rebuild a sense of safety, better regulate emotional and physiological arousal, and develop a more grounded, embodied sense of self.

Using SE for Anxiety Disorders

Most of the research on SE to date has been conducted within the context of PTSD where findings consistently point to its efficacy in reducing trauma-related symptoms and restoring nervous system regulation. While this provides strong evidence for SE as a trauma-focused intervention, there remains a significant gap in the literature regarding its application to other anxiety disorders that fall short of PTSD symptoms, such as social anxiety, attachment-related anxiety, GAD, and panic disorder, that stem from an early traumatic experience such as childhood trauma. From this review, empirical research directly examining SE with these conditions is scarce, making it difficult to draw firm conclusions about its broader effectiveness. Nevertheless, a handful of case studies offer valuable insights into how SE principles may alleviate anxiety symptoms beyond PTSD, and I will discuss these examples to further explore the potential role of SE in treating anxiety disorders.

Case Study: Zeren. This study focused on *Zeren*, a 38-year-old female who sought an SE therapy session to address medical trauma following a cardiac arrest. She reported persistent memory issues and a feeling of being unable to return to her pre-trauma state, as if a part of her

was *stuck* (Yurdakula et al., 2025). The study used observation and measurement approaches. Zeren sat through a 90-minute SE therapy session which was also video recorded so researchers could watch for changes in Zeren's body language, physical reactions, and emotions. At the same time, the person's heart activity was continuously tracked using a small monitor to see how their nervous system was responding. Three researchers reviewed the video separately to note visible signs of change, while the heart data gave more precise information about stress and relaxation levels. At the start, Zeren showed signs of shutting down or going into a frozen state, where the body and nervous system slowdown in response to stress. This was reflected in the heart data, which showed very low activity and flexibility (Yurdakula et al., 2025). The therapist used gentle body-based techniques and supportive touch, which allowed Zeren to slowly notice and manage her sensations step by step. Using methods like titration (taking things in small, manageable doses) and grounding exercises, her nervous system shifted out of the frozen shutdown state, released built-up stress energy, and eventually moved into a calmer, more connected state. When she talked about her traumatic memories, her heart data dropped to its lowest point, showing that she went into a state of *freeze*. As she spoke about forgetting her son, her heart activity stayed very low while another measure linked to stress responses began to rise, suggesting deep sorrow and emotional strain. With the therapist's support of gently holding her arm and guiding her to place her own hands on her chest, she was able to calm her body. This heart rate data improved as she began taking deeper breaths. Later, when she discussed her divorce, her body language and breathing showed signs of fear, and her heart data again spiked, indicating a heightened stress response. As the session went on, she gradually became more emotionally regulated, as she was able to increase her eye contact and shift into a calmer, more connected state. Her stress levels decreased, and her heart data began to improve. However, she still experienced moments

of quick breathing that hinted at mild anxiety. By the end of the session, she reached her most balanced state, with her heart activity at its highest level. This was accompanied by laughter, which allowed her to release the built-up stress energy in a healthy way. In conclusion, the study showed that SE, combined with supportive touch from the therapist, played a key role in helping Zeren regulate her nervous system. This shift was important for her ability to relax, engage socially, and work through painful memories. The heart data provided clear evidence that these emotional and physical changes were happening together (Yurdakula et al., 2025).

Longitudinal Study. An observational multicenter study examined the effects of Somatic Psychoeducation (SPE), a mind-body approach that focuses on learning through body awareness, on 114 clients over 10 sessions. Participants completed questionnaires measuring state and trait anxiety and self-esteem before and after the first session and after the last session. An independent reference group was used for comparison (Lieutaud et al., 2021). The study found that a single SPE session immediately reduced state anxiety by over 30%. This effect was strongest in people who began with higher anxiety. Over the full 10 sessions, trait anxiety decreased by 6.2 points (13%), bringing participants' anxiety back to levels like the reference group. Baseline state anxiety also dropped over the course of the sessions. At the same time, self-esteem increased, suggesting that SPE had a combined effect on both anxiety and confidence (Lieutaud et al., 2021). The study concluded that SPE was effective in reducing state anxiety and noticeably lowering trait anxiety over time. The researchers suggested that the supportive, therapeutic touch central to SPE was an important factor in these positive changes. However, the study had limitations. It was observational rather than a randomized controlled trial, and it used an external reference group instead of a wait-list control, so further research is needed to confirm the results.

Multi-Study Analysis. An article by Nicholson et al. (2025) argued that traditional cognitive approaches are often insufficient for addressing trauma, as these traumatic events become ingrained in the mind-body system, resulting in maladaptive patterns of thinking and feeling. Traumatic events, including adverse childhood experiences (ACEs), natural disasters, and community violence, lead to mental health issues like anxiety, depression, somatization, dissociation, and PTSD. These experiences leave individuals feeling *on edge* or *disconnected* (Nicholson et al., 2025). Thus, Nicholson et al. (2025) examined the Community Resiliency Model (CRM), a simple, body-based self-care approach that helps people become more aware of their bodily sensations and manage stress. CRM is influenced by Levine's SE and teaches six core skills to help people return to their *Resilient Zone*, or their optimal state, when feeling overly stressed or shut down. Research on CRM shows it can help reduce anxiety and stress in different settings (Nicholson et al., 2025). Early uses in disaster areas, based on SE principles, helped tsunami survivors and social workers following hurricanes feel less distressed and reduce PTSD symptoms (Leitch et al., 2009). A randomized trial with nurses found that a 3-hour CRM class improved well-being, resilience, and reduced secondary traumatic stress and physical stress symptoms (Grabbe et al., 2022). During the COVID-19 pandemic, a one-hour online CRM class for healthcare workers also improved well-being and reduced stress (Duva et al., 2022). A pilot study with pregnant women showed a large improvement in anxiety that nearly reached statistical significance (Jobe et al., 2024). Other studies found that CRM helped reduce anxiety, depression, hostility, and PTSD symptoms in a variety of groups, including women in drug treatment, high-risk pregnant women, and community members in post-Ebola Sierra Leone (Nicholson et al., 2025). For women in drug treatment, the reduction in anxiety was moderate to

large (Nicholson et al., 2025). Overall, CRM appears to help individuals regulate their stress response and return to a calmer, more balanced state.

Although CRM is not the same as SE, it is based on similar principles and works on the same areas of the nervous system. Therefore, this article suggests that SE may also be an effective approach for treating anxiety disorders.

Summary and Synthesis

In conclusion, the current body of evidence suggests that SE can help reduce anxiety by targeting the body's physical responses to stress and trauma and strengthen one's ability to self-regulate and build resilience. We have discussed how trauma not only affects individuals mentally but also physically and somatically. With so much focus on targeting the cognitive aspects on most mental health disorder, individuals with anxiety who were exposed to trauma may benefit from recognising the somatic aspects of their symptoms. SE has been proven to be effective in the treatment of PTSD as it focuses on relieving those *stuck* memories in the body and building a higher resilience towards stressful emotions. As we investigated the biological components of trauma, we developed a better understanding of exactly how SE is effective. Trauma will often leave an individual with a dysregulated nervous system, provoking feelings of panic, demobilization, and heightened startle responses. By using the practices used in SE, individuals can learn to regulate their nervous system, which in turn improves their mind-body connection. However, most research has shown SE in the use of PTSD related symptoms. There are many cases where trauma did not lead to PTSD but rather ongoing anxiety due to those *stuck* trauma memories that were never resolved or addressed. For example, an individual could develop relationship anxiety due to a traumatic experience in a previous relationship or an anxious attachment style due to childhood trauma. It might not even be known to the individual

where these somatic sensations are from. When the mind and body mistake a stimulus as stressful or unsafe, self-awareness and mindfulness can help restructure these thoughts and sensations to recognize the stimuli as non-threatening. More research needs to be done on the effects of SE on anxiety disorders that fall below the diagnostic threshold for PTSD. Due to this gap in the literature, SE may not be used as often by therapists in the treatment of anxiety symptoms. Although more rigorous and larger-scale studies are needed, with a focus specifically on anxiety disorders to fully confirm these effects and understand how they work in the brain and body, the existing research provides strong support for using somatic approaches in mental health care. In the next chapter I will discuss a possible framework mental health professionals could use for implementing SE in the treatment of anxiety disorders.

Chapter Three: Discussion and Applied Practices

This capstone has provided a comprehensive overview of trauma, its neurobiological impacts, and its manifestation as anxiety disorders, which has led to the argument of expanded application of SE beyond PTSD treatment. The sources I described earlier detail the neurobiological effects of trauma and how it dysregulates the body's nervous system, the HPA axis, causes imbalances in neurochemicals like norepinephrine and reduced activity of GABA, and alters brain structures such as the amygdala and hippocampus. Next, I discussed the ANS using the Polyvagal Theory, and how that can become hypersensitive post-trauma, causing the body to react to safe situations as if they were dangerous. This on-going nervous system dysregulation can manifest in adulthood as anxiety disorders, which often is linked to low self-esteem, feelings of vulnerability, and an insecure or anxious attachment style. This is particularly true if primary caregivers were the source of the trauma.

Afterwords, SE was introduced as an effective intervention for clients who experienced trauma. Trauma-induced anxiety often manifests somatically due to *stuck* trauma memories. SE may be an effective intervention to target these *stuck* memories. SE addresses the phenomenon in which the body’s instinctive fight, flight, or freeze responses remain incomplete or unprocessed during a traumatic event, leading to nervous system dysregulation. Additionally, SE uses a *bottom-up* approach that targets the nervous system and structures like the brainstem and limbic system, aiming to release the *trapped* memories stored in the body. This helps to re-regulate the nervous system and increase the client's tolerance for uncomfortable sensations, as well as allowing the body to distinguish between true danger and safety.

However, it was indicated that there is a lack of empirical research regarding SE's application for trauma-related anxiety disorders that do not meet the full diagnostic threshold for

PTSD. It is important to address this gap in the literature as it may bring attention in expanding trauma care. In this current chapter I propose an alternative framework that uses principles from SE but made to address trauma-related anxiety symptoms.

Alternative Framework

In the upcoming sections I discuss an SE-informed intervention that I have adapted and named to fit anxiety disorders due to trauma. First, I will briefly explain why this adaptation is important. Then, I will explain the new model and how it has been adapted to address anxiety rather than PTSD. Lastly, I will address the limitations of this new proposed model and what future research will need to address.

PTSD vs. Anxiety

Previously I explained the core principles of PTSD, trauma, and how SE has been used as an effective treatment to help clients alleviate symptoms as a result of experiencing trauma. However, there is more to be said on what SE would look like if it were addressing anxiety due to trauma rather than PTSD. There are some key differences that I will touch on in this section. To begin, in PTSD, when the nervous system becomes *stuck* in states of hyperarousal or collapse, it means the body's instinctive fight, flight, or freeze responses were never fully completed during the traumatic event (Brom et al., 2017). Thus, SE helps clients gradually access and release these trapped energies through body awareness, which will then allow the nervous system to return to its regulated state (Brom et al.). However, when it comes to trauma-related anxiety, it often involves chronic hyperactivation and heightened sensitivity, rather than a single unprocessed traumatic event (Virga et al., 2019). This means that the body is always overactive and on alert. Regarding SE, instead of focusing on releasing this *stuck* energy, SE would focus on teaching the body to calm down and learn to recognize a situation as non-threatening. This shifts

the focus from completing the body's unfinished survival responses (PTSD) to learning to notice and tolerate body sensations without going into a hyperarousal state, thus widening the window of tolerance (Payne et al., 2015). When it comes to PTSD, SE treatment often involves direct trauma processing (Payne et al., 2015). On the other hand, for trauma-based anxiety disorders, SE should focus on the client's anticipatory fear and generalized worry, as the anxiety manifests as a persistent anxious arousal rather than reliving the traumatic event (Short et al., 2022). This difference in focus will end up changing the way a mental health professional guides SE with their client, especially the goals and outcomes. This will become more apparent in the next section, where I introduce my SE-adapted framework.

RESTORE Model

The framework that I have created consists of principles from SE and adapted to fit anxiety symptoms rather than PSTD. It is called RESTORE and stands for Regulation, Embodiment, Safety, Transformation, Orientation, Resilience, and Empowerment. It is a body-oriented practice designed for mental health professionals to treat anxiety rooted in trauma, specifically addressing the gap in literature regarding SE use for anxiety disorders that do not meet the full diagnostic threshold for PTSD. The reason I decided to create a specific model rather than suggesting that clinicians modify existing somatic-informed therapy to address anxiety symptoms is because it would risk inconsistencies and a lack of foundation. The RESTORE model provides a structured and integrative framework for applying somatic principles to anxiety treatment. I will further explain each component of the RESTORE model, as well as how it has been altered from addressing PTSD symptoms to anxiety.

Regulation (R). This component of the RESTORE model focuses on helping clients re-establish a sense of stability within their body. As mentioned earlier, when individuals experience

trauma and chronic anxiety, their nervous system often becomes dysregulated (Schumacher et al., 2019). This dysregulation can make it difficult to process emotions or the ability to think clearly. Thus, the purpose of this step is to restore balance in the autonomic nervous system so that clients can effectively manage anxiety responses without being overwhelmed. Regulation encourages the client to tune into their bodily sensations, identify triggers, and practice self-soothing tools. There are a few key focus areas in this step. The first is awareness of physiological states. By being aware of what is going on physically, clients can learn to notice when their body feels tense, restless, or shut down. The second focus area is breath and sensory grounding. This will help anchor clients to be in the present moment, as well as creating a sense of safety. It includes breathing techniques and sensory awareness, such as noticing textures or sounds in the client's environment. The third focus is emotional labelling. By naming emotions and identifying bodily sensations clients can learn to connect the two. Before starting work in this step, the clinician will want to ground the client first and establish a baseline for a sense of safety. This may include breath work, progressive muscle relaxation, somatic tracking, or grounding exercises such as the five senses method.

Regulation allows clients to move out of survival mode and into a state of curiosity and connection. It can easily be misunderstood as *calming down*, when in fact it is about reclaiming control over one's internal state. Additionally, this step is different from PTSD stabilization as this becomes an ongoing daily practice for managing constant anxiety, rather than stabilizing before trauma work. Overtime, skills learned in this step strengthens a client's resilience and stability for deeper growth.

Embodiment (E). The Embodiment stage builds upon the foundation of Regulation. While it may appear identical at first glance, I will explain the distinctions between the two. The

Regulation stage helps clients develop the capacity to self-soothe and return to a baseline in times of high anxiety. Once the client learns about stabilization, the next step involves reconnecting with their body as a source of awareness and identity. When an individual experiences anxiety due to a past trauma, it can lead to feelings of dissociation and overwhelm (Smith & Hartelius, 2020). The Embodiment step helps individuals come back into their body safely and mindfully by leading with self-awareness and compassion. For example, if a client were experiencing high anxiety and stress, first they will want to restore safety and stability by calming their nervous system (Regulation), then they will want to listen to their body to build self-awareness and lead with compassion to deepen their acceptance within their body.

This stage of the RESTORE model encourages curiosity about the body's sensations, movements, and messages, rather than turning towards avoidance or fear. This not only supports healing, but emotional insight as well. The key focuses of Embodiment include mindful body awareness (paying attention to internal sensations such as warmth or tightness), and compassion within the body (shifting views of one's body as a site of betrayal or pain to a trusted ally in healing). At this stage mental health professionals can use various practices and techniques to complete this step. Some practices can include body scans, gentle stretching or yoga, guided imagery, or self-touch exercises for reconnection. However, it must be noted that aside from the client learning to trust themselves and their body, the clinician must also build trust with their client. It is important that the client feels as if they are in a safe space to practice such vulnerable and curious work. Usually, this trust is best to establish before starting the RESTORE model with the client.

Furthermore, this step matters as it helps clients form a source of empowerment within themselves. Clients can learn to experience emotions as physical sensations that can be safely

explored. This stage allows clients to restore their sense of self and build resilience and authenticity as it helps them live fully *in* themselves rather than just coping with their symptoms.

Safety (S). Although this step is placed third in the RESTORE model, it is meant to be experienced at each step. It is a reminder to the clinician that safety must be established and maintained throughout the whole experience. The goal of creating safety is to teach the nervous system that not all activation means danger. For example, experiencing heart palpitations when feeling anxious does not mean there is danger nearby or that you are in danger. This concept of safety can be established as the client is going through the Regulation and Embodiment stages. For example, by learning to regulate the nervous system and lead with curiosity and compassion, a client can learn that what they are feeling is completely valid and understandable rather than dangerous or threatening. A sense of safety can be established by creating therapeutic boundaries, encouraging self-compassion, and gradual exposure to vulnerability. Furthermore, the way to go about establishing safety with an anxiety disorder rather than PTSD differs. In anxiety, creating safety is meant to counter any anticipatory fear rather than trauma flashback (Xu et al., 2022). This is important because the sense of safety should be practiced continuously in an individual who experiences anxiety due to trauma. Whereas with PTSD, safety is often established before trauma processing and addresses flashbacks (Yadav et al., 2024).

Transformation (T). The Transformation phase represents the peak of the RESTORE model. At this stage healing, insight, and self-connection progress into long-term change. After moving through earlier stages where the client has learned to calm and stabilize their nervous system, reconnect with their body and sensations, all the while developing a felt sense of safety and trust, the client can now begin to learn how to live more authentically and whole. Transformation focuses on application and expansion. Clients start to convert their self-

awareness and regulation skills into daily life, relationships, and identity. This phase also involves embracing new narratives about their self-worth and capabilities. The key foci in this stage include integration (merging together the parts of the self that felt disconnected), reframe meaning (seeing the trauma not as something that defines but is part of their resilience story), and agency (recognizing their ability to make their own choices rather than letting the past control their choices). Techniques used can include narrative therapy to rewrite the client's story and build resilience, value-based goal setting, and creative expression such as journalling to symbolize growth. This stage matters as it shifts from coping to creating. It is not a single moment but an ongoing process in which clients will continually integrate what they've learned and who they've become. This step gives back control to clients as they get to live their lives more authentically and whole. Moreover, the Transformation stage differs in its focus from PTSD to anxiety as it helps clients interrupt anxious cycles rather than completing the trauma survival response or an event that needs to be resolved. This means that this stage will continuously be applied in the client's life in times of high anxiety.

Orientation (O). This stage helps clients shift anxious attention away from future projections. Since anxiety is very future oriented, most individuals will spend more time thinking about possible catastrophic future events rather than being in the present moment. With PTSD clients are often thinking about past trauma, which is why this stage is practiced differently with anxiety. The orientation stage addresses the anticipatory anxiety often seen in individuals with trauma-related anxiety. It emphasizes developing tolerance for safety. This refers to helping clients learn that it is safe to relax their attention and be present without scanning for danger. Techniques can include guiding the client to learn where they are in space and time. For example, who they are with, where they are, what is happening in the moment, and time of day.

Clinicians can also use sensory awareness exercises, such as noticing colours or sounds in the room. These techniques can help clients regain a sense of situational awareness and bring their focus back to the present. By repeatedly orienting toward calm and neutral stimuli, clients can begin to shift their nervous system baseline from chronic hyperarousal toward regulation.

Resilience (R) & Empowerment (E). Resilience and empowerment may occur at the same time, which is why they have been paired up together in the model. The Resilience phase in the RESTORE model focuses on strengthening an individual's capacity to adapt, recover, and thrive despite trauma and hardship. This stage emphasizes the ongoing development of coping skills and adaptive strategies that allow the individual to respond effectively to future anxiety symptoms. To be clear, this stage is not about eliminating anxiety. It is about broadening one's window of tolerance to better address times of distress and anxiety. For example, for a client with PTSD, resilience may look like overcoming a traumatic event and no longer experiencing PTSD (Yadav et al., 2024). However, for a client with anxiety due to trauma, resilience means the client practices living with the anxiety but managing it more effectively so that they can live their lives (Leys et al., 2021). Additionally, the purpose of resilience is to prepare clients for life beyond therapy, which reinforces the idea that healing is ongoing (Leys et al., 2021). A key focus area in the Resilience stage includes self-efficacy. Self-efficacy strengthens a client's confidence in their ability to handle challenges. Another key focus area is emotional flexibility. This includes the ability to experience, tolerate, and respond to a range of emotions without being overwhelmed. By using the tools and strategies learned from the earlier stages, clients can effectively bring their body back to a state of regulation.

Furthermore, mental health professionals will end this process with addressing the feeling of empowerment and what that means and looks like for the client. By fostering empowerment,

clients can develop confidence in their self-identity, their ability to make informed choices, assert their personal boundaries, and engage with life intentionally rather than reactively (Ranjbar et al., 2020). Clients can learn to feel empowered as they take ownership of their healing process and trust their own judgements (Ranjbar et al., 2020). Some practices to introduce at this stage can include goal-setting exercises, reflective journaling, and celebrating milestones.

In summary, the RESTORE model provides a comprehensive, trauma-informed framework to address clients who struggle from trauma-related anxiety. By addressing Regulation, Embodiment, Safety, Orientation, Transformation, Resilience, and Empowerment, the model enables mental health professionals to guide their clients from stabilization and reconnection with their body and environment, to reclaiming agency and living authentically. RESTORE emphasizes that healing is both a process and a practice which ultimately prepares clients to thrive in the present and future.

Limitations

While the RESTORE model provides a structured framework, there are several limitations that should be addressed. The biggest limitation is that this model has not been backed up by clinical trials as it is completely conceptual. Although the concepts used in the model, such as SE and anxiety, have been well-researched, the fact that this specific model has not been tested on the public makes it difficult to compare or quantify outcomes. Moreover, the model may be overly complex for clients to fully grasp, which could lead to feelings of overwhelm. Clients may struggle to engage, especially if they struggle with severe dysregulation, complex trauma, or cognitive impairments. Additionally, due to the model's multi-layer approach, the effectiveness of each stage depends on the skills and experience of the mental health professional. Therefore, there could be potential variability in implementation. Lastly,

there are cultural limitations that need to be addressed. The model may not fully account for cultural differences in trauma response or expressions. Adaptations to the model might be needed to ensure that each stage is effective and relevant across diverse populations.

Conclusion

This capstone project has argued for the expansion of SE's application beyond its role in PTSD treatment by demonstrating its potential efficacy in addressing a wider range of trauma-related anxiety disorders. Additionally, this capstone also addressed a critical gap in the literature, which has limited recognition for the use of SE for anxiety disorders that do not meet the diagnostic threshold for PTSD. Moreover, it has also been argued that trauma is a universal human experience that severely impacts our psychophysical system, especially chronic or repeated trauma that was experienced in childhood. These disruptions often persist beyond the presence of PTSD symptoms and manifest as various anxiety disorders, including social anxiety, generalized anxiety disorder, and attachment-related anxiety.

Furthermore, the link found between trauma and anxiety is rooted in the dysregulation of our nervous system. This disruption includes the HPA axis, which often exhibits hypoactivity in individuals with PTSD, as well as neurochemical imbalances, such as increased norepinephrine and decreased GABA activity, and structural changes in the brain, including a potentially smaller hippocampus and an overactive amygdala. As a researcher or mental health professional, this type of knowledge and understanding might be easier understand or have access to. However, people who are not in this field might not easily know about nervous system dysregulation due to trauma and anxiety. Which is why it is important for mental health practitioners to introduce such things to clients who do experience trauma-related anxiety, so that they can learn how to regulate themselves and manage their symptoms in their day to day lives. For example, the PVT that was

introduced in this capstone could be great psychoeducation for clients to learn more about what is going on in their bodies. The PTV research highlighted that trauma causes the autonomic nervous system to become hypersensitive, making the body react to safe situations as if they were dangerous, which results in chronic, unhealthy stress responses. This ongoing nervous system dysregulation manifests in adulthood as anxiety disorders, such as attachment anxiety. Anxious attachment, characterized by an intense fear of rejection and abandonment, leads to persistent worry, dependency, and burnout.

Moreover, given that trauma is often somatically stored in the body and creates a disconnect between the mind and body, interventions must include physiological processing to let go of the *traumatic memories* that were stored in the body. SE provides a bottom-up therapeutic approach and operates on the premise that trauma symptoms arise from incomplete fight, flight, or freeze responses. However, the application of SE for trauma-related anxiety disorders differs from its use in PSTD. Instead of SE being used to complete a specific survival response, the focus shifts to addressing chronic hyperactivation and anticipatory fear. In this context, SE teaches the body to calm down, making it more tolerable to address uncomfortable sensations. Ultimately, the goal would be to broaden their window of tolerance and enhance self-awareness.

With that said, this capstone advocates for a paradigm shift in how trauma-related anxiety is treated and proposes the RESTORE Model. This conceptual framework provides a structured, SE-informed intervention designed to treat anxiety rooted in trauma, with a focus on persistent anxious arousal. The RESTORE Model emphasizes that healing is both a process and a practice, which ultimately prepares client to remain in the present moment and reclaim agency in their lives. To summarize, the RESTORE Model starts with regulating the client to establish stability

and balance the nervous system. Then, it moves to Embodiment, which encourages clients to reconnect with their body and fostering self-awareness. While this is happening, a sense of safety should also be established between the therapist and the client, to allow client's nervous system learn that activation does not equal danger. This counteracts anticipatory fear. Next, the RESTORE Model turns to Transformation when the client will work on rewriting their personal narratives and establish agency. After, the client will work on Orientation where the therapist helps them shift their focus to the present and away from future catastrophic thinking. Lastly, the therapist will establish Resilience and Empowerment with the client. This will emphasize the ongoing development of adaptative strategies to widen their window of tolerance, allowing the client to live with their anxiety rather than seeking to eliminate it. As well as fostering confidence in the client's self-identity and their ability to make informed choices, trusting their own judgements.

However, as mentioned previously, this model is currently conceptual and not supported by clinical trials. Thus, this capstone opens new possibilities for future studies to broaden the use of SE. In understanding how trauma-related anxiety affects not just our mental but physical health, practitioners can help clients live a more self-fulfilling authentic life.

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