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Integrative and Holistic Approaches to Treating PTSD: Two Theoretical Models to Guide Best Practice

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Abstract

Posttraumatic Stress Disorder (PTSD) is a debilitating disorder that deserves quality psychotherapeutic treatment. As research on PTSD has progressed, it has become increasingly clear that the disorder is rooted in both neurological and psychological abnormalities. However, many currently available gold-standard psychotherapies target symptoms which arise from only one of these dysfunctional origins, leaving symptom profiles inadequately addressed and contributing to issues with attrition and residual symptoms. Integrative therapies, while still in the early stages of gaining empirical support, seem promising in terms of their ability to offer more complete symptom resolution than cognitive or somatic therapies alone. Another crucial aspect of PTSD psychotherapy, the therapeutic alliance, often goes inadequately discussed in research on trauma treatment approaches despite its known curative effect. Considering the role of the therapeutic alliance alongside integrative therapies' potential to more fully address the PTSD symptom profile, it becomes clear that a holistic approach is needed to effectively treat PTSD. In this paper, a theoretical model advocating for integrative psychotherapy as best practice in PTSD treatment is introduced, followed by the proposal of a second theoretical model that centers psychotherapy within the larger context of the therapeutic alliance and offers a holistic framework for PTSD treatment approaches.

Keywords: PTSD, trauma, exposure therapy, integrative therapy, therapeutic alliance, holistic treatment

Positionality Statement

I am a survivor of sexual violence and have been living with a PTSD diagnosis since the age of 14. The way that I experience the symptoms of PTSD and the specifics of my index traumas have inevitably impacted the way I think about the disorder's origins, symptoms, and treatments, which in turn has affected my approach to this paper. My personal experiences in therapy have also impacted the way I think about the therapeutic alliance and PTSD treatment more broadly. Additionally, I am currently a crisis hotline operator at the Sexual Violence Center in Minneapolis, MN. In this role, I offer crisis counseling, refer callers to resources, and am privy to the trauma experiences of the victim/survivors who call the line. My experience handling sexual violence crises places me in a unique position when discussing and researching PTSD and has also impacted this paper.

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Chapter One

The Integrative PTSD Psychotherapy Model: Integrating Cognitive and Somatic Treatment Components to Support Best Practice

Posttraumatic Stress Disorder (PTSD) is a debilitating disorder; trauma can fundamentally alter the course of a person's life, often derailing it through disruptive symptoms. Barring an end to trauma itself, it is essential that treatments for PTSD be as effective as possible, completely resolving all aspects of the disorder's symptomatology. In order to repair the neurological and psychological damage caused by trauma, psychotherapy often uses an exposure-based approach, aiming to address the root causes of PTSD via various somatic and cognitive interventions (e.g., Grabbe & Miller-Karas, 2018, and Shifrin et al., 2023). Despite their similarities, exposure-based therapies operate under distinct theories derived from neuroscientific and/or psychological perspectives on PTSD (e.g., Brewin & Holmes, 2003). As our understanding of PTSD has progressed, it has become clear that current treatments may not be sufficiently effective or empirically supported (Harvey et al., 2003; van der Kolk, 2006), pointing to a need for further research conducted under a more holistic conceptualization of the disorder.

Due to the highly complicated nature of PTSD, its theoretical underpinnings, and its treatments, a simpler model that accounts for all components of the disorder is needed. In this paper I will review the neurological and psychological roots of PTSD, categorize exposure therapies as cognitive, somatic, or integrative, and consider the potential harm of inadequate treatment before proposing a theoretical model to guide best practice for the treatment of PTSD. Throughout this paper, I will categorize psychotherapies as "cognitive exposure-based," "somatic exposure-based" or "integrative exposure-based" therapies with the goal of

synthesizing the literature within the framework of my theoretical model. Although this paper includes sections which attempt to delineate between concepts that cannot be neatly separated, the interwoven nature of roots and therapies of PTSD is also acknowledged throughout and has been incorporated into my theoretical model. My goal is to discuss PTSD within a framework which makes a direct connection between the disorder's neurological and psychological roots and the available exposure-based treatments, specifically advocating for treatment modalities which address the full breadth of PTSD's origins and symptoms.

Posttraumatic Stress Disorder is a disorder which occurs in some individuals after they experience a traumatic event. The disorder is characterized by four categories of symptoms: avoidance, intrusion, altered cognition and mood, and altered activity and arousal (American Psychiatric Association, 2020). The disorder manifests differently in different individuals, resulting in symptom patterns that are unique to each person but which can broadly be considered to include differing levels of re-experiencing and general distress (Fitzpatrick et al., 2023). (For a more in-depth description of PTSD's symptom profile and criteria, please see the Appendix.) PTSD is a fairly prevalent disorder, with one in eleven people receiving the diagnosis within their lifetime and 3.5% of adults affected per year (American Psychiatric Association, 2020).

PTSD Psychotherapy

Given PTSD's prevalence and debilitating effects, much attention within the field of psychology has been devoted to finding efficacious treatments and defining which components of those treatments are most essential to favorable outcomes. Generally speaking, patients prefer psychotherapy over medication therapy (Shifrin et al., 2023), and treating PTSD with any form of psychotherapy does not worsen patients' conditions, but rather reduces the risk of adverse

outcomes compared to other treatments or a lack of treatment (Hoppen et al., 2023). There are many specific psychotherapeutic approaches practiced by clinicians, several of which will be discussed in detail in this paper, but it is important to note that all approved treatments for PTSD could be considered approximately equally effective and may not differ much in terms of underlying mechanisms of change (Wampold, 2019). Despite the possible homogeneity of psychotherapeutic methods and theories for PTSD, emerging evidence of neurobiological roots of trauma and the potential role of mindfulness in therapeutic interventions have led to the modification of some psychotherapies to be "trauma-informed" or "mindfulness-based," often by integrating body-based therapeutic approaches with better-established cognitive ones (Grabbe & Miller-Karas, 2018).

Regardless of which particular psychotherapy is being used to treat PTSD, the therapeutic relationship between client and clinician is essential to achieving optimal therapeutic benefit (Keller et al., 2010). In fact, varying outcomes across different treatments can be attributed to a patient's relationship with their therapist rather than any specific aspect of each treatment (Lilienfeld, 2007). A strong therapeutic alliance encourages better treatment engagement and adherence and discourages treatment dropout, allowing clients to maximize the benefits of whichever treatment they are receiving (Keller et al., 2010). When treating PTSD specifically, building a strong therapeutic alliance early on may be particularly important to treatment adherence, especially for exposure-based treatments. Clients with PTSD often enter therapy prone to avoidance and negative beliefs about others, which can complicate the therapeutic relationship. Further, if a client's trauma background is interpersonal, forming a strong therapeutic alliance may be even more difficult. Overcoming these barriers is essential, however, as quality support through the therapeutic alliance can offset the negative effects of poor social

support on the development of PTSD. When clients have experienced low levels of trauma support, therapists must expressly convey a supportive attitude that is free from blame, especially when directly discussing the client's trauma. Better PTSD treatment outcomes are predicted by higher client-rated early therapeutic alliance, further emphasizing the need for special attention to the therapeutic relationship with clients who have PTSD (Keller et al., 2010).

Frontline PTSD Psychotherapies

Although all psychotherapies for PTSD may be equally effective, and therapeutic alliance may play a larger role than differences between modalities, there is still great emphasis placed on "gold-standard" treatments for PTSD both in the literature and in clinical practice. Cognitive Behavioral Therapy (CBT) encompasses several cognitive-based therapies and is widely considered the frontline treatment for PTSD, with the most supporting evidence from randomized controlled trials (RCTs) (Hoppen et al., 2023; Ehring et al., 2014). Eye Movement Desensitization and Reprocessing (EMDR) is another gold-standard treatment that is often recommended as a starting point for those seeking treatment for PTSD, but it has less empirical evidence behind it than cognitive-based therapies (Hoppen et al., 2023; Ehring et al., 2014).

While evidence-based treatments like CBT are effective, they also have high dropout rates, ranging from 18% to 72% across the literature (Sijercic et al., 2021), and many individuals with PTSD do not respond sufficiently well to them (Larsen et al., 2019). Clinical psychology researchers and clinicians are concerned about the high dropout rates for PTSD psychotherapies, as dropout not only prevents clients from experiencing the full benefits of treatment but can also create a sense of failure that could act as a barrier to seeking future treatment (Sijercic et al., 2021). However, because 13-37% of clients reach satisfactory end-state functioning before the planned final session, it is possible that a portion of those dropping out are doing so because the

treatment is actually working better than expected (Thompson-Hollands et al., 2023). The reasons behind client dropout are complex, but dropout rates remain a main source of concern and critique for evidence-based PTSD psychotherapies.

Considerations for this Paper

There are many aspects of PTSD and its treatments that are important, but are beyond the scope of this paper. Some individuals with PTSD present with a dissociative subtype of the disorder, characterized by a dominance of hypoactive symptoms (Lanius et al., 2010). This subtype is often more difficult to treat, as it can impact clients' ability to engage with trauma content during exposure (Lanius et al., 2010). The dissociative subtype will be mentioned in this paper when relevant to the efficacy of a specific treatment, but will not be discussed in detail. Complex PTSD (C-PTSD) can also complicate treatment, as some symptoms of C-PTSD are often attributed to comorbidities that most PTSD psychotherapies do not take into account (Mahoney & Markel, 2016). However, C-PTSD is discussed far less in research on trauma treatments than PTSD is, so literature focusing on C-PTSD psychotherapies is limited. Thus, although deeply important, C-PTSD will only be discussed in this chapter when research on the disorder is available and pertinent. Common PTSD comorbidities, such as substance abuse, depression, and anxiety, play a similar role in this paper: they will be discussed where relevant, but are not a point of focus. The different presentation of PTSD in children (American Psychiatric Association, 2022) will not be discussed, as the focus of this paper is adult PTSD. Just as some aspects of the disorder are beyond the scope of this paper, some aspects of treatment, although important, will not be covered. Pharmacological treatments, such as Selective Serotonin Reuptake Inhibitors (SSRIs) and Serotonin-Norepinephrine Reuptake Inhibitors (SNRIs), are often prescribed to treat PTSD (MacNamara et al., 2016). However, since

the focus of this paper is on psychotherapy rather than pharmacotherapy, medication therapies will not be discussed. There is also emerging data on the potential efficacy of 3,4-Methylenedioxymethamphetamine (MDMA)-assisted therapy for PTSD, which is a fascinating area of research but is not relevant to the current paper.

I firmly hold the opinion that the changes that occur in the brains, minds, and bodies of traumatized individuals are perfectly normal reactions to abnormal situations rather than problems themselves. Unfortunately, the psychology field does not describe these changes in this way, and in keeping with the language used in the research I am citing, I will use words like "deficit" and "abnormality" to describe the impacts of trauma. It is important to note that this phrasing plays into a deficit model of mental illness that I do not personally endorse, and if my descriptions of post-trauma changes were intended for a clinical audience, I would take a much more validating, normalizing approach to this discussion.

Additionally, research discrepancies have inevitably impacted the information I will present in this paper. Although different treatments may be better suited to different index traumas, studies on PTSD tend to focus on combat and sexual violence. Thus, much of the data gathered for this paper is related to these specific traumas but is being broadly applied to PTSD regardless of index trauma. In endeavoring to describe cognitive, somatic, and integrative therapies and their critiques as thoroughly as possible, it has become clear that the state of the literature on these treatments varies greatly, which has impacted their description in this paper. More evidence in general for all PTSD psychotherapies is needed (Harvey et al., 2003), as most studies have some methodological or generalizability limitations that could be alleviated by further research. However, because somatic and integrative therapies are actively emerging, their current body of evidence is relatively small and does not feature as many RCTs as cognitive

therapies. These treatments face scrutiny and criticism due to the psychology field's preference for empirical support in the form of RCTs, although qualitative research can also generate valuable findings. This research discrepancy can also be explained by psychology's slow response to evidence of long-term impacts of Adverse Childhood Experiences (ACEs), the exclusion of participants with C-PTSD from clinical studies, and preferential funding of evidence-based treatments over novel ones (Grabbe & Miller-Karas, 2018). Integrations of cognitive and somatic psychotherapies have also lagged behind in the literature, possibly due to the West's fragmented approach to mental health treatment, which keeps physical and mental healing separate in a way that non-Western traditions do not (van der Kolk, 2006). Some researchers argue that evidence for somatic and integrative therapies should be expanded to include the neuroscientific basis underlying therapies which involve somatic processing (Grabbe & Miller-Karas, 2018), which would bring cognitive, somatic, and integrative therapies more in line with each other in terms of evidence base. In addition to somatic and integrative therapies being less researched than cognitive treatments, the research that has been done on these modalities has taken place in the context of cognitive treatments as the gold standard. Thus, there is a major focus on improving upon cognitive therapies in the literature on somatic and integrative treatments, whereas literature on cognitive therapies rarely discusses other modalities. Since research on cognitive therapies more or less exists in a vacuum and somatic and integrative treatments are trapped within a cognitive treatment framework, most critiques of cognitive treatments have to do with the treatment itself while almost all critiques of integrative and somatic therapies surround methodology and empirical rigor. The emerging nature of research on integrative and somatic therapies means that it has not yet come to light what issues may lie in

the treatments themselves or how they would be received in a field without such a strong bias towards cognitive therapies.

Exploring cognitive, somatic, and integrative exposure therapies within a framework which connects treatment modalities directly to symptoms and their origins is essential to understanding what makes PTSD treatments effective. Because PTSD has neurological and psychological roots, I argue that both somatic and cognitive symptoms must be activated and resolved for successful treatment.

Neurological and Psychological Roots of PTSD

Posttraumatic Stress Disorder is associated with extensive changes to the brain, mind, and body. Neurological and psychological abnormalities underlie the disorder's symptom profile, and an understanding of symptoms' origins is essential to creating effective psychotherapies. PTSD's neurological and psychological roots, as well as points of overlap between the two, inform the theories behind cognitive-, somatic-, and integrative-based exposure therapies and are crucial to understanding best practice for treating trauma.

PTSD's Neurological Roots

PTSD is often considered to be rooted in a dysfunctional threat response that is subcortical (Grabbe & Miller-Karas, 2018), primarily experienced neurobiologically and viscerally rather than mentally (Fisher, 2019). When the body and brain's system for threat response fails, individuals are left in a state of physical helplessness, which is crucial to the development of pathological trauma (van der Kolk, 2006). After the initial traumatic event, reminders of the trauma cause the brain and body to respond as if the trauma is an active threat, but those with PTSD may struggle to give a complete narrative account of the event with which their body seems so familiar (Fisher, 2019). This dysfunction has its origins in neurobiological

and neurophysiological abnormalities and is heavily associated with broader dysfunction of the nervous system.

Neurobiological and neurophysiological abnormalities in PTSD relate to specific structures and circuits. A thorough description of the functions of these particular structures is beyond the scope of this paper; for a breakdown of relevant PTSD-related brain structures and circuits, I recommend that the reader consult part two of Bessel van der Kolk's 2014 book *The Body Keeps the Score: Brain, Mind, and Body in the Healing of Trauma*.

Frontal-subcortical circuit dysfunction and deficient corticothalamic integration explain the difficulty that those with PTSD have staying in the present, especially when faced with trauma cues (van der Kolk, 2006). The insular cortex and its associated structures in the limbic and executive control systems ordinarily support somatic awareness as a source of resilience and sense of self, but PTSD is associated with lower volume and activity in these regions, contributing to challenges with awareness of physical sensations and receipt of input with personal meaning (Grabbe & Miller-Karas, 2018). Fear conditioning and extinction are central to PTSD's neurological correlates, as the hippocampus, amygdala, and medial prefrontal cortex which make up the brain's fear circuit are often dysfunctional in PTSD. Many behavioral therapies are based on the hypothesis that PTSD symptoms are related to deficits in fear extinction, or the ability to decondition fear-based associations once they no longer serve a helpful purpose (Maren et al., 2013). Fear extinction impairments are backed by neuroscientific evidence and explain PTSD symptoms like heightened startle response and the reactivation of fear circuitry to trauma cues (Maren et al., 2013). Most neurobiological and neurophysiological abnormalities in PTSD are related to somatic awareness, sense of self, and fear conditioning and extinction, which lines up well with observed symptoms of the disorder.

PTSD is also characterized by dysfunction of the autonomic nervous system (ANS), which has two branches: the sympathetic and parasympathetic. The sympathetic nervous system (SNS) is responsible for fight and flight reactions to threats, which are then followed by a freeze response caused by the parasympathetic nervous system (Fisher, 2019). When these responses are interrupted, the ANS can become dysregulated and overactive, resulting in PTSD symptoms (Grabbe & Miller-Karas, 2018). The nervous systems of those with PTSD often have trouble recovering from intense emotional states and states of reduced affect, such as depression or numbing, resulting in difficulties with affect regulation (Fisher, 2019). This leaves individuals with PTSD oscillating between overwhelming arousal and equally harmful detachment from affect, resulting in impulsivity or passivity as modulated by the ANS. Overactivation of the SNS often arises in non-dangerous situations, while passive, PNS responses take the lead in situations of real danger, both of which are fundamentally dysfunctional nervous system responses. When trauma is repeatedly experienced, the nervous system develops habitual responses that are protective in a trauma environment but are harmful once an individual is safe. The repeated overactivation of the ANS and the resulting impairments to the development of affect regulation skills cause chronic PTSD and its comorbidities (Fisher, 2019). Beyond simple overactivation of the ANS to trauma cues, the modulation of arousal is dysregulated due to increased sympathetic and decreased parasympathetic nervous system tone (van der Kolk, 2006). This dysfunctional activation is coupled with decreased activation of central nervous system regions associated with sensory integration, regulation of physical arousal, and narrative abilities (van der Kolk, 2006), deficits which clearly translate into symptoms of PTSD.

PTSD's neurological roots primarily underlie the disorder's somatic symptoms, likely due to the role of fear circuitry and the ANS, both of which can trigger bodily experiences like

racing heartbeat and tense muscles (fight or flight) or numbing and detachment (freeze). As such, the theories behind somatic exposure-based therapies are often heavily based in neurological understandings of PTSD (Kuhfuß et al., 2021; Grabbe & Miller-Karas, 2018). These theories will be discussed in more detail in the Somatic Exposure-Based Therapies section.

PTSD's Psychological Roots

Similarly to PTSD's neurological roots, the disorder's psychological roots are related to experiences and processes that begin to dysfunction during the initial traumatic experience (Brewin & Holmes, 2003). Memory and cognition are the primary psychological processes that are affected in PTSD, although experiences related to attention, dissociation, and helplessness also play a role in shaping symptomatology (Brewin & Holmes, 2003).

Several processes related to memory are abnormal in PTSD. Recall of trauma-related memories is a major source of PTSD symptoms, as the mind is biased towards the recall of trauma-related memories, but struggles to retrieve specific autobiographical memories (Brewin & Holmes, 2003). This is complicated by a contradictory pattern wherein high emotion during the initial trauma can either make traumatic memories more vivid and long-lasting or can make them vague and error-prone, both of which lead to distress for those with PTSD. This paradoxical abnormality results in both intrusive memories and amnesia for details of the traumatic event. While memory of the event can improve over time, the content could change and some gaps may remain. Memories that the individual does have often appear as flashbacks, which are unique from ordinary autobiographical memory due to their strong sensory components, fragmented nature, sense of reliving, and involuntary onset. Dysfunction of memory storage and recall is at the core of PTSD's psychological roots, underlying both

hyperactive (i.e., flashbacks) and hypoactive (i.e., amnesia) presentations of the disorder (Brewin & Holmes, 2003).

Maladaptive beliefs and cognitions also play a role in the psychological roots of PTSD (Brewin & Holmes, 2003). Experiencing trauma shatters one's most basic beliefs and assumptions about themself, other people, and the world around them. Often, this looks like an increase in negative beliefs about the self, others, and the world; a sense of trust having been destroyed or betrayed; or anger and a loss of belief in the good intentions of others. Some of these altered beliefs are a direct result of the trauma, whereas others are the result of cognitive appraisals of responsibility and consequences. These secondary beliefs result in emotions like guilt, shame, sadness, humiliation, and anger that are central to the affective profile of PTSD (Brewin & Holmes, 2003).

Distressing experiences related to attention, dissociation, and helplessness continue after initial trauma and contribute to PTSD symptoms (Brewin & Holmes, 2003). Trauma's effects on attention are a bit of a mystery; it may be deficient, biased, or overactive in a way that accounts for the common symptom of hypervigilance. While somewhat contradictory, these hypotheses could each tie back to attentional changes during the index trauma regarding how the threat was noticed and responded to. One such response, dissociation, increases the risk for developing PTSD when it occurs during the traumatic event, but not afterwards despite its common continuation. Helplessness is a key component of traumatic experiences, and a sense of fear, helplessness, or horror during trauma is predictive of PTSD. As time passes, mental defeat can develop as individuals give up on their lives and autonomy due to a belief and feeling that they are helpless based on the events of their index trauma (Brewin & Holmes, 2003).

PTSD's psychological roots mainly underlie cognitive symptoms like memory deficits and dysfunction, attentional abnormalities, and changes to emotions, beliefs, and cognitions (Brewin & Holmes, 2003). There are several specific theories which explain how dysfunctional psychological processes lead to PTSD and are used to support cognitive exposure-based therapies (Brewin & Holmes, 2003). These theories will be discussed in more detail in the Cognitive Exposure-Based Therapies section.

Neurological and Psychological Overlap

Neurological and psychological bases for PTSD, while often discussed as separate phenomena, need not be considered contradictory to one another. PTSD is rooted in both neurology and psychology, as is reflected by its combination of cognitive and somatic symptoms, and the overlap of these two realms is essential to understanding how the disorder works.

The trauma response occurs on a spectrum between hyper- and hypoactive symptoms, and each end of this spectrum can be traced back to both autonomic (neurological) and affective (psychological) dysregulation (Fisher, 2019). Emotional dysregulation is associated with both sides of this spectrum, and also has its roots in both neurological and psychological dysfunction. Implicit body-memories, triggered primarily by multisensory cues, lead to emotional dysregulation, which in turn damages individuals' sense of well-being and ability to be aware in the present moment (Grabbe & Miller-Karas, 2018). Further, evidence of somatic awareness as a potential source of emotional regulation and resilience has been emerging in the literature, explicitly connecting neurological and psychological aspects of PTSD (Grabbe & Miller-Karas, 2018). This association is also a source of maladaptation, as the ability of emotions to overwhelm the nervous system of those with PTSD causes them to lose their useful role of guiding an individual to an effective action (van der Kolk, 2006). Alexithymia, or the inability to

identify the emotional meaning of physical sensations, stems directly from this issue and makes it exceedingly difficult for those with PTSD to meet their needs (van der Kolk, 2006).

Bottom-up processing offers an explanation of how PTSD symptoms stem from both neurological and psychological abnormalities that is firmly backed by neuroscientific evidence. The brain is hierarchically organized from the bottom up; when information reaches the brain, it activates emotional and arousal systems that in turn stimulate actions which are modifiable by thought (van der Kolk, 2006). In other words, all experiences are processed on a more visceral, neurological level before they reach the cognitive, psychological level for processing. Further, higher systems inhibit lower systems, so when psychological processes become dysfunctional, neurological processes are able to become hyperactive, resulting in PTSD's classic pathological fight-flight-freeze response (van der Kolk, 2006). Bottom-up processing also offers an explanation for dysfunctional memory and beliefs in PTSD, as the automatic engagement of lower-level defense responses during trauma inhibits hippocampal activity and, in turn, disrupts memory encoding and creates a false perception of cause and effect surrounding the trauma (Fisher, 2019).

While both neurological and psychological components often contribute to symptoms of PTSD, these aspects of the disorder also inform one another and perpetuate the symptoms they cause. PTSD's neurological basis in fear conditioning and nervous system dysregulation disrupts psychological processes that contribute to PTSD, such as memory and affect (Fisher, 2019; Grabbe & Miller-Karas, 2018). Abnormal psychological patterns can affect neurological dysfunction in PTSD in that the more individuals react negatively to or avoid trauma stimuli, the more ingrained fear conditioning and nervous system dysregulation become (Fisher, 2019; Mahoney & Markel, 2016; van der Kolk 2006). Thus, neurology and psychology are inseparable

when discussing the origins of PTSD, despite attempts in psychotherapy to address cognitive and somatic symptoms separately. Considering the convergence of neurological and psychological roots of PTSD offers a more complete understanding of key symptoms and, in turn, how treatments can best target them.

Exposure in PTSD Treatment

Most psychotherapies for PTSD, including frontline therapies like CBT and EMDR, have an exposure component (Mahoney & Markel, 2016; Shapiro & Brown, 2019; Hoppen et al., 2023). Thus, it is important to understand why exposure is used to treat PTSD, whether it could be a harmful or unnecessary aspect of treatment, and how it can best be incorporated into psychotherapy.

Theory Behind Exposure

Since exposure is a component of several different PTSD psychotherapies, there are many theories regarding its role in resolving symptoms. Generally speaking, these theories place psychological aspects like abnormal memory processing and negative cognitions at the center of the disorder (Ehring et al., 2014). Given this understanding, effective PTSD psychotherapy must engage directly with the traumatic memory through exposure (Ehring et al., 2014). More specific theories offer different mechanisms explaining how exactly exposure resolves memory dysfunction, but they agree that reliving is beneficial to treatment due to its ability to contextualize and elaborate on the trauma memory (Brewin & Holmes, 2003). Even without explicitly cognitive components, exposure-based treatments can lead to cognitive restructuring, addressing the other key component of PTSD (Brewin & Holmes, 2003). Fear conditioning and extinction are also central aspects of PTSD, and exposure harnesses basic Pavlovian conditioning to resolve symptoms and reconsolidate trauma memories within newly conditioned systems

(Feinstein, 2010). This theory behind exposure aligns with a neurological understanding of PTSD and need not be disparate from the more psychology-based explanations of the intervention's efficacy, considering the dual neurological-psychological bases of the disorder. Further discussion of integrative theories behind exposure can be found in the Integrative Exposure-Based Therapies section.

The Potential Harm of Exposure

Some researchers assert that exposure can be a harmful rather than helpful component of PTSD psychotherapy. PTSD treatments tend to have a concerningly high dropout rate, and dropout usually occurs early in treatment as exposure is introduced (Thompson-Hollands et al., 2023). It is possible that the exposure aspect of trauma-focused treatments (TFTs) causes this high rate of premature termination of treatment, but the results on this are mixed.

Two dominant models attempt to explain why clients leave psychotherapy early: the dose-response model and the good-enough level model. The dose-response model posits that each psychotherapy session is incrementally beneficial for all patients, whereas the good-enough level model suggests that patients improve at different rates and end treatment whenever they are satisfied with their level of improvement. The dose-response model is endorsed as accurate in the context of PTSD treatment, making attrition even more concerning since it means that clients miss out on potential symptom improvement and have less time to learn and practice therapeutic skills (Thompson-Hollands et al., 2023).

Beyond these concerns about a possible correlation between exposure and attrition and attrition's negative impact on clients, some scholars have raised concerns about the potential for direct harm caused by exposure. There may be a risk of retraumatization when clients undergo vivid, extended exposure as part of their treatment (Feinstein, 2010). There is also a potential risk

of symptom exacerbation for patients whose PTSD stems from childhood abuse and thus is more complex, especially when it comes to difficulty with emotion regulation (Mahoney & Markel, 2016). Unless skills for emotion and trauma reaction regulation are firmly established beforehand, deep processing through exposure may be harmful (Mahoney & Markel, 2016).

Exposure as Unnecessary: The Efficacy of Non-Trauma-Focused Treatments

There is an ongoing debate in the field surrounding whether or not exposure is even necessary to effectively treat PTSD (Hoppen et al., 2023). This debate is fueled by evidence that psychotherapies for PTSD that do not feature an exposure component (non-TFTs) are similarly effective and possibly more acceptable than their trauma-focused counterparts (Wampold, 2019; Hoppen et al., 2023; Thompson-Hollands et al., 2023). Even if non-TFTs are slightly less effective, this may be an acceptable tradeoff if these treatments align more closely with patients' wishes and thus discourage dropout (Hoppen et al., 2023).

Present-Centered Therapy (PCT) is a non-TFT that has gained some traction in the treatment of PTSD. PCT was initially developed as an active control condition in studies on trauma-focused treatments and does not involve an exposure component, focusing instead on a discussion of daily difficulties (Thompson-Hollands et al., 2023). PCT has been found to be effective compared with a waitlist condition and has higher completion rates than TFTs. Higher completion rates associated with the treatment are likely due to it being more tolerable, since it does not include an exposure component. However, the sense of personal growth that comes with completing Prolonged Exposure (PE), a frontline TFT, is not seen in PCT, which should also be taken into consideration when comparing treatments (Thompson-Hollands et al., 2023). The efficacy of non-TFTs certainly calls into question the necessity of exposure components in PTSD

psychotherapies, although TFTs still maintain some benefits not offered by treatments which do not include exposure.

Exposure as Best Practice

Concerns surrounding the necessity and safety of exposure are valid, and are moderately well-supported in the literature (Thompson-Hollands et al., 2023; Wampold, 2019; Hoppen et al., 2023; Mahoney & Markel, 2016; Feinstein, 2010). However, research on exposure overwhelmingly supports its safety and efficacy, allowing exposure-based psychotherapies to remain at the forefront of PTSD treatment (Ehring et al., 2014; Hoppen et al., 2023; Kimbley et al., 2023; Deacon & Farrell, 2013).

Despite the somewhat comparable efficacy of non-TFTs, TFTs, which include exposure, consistently produce much larger effect sizes in the treatment of PTSD (Ehring et al., 2014). Trauma-focused cognitive interventions are more effective and garner longer-lasting results than therapies without an exposure component (Hoppen et al., 2023), and their superior efficacy aligns well with theories that place memory at the center of PTSD (Ehring et al., 2014). Although TFTs still have higher dropout rates than non-TFTs, this does not equate to an increased risk of harm from including an exposure component in treatment (Hoppen et al., 2023). Thus, exposure does in fact seem to be necessary to maximize the efficacy of treatments for PTSD.

While some researchers worry that exposure pushes clients too far, that push may actually be why exposure is so beneficial. Disclosing details of the traumatic experience, such as providing a narrative during exposure therapy, is associated with increased posttraumatic growth, a factor which is important to the recovery process (Kimbley et al., 2023). The more narratively coherent a disclosure is, the greater posttraumatic growth is gained, suggesting that creating a

trauma narrative during exposure can be therapeutic in itself. Intentionally engaging with the traumatic material rather than avoiding it helps resolve symptoms and facilitates the challenging of negative beliefs, which leads to posttraumatic growth. Crucially, however, the amount of pressure to disclose modulates its effect on healing. Receiving moderate pressure to disclose a trauma experience is more helpful than either high or low exposure, and the positive effect of moderate pressure is most pronounced when disclosure includes a high level of detail, such as during exposure. This balancing act points to a Goldilocks effect, where a balance of safety and challenge achieved by exerting some pressure to engage directly with traumatic content facilitates posttraumatic growth and recovery. This pressure must be inviting rather than overwhelming, as making the choice on one's own to disclose offers a sense of control over narrative and recovery, which can reduce distress and offer a sense of healing empowerment. Response after disclosure is also essential to making exposure a safe and healing experience, as a negative reaction to an individual's trauma narrative can decrease posttraumatic growth and damage the therapeutic relationship. A moderate amount of pressure to offer a detailed narrative account of the trauma memory can greatly facilitate growth, healing, and recovery when the therapist's intentions and reactions are perceived as good and supportive (Kimbley et al., 2023).

Somewhat ironically, concerns about potential harm caused by exposure can be more harmful than exposure itself. Therapists are often hesitant to utilize effective treatments which include exposure, with less than 20% of clinicians using exposure to treat PTSD (Deacon & Farrell, 2013), because they worry about it being harmful despite plenty of evidence to the contrary (Ehring et al., 2014). Even clinicians with specialized training in trauma underutilize exposure therapies, with most clinicians preferring to use supportive counseling even though evidence is weaker for such approaches than for direct exposure (Deacon & Farrell, 2013). When

therapists do attempt exposure with their patients, they tend to make it self-directed or combine it with arousal-reduction techniques, which may undercut the efficacy of the treatment. Hesitancy and toned-down delivery of exposure therapies among clinicians can be explained by negative beliefs about the modality, such as it being unethical, having an unacceptably high risk of harm, or evoking rather than soothing distress (Deacon & Farrell, 2013). Contrary to these concerns, dropout rates are actually diminished when therapists deliver exposure-based treatments at a higher intensity (Hoppen at al., 2023), and the best results are produced by clinicians who practice exposure intensively because they are confident in its safety, tolerability, and efficacy (Deacon & Farrell, 2013). Concerns about symptom exacerbation and adverse effects are also maintained in the face of a plethora of evidence that exposure is safe, tolerable, effective, and not associated with significant or prolonged symptom exacerbation. In fact, clients seeking treatment for PTSD are already experiencing significant distress in their daily lives, so exposure is unlikely to produce uniquely intolerable distress. Some therapists also worry about malpractice lawsuits, or they are reluctant to offer the treatment because they believe it violates the "do no harm" clause in American Psychological Association (APA) ethical guidelines, and while there are real risks involved in exposure therapy, they are very low and the informed consent provided by clients renders the treatment inherently acceptable. Clients do not tend to hold the same concerns as therapists do regarding exposure, and their desire to endure the treatment should dispel any concerns about its inhumanity or unethicality. The reluctance of clinicians to offer their patients a treatment that has been proven to be efficacious and safe reduces the availability of effective treatment for PTSD, and exposure performed in an overly cautious manner may actually reinforce clients' patterns of fear and avoidance of traumatic material (Deacon & Farrell, 2013).

Despite some debate surrounding exposure as a component of PTSD psychotherapy and underutilization of the modality by clinicians, treatments which include exposure are safe, effective, and tolerable. High attrition rates continue to be a problem which plagues PTSD psychotherapies, and may be associated with their exposure component, but the theories and evidence behind exposure warrant its continued use in the treatment of PTSD (Ehring et al., 2014; Hoppen et al., 2023; Kimbley et al., 2023; Deacon & Farrell, 2013). Thus, the next several sections of this paper will be devoted to a discussion of specific types of exposure-based therapies. See the table below for an overview of which therapies will be discussed, how they will be categorized, their theoretical bases, and their major critiques.

Table 1

Exposure-Based Therapies Discussed

Type of Exposure-Based Therapy	Specific Therapy	Theoretical Basis	Critiques
Cognitive Exposure-Based Therapy	Prolonged Exposure (PE)	Emotional Processing Theory	Methodological issues, high attrition, low acceptability, residual somatic symptoms, lack of somatic component
	Cognitive Processing Therapy (CPT)	Dual Representation Theory	
Somatic Exposure-Based Therapy	Somatic Experiencing (SE)	Generalized Psychobiological Model of Resilience	Methodological issues, small body of research, lack of cognitive component, possible residual cognitive symptoms
	Trauma Resiliency Model (TRM)	Bottom-Up Processing	
Integrative Exposure-Based Therapy	Eye Movement Desensitization and Reprocessing (EMDR)	Adaptive Information Processing Model	Methodological issues, small body of research, controversy surrounding somatic/non-western components
	Emotional Freedom Techniques (EFT)	Energy Psychology	
	Sensorimotor Psychotherapy (SP)	Hierarchical Information Processing	

Cognitive Exposure-Based Therapies

Cognitive exposure-based therapies encompass any psychotherapy which includes exposure and approaches symptom resolution from a decidedly cognitive standpoint. This type of treatment includes several therapies which fall under the umbrella term of Cognitive Behavioral Therapy (CBT), as they tend to include an exposure component and attempt to resolve symptoms through cognitive restructuring and a focus on thoughts and feelings rather than body sensations. Two types of CBT will be discussed as examples of cognitive exposure-based therapies: Prolonged Exposure (PE) and Cognitive Processing Therapy (CPT).

Prolonged Exposure

Prolonged Exposure (PE) mainly focuses on engagement with the trauma memory with the aim of modifying distorted beliefs by introducing corrective information as the trauma material is systematically repeated (Fitzpatrick et al., 2023; Norr et al., 2018; McLean & Foa, 2011). By confronting both trauma triggers and the trauma itself (Norr et al., 2018), PE offers opportunities for experiential learning that can disrupt dysfunctional patterns of thinking and reacting (Fitzpatrick et al., 2023; McLean & Foa, 2011).

PE's Theoretical Basis: Emotional Processing Theory. Prolonged Exposure is based on Emotional Processing Theory (EPT), which endorses an understanding of PTSD that focuses on pathological fear structures (Norr et al., 2018; Brewin & Holmes, 2003). EPT posits that PTSD is maintained by both cognitive and behavioral avoidance, which result in distorted views of the world, others, and self which must be corrected through engagement with cognitions as they relate to memory and fear circuitry (Zalta et al., 2014). Memories of the traumatic event are stored in a neural network which includes feared stimuli and their avoidance, and PE attempts to undercut the perpetuation of avoidance, and thus PTSD symptoms, by repeatedly activating the pathological fear circuit so that it can be modified (Katz et al., 2020). EPT's focus on an interaction between memory, cognition, and fear also offers an explanation as to why negative beliefs are so central to PTSD's pathology: the disruption of cognitive processes by trauma results in fragmented memories within a fear structure that is difficult to modify and is upheld by distorted cognitions and avoidance (Brewin & Holmes, 2003). Repeatedly reliving the traumatic event opens up these stubborn structures to change and allows the trauma memory to become integrated into the normal, autobiographical memory system where it should not produce PTSD symptoms. Exposure to the trauma memory through PE habituates fear, prevents avoidance,

introduces safety information into the trauma memory, and corrects distorted cognitions and beliefs. The efficacy of PE supports EPT, since it puts the theory into practice and is often able to resolve symptoms of PTSD (Brewin & Holmes, 2003).

Overview of Prolonged Exposure. Prolonged Exposure is typically delivered over eight to fifteen ninety-minute sessions (McLean & Foa, 2011). During the first session, a detailed rationale for exposure is given and clients receive psychoeducation about how PTSD is perpetuated by avoidance and false beliefs. The client and clinician also work together to select a trauma to focus on during treatment; this is typically the traumatic event causing the most symptoms, known as the "index trauma." A breathing technique is also taught during the first session, and the client is asked to practice it at home before the next session. The second session of PE involves an in-depth discussion of symptoms to create a framework within which the client can make sense of what they are experiencing. The therapist and client create a hierarchy of feared situations that the client will be exposed to over the course of therapy. This sets up the in-vivo exposure component of PE, and specific feared situations are selected as between-session homework. The client must stay in their in-vivo exposure for 45-60 minutes, or until their anxiety decreases by about 50%. Session three is also when the first imaginal exposure is conducted, preceded by a description of the rationale and followed by a chance to process the experience with the therapist. This processing time is very open-ended, and patients are encouraged to discuss whatever thoughts and feelings feel most important to them. After session three, a 45 minute imaginal exposure followed by 15-20 processing will occur in every session, and the client is asked to listen to a recording of their exposure every day between sessions as homework. Imaginal exposure is meant to help clients learn the difference between remembering and reliving, as well as between trauma cues and the trauma itself. This delineation will facilitate

cognitive restructuring wherein they view the trauma as a specific incident rather than an example of broad, negative beliefs about self, others, and the world. Processing is crucial for introducing corrective information into the trauma memory, and usually this involves a focus on replacing cognitive distortions with more realistic appraisals (McLean & Foa, 2011).

PE as a Cognitive Exposure-Based Therapy. PE's focus on cognition and reliving supports its classification as a cognitive exposure-based therapy. Consistent with EPT, change in PTSD-related cognitions is a central mechanism of PE (Zalta et al., 2014; Fitzpatrick et al., 2023), and this change is accomplished through an exposure component. PE combines exposure and cognitive restructuring (Wampold, 2019) with the aim of addressing negative beliefs via the disconfirmation of PTSD-related cognitions during and after exposure (Zalta et al., 2014). Since the primary goal of exposure in PE is to resolve cognitive symptoms of PTSD, PE should be classified as a cognitive exposure-based therapy.

Efficacy and Outcomes of Prolonged Exposure. PE is considered to be an effective treatment for PTSD (Brewin & Holmes, 2003). Undergoing PE can result in a reduction in psychological reactivity to trauma cues (Katz et al., 2020) and reductions in negative PTSD-related cognitions, which can in turn improve PTSD symptoms (Zalta et al., 2014). As a type of CBT, PE's efficacy is such that it is considered a gold-standard treatment for PTSD (Hoppen et al., 2023; Ehring et al., 2014). While being treated with PE, patients' reexperiencing symptoms tend to shift faster than their worst trauma-related cognitions (Zalta et al., 2014), supporting exposure as a mechanism for later cognitive restructuring. Importantly, significant improvement is more likely the longer clients stick with PE (Thompson-Hollands et al., 2023). Better treatment outcomes are also found when clients are more engaged in exposure aspects of PE, reporting higher subjective distress during in-vivo and imaginal exposures (Katz et al.,

2020). Thus, there has been some interest in adding a virtual reality component to PE, as this could increase emotional engagement in exposure and make activation of fear structures easier for those who struggle to engage in exposure due to avoidance or numbing (Norr et al., 2018; Katz et al., 2020). However, research has not shown any clear advantage of VR exposure therapy over PE for symptom reduction or level of distress during exposure (Katz et al., 2020).

In summary, Prolonged Exposure is a cognitive exposure-based therapy based on the primarily psychological Emotional Processing Theory. This treatment attempts to resolve cognitive symptoms, like avoidance, distorted cognitions, reexperiencing, and negative beliefs, through direct engagement with the traumatic material during in-vivo and imaginal exposure. It is an effective treatment, with outcomes benefiting from higher engagement during exposure components of the therapy.

Cognitive Processing Therapy

Cognitive Processing Therapy (CPT) is another type of Cognitive Behavioral Therapy. This psychotherapy is less based on reliving than PE is, instead focusing mainly on exploring and challenging PTSD-related beliefs with the aim of reducing distressing emotions associated with these negative cognitions (Fitzpatrick et al., 2023).

CPT's Theoretical Basis: Dual Representation Theory. CPT is based on Dual Representation Theory (DRT) (Brewin & Holmes, 2003). DRT suggests that the mechanism used to store trauma memories is completely different from that for normal memories, a claim which is supported by anatomically distinct memory systems in the brain, and that the pathological responses which constitute PTSD occur because of this dissociation of the trauma memory from the normal memory system (Brewin & Holmes, 2003). This is fairly similar to Emotional Processing Theory, which underlies PE, and this makes sense given their broader classification

as CBT modalities. DRT, however, is unique in that it claims that symptoms can be resolved by transforming trauma memories into narrative ones via engagement with negative emotions and cognitions (Brewin & Holmes, 2003). DRT posits that through CPT, trauma can shift from being a situationally accessible memory, which includes information obtained below the cognitive level and causes symptoms like flashbacks, to verbally accessible memory, which is contextualized and articulated in a way that reduces PTSD symptoms. Treating PTSD using concepts from DRT involves reducing negative emotions with new cognitive appraisal of the trauma, which may create new memories that associate trauma cues with reduced arousal via habituation (Brewin & Holmes, 2003).

Overview of Cognitive Processing Therapy. Cognitive Processing Therapy is a manualized approach which is delivered over twelve weekly sessions (Chard et al., 2012). It is a predominantly cognitive treatment which aims to treat PTSD, as well as related symptoms of depression, anxiety, and guilt. Sessions one through four of CPT involve psychoeducation that offers rationale specific to the treatment, writing an impact statement that helps the client explore the meaning of their trauma by considering why they believe the event occurred and how it has shaped their beliefs. During these sessions, the client and therapist will also work together to identify "stuck points," which are thoughts related to interpretations of the trauma, the self, or the world. Clients also have the option to write a detailed narrative account of their index trauma that focuses on senses, thoughts, and feelings, but this step may be omitted in cognitive-only CPT. Once the trauma has been identified and its meaning explored, the clinician and client analyze stuck points and attempt to find a more balanced view of past, present, and future. In sessions five through seven, core cognitive therapy skills are taught through a series of worksheets. These worksheets help the client engage in analysis of their stuck points and identification of

problematic thinking patterns before encouraging them to identify new beliefs and thought patterns. Sessions eight through twelve involve the continued use of these worksheets to examine cognitive distortions related to safety, control, esteem, trust, and intimacy. In the final session, the client rewrites their impact statement so that it can be compared to the one they wrote at the beginning of therapy, allowing them to clearly recognize how their thoughts, feelings, and behaviors have changed as a result of undergoing CPT. The therapist will also engage the client in a discussion of how CPT skills can still be used after therapy ends (Chard et al., 2012).

CPT as a Cognitive Exposure-Based Therapy. CPT addresses thoughts, feelings, and beliefs related to the index trauma by direct engagement with trauma content through impact and narrative statements. While the written trauma narrative is not required in cognitive-only CPT, writing the impact statements will inevitably bring up memories and sensations associated with the trauma. This confrontation of the memory accomplishes goals which align with the goals of more straightforward exposure, such as undercutting avoidance and bringing up trauma symptoms so that they may be resolved, but focuses more on cognitive symptoms than ones associated with reexperiencing. This constitutes a very cognitive version of exposure, as it doesn't necessarily deal directly with the trauma memory, but functions as an exposure nonetheless due to its goal of bringing up aspects of the trauma response in order to address and resolve them. Although it focuses less on exposure than PE does, CPT nonetheless includes an exposure component within a cognitive framework, classifying it as a cognitive exposure-based therapy.

Efficacy and Outcomes of Cognitive Processing Therapy. CPT is considered effective at treating many different kinds of trauma (Chard et al., 2012) and produces short- and long-term results comparable to PE (Shifrin et al., 2023). CPT tends to be preferred over PE and seen as

more credible by clients, possibly because they wish to avoid the intense exposure required by PE (Shifrin et al., 2023). CPT has shown a slight advantage over PE in terms of symptom improvement, but thus far its efficacy has only been compared to PE, so it is unclear how it fares against other PTSD psychotherapies (Chard et al., 2012). CPT's efficacy seems primarily due to its strongly cognitive approach, which allows it to address both fear-based and non-fear-based emotions and thus more fully resolve the cognitive symptoms associated with PTSD (Fitzpatrick et al., 2023).

In summary, Cognitive Processing Therapy is a cognitive exposure-based therapy with its theoretical underpinnings found in Dual Representation Theory. This psychotherapy seeks to resolve cognitive symptoms, like negative beliefs, feelings, and cognitions, through manualized analysis and resolution of trauma-related cognitions. It is an effective treatment, and is especially well-suited to clients with high levels of cognitive distortions and non-fear-based emotions.

Critiques of PE and CPT

Although these forms of CBT are widely considered to be effective, even comprising the frontline treatments for PTSD, they also face many critiques from researchers and clinicians. These critiques tend to focus on issues with attrition and residual symptoms, as well as aspects that cognitive exposure-based therapies may be missing, such as a focus on affective and somatic symptoms. Additionally, although CBT modalities have the strongest research background (Hoppen et al., 2023; Ehring et al., 2014), many RCTs for these treatments are methodologically poor (Harvey et al., 2003), calling into question the validity of their positive outcomes and revealing a need for further research.

The most notorious problems with frontline cognitive exposure-based PTSD treatments are high attrition and low acceptability. While treatments which combine cognitive and exposure

elements are highly effective, they have higher dropout rates and are considered less acceptable than treatments which do not explicitly focus on trauma (Hoppen et al., 2023). 27.2% of those with PTSD drop out of CBT, and the risk for dropout is especially high when imaginal exposures are introduced in PE (Thompson-Hollands et al., 2023). High attrition rates associated with cognitive exposure-based interventions may be because they require high levels of cognitive processing when those with PTSD have impaired cognitive functioning, making exposure confrontational and aversive (Kuhfuß et al., 2021).

Even when clients complete the full course of PE or CPT, they often continue to experience distressing PTSD symptoms (Larsen et al., 2019; Fitzpatrick et al., 2023; Feinstein, 2010). Following PE and CPT, the most common residual symptoms are distress related to trauma cues, detachment, and insomnia, all of which continue to disrupt clients' lives. These symptoms have been found to still be at clinical levels for 30% of clients who completed treatment and 20-40% of those who were considered to respond to treatment. Most residual symptoms associated with cognitive exposure-based therapies are hyperarousal symptoms, which are more physiological than cognitive and thus may be harder to resolve in cognitive treatments without additional targeted interventions (Larsen et al., 2019). In one study considered to be sufficiently robust and supportive of the efficacy of cognitive exposure for PTSD, hyperarousal and behavioral avoidance did not differentially improve (Feinstein, 2010), pointing to gaps in which symptoms are being addressed by these treatments. These residual symptoms are significant enough that 33-50% of clients retain their PTSD diagnosis even following these gold-standard treatments (Fitzpatrick et al., 2023). The failure of cognitive exposure-based therapies to completely resolve PTSD symptoms may be due to an exclusive focus on the

cognitive mind, which can organize feelings and reactions but cannot abolish them and does not address the physiological impact of PTSD (van der Kolk, 2006).

The prevalence of residual symptoms following cognitive exposure-based treatments suggests that these treatments may be missing important components which, if addressed, could lead to more complete symptom resolution. Some researchers argue that cognitive treatment modalities fail to focus sufficiently on symptoms related to affect and sense of self (Norr et al., 2018; Mahoney & Markel, 2016). When PTSD manifests primarily as difficulties with emotional regulation, skills training may be more beneficial than exposure (Norr et al., 2018), since cognitive exposure-based therapies do not place much emphasis on skills to combat emotional dysregulation. Additionally, while cognitive interventions intervene and alleviate trauma symptoms, they often do not resolve underlying issues related to sense of self (Mahoney & Markel, 2016). The sole use of cognitive exposure-based therapies, like PE, CPT, and other forms of CBT, to treat PTSD does not adequately address or resolve developmental issues or the intense emotions brought up during exposure (Mahoney & Markel, 2016).

Cognitive therapies rely on top-down processing to resolve symptoms through trying to manage or prevent distress through an understanding of trauma's impact on a cognitive level (Solomon & Heide, 2005). However, these top-down approaches do not facilitate the processing of trauma memories or resolution of physiological hyperarousal symptoms. Thus, even after extensive treatment with these modalities, encountering triggering stimuli can still result in physiological responses for some patients (Solomon & Heide, 2005). Many researchers argue that CBT treatments are focused too narrowly on resolving cognitive symptoms and thus fail to incorporate somatic components which are needed to resolve body-based symptoms like arousal, physical discomfort, autonomic dysregulation, or ingrained physical reaction patterns (van der

Kolk, 2006; Grabbe & Miller-Karas, 2018; Fisher, 2019; Ogden & Minton, 2000). Therapies without a somatic component, such as PE or CPT, are helpful and effective in that they address secondary symptoms and facilitate desensitization and processing, but they do not directly address or resolve autonomic and somatic dysregulation which contribute to psychophysiological symptoms of PTSD (Fisher, 2019). Top-down processing through cognitive exposure-based treatments can help manage these symptoms, but it does not fully resolve them (Ogden & Minton, 2000). In fact, by activating these bodily reactions and symptoms without offering clients the tools to regulate their nervous systems, cognitive exposure-based therapies can give clients the sense that it is still unsafe to deal with their trauma (van der Kolk, 2006). Without the skills to regulate during exposure, clients may turn to the therapist as a refuge from the discomfort, leading to passivity and dependency that undermine the therapeutic process (van der Kolk, 2006).

While cognitive exposure-based treatments are highly endorsed by clinicians and are widely considered to be effective in the treatment of PTSD, these psychotherapies face issues with attrition and residual symptoms, leading to strong criticism regarding their failure to address and resolve symptoms related to affective, autonomic, and somatic dysregulation. This line of treatments is based in psychological rather than neurological theory, and thus mainly focuses on cognitive symptoms instead of somatic ones. The challenges that these psychotherapies face may be due to their focus on only the psychological/cognitive aspects of PTSD, leaving neurological/somatic symptoms unaddressed and unresolved.

Somatic Exposure-Based Therapies

Somatic exposure-based therapies include exposure as well as a somatic approach to symptom resolution. Somatic approaches have been emerging and gaining support over the past

few decades (Grabbe & Miller-Karas, 2018), but their novelty has limited the amount of empirically rigorous research available regarding these treatments (Kuhfuß et al., 2021; Ogden & Minton, 2000). However, many researchers endorse the efficacy of somatic psychotherapies. These interventions counteract the common trauma-related experiences of vulnerability, powerlessness, and shame, which are often central to the perpetuation of PTSD symptoms (Fisher, 2019). Somatic approaches are also backed by substantial neuroscientific research on the benefits of somatic awareness for resilience in the face of trauma (Grabbe & Miller-Karas, 2018). Additionally, it is widely understood that trauma presents physiologically as well as psychologically, such as through intrinsic body memories of trauma (Grabbe & Miller-Karas, 2018), and therapies which address these physiological components through regulation and awareness skills are quite effective (van der Kolk, 2006). In fact, the regulation of physiological arousal accomplished through somatic therapies may be essential to fully processing and recovering from PTSD (van der Kolk, 2006). Thus, somatic exposure-based therapies must be part of the conversation when considering psychotherapeutic approaches to PTSD. Two examples of somatic exposure-based therapies will be discussed in this section: Somatic Experiencing (SE) and the Trauma Resiliency Model (TRM).

Somatic Experiencing

Somatic Experiencing (SE) is a body-oriented therapy that seeks to address and resolve the psychophysiological symptoms associated with PTSD (Kuhfuß et al., 2021). Its primary goal is to modify the trauma-related stress response, which it accomplishes by encouraging the client to direct their attention to internal bodily sensations rather than thoughts or feelings. Clinicians train clients to reduce the arousal associated with their trauma memory by steadily increasing their tolerance and acceptance of trauma-related physical sensations. By approaching symptom

resolution from the bottom up, SE promotes self-regulatory abilities which in turn reduce stress and improve symptoms. Additionally, SE aims to change the interoceptive and proprioceptive sensations associated with the individual's index trauma in order to resolve PTSD symptoms. Key factors that are specific to this treatment include a physiological conceptualization of trauma, a commitment to psychoeducation, and a foundation of security and trust (Kuhfuß et al., 2021).

SE's Theoretical Basis: Generalized Psychobiological Model of Resilience. Somatic experiencing is based on the Generalized Psychobiological Model of Resilience (GPMR) (Kuhfuß et al., 2021). This model posits that PTSD symptoms originate from a permanent overreaction of the stress system due to the overwhelming nature of trauma. During a traumatic event, individuals are often unable to complete the psychological and physiological defense reaction that has been initiated, leaving them stuck in freeze mode rather than carrying out fight or flight to escape the situation. This leads to permanent somatic and emotional nervous system dysregulation, which causes the chronic stress reaction that creates PTSD symptoms. SE addresses this dysregulation by generating new physiological experiences that contrast those experienced during trauma, a process referred to as "renegotiating," which adaptively and holistically modifies this chronic stress reaction. Paired with an overall increase in interoceptive and proprioceptive awareness, SE initiates a discharge process which results in the resolution of PTSD symptoms (Kuhfuß et al., 2021).

Overview of Somatic Experiencing. SE is a twelve session treatment that includes regular symptom checking and homework assignments to reinforce skills between sessions (Brom et al., 2017). The first two sessions are dedicated to building the therapeutic alliance and delivering psychoeducation on SE concepts like trauma, body-based healing, felt-sense,

managing arousal (titration), balancing regulation and dysregulation within the body (pendulation), and making arousal dissipate (discharge). The client is also given resources to regulate their body and reduce arousal. Once there is a sense of stability in the therapeutic alliance, understanding of SE, and resources, the therapist and client discuss more advanced SE concepts, including tracking how trauma manifests in terms of sensations, images, behaviors, emotions, and cognitions. Crucially, after the first few sessions, there is not much structure to how SE is delivered; the client and therapist work together to decide what would be most helpful session-by-session. Rather than introducing exposure in one fell swoop, as is done in PE, trauma content is indirectly and gradually introduced in sessions three and four (Kuhfuß et al., 2021; Brom et al., 2017). In sessions five through eleven, the trauma memory continues to be explored, primarily through the use of the trauma story to trigger ANS activation so that clients can track body reactions and return to a regulated state. The final session of SE is devoted to a discussion of how to maintain successful recovery, manage stress, and look towards the future in the aftermath of trauma (Brom et al., 2017).

SE as a Somatic Exposure-Based Therapy. Although SE avoids direct, intense reliving of the trauma memory (Kuhfuß et al., 2021), its use of the trauma memory to trigger specific reactions so that they can be modified (Brom et al., 2017) aligns well with the goal of more traditional, cognitive exposure. SE could be conceptualized as the somatic equivalent of PE, in that it maintains the theoretical basis of activating and altering an aspect of the trauma response, but focuses on physiological responses rather than cognitive responses. As a somatic version of traditional exposure, SE attempts to resolve PTSD symptoms purely through bodily healing and processing in relation to trauma response patterns, which earns it a clear classification as a somatic exposure-based therapy.

Efficacy and Outcomes of Somatic Experiencing. Somatic Experiencing is considered to be effective in the treatment of PTSD (Brom et al., 2017; Kuhfuß et al., 2021). Research on SE has produced promising results showing significant long-term symptom reduction across index traumas as well as improvement of comorbid symptoms (Kuhfuß et al., 2021). Although SE's main focus is on somatic symptoms, it seems to be able to resolve cognitive and affective symptoms as well (Kuhfuß et al., 2021), which is crucial to the efficacy of any PTSD treatment. In a randomized control trial of SE, 44% of participants no longer met criteria for a PTSD diagnosis following treatment, which is considered to be a moderate clinical result (Brom et al., 2017). The study also found large effect sizes for PTSD and depressive symptom reduction, supporting SE's efficacy (Brom et al., 2017).

In summary, Somatic Experiencing is a somatic exposure-based therapy derived from the Generalized Psychobiological Model of Resilience (Kuhfuß et al., 2021). This treatment primarily addresses somatic symptoms of PTSD through activation and resolution of physiological trauma responses, and provides clients with skills surrounding the regulation and dissipation of nervous system arousal (Brom et al., 2017). It is considered to be effective in the treatment of PTSD, resolving cognitive and affective symptoms as well as somatic symptoms despite the purely somatic focus of the therapy (Brom et al., 2017; Kuhfuß et al., 2021).

Trauma Resiliency Model

The Trauma Resiliency Model (TRM) was developed from the Somatic Experiencing model (Grabbe & Miller-Karas, 2018) and incorporates some aspects of the therapy, but it is nonetheless a unique treatment that focuses more on skill-building than in-session processing. TRM is a set of nine skills for stabilizing the nervous system, reducing or preventing traumatic stress symptoms, and reprocessing traumatic events; six of these skills support self-regulation

and the remaining three focus on reprocessing (Grabbe & Miller-Karas, 2018). Initially used as psychological first aid for survivors of natural disasters, but since applied to individual therapeutic settings, this treatment utilizes the body's inherent self-regulatory abilities to guide clients towards symptom resolution. Central to TRM's set of skills is the concept of the resilient zone (RZ), based on the concept of the window of tolerance. The RZ is a natural, balanced state of energy in which one has the greatest capacity for balanced thinking, feeling, and functioning. TRM aims to help clients find their way into the RZ from the high or low zones, characterized by hyper- and hypoarousal, respectively. TRM intentionally shifts away from cognitive-behavioral models of treatment, instead emphasizing the somatic sensations associated with negative emotions and cognitions and helping clients intentionally shift away from these sensations in order to return to the RZ (Grabbe & Miller-Karas, 2018).

TRM's Theoretical Basis: Bottom-Up Processing. TRM is based on theories regarding bottom-up processing, which suggest that PTSD symptoms stem from deep imprints of the trauma response on the body (Grabbe & Miller-Karas, 2018). This focus on "body memory" emphasizes the importance of subcortical, primitive brain structures in PTSD and works up to higher cortical systems in a way that is in line with trauma processing (Kuhfuß et al., 2021). Bottom-up processing focuses on the biology of the trauma response and links somatic techniques to cognitive and emotional processing (Grabbe & Miller-Karas, 2018). By directly acknowledging the nervous system components of PTSD, interventions like TRM that are based on bottom-up processing help clients understand their responses to trauma cues and regain their sense of self in a tangible way. By engaging bottom-up processing through intentional shifting from uncomfortable somatic experiences to sensations of well-being during exposure, TRM modifies the trauma memory and creates new, positive neural pathways that clients can use to

manage distress and dysregulation (Grabbe & Miller-Karas, 2018). Further, the inclusion of movement in TRM breaks fear conditioning by offering a path of physical escape, which replicates an alternate outcome of the trauma and aids trauma-processing (van der Kolk, 2006).

Overview of Trauma Resiliency Model. Unlike the other therapies that have been discussed in this paper, TRM does not occur over a set number of sessions. Rather, the client learns a set of skills and then are encouraged to use sessions to cover whatever they feel is most important, fostering a uniquely trauma-informed therapeutic relationship (Grabbe, 2020). TRM starts off with an explanation of the Resilient Zone concept which helps the client understand the biology of their symptoms, normalizes their stress responses, and offers them hope that they will be able to widen or return to their RZ when they experience distress (Grabbe & Miller-Karas, 2018). Once psychoeducation has been established, the therapist begins teaching the client stabilization skills. These skills can be used in any order, together or independently (Grabbe, 2020). The first TRM stabilization skill is tracking, wherein the client learns to describe a "felt-sense" of internal or external body sensations and learns which sensations are associated with resilience, stress, and release. Next, resourcing and resource intensification is addressed, and the client is asked to identify something, somewhere, or someone that makes them feel safe. Once identified, the therapist intensifies this resource by asking for a detailed description, especially of sensory details, and directs the client's attention towards how their body feels as they describe this resource. Once this skill has been taught, it can be used to shift trauma-related feelings to a resilience narrative. The third stabilization skill is grounding, or the present-moment awareness of body contact with surfaces. This felt-sense of present contact provides the client with a sense of security, safety, and control, but should only be taught after the first two skills to prevent any distress that may arise when drawing attention to the body. Next, gesturing is taught

as the clinician identifies and mirrors the client's soothing gestures so that the client themself can initiate them as a form of self-regulation. The fifth skill is a set of strategies for decreasing or increasing arousal in order to return to the RZ; this skill is called "Help Now!" and can be used inside or outside of therapy. Finally, the client is taught to "shift and stay" by using a stabilization technique to shift away from hyper- or hypoarousal and then hold their neutral or pleasant body experience mindfully for fifteen seconds until stabilization occurs.

Once the client is familiar with all of TRM's stabilization skills, the trauma processing aspect of therapy can begin (Grabbe, 2020). This is approached in a very trauma-informed manner, as reprocessing is only attempted once the client feels confident in their regulation skills (Grabbe & Miller-Karas, 2018) and clients are able to choose how much or how little they delve into their trauma memory (Grabbe, 2020). The three trauma processing techniques in TRM are derived from SE: titration, pendulation, and completion of survival response. Titration is the practice of focusing on small, manageable sensations associated with the trauma response, and the therapist encourages this focus during trauma recall with the goal of reducing the client's experience of distressing sensations. Pendulation is used in combination with titration and involves shifting back and forth between sensations of distress and well-being in order to release trauma-associated sensations and return to the RZ (Grabbe, 2020). The final step of TRM is the completion of the survival response where the client either mentally or physically acts out the survival response that was thwarted during their trauma (Grabbe & Miller-Karas, 2018). This aspect of TRM may be crucial to symptom resolution (Grabbe & Miller-Karas, 2018; Grabbe, 2020).

TRM as a Somatic Exposure-Based Therapy. The Trauma Resiliency Model is a distinctly somatic way of approaching the resolution of trauma response patterns through

reliving. If cognitive or emotional aspects of the trauma are explicitly explored, which is not a required component of TRM, the focus of the therapy always returns to associated body sensations (Grabbe, 2020). TRM focuses on reliving and reprocessing trauma on a physical level in order to form new associations within the trauma memory, and although this aspect of treatment is referred to as "reprocessing" rather than exposure, it nevertheless serves the purpose of exposure within a somatic context. Furthermore, the completion of the survival response is unique to somatic therapies like TRM and goes beyond just a somatic take on traditional exposure; rather, it proposes a new method for utilizing reliving to heal the brain, mind, and body. TRM's clear somatic focus and unique way of engaging and healing the body through exposure makes it a somatic exposure-based therapy.

Efficacy and Outcomes of Trauma Resiliency Model. TRM is considered to be a brief, effective, body-based intervention for treating PTSD (Grabbe & Miller-Karas, 2018). Since it was developed from SE, the efficacy of that treatment could also be considered evidence that TRM is similarly effective. However, few to no studies have been done on the efficacy of TRM, so it is difficult to gain a clear understanding of how clients come away from this treatment. Crucially, TRM should not be used without a well-established therapeutic alliance and possibly should be considered as a basis for further work rather than a method for fully resolving PTSD symptoms (Grabbe, 2020).

In summary, the Trauma Resiliency Model is a somatic exposure-based therapy with its theoretical basis in research on bottom-up processing (Grabbe & Miller-Karas, 2018; Kuhfuß et al., 2021). This therapy seeks to resolve primarily somatic symptoms of PTSD through stabilization and reprocessing skills, as well as the reliving and reprocessing of the physical aspects of trauma events (Grabbe & Miller-Karas, 2018; Grabbe, 2020). There is not much

research surrounding the efficacy of TRM, and it may be better utilized as an adjunct to therapies which address cognitive and emotional aspects of trauma (Grabbe & Miller-Karas, 2018; Grabbe, 2020).

Critiques of SE and TRM

Since somatic exposure-based therapies are an actively emerging treatment modality, most critiques of psychotherapies like SE and TRM focus on issues with methodology. There are few studies on SE, and among those few, even fewer have been conducted with sufficient methodological rigor; although these issues likely reduced rather than exaggerated the positive effects of SE, they must be taken into consideration as a critique of the treatment (Kuhfuß et al., 2021). The few studies focusing on SE have produced only moderate clinical efficacy (Kuhfuß et al., 2021), so while more research is needed to support or disprove the current level of efficacy, SE is currently understood to be less effective than CBT modalities. There are even fewer studies focusing on TRM, which rather discourages the implementation of this somatic exposure-based treatment until more research can be conducted. As research on somatic exposure-based therapies evolves, critiques more specific to the results of these treatments will emerge, which will be essential to understanding how they compare to more traditional, cognitive PTSD treatments. Issues with methodology may be due to factors specific to somatic therapies which make them more difficult to test empirically. Active placebos would be difficult to create for somatic interventions, making control conditions a particular challenge in research. Further, the flow of funding towards cognitive therapies means that somatic exposure-based therapies are likely hard-pressed to secure enough funding to attempt more rigorous research methods. Beyond these methodological critiques, there is also concern that therapies which only focus on somatic elements of PTSD may inadequately address other aspects of the disorder (Ogden &

Minton, 2000). It is possible that somatic exposure-based therapies may produce residual cognitive symptoms, just as cognitive exposure-based therapies produce residual somatic symptoms, but as of yet no research has directly addressed this issue.

Integrative Exposure-Based Therapies

While therapies for PTSD are often either cognitive or somatic, some treatments combine these elements to create integrative psychotherapies. In discussing integrative treatments, however, it is essential to acknowledge that all PTSD psychotherapies are, to a certain extent, integrative (Wampold, 2019). The approximately equal efficacy of all PTSD treatments suggests that, despite how psychotherapies are generally considered distinguishable by their theoretical underpinnings and specific approaches to symptom resolution, there may not be much difference between the mechanisms which underlie each treatment (Wampold, 2019). However, this does not mean that the theories and components behind each therapy are not worth exploring; rather, the equal efficacy of these treatments may point to all theories being accurate in different ways. By treating both neurological and psychological theories and cognitive and somatic exposure-based therapies as disparate, the field of clinical psychology may be overlooking the dual nature of PTSD. As such, the integrative nature of PTSD therapies may actually be a necessary factor in efficacy across somatic and cognitive approaches to treatment (Mahoney & Markel, 2016; McLean & Foa, 2011; Brewin & Holmes, 2003). Cognitive exposure-based therapies often introduce some level of somatic intervention, such as practicing breathing skills early in PE (McLean & Foa, 2011), and somatic exposure-based therapies often include cognitive aspects, such as connecting body experiences to thoughts and feelings (Grabbe, 2020). Despite the clear integration of treatment components from the other modality into somatic and cognitive PTSD treatments, these psychotherapies do not fully incorporate each aspect of

treatment and thus are not considered to be integrative. Integrative therapies, on the other hand, involve a more equal balance of cognitive and somatic components. Three examples of integrative exposure-based therapies will be discussed in this section: Eye Movement Desensitization and Reprocessing (EMDR), Emotional Freedom Techniques (EFT), and Sensorimotor Therapy (SP).

Eye Movement Desensitization and Reprocessing

Eye Movement Desensitization and Reprocessing (EMDR) is likely the most well-known integrative therapy for PTSD, as it is considered to be a frontline treatment alongside CBT (Hoppen et al., 2023; Ehring et al., 2014). EMDR combines imaginal exposure and discussion of cognitions, emotions, and somatic experiences with bilateral stimulation, such as tracking the therapist's finger across the visual field, with the goal of restructuring the trauma memory (Harvey et al., 2003; Shapiro & Brown, 2019). This therapy focuses on addressing the holistic effects of trauma in the past, present, and future (Shapiro & Brown, 2019).

EMDR's Theoretical Basis: Adaptive Information Processing Model. EMDR is primarily based on the Adaptive Information Processing (AIP) Model (Stingl et al., 2021), but separate theories regarding the role of bilateral stimulation are also crucial to understanding the theoretical basis of this treatment (Shapiro & Brown, 2019; Stingl et al., 2021; Solomon & Heide, 2005). The Adaptive Information Processing Model postulates that the brain processes non-traumatic stressful experiences with an information processing system which connects stressful experiences with adaptive information within memory networks (Stingl et al., 2021). When trauma occurs, it disrupts this process, resulting in a memory that is stored in a fragmented form and is not incorporated into the brain's normal memory system. This unprocessed trauma information instead remains in "frozen-in-time" networks which are not contextualized by other

memories and are thus excitatory, distressing, and prone to pathological activation by trauma cues. According to AIP, these memories become pathogenic due to their dysfunctional storage, and the lack of integration of negative traumatic experiences leads to PTSD symptoms as well as symptoms of comorbidities (Stingl et al., 2021). Bilateral stimulation (BLS) is one method that EMDR uses to reprocess and integrate traumatic memories (Shapiro & Brown, 2019; Stingl et al., 2021). There are many theories regarding how exactly bilateral stimulation accomplishes this goal, most of which find their basis in neuroscience research. One theory is that BLS improves communication within the brain in order to support memory integration, either by activating systems related to cognition, emotion, and somatic experiences in order to help reconsolidate the trauma memory or by promoting connection across the corpus callosum (Shapiro & Brown, 2019). Another theory lies in our understanding of PTSD as being based in nervous system dysregulation, suggesting that BLS produces a shift from sympathetic to parasympathetic activation during exposure which has a physiological de-arousing effect (Stingl et al., 2021). This theory may also connect to the more psychological concept of dual attention, where exposure draws attention to the past while BLS grounds attention in the present (Shapiro & Brown, 2019). One more major theory behind BLS posits that it may induce a REM-like state which allows for the activation of episodic memories and the reconsolidation of unprocessed trauma information (Shapiro & Brown, 2019; Solomon & Heide, 2005). Most researchers acknowledge that the neurophysiological basis of BLS is a bit of a mystery (Solomon & Heide, 2005), and further research should be conducted to clarify its role in EMDR.

Overview of Eye Movement Desensitization and Reprocessing. EMDR takes an eight phase approach to symptom resolution across three elements: past, present, and future (Shapiro & Brown, 2019). The first phase involves taking a client history, identifying traumas that the

client wants addressed, and assessing the client for safety and dissociative symptoms which must be resolved before treatment can begin. Phase two focuses on preparation for therapy, such as creating a therapeutic alliance, setting expectations, and developing internal resources for resilience and regulation to be used during trauma processing. Relaxation and mindfulness skills are also developed at this time with the aim of helping the client remain engaged during difficult parts of exposure. The clinician and client agree on a "stop" word or action as well as a "keep going" signal that the client can use to control the exposure, which reaffirms the client's safety and autonomy. This phase can last anywhere from a single session to months for those with more complex trauma who have difficulty forming the therapeutic alliance or feeling safe. Once the client is safe and has resources in place, the clinician runs a trial of BLS to find which form the client likes best; BLS may take the form of eye movements, taps, buzzes, or tones.

Trauma processing begins with assessment in phase three. Assessment is the collaborative process of deciding which trauma or aspect of trauma will be addressed and in what order and typically involves the therapist asking questions about the worst aspect of the trauma, positive and negative trauma-related cognitions, the client's idea of the validity of those cognitions, experiences of distress, and somatic components of the trauma response. Once these questions have been answered, BLS begins: the client is asked to momentarily hold in mind a trauma image or negative cognition, emotion, or somatic experience while focusing on the BLS and allowing whatever arises to come up. This process is repeated as needed until the client's Subjective Unit of Distress (SUD) score, scaled from 0 to 10, has reduced and/or they endorse a positive cognition related to the trauma as more valid than before the BLS. Crucially, the client never has to verbally recount the trauma, which may make EMDR more tolerable and appealing than other PTSD therapies. Phase four involves a continuation of trauma processing, with a new

focus on desensitization. The trauma memory is reprocessed using the BLS protocol described above until distress decreases and the validity of positive cognitions increases. The length of BLS reprocessing varies based on the client's reaction, and reprocessing is offered until their SUD score is at a zero or a one. After each BLS set ends, the client and therapist discuss what the client noticed during reprocessing, a procedure referred to as "cognitive interweave." During this phase, the clinician regularly checks for dissociation via eye contact with the client. Additionally, emotional activation and the intensity of the trauma memory during reprocessing may increase after the first several sets of BLS, but reduces with further reprocessing, and the clinician explains this to the client to offer reassurance. The client also often experiences a shift of trauma-associated affect during this phase that moves towards a present sense of sadness rather than past sense of activation or fear. After clients are experiencing less distress and perceiving negative cognitions as less valid and positive cognitions as more valid, one or two more BLS sets are done to solidify these changes.

The next phase, phase five, focuses on the installation of positive cognitions. More BLS sets are done during this phase, but now the client is asked to hold the trauma memory and an associated positive cognition in mind at the same time. This phase continues until the positive cognition can be fully endorsed while holding the traumatic experience in mind. Phase six of EMDR involves a body scan to assess for residual bodily distress and somatic manifestations of the trauma. Any somatic material related to the trauma is processed using BLS until distress is completely resolved. Phase seven moves on to closure following the several previous phases of reprocessing. This is primarily composed of between-session monitoring for changes in symptoms and assisting the client in achieving emotional equilibrium. Since reprocessing continues beyond the in-session BLS sets, the client is informed that they may experience a

transient increase in intrusive trauma material and that if their trauma is not yet fully resolved, flashbacks or new material may come up between sessions. If these symptoms do arise, further processing is done to address the index trauma and resourcing is reinforced. Finally, in phase eight, the client is reevaluated to check if any additional processing is needed for associated trauma material. If more processing is needed, more BLS sets are done with a focus on new material while holding onto previously accessed resources for regulation (Shapiro & Brown, 2019).

EMDR as an Integrative Exposure-Based Therapy. EMDR is an integrative treatment that focuses on emotional, cognitive, and somatic elements of trauma responses using a combination of imaginal exposure and bilateral stimulation (Shapiro & Brown, 2019). The use of BLS during exposure creates a dual-awareness that is unique to this integrative approach to exposure, and EMDR is committed to resolving both cognitive and somatic symptoms (Shapiro & Brown, 2019) In addition to being integrative itself, EMDR can be integrated into other more purely cognitive or somatic therapies (Shapiro & Brown, 2019; Wampold, 2019), offering an opportunity for integrative exposure-based therapy that leans more towards the cognitive or somatic as needed for the client. EMDR's integrative nature can also be seen in the theories underlying its components, as imaginal exposure and cognitive restructuring are based in psychological understandings of PTSD treatment while BLS finds its basis in neurological theories of PTSD (Shapiro & Brown, 2019). EMDR is a drastic departure from previous PTSD psychotherapy modalities, combining cognitive, somatic, and affective components of treatment that had previously been kept separate in order to address PTSD symptoms more completely (Shapiro & Brown, 2019). EMDR successfully combines somatic (bottom-up processing) and

cognitive (top-down processing) therapies (Solomon & Heide, 2005), placing it squarely in the category of integrative exposure-based therapies.

Efficacy and Outcomes of Eye Movement Desensitization and Reprocessing.

EDMR's ideal outcome is "clearing," defined as when a client can relive the traumatic event with no cognitive, emotional, or somatic PTSD symptoms (Shapiro & Brown, 2019). It is fairly successful in achieving this outcome, as it is consistently better or equal to other PTSD therapies in terms of efficacy. Additionally, EMDR seems to take less time to produce symptom reduction that is long-lasting. Several RCTs support EMDR's efficacy (Shapiro & Brown, 2019), and it is considered a first-line treatment in current PTSD treatment guidelines (Hoppen et al., 2023). 76% of adult-onset PTSD patients are completely asymptomatic six months after undergoing EMDR (Feinstein, 2010), an impressive result that some argue may be due to its combination of top-down and bottom-up processing (Solomon & Heide, 2005). EMDR also significantly reduces common comorbidities of PTSD, such as anxiety, depression, and somatization (Stingl et al., 2021), which is certainly important to consider in terms of therapeutic outcomes.

In summary, Eye Movement Desensitization and Reprocessing is an integrative exposure-based therapy with its basis in neurological theories of bilateral stimulation and the Adaptive Information Processing Model (Shapiro & Brown, 2019; Stingl et al., 2021; Solomon & Heide, 2005). This therapy seeks to resolve both cognitive and somatic symptoms through a combination of imaginal exposure, BLS, cognitive restructuring, and somatic awareness (Shapiro & Brown, 2019). It is considered to be very effective at treating PTSD and its comorbidities, producing impressive, long-lasting results in relatively few sessions (Shapiro & Brown, 2019; Hoppen et al., 2023; Feinstein, 2010; Solomon & Heide, 2005; Stingl et al., 2021).

Emotional Freedom Techniques

Emotional Freedom Techniques (EFT) describes a style of psychotherapy rather than a specific, manualized treatment. It involves tapping on acupoints, specific parts of the body believed to be conduits for electrical signals within the body, during imaginal exposure in order to reduce maladaptive fear responses to trauma memories and cues (Feinstein, 2010). EFT's combination of a traditionally Western approach, imaginal exposure, with a non-Western healing modality, acupoint stimulation, has garnered it significant controversy in the field of clinical psychology (Feinstein, 2008).

EFT's Theoretical Basis: Energy Psychology. EFT is based on concepts from energy psychology, specifically those which provide a basis for the therapeutic effect of acupoint stimulation. EFT incorporates energy psychology's idea of an electromagnetic energy system of the human body as an intervention alongside interventions in the cognitive and emotional systems (Church et al., 2013). While it is still unknown how exactly acupoint stimulation regulates the limbic system, energy psychology posits that acupoints send signals to the limbic system when stimulated which reduces the limbic hyperarousal that occurs during exposure, resulting in rapid reciprocal inhibition and long-term counterconditioning (Feinstein, 2010). Acupoints are believed to have distinct electrical properties that may allow them to send signals to specific parts of the body independent of the nervous system, significantly modulating limbic, paralimbic, and subcortical gray structure activity when stimulated during therapy. There is a great deal of scientific support for acupoint stimulation's effects on the fear system, specifically by sending deactivating signals directly to the amygdala, which can result in the rapid attenuation of threat responses when paired with exposure. The simultaneous activation and deactivation of the amygdala through this combination of acupoint stimulation and exposure may

be essential to the depotentiation of neural pathways associated with the fear response. Since incompatible physiological states cannot occur simultaneously, as was first demonstrated by systematic desensitization's ability to create counterconditioning by combining relaxation and exposure, pairing a physical intervention like tapping that is incompatible with an anxiety response should result in the attenuation of physiological markers of distress (Feinstein, 2010).

Overview of Emotional Freedom Techniques. EFT refers to a style of treatment rather than a specific modality, and thus has no set number of sessions or phases of treatment. Generally, EFT involves recalling the traumatic incident, rating the level of stress experienced during recall, tapping on a sequence of acupoints while holding the memory in mind, and repeating these steps until distress is reduced to zero (Church et al., 2013; Feinstein, 2010). Usually, between four and fourteen acupoints are chosen to be tapped for about five seconds each during EFT, and this can be paired with auxiliary physical and/or psychological techniques (Feinstein, 2010). Auxiliary physical techniques may look like alternating between humming and counting to stimulate the right and left hemispheres of the brain, and auxiliary psychological techniques often resemble cognitive restructuring. The clinician checks in with the client often about their level of distress and the focus of the exposure is allowed to shift as needed. Although EFT involves exposure, it does not need to be prolonged or repeated in order to be effective at reducing PTSD symptoms (Feinstein, 2010).

EFT as an Integrative Exposure-Based Therapy. EFT combines brief psychological exposure with the manual stimulation of acupoints and cognitive restructuring (Feinstein, 2010). In other words, this type of psychotherapy takes well-established cognitive and exposure methods and adds a component of somatic stimulation (Church et al., 2013). Further, the focus of exposure in EFT is flexible, addressing cognitions, emotions, and sensations (Feinstein, 2010).

EFT centers around a version of exposure which combines somatic and cognitive components of PTSD therapies, undeniably classifying it as an integrative exposure-based therapy.

Efficacy and Outcomes of Emotional Freedom Techniques. EFT is considered to be effective at treating PTSD and its comorbidities, producing long-term results and sometimes even leading to the loss of the PTSD diagnosis (Church et al., 2013). One study returned symptom reduction results for EFT comparable to those of EMDR, and these results were maintained for at least one year (Church et al., 2013). EFT also acts very quickly, deconditioning fear association in only a few rounds of exposure and tapping, and is effective for those with high and low arousal symptoms (Feinstein, 2010). Emotions related to higher-order cognitions, like guilt, are also resolved with this approach (Feinstein, 2010). EFT techniques may minimize the risk of retraumatization from exposure, and the low dropout rates of therapies which involve EFT reflects this (Church et al., 2013). There is also neuroscientific evidence supporting EFT's efficacy: EEG studies on EFT have shown a decrease in stress response-related brain activity that remains in follow-up, and other studies have found that EFT reduces cortisol more than traditional talk therapies (Church et al., 2013). EFT's inclusion of somatic stimulation may be key to its impressive results, as somatic stimulation has been shown to reduce trauma-related affect more than interventions which do not include a somatic component (Church et al., 2013).

In summary, Emotional Freedom Techniques are an integrative exposure-based therapy with theoretical underpinnings in energy psychology (Church et al., 2013; Feinstein, 2010). This type of psychotherapy attempts to resolve cognitive and somatic symptoms through acupoint stimulation during imaginal exposure. It seems to resolve symptoms very quickly and maintain these results in the long-term (Church et al., 2013; Feinstein, 2010).

Sensorimotor Psychotherapy

Sensorimotor Psychotherapy (SP) is trauma-focused psychotherapy which emphasizes regulation of somatic and affective symptoms in the treatment of PTSD. Central to SP is the regulation of affective and sensorimotor states through the therapeutic relationship and the teaching of self-regulation skills through the mindful tracking and articulation of sensorimotor processes (Ogden & Minton, 2000). The concept of dual awareness is also a major component of Sensorimotor Psychotherapy and is defined as the practice of paying attention to multiple states of consciousness at the same time (Fisher, 2019). Dual awareness helps clients differentiate between past and present and maintain an awareness that the intense feelings associated with the trauma response are not indicative of actual present danger, counteracting the reality-warping effects of somatic trauma responses that persist even with cognitive knowledge of safety. Maintaining dual awareness during periods of dysregulation is necessary to resolving symptoms (Fisher, 2019) and, thus, plays a central role in SP.

SP's Theoretical Basis: Hierarchical Information Processing. Sensorimotor Psychotherapy is unique in that it has been developed primarily from clinical practice rather than a specific theory (Fisher, 2019). SP includes techniques derived from a variety of evidence-based psychotherapies, including psychodynamic, gestalt, and cognitive-behavioral therapies. In addition to its theoretical basis in clinical practice, SP also relies on theoretical principles based on established models and neuroscientific evidence of trauma's effects on the brain and body. One major neuroscience-backed model of trauma processing involves differentiating between "higher level" and "lower level" processing, similar to top-down and bottom-up processing, respectively. Lower, somatic parts of this processing system develop before higher, cognitive parts, meaning that proper functioning of higher parts is dependent on proper functioning of low

level areas. Based on this theory, Sensorimotor Psychotherapy recognizes dysregulation based in physiology as a central mechanism of PTSD (Fisher, 2019). Another version of this theory involves three hierarchical levels, sensorimotor, emotional, and cognitive, which correlate to brain structures (Ogden & Minton, 2000). The sensorimotor level corresponds to the lower rear portions of the brain, emotional processing is managed by intermediate limbic areas, and cognitive processing occurs in frontal-cortical brain regions. Cognitive and emotional states both condition and are conditioned by somatic processing, and all three levels interact and affect each other simultaneously, with integration at each level affecting the efficacy of processing in the others. By engaging processing on all three hierarchical levels, SP encourages holistic trauma processing (Ogden & Minton, 2000).

Overview of Sensorimotor Psychotherapy. Like EFT, SP does not involve a specific number of sessions or step-by-step approach to therapy. Psychoeducation about how the body reacts to trauma occurs towards the beginning of Sensorimotor Psychotherapy with the goal of increasing treatment compliance and decreasing self-blame (Fisher, 2019). Clients are also taught somatic and mindfulness skills to prevent overwhelm, improve recovery time from trauma cued responses, and ultimately return to a calm state of being. Directed mindfulness, a focus on small details of the current experience in the body and mind, is one such skill and promotes the client's ability to describe a "felt-sense" of their traumatic experience rather than directly describing their trauma. Mindfulness practices in SP regulate arousal and autonomic control and counteract trauma-related physiological responses. Mindful noticing and observation are other mindful skills taught in SP, encouraging the client to approach their body's responses to trauma recollection with curiosity rather than fear and assisting them in regulating their nervous system. Mindful observation interrupts the trauma response pattern by decreasing overwhelm in states of

arousal and is essential to SP's ability to resolve PTSD symptoms (Fisher, 2019). Another skill taught in SP is the tracking of physical sensations (Ogden & Minton, 2000). This is similar to the tracking taught in SE, but is used here to transition into holistic processing on the emotional, cognitive, and somatic levels rather than remaining focused solely on the somatic. By tuning into the constantly changing quality of sensations and their eventual stabilizations, clients learn to distinguish between physical sensations and trauma-based emotions. In this way, top-down processing is used to support rather than manage sensory processing (Ogden & Minton, 2000), which aligns well with neuroscientific understandings of hierarchical information processing.

Another focus of treatment is expanding the window of tolerance; this is where exposure is introduced in Sensorimotor Psychotherapy (Fisher, 2019). The client presents their trauma narrative, but focuses specifically on somatic, cognitive, and affective patterns that come up during the recollection rather than the content of their memory. As the client recalls their trauma, the therapist brings their attention to these patterns so that they can be reorganized through an active choice to move away from the material while actively triggered. The therapist and client aim to notice a tendency towards hyper- or hypoarousal before the dysregulation actually occurs by using dual awareness (Fisher, 2019). The practice of observing and attending to sensorimotor states is a collaborative process, taken on first by the therapist in a guiding role and, eventually, by the client themself without assistance (Ogden & Minton, 2000). As the client describes their traumatic experience, the therapist observes their arousal level and tries to help the client remain within a zone of optimal arousal. If the client reaches the upper or lower limit of their window of tolerance, they are directed to temporarily disregard their thoughts and feelings and follow body sensations until they resolve themselves. This mindful approach to exposure employs the cognitive level to support sensorimotor processing and prevents bottom-up processing from

disrupting information processing as reorganization of the trauma memory and reaction occurs. In keeping with the hierarchical information processing system, the emotional and cognitive contents of trauma responses during exposure are only explored once the sensorimotor aspect has been resolved through the client's use of self-regulatory skills (Ogden & Minton, 2000).

SP as an Integrative Exposure-Based Therapy. Sensorimotor Psychotherapy directly treats autonomic and affective dysregulation, addressing both somatic symptoms and cognitive-emotional aspects of trauma (Fisher, 2019). SP integrates sensorimotor processing with cognitive and emotional processing by using the body as a primary entry point in processing trauma, which in turn facilitates processing on the cognitive and emotional levels (Ogden & Minton, 2000). Although somatic processing is the starting point for trauma response reorganization in SP, the therapist evaluates moment-by-moment in therapeutic sessions which level of processing will be most healing and helpful. Often, emotional or cognitive processing are most appropriate, and addressing these levels of processing can positively impact further sensorimotor processing (Ogden & Minton, 2000). Since Sensorimotor Psychotherapy combines cognitive and somatic components of treatment via exposure which matches the hierarchical nature of trauma processing, it should be considered an integrative exposure-based therapy.

Efficacy and Outcomes of Sensorimotor Psychotherapy. Although no empirical research has been conducted on this treatment, anecdotal reports support its efficacy (Ogden & Minton, 2000). SP seems to reduce PTSD symptoms, including nightmares, panic attacks, and hyperarousal, and the mindfulness and regulation skills taught during therapy help clients remain more grounded in the present when they are triggered. Clients also report feeling an increased sense of safety following Sensorimotor Psychotherapy (Ogden & Minton, 2000). SP may be a good option for those without a clear memory of the traumatic event or who are especially

susceptible to the common pitfalls of other trauma treatments, such as attrition, flooding, or symptom exacerbation (Fisher, 2019).

In summary, Sensorimotor Psychotherapy is an integrative exposure-based therapy which is derived from several other clinical practices, primarily finding its theoretical basis in hierarchical information processing (Fisher, 2019; Ogden & Minton, 2000). This treatment strives to resolve cognitive and somatic symptoms through exposure with a focus on sensorimotor processing as an entry point to higher-level cognitive processes, a procedure supported by mindfulness and self-regulation skills. Although it has not been formally studied, anecdotal evidence supports SP's efficacy in the treatment of PTSD (Fisher, 2019; Ogden & Minton, 2000).

Critiques of EMDR, EFT, and SP

Because integrative exposure-based therapies are actively emerging and being studied, like somatic exposure-based therapies, they are mainly critiqued for their methodological issues. EMDR studies are often methodologically flawed, and some researchers claim that the BLS component may have no effect on treatment outcomes (Harvey et al., 2003). Lots of controversy surrounds EFT, as its claims of incredible effectiveness mean that it is either a revolution in PTSD treatment or a hoax, and these extremes combined with a lack of peer-reviewed research mean that it faces significant barriers to being taken seriously in clinical psychology (Feinstein, 2008). While its results are extremely promising, more research is needed to confirm or deny its efficacy (Feinstein, 2010), as supporting evidence for this treatment is almost entirely from anecdotal accounts or non-peer-reviewed sources (Feinstein, 2008). EFT's basis in energy psychology does not help its credibility, either, because energy psychology is often regarded as a sort of pseudoscience by the APA and notable clinical psychology journals (Feinstein, 2008).

Sensorimotor Psychotherapy faces similar challenges: no controlled study has been conducted to test the efficacy of this therapy as of 2019 (Fisher, 2019; Ogden & Minton, 2000). SP's focus on body sensations may also be too difficult for patients with dissociative symptoms or low tolerance of physical discomfort, and thus may only be helpful for those willing to fully engage with physical aspects of the trauma response (Ogden & Minton, 2000).

Integrative Exposure-Based Therapies as Best Practice

Despite methodological concerns surrounding integrative exposure-based therapies, many researchers agree that due to their combination of somatic, cognitive, and exposure components of treatment, these therapies are well-positioned to resolve PTSD symptoms more completely than somatic or cognitive exposure-based therapies can (Mahoney & Markel, 2016; Solomon & Heide, 2005; van der Kolk, 2006; Grabbe & Miller-Karas, 2018; Ogden & Minton, 2000; Zaleski et al., 2016). Since PTSD is multidimensional in its roots and symptoms, integrative treatment approaches are best able to address and resolve PTSD symptoms (Mahoney & Markel, 2016). This is not to say that gold-standard cognitive therapies are not effective; they are, but trauma is much more than just cognitive, so treatments which address both the body and the mind should yield even more complete symptom resolution (Solomon & Heide, 2005; Ogden & Minton, 2000). Somatic and cognitive exposure-based therapies each have their strengths: cognitive approaches help clients find new ways to understand themselves and their experiences, and somatic models address deeply ingrained, long-lasting physiological dysregulation associated with trauma (Grabbe & Miller-Karas, 2018). By combining these two treatment modalities, integrative therapies harness the strengths of each and possibly resolve concerns of residual symptoms and attrition that plague frontline cognitive therapies. Integrative exposure-based treatments also pull from both neurological and psychological theories of PTSD, and by fully

matching treatment approaches to the roots of dysfunction which produce the symptoms that are being treated, integrative therapies successfully take into account the full picture of PTSD (Solomon & Heide, 2005). In fact, some neurological abnormalities may be best addressed by a combination of somatic and cognitive techniques, as the dysfunctional mPFC, insula, and anterior cingulate cortex can be activated to normal levels of functioning by learning to tolerate discomfort while connecting cognitive, emotional, and sensorimotor aspects of PTSD (van der Kolk, 2006). Bessel van der Kolk, a respected voice in the field of trauma psychology, argues that in order for PTSD therapies to be effective, they must focus on both the somatic and cognitive components of trauma reactions (van der Kolk, 2006).

Integrative exposure-based therapies maintain concerns about inadequate research bases for treatments which involve somatic components. However, the lack of criticism surrounding residual symptoms may suggest that these therapies resolve concerns about inadequate symptom resolution in cognitive therapies. Thus, although more research is needed to clarify the mechanisms and efficacy of integrative therapies, combining cognitive and somatic approaches does seem to resolve immediate concerns regarding how clients tolerate and find relief through PTSD psychotherapy. This, along with significant support from the scientific community for the logic of combining disparate treatment components, ultimately points to integrative exposure-based therapies as best practice when it comes to treating PTSD.

Examples of Exposure-Based Therapy Malpractice from Psychology and Beyond

Now that best practice in the treatment of PTSD has been identified as integrative exposure-based treatments, the other end of the spectrum, malpractice, must be considered. Experiences which expose individuals to cognitive and somatic aspects of PTSD are not inherently therapeutic; in fact, in several contexts, this can be retraumatizing. Exposure without

an intentional attempt to address both cognitive and somatic symptoms can be deeply harmful across multiple contexts. The justice system, interpersonal disclosure, and Critical Incident Stress Debriefing (CISD) each exemplify the harm that can be done by non-integrative exposure within and outside of therapeutic contexts.

Pressure to Disclose as Harmful

Earlier in this paper, pressure to disclose was discussed as a beneficial, therapeutic aspect of exposure therapy. However, pressure to disclose can also hinder therapy based on factors like strength of pressure and interpersonal context. Pressure to disclose can hinder the posttraumatic growth that comes with disclosure, especially if that pressure is excessive (Kimbley et al., 2023). When pressure to disclose is high, it loses its therapeutic value and becomes harmful, experienced as an attack on the survivor's control and empowerment rather than a gentle push towards growth. Further, if disclosure is demanded and then responded to negatively, it is deeply harmful to the traumatized individual (Kimbley et al., 2023).

Malpractice Exemplified: Police Interviews

When victims of crime are interviewed by police, they are often in a trauma response state, which makes police interviews analogous to sessions of exposure in PTSD psychotherapies due to the expectation to recall the traumatic event while enduring physical and psychological discomfort. Crucially, however, police are not therapists, and victims' discomfort is rarely addressed or resolved during the police interview. This is especially evident in how police handle sexual assault and rape cases. Police response to sexual assault exacerbates the impact of the assault, specifically through the stigmatizing reactions of law enforcement professionals (Kaukinen & DeMaris, 2009; Rich & Seffrin, 2012). For example, many social service and law enforcement workers perceive victims as unable to fully recover from their trauma, a belief

which, when expressed even subconsciously, has serious implications for victims' recovery (Kaukinen & DeMaris, 2009). Police responses to sexual violence are so notoriously bad, that many survivors of rape are reluctant to report their assailant to the police because they fear being retraumatized, shamed, disbelieved, dismissed, or coerced by the justice system (Rich & Seffrin, 2012). This reluctance, combined with acute trauma responses, leads to significant distress during police interviews. Some police officers underestimate the amount of distress that survivors experience during interviews and, if an advocate is not present, are likely to demoralize or discourage the individuals they interview (Rich & Seffrin, 2012). The police interview is an incredibly vulnerable context due to the victim's experiences of flashbacks, attentional struggles, overwhelming feelings of guilt and shame, avoidance, and withdrawal (Risan et al., 2016). Additionally, the victim's fragmented memories challenge the police officer's goal of collecting a narrative, which can exacerbate both the victim's distress and the police officer's negative feelings towards the victim (Risan et al., 2016). Thus, the police interview brings up cognitive and somatic symptoms of trauma, as exposure does, but does not involve any attempt to soothe or resolve these symptoms, resulting in secondary victimization. This exemplifies the risk of conducting exposure without holistically addressing the trauma response that arises.

When law enforcement professionals choose to offer the victim support and protection and attend to their psychological needs during the interview, they can actually play a role in improving the health outcomes of the individuals they interview (Kaukinen & DeMaris, 2009; Risan et al., 2016). In order to turn police interviews into a neutral, or even beneficial, environment for the trauma survivor, emotional reactions must be accommodated for by professionals in order to maintain communication and shared understanding between interviewer and interviewee. By being open and accepting of the feelings which arise during interviews, law

enforcement professionals can show victims that their distress is not a burden and can be handled. Fostering a safe relational environment where psychological needs can be addressed relies on the ability to perceive distress during the interview based on interpretive involvement in the relationship and attention to the victim's body reactions and behaviors. In this way, parallels can be found between forensic and clinical settings based on the importance of attentive listening and a supportive relationship. Investigative interviewing has been likened to PE, as both require that the traumatized individual leaves their window of tolerance with the goal of experiencing discomfort without overwhelm. When police officers help redirect victims into their window of tolerance from hyper- or hypoarousal, they give the trauma survivor an opportunity to experience painful emotions in a safe context, a process which resembles clinical goals of introducing corrective experience in order to facilitate therapeutic change. Furthermore, if the survivor gets a sense that they have been part of something meaningful in the interview, their sense of control and self-efficacy can be bolstered in a way that positively impacts their beliefs about their ability to cope with their trauma (Risan et al., 2016). Directly addressing cognitive and somatic symptoms which arise during exposure in the context of police interviews can be the difference between retraumatization and therapeutic jurisprudence.

Malpractice Exemplified: Interpersonal Disclosure

When survivors of trauma choose to share their experiences with friends or family, they are engaging in a recall of the trauma which may bring up cognitive and somatic symptoms. Similarly to the role of the therapeutic relationship in PTSD psychotherapy, the way that people react to this disclosure can have a profound effect on whether this voluntary exposure is helpful or harmful. When survivors of trauma seek support from informal sources, they often receive negative reactions which are unresponsive to their needs or outright harmful (Borja et al., 2006).

These negative responses, especially when they come from sources of support, are associated with the development of PTSD symptoms, increased psychological distress, and poor adjustment. Unfortunately, negative reactions to disclosure are about as common as positive ones, even from friends and romantic partners to whom survivors are most likely to disclose (Filipas & Ullman, 2001). Although family members should ideally be a source of comfort and support in the aftermath of trauma, they are especially likely to react negatively to disclosure, and victim-blaming from family members may be particularly harmful because of the expectation that they will provide protection and guidance (Filipas & Ullman, 2001).

When individuals disclose their traumatic experiences to friends, family, or romantic partners by choice, they choose to undergo a certain level of discomfort by recalling their trauma with the hope of finding comfort and support. In this way, interpersonal disclosure is similar to exposure-based PTSD psychotherapies. Negative reactions to disclosure in this context can be very harmful, and this is analogous to a failure of the therapeutic relationship in clinical settings. If therapists do not offer adequate support to their clients, symptoms that arise during exposure cannot be resolved, and maladaptive trauma-related cognitions may become even more cemented and continue to cause the client harm.

Malpractice Exemplified: Critical Incident Stress Debriefing

Even when individuals have fully consented to enduring exposure and they undergo this process with a trained clinician, the effects can be harmful. Critical Incident Stress Debriefing (CISD) is an early-intervention approach meant to mitigate the risk of developing PTSD after a traumatic incident by attenuating the intensity of acute stress symptoms (McNally et al., 2003). It is recommended only for groups who have experienced some sort of collective trauma, like a natural disaster. In CISD, each person in the group describes the traumatic event from their

perspective to promote a collective reliving of the incident. Then, each person is invited to describe their cognitive reactions, followed by an opportunity for emotional expression meant to facilitate catharsis and emotional processing. Next, clinicians ask what symptoms of acute distress the group is experiencing and teach them about the stress response and coping mechanisms. The session is then summarized and closed by the clinicians. Advocates for CISD claim that it is beneficial due to its ability to provide psychosocial support soon after trauma, offer a space for the expression of emotions and thoughts, and teach coping skills to trauma survivors. However, the studies which support CISD's efficacy have significant methodological limitations, and more rigorously conducted studies have concluded that CISD either has no therapeutic effect or actively harms those who undergo it (McNally et al., 2003). Even though some participants in CISD find it satisfying, when its effects are actually measured, no improvement in functioning is found. In one study, those who initially showed high PTSD symptoms but were not debriefed improved significantly, while those who had high PTSD symptoms originally and were debriefed were still highly symptomatic at follow-up. This suggests that CISD may harm participants by impeding natural recovery from acute stress following a traumatic event. Even if CISD is merely ineffective rather than harmful, continuing to use this treatment is still ill-advised, as it wastes time and resources and could prevent the discovery of other early interventions that work better. Given CISD's lackluster or outright harmful results, direct processing immediately following trauma may not be helpful to recovery. This calls for a shift from mandatory disclosure towards support and optional disclosure (McNally et al., 2003).

CISD brings up cognitive and somatic trauma responses through mandatory collective recall of trauma experiences, but does little to resolve them aside from offering optional

cognitive and emotional expression in a group setting. The inefficacy and harm associated with CISD suggests that if a full resolution of trauma response symptoms activated by exposure cannot be offered, exposure should not be attempted.

Police interviews, interpersonal disclosure, and CISD each have the potential to be either helpful or harmful, but most often exacerbate symptoms for trauma survivors. In each of these contexts, cognitive and somatic symptoms related to PTSD are activated by exposure-like situations. The negative outcomes of police interviews, interpersonal disclosure, and CISD each involve a failure to fully address and resolve the symptoms that have arisen during exposure. This suggests that exposure-based psychotherapies which do not attempt to resolve all of the PTSD symptoms they bring about may be fundamentally failing clients. Integrative exposure-based therapies which treat PTSD holistically are in a position to solve this problem, as they both activate and address cognitive and somatic aspects of PTSD, leading to optimal symptom resolution.

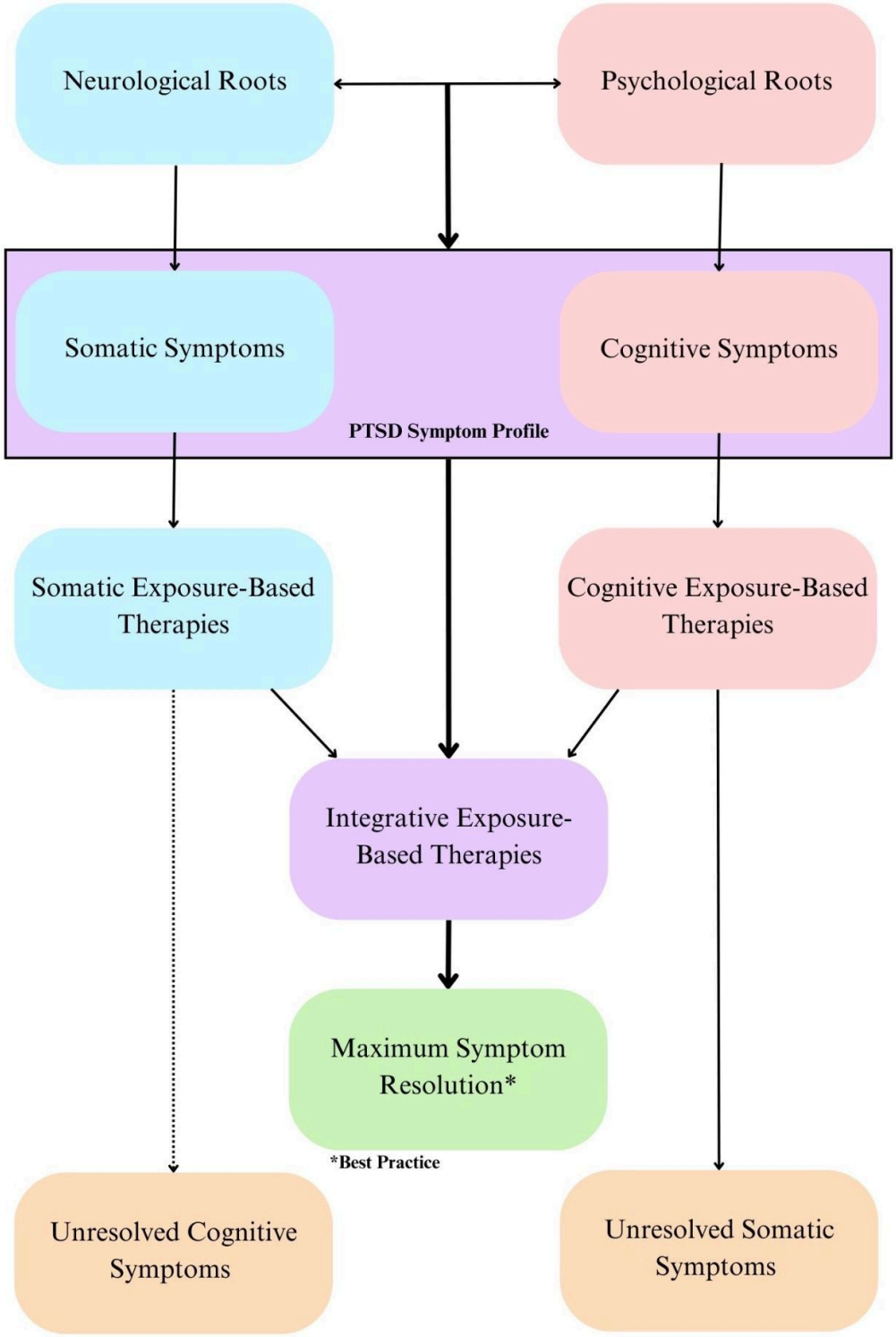
The Integrative PTSD Psychotherapy Model

Given the accuracy of both neurological and psychological theories of PTSD, the unique strengths of cognitive and somatic exposure-based therapies, and the strong anecdotal support of integrative exposure-based therapies, the separation of PTSD theories and treatments along neurological/psychological and cognitive/somatic lines seems futile. In fact, separating treatment approaches and conceptualizations of PTSD means that clients are subjected to therapies which only address approximately half of their symptoms, resulting in residual symptoms and lingering distress. The accuracy of neurological theories of PTSD does not imply the inaccuracy of psychological theories, or vice versa. The efficacy of cognitive exposure-based therapies does not mean that somatic exposure-based therapies cannot also be effective. I propose a theoretical

model, called the Integrative PTSD Psychotherapy Model, which integrates PTSD treatment on both the theoretical and clinical levels with the aim of guiding PTSD psychotherapy towards integrative exposure-based approaches which fully address and resolve the symptoms they activate.

Figure 1

The Integrative PTSD Psychotherapy Model



Integrating Neurological and Psychological Theories of PTSD

Neurological and psychological theories of PTSD are by no means incompatible; rather, neurological and psychological dysfunction in PTSD inform one another to a degree that renders them inseparable. As I discussed in the Neurological and Psychological Overlap section, combining neurological and psychological understandings of PTSD is essential to creating treatments which fully target the dysfunction underlying the disorder. Further, neurological aspects of PTSD primarily cause somatic symptoms, while psychological aspects cause cognitive symptoms, a relationship which is bolstered by cognitive therapies' use of psychological theories and somatic therapies' use of neurological theories to explain their therapeutic mechanisms. PTSD is a neuropsychological disorder which produces both cognitive and somatic symptoms, so treatments which address only cognitive symptoms and psychological theories or only somatic symptoms and neurological theories are not holistically treating PTSD. By recognizing the interplay between neurological and psychological dysfunction, the Integrative PTSD Psychotherapy Model offers a starting point for the more direct, effective path to PTSD treatment with integrative exposure-therapies.

Integrating Cognitive and Somatic Exposure-Based Therapies

Cognitive and somatic exposure-based therapies each stem from only one theoretical approach to PTSD and focus their therapeutic efforts primarily on one aspect of PTSD symptomatology. These methodologies are fragmented and ignore the neuropsychological nature of PTSD and the presence of both cognitive and somatic symptoms in the PTSD symptom profile. The consequences of this oversight can be seen in residual symptoms following these PTSD psychotherapies. As discussed in the Critiques of PE and CPT section, cognitive exposure-based therapies are often critiqued for their failure to address somatic components and

the significant occurrence of residual somatic symptoms. Since research on somatic exposure-based therapies is fairly new, few to no studies have looked into the potential for unresolved cognitive symptoms following these therapies. However, my Integrative PTSD Psychotherapy Model theorizes that, based on the presence of residual somatic symptoms after cognitive exposure-based therapies, it is quite possible that somatic exposure-based therapies would face similar issues with residual cognitive symptoms. Future research on somatic therapies should move beyond methodological concerns and focus on this potential pitfall.

Given the unresolved symptoms that result from a one-sided focus on either the neurological/somatic or psychological/cognitive aspects of PTSD, therapies which find their theoretical footing in both neuroscience and psychology and explicitly address somatic and cognitive symptoms should provide more complete symptom resolution. The goal of PTSD psychotherapy should be to provide as much relief from distressing symptoms as possible, and integrating cognitive and exposure-based therapies offers a holistic approach which can accomplish this goal. Thus, the Integrative PTSD Psychotherapy Model presents integrative exposure-based therapies as best practice due to their firm grounding in multiple theories of PTSD research, direct attention paid to all components of PTSD symptomatology, and probable ability to fully resolve PTSD's symptom profile.

Crucially, this theoretical model does not claim that cognitive and somatic exposure-based therapies are wholly ineffective; any treatment for PTSD is better than no treatment at all. Therapies which only address one side of PTSD's profile likely also offer some relief for symptoms on the other side due to the somewhat integrative nature of all PTSD psychotherapies and the interplay between neurological and psychological abnormalities. In this way, integration is not only best practice in its most complete version of integrative

exposure-based therapies, but also underlies the ability of cognitive and somatic exposure-based therapies to adequately relieve distress for some patients. Additionally, the binary nature of the PTSD symptoms presented in this model does not imply that all patients will present with an even split of the two symptom types. If a patient presents with primarily cognitive symptoms, for example, their treatment should focus most on addressing those symptoms while also ensuring that any underlying somatic aspects of their presentation do not go unaddressed and unresolved. Integrative treatments can involve any ratio of cognitive and somatic exposure-based interventions and should be customized to each patient's symptom profile.

The Integrative PTSD Psychotherapy Model draws attention to how integration on the theoretical, psychopathological, and therapeutic levels of PTSD conceptualization supports effective PTSD psychotherapy, with integrative exposure-based therapies constituting the most direct, theory-supported method for resolving PTSD symptoms.

Application of the Integrative PTSD Psychotherapy Model in Clinical and Research Settings

The Integrative PTSD Psychotherapy Model can act as a guide for offering the best treatment possible for patients with PTSD in both research and clinical contexts. This model offers researchers a framework within which to create new PTSD psychotherapies which fully align with the neuropsychological reality of PTSD and, thus, fully resolve PTSD symptoms. Researchers can also use this model when deciding which treatments they should devote time and resources to studying, ensuring that novel treatments which take an integrative, holistic approach receive adequate funding and attention. The Integrative PTSD Psychotherapy Model is also a tool for clinicians, both in terms of their understanding of the available psychotherapies and as a framework for psychoeducation with their clients. Clinicians could use this model to decide which psychotherapies they receive training for, which they will offer in their practice,

and could even support the integration of otherwise disparate therapies on the clinical level. If clinicians use the Integrative PTSD Psychotherapy Model to guide them towards holistic treatment by using novel somatic therapies as an adjunct to a better-established cognitive therapy, they will still accomplish the integrative component which leads to best practice. Further, presenting clients with their treatment options within the framework that this model provides could help them make more informed choices about what treatment is best for them based on the symptoms they are experiencing. Clinicians could even use the Integrative PTSD Psychotherapy Model in the psychoeducation phase of psychotherapy, as it offers an explanation for PTSD's origins in the brain and body, which symptoms arise from which abnormalities, and how different treatments aim to resolve these symptoms.

The Integrative PTSD Psychotherapy Model can play an important, helpful role from the creation and study of novel treatments to the application of these treatments for clinicians and clients. This model presents an opportunity to connect the work of researchers, clinicians, and clients in the treatment of PTSD, leading to integrative and holistic treatment both in terms of the therapies themselves and the people who create and engage with them.

Discussion

Limitations

The Integrative PTSD Psychotherapy Model faces several limitations. Firstly, the model focuses exclusively on exposure-based psychotherapies. The sole inclusion of exposure-based therapies means that the integrative therapies that this model endorses as best practice may not work for those for whom exposure is intolerable or impossible due to dissociative symptoms. Secondly, the Integrative PTSD Psychotherapy Model does not focus on any particular index trauma, but is not necessarily generalizable to all events which cause PTSD either. Different

index traumas could call for different approaches to treatment which may not conform to this model. Best practice in the treatment of complex PTSD, in particular, may fall outside the framework that this model offers. Thirdly, this model's claim that integrative exposure-based therapies constitute best practice is complicated by the fact that these treatments have yet to build a significant research basis. The model was developed based on the current state of research on non-CBT modalities, and would be all around better supported if somatic and integrative therapies had stronger research behind them. As such, it may be disconfirmed if research on PTSD endorses a new theoretical basis for the disorder or determines that somatic and integrative therapies are not as effective as anecdotal reports suggest.

Future Directions

The Integrative PTSD Psychotherapy Model could be improved by further research in several different areas. More research into integrative and somatic therapies, specifically on residual symptoms and potential challenges beyond methodological concerns, would bolster the claims made by the model and add important knowledge to the body of research on PTSD psychotherapy. Crucially, it is not essential that this research takes the form of RCTs, as qualitative research also has the potential to improve empirical support for these treatments. The development of more integrative therapies, or at least more adjunct therapies for cognitive treatments that would add a somatic component, is essential to offering a diverse range of therapeutic options which fall within the Integrative PTSD Psychotherapy Model's definition of best practice. An investigation into whether the cognitive/somatic/integrative paradigm proposed by this model is also present to some extent in non-exposure-based therapies would also help create more PTSD treatments which have firm footing in integrative understandings of the disorder. Research into how specific index traumas influence neuropsychological abnormalities

and symptom profiles would enable the adjustment of the Integrative PTSD Psychotherapy Model to better accommodate different types of trauma, further improving the therapies available to those with PTSD. Considering the role of the therapeutic alliance in future iterations of the Integrative PTSD Psychotherapy Model, given the alliance's impact on treatment outcomes (Keller et al., 2010; Lilienfeld, 2007), would place it in a broader therapeutic context and may further illuminate the importance of integrative PTSD treatments.

Treatment Matching

Treatment matching is an aspect of holistic treatment that should be considered alongside the Integrative PTSD Psychotherapy Model. PTSD psychotherapy may be more effective if patients are matched to an intervention that is best suited to help them specifically (Norr et al., 2018), and factoring in patients' treatment preferences could improve treatment outcomes and adherence (Shifrin et al., 2023). Treatment matching can involve personalizing treatment based on the patient's specific PTSD presentation, including factors like their severity, symptoms, and dominant trauma-related emotions (Fitzpatrick et al., 2023). In the context of the Integrative PTSD Psychotherapy Model, treatment matching could look like adjusting the balance of cognitive and somatic components in integrative exposure-therapies to best match the patient's symptom profile, or even treating primarily with either cognitive or somatic therapy and introducing the other component through an adjunct. Combining integration and personalization in PTSD psychotherapy addresses not only the overall reality of PTSD, but also each person's reality as they present for treatment. This level of targeting should result in optimal treatment outcomes and would constitute a revolution in how PTSD psychotherapy is approached.

Trauma as an Epidemic

The Integrative PTSD Psychotherapy Model is being presented at a time when trauma and its related disorders pose a profound public health burden in the United States (Lowe et al., 2015). Epidemiological research on trauma has shown that traumatic events occur frequently and take a serious toll on the mental and physical health of individuals and entire communities. Trauma does not just lead to the development of PTSD; it can cause individuals to develop mood disorders, anxiety disorders, substance use disorders, and personality disorders. It also has dramatic physical health consequences, especially when trauma is chronic or occurs during childhood. A dose-response relationship has been observed between trauma and physical health consequences, such that the more trauma an individual experiences, the higher their risk for developing health conditions like arthritis, heart diseases, diabetes, cancer, asthma, and chronic pain. Additionally, these trauma-related physical and mental health issues are passed along from generation to generation, exponentially increasing trauma's harmful effects on communities. Treating trauma would resolve so many public health crises which are often considered unrelated to PTSD, for both current and future generations (Lowe at al., 2015). The Integrative PTSD Psychotherapy Model, by encouraging the creation and administration of psychotherapies which best target PTSD's roots and symptoms, can be part of a much-needed push towards addressing trauma as the health epidemic that it is.

Chapter Two

The Holistic PTSD Treatment Model: Centering Integrative PTSD Psychotherapy Within the Therapeutic Alliance

In Chapter One, I explored cognitive, somatic, and integrative exposure-based therapies for PTSD, arguing for integrative psychotherapy as best practice in PTSD treatment. This chapter culminated in the introduction of the Integrative PTSD Psychotherapy Model, which lays out the mechanisms underlying PTSD symptoms, therapies, and treatment outcomes. The primary contribution of this model was the idea that integrative psychotherapies represent best practice due to their resolution of both cognitive and somatic symptoms, which stem from psychological and neurological abnormalities, respectively, that are associated with PTSD. However, beyond acknowledging that the therapeutic alliance is a common factor that is essential to the success of PTSD treatment, this chapter did not consider how the therapeutic alliance contributes to the therapeutic process. Out of the seven exposure-based therapies explored in Chapter One, only two featured an explicit focus on alliance-building, leaving a great deal of uncertainty surrounding the role of the alliance in therapy more broadly and in PTSD therapies specifically.

Given this combination of clear importance and perplexing uncertainty, I chose the therapeutic alliance as the focus for this second chapter. In this chapter, I explore the impact of the therapeutic alliance on PTSD psychotherapy outcomes, as well as the mechanisms behind this impact. Continuing the focus on integration from Chapter One, I frame the discussion of the therapeutic alliance's curative effects in terms of neurological and psychological mechanisms resolving cognitive and somatic symptoms. Ultimately, I present a new theoretical model that shows the bigger picture of PTSD treatment centered around the role of the therapeutic alliance and argues for a holistic approach to the treatment of PTSD.

When reading this chapter, a few things should be kept in mind. Firstly, the literature tends to use the phrases "therapeutic alliance" and "therapeutic relationship" more or less interchangeably. For clarity, in this chapter, I solely refer to this concept as the "therapeutic alliance," reserving the use of "therapeutic relationship" to refer specifically to the part of the alliance that is made up only of the base relationship between the client and therapist. Secondly, most of the literature discussing the therapeutic alliance within the context of PTSD treatment is focused on complex and/or interpersonal trauma, sometimes specifically conducting research within child abuse populations. This is in stark contrast to the research done on PTSD treatment in general, which tends not to focus explicitly on C-PTSD; unlike Chapter One, Chapter Two will feature quite a bit of content related to C-PTSD. Thus, although the focus of this paper is not on a specific type of trauma, much of the research used to support the argument presented in the new theoretical model may be more accurate for some types of trauma than others. This is addressed again in the discussion section. Thirdly, as I did in Chapter One, I will continue to use pathologizing language to describe the psychological and neurological impacts of trauma in order to align with current conventions in the psychology field. This should not be taken as an endorsement of deficit models of mental illness, as this is done in an effort to ensure that the information I present is in alignment with current research on PTSD, and is not reflective of my personal beliefs (as discussed in Chapter One). Finally, cultural factors seem to have an impact on the formation of the therapeutic alliance and should be a point of awareness for therapists when they are working with a client from a cultural background that differs from their own (Vasquez, 2007). However, due to the complexity of this factor as well as the complexity of the therapeutic alliance even without considering culture's impact, I have chosen not to incorporate this factor into the present chapter so that the more central concepts can be thoroughly explained

and cultural factors can be given the thorough explanation they also deserve in a more dedicated format. Although this factor is beyond the scope of this paper, the limitations that come with this decision, as well as ways that this topic could add to future iterations of the theoretical model, are covered in the discussion section.

The therapeutic alliance is a deeply complex, multifaceted concept that can be difficult to parse from the broader process of psychotherapy due to its entrenchment in the entire therapeutic process. It is precisely because of its complexity and centrality to psychotherapy that the therapeutic alliance must be thoroughly understood in order to fully discuss psychotherapy in all its nuances. By centering PTSD psychotherapy within the mechanisms of the therapeutic alliance, it becomes clear that holistic PTSD treatments that approach therapy with a focus on the client as a whole person offer a unique opportunity for maximum PTSD symptom resolution.

The Therapeutic Alliance in the General Clinical Population

Clinical scientists typically define the therapeutic alliance as a bond, relationship, or coalition between therapist and client that is based upon multiple components and evolves as therapy progresses (Buchholz & Abramowitz, 2020; McLaughlin et al., 2014). The components of the therapeutic alliance are widely defined as goal, task, and bond alliances. Goal alliance refers to an agreement between clinician and client upon the objectives of therapy, task alliance refers to an agreement on the specific tasks undertaken during therapy to reach these goals, and bond alliance is the relational, interpersonal connection between therapist and client within which therapy takes place (Lambert & Barley, 2001; Buchholz & Abramowitz, 2020; McLaughlin et al., 2014). In addition to these three components, some researchers also endorse a delineation between trait and state components, with trait components relying on the client's

ability to form relationships in general and state components reflecting their shifting ability to maintain a quality therapeutic alliance with their therapist (Zilcha-Mano et al., 2019).

On top of the several components making up the therapeutic alliance, there are also myriad factors that can impact the formation and maintenance of the alliance that can be broadly broken down into the qualities that both the client and the therapist bring into the relationship. The client's motivation, cognitive style, and psychological mindedness all contribute to how they will approach the formation of the therapeutic alliance (Reynolds et al., 2017), perhaps especially its task and goal components. When it comes to bond alliance, the client's attachment style is likely to impact the strength of the therapeutic alliance depending on their capacity for intimacy and trust in relationships in general (Reynolds et al., 2017). The client's symptom severity, ability to regulate negative emotions such as anger, and their perception of how credible their treatment is also affect the formation of the alliance (Lawson et al., 2020).

Although it may seem that variance between clients would primarily account for the differences in strength and success between therapeutic alliances, it is actually the qualities that the therapist brings to the relationship that have a greater impact on its strength (Allison & Rossouw, 2013). The therapist's ability to foster therapeutic presence, or the quality of being present and engaged during therapy, is imperative to the development of the therapeutic alliance and a sense of safety for the client (Geller & Porges, 2014). This relational way of being present encourages the client to be more open to therapeutic work, ensures that the therapist is attuned to the client's needs, and overall fosters a strong therapeutic alliance, which, in turn, is essential for successful therapeutic outcomes (Geller & Porges, 2014). This relationship between therapist qualities, therapeutic alliance, and treatment outcomes explains why clients tend to attribute therapeutic success to their therapist's qualities (Lambert & Barley, 2001). More broadly,

successful therapy relies on the therapist's credibility, skill, empathic understanding, and affirmation, as well as their ability to meaningfully engage with and attend to the client, their problems, and their emotions (Lambert & Barley, 2001).

The therapeutic alliance is a dynamic aspect of therapy that shifts over time due to its relational, interpersonal, and even cyclical nature (Koole & Tschacher, 2016; Sijercic et al., 2021). Because of its constantly changing nature, the therapeutic alliance is only brought into awareness when it is not present or when communication between therapist and client falters (Stratford et al., 2009). These moments when the quality of the alliance quickly declines are called "ruptures" and can occur due to the emergence of negative feelings within the relationship, a mistake made by the therapist, or a reduction in therapeutic progress (McLaughlin et al., 2014). If a rupture is directly acknowledged and addressed by the therapist, it can be repaired (McLaughlin et al., 2014). Repair often involves the therapist taking at least partial responsibility for the event leading to the rupture, offering a sincere apology, and working collaboratively with the client to restore the relationship (Dalenberg, 2004). If a rupture goes unrepaired due to oversight or a lack of effort on behalf of the therapist to repair it, the alliance is jeopardized (McLaughlin et al., 2014) and the client may even drop out of treatment due to the decline in alliance strength (Sijercic et al., 2021). Crucially, the goal within the alliance is not to avoid ruptures, but to accept their inevitably and take them as an opportunity to develop the skills needed to repair relationships even beyond the context of therapy. Due to this rupture-repair cycle, the strength of the therapeutic alliance is not linear (Ellis et al., 2018). Rather, it tends to follow a U-shaped pattern where the alliance is very strong in the beginning, dips due to rupture, and then returns to its initial strength (or stronger) after repair (McLaughlin et al., 2014). Within this pattern, there are two critical phases: early sessions when the alliance is beginning to form,

and the point in therapy when the client begins to be challenged by the therapist through more active interventions (Sijercic et al., 2021). Fostering a strong alliance is especially important in the first phase, as this prepares the relationship to tolerate future ruptures and discourages dropout (Stratford et al., 2009).

Many studies have demonstrated the tremendous impact of the therapeutic alliance on therapeutic outcome (e.g., Buchholz & Abramowitz, 2020; Koole & Tschacher, 2016; McLaughlin et al., 2014). Common factors like the therapeutic alliance are more influential on therapeutic outcomes than specific factors, such as the type of intervention used (Zilcha-Mano et al., 2019; Lambert & Barley, 2001). The therapeutic alliance has a larger impact than other treatment variables, accounting for roughly 7% of therapeutic outcome (Koole & Tschacher, 2016). Research consistently finds a positive relationship between the alliance and therapy outcomes across modalities and diagnoses (Lambert & Barley, 2001; Buchholz & Abramowitz, 2020; Keller et al., 2010; McLaughlin et al., 2014; Reynolds et al., 2017), and the therapeutic alliance is the most consistently identified predictor of outcome regardless of which treatment was used (Cloitre et al., 2004). The therapeutic alliance is also associated with lower dropout rates (Keller et al., 2010; Sijercic et al., 2021; Stratford et al., 2009), which further supports its role in improving treatment outcomes. Crucially, for therapy to be successful at all, a sufficiently strong alliance must be established before methodologically-specific treatment begins (Stratford et al., 2009; Held et al., 2022). Because of the therapeutic alliance's central role in treatment outcomes, some researchers argue that the alliance itself is a major curative component of therapy (Lambert & Barley, 2001; Held et al., 2022; Koole & Tschacher, 2016). It is important to note, however, that these findings tend to be correlational due to the difficulty of studying the therapeutic alliance through RCTs (Koole & Tschacher, 2016). Although direction of causality

cannot be determined from correlational studies on the therapeutic alliance, baseline measures taken early in therapy suggest that its presence and impact are not simply a product of successful therapy (Koole & Tschacher, 2016).

The Therapeutic Alliance in PTSD Psychotherapy

While a strong therapeutic alliance is essential in the treatment of any mental illness, it is especially important when treating PTSD (Keller et al., 2010; McLaughlin et al., 2014). The therapeutic alliance's profound impact on therapeutic success applies when treating PTSD; there is a moderate alliance-outcome effect on PTSD symptoms, with the strength of the therapeutic alliance consistently predicting therapeutic outcomes and post-treatment PTSD symptoms (Howard et al., 2022; Cloitre et al., 2004). The curative nature of the therapeutic alliance is especially pronounced in the treatment of PTSD, partially due to its ability to alter dysfunctional neural patterns associated with PTSD (Allison & Rossouw, 2013; Stratford et al., 2009). The basic human connection that occurs as part of the bond component of the alliance may contribute to the shift in neural patterns that happens when the therapeutic alliance is sufficiently strong (Allison & Rossouw, 2013). Some researchers even argue that beyond being one active ingredient within PTSD therapy (Cloitre et al., 2004), a healing relationship like the therapeutic alliance is actually required in order for symptom resolution to take place (Reynolds et al., 2017). The therapeutic alliance can be thought of as a safe, practice relationship within which the client learns to experience trust in a relationship without fearing retraumatization (Zaleski et al., 2016), which can both lead to symptom resolution and create a prime therapeutic environment for further exploration and resolution of PTSD symptoms (Geller & Porges, 2014; Pearlman & Courtois, 2005). There is also a positive feedback loop at play here, wherein the more symptoms of PTSD are resolved (possibly by the therapeutic alliance itself), the stronger the therapeutic

alliance becomes, which leads to even more symptom resolution, and so on (Lawson et al., 2020; Lawson et al., 2017). In other words, therapeutic change causes symptom reduction, and a strong therapeutic alliance both causes and is caused by that reduction in symptoms (Beierl et al., 2021). This reciprocal aspect of the therapeutic alliance-outcome relationship in PTSD psychotherapy is crucial to understanding the alliance's role in treatment.

The Therapeutic Alliance Across PTSD Treatment Phases

Because the therapeutic alliance seems to be a prerequisite for successful application of modality-specific techniques, there is a temporal aspect to its effect. Forming a strong therapeutic alliance early on in therapy has a particularly strong positive impact on the success of PTSD psychotherapy, as this consistently predicts better treatment outcomes for PTSD (Keller et al., 2010; Cloitre et al., 2004) and there is a stronger positive relationship between early alliance strength and treatment outcome for patients with child abuse-related PTSD than for other psychiatric disorders (McLaughlin et al., 2014). As treatment progresses, improvements in the strength of the alliance are associated with significant symptom reduction and at least partial resolution of negative post-trauma cognitions (Held et al., 2022). While the early stages of the alliance are particularly crucial for therapeutic success, trauma-related variables, such as symptom severity, significantly predict the strength of the therapeutic alliance across all phases of treatment (Lawson et al., 2020). The middle phase of PTSD psychotherapy is another time when the therapeutic alliance is crucial, as this is typically when trauma processing, which can be difficult for clients to endure, becomes the main focus of treatment (Lawson et al., 2020). During this phase of treatment, the extent to which the client is experiencing interpersonal problems and dissociation especially robustly predicts how strong the alliance will be, with less

severe symptoms predicting a greater sense of collaboration and trust with the therapist (Lawson et al., 2020).

The Therapeutic Alliance in Exposure-Based PTSD Therapies

Exposure-based therapies, which are commonly used to treat PTSD, seem to rely on a strong therapeutic alliance more so than other modalities (Keller et al., 2010; Buchholz & Abramowitz, 2020; McLaughlin et al., 2014). The alliance-outcome relationship is present within exposure therapies in general (Buchholz & Abramowitz, 2020) and within PTSD-specific exposure modalities, like Prolonged Exposure (McLaughlin et al., 2014). This positive relationship in exposure therapy can be attributed to the alliance's ability to teach emotion regulation skills (Cloitre et al., 2004) and encourage clients to overcome avoidance of trauma content (Beierl et al., 2021). Because exposure therapies require that the patient engage in activities that will cause them distress, it is essential that they trust that their therapist is acting in their best interest in requesting that they endure the discomfort of exposure (Keller et al., 2010; Buchholz & Abramowitz, 2020; McLaughlin et al., 2014). This aspect of exposure therapy means that the task component of the alliance must be sufficiently strong for exposure to be undergone with maximum therapeutic benefit (Abramowitz et al., 2020; Held et al., 2022; Lawson et al., 2020). The uncomfortable nature of exposure therapies also makes them especially prone to high attrition rates, and having a strong therapeutic alliance in place for exposure therapy can encourage treatment adherence and discourage dropout (Buchholz & Abramowitz, 2020; Sijercic et al., 2021; Lawson et al., 2020).

Interpersonal Issues and the Therapeutic Alliance in PTSD Treatment

Because of the interpersonal issues faced by PTSD patients, and especially when the trauma itself was interpersonal in nature, a strong therapeutic alliance is uniquely central to the

successful treatment of PTSD (Howard et al., 2022; Held et al., 2022; Cloitre et al., 2004; Chen et al., 2020; Lawson et al., 2020). Interpersonal issues related to trust and attachment frequently occur with PTSD (McLaughlin et al., 2014; Howard et al., 2022; Held et al., 2022), and the bond component of the therapeutic alliance becomes especially important when addressing trust and attachment issues stemming from interpersonal trauma (Lawson et al., 2020). The relational nature of the therapeutic alliance offers a context within which interpersonal difficulties can be worked through (Zaleski et al., 2016), and this contributes to the strong alliance-outcome relationship in PTSD psychotherapy (McLaughlin et al., 2014). Interpersonal problems are consistently the strongest predictor of alliance strength throughout treatment, and task agreement is the component that most contributes to its strength (Lawson et al., 2020), reinforcing the need to attend to interpersonal problems and to build task agreement within PTSD psychotherapy.

Unfortunately, the very interpersonal difficulties that the therapeutic alliance has the potential to address and resolve can also serve as a barrier to forming an alliance in the first place. Particularly when a patient has experienced interpersonal trauma, such as child abuse, they struggle to function interpersonally across many domains (McLaughlin et al., 2014; Cloitre et al., 2004; Doukas et al., 2014; Lawson et al., 2020; Lawson et al., 2017). These issues are often rooted in difficulties with trust, emotion regulation, negative beliefs about relationships, and heightened reactivity coupled with a decreased tolerance for distress (Ellis et al., 2018; Cloitre et al., 2004; Doukas et al., 2014; Lawson et al., 2020; Lawson et al., 2017). Interpersonal problems are what most often bring trauma survivors, particularly those who experienced childhood abuse, into therapy (Lawson et al., 2017, and yet the establishment of trust required to engage in the therapeutic alliance can in itself be distressing (Lawson et al., 2017; Lawson et al., 2020). In therapy, interpersonal difficulties typically manifest as client anger, emotional dysregulation, and

mistrust of the therapist (Lawson et al., 2017). Clinical scientists widely acknowledge that forming a strong therapeutic alliance can be difficult for patients with PTSD due to these interpersonal difficulties (Keller et al., 2010; Ellis et al., 2018; McLaughlin et al., 2014; Reynolds et al., 2017; Lawson et al., 2020; Lawson et al., 2017). Throughout treatment, the extent to which clients are experiencing interpersonal difficulties is the most significant predictor of task agreement and the most significant contributing factor in the strength of the therapeutic alliance (Lawson et al., 2020). This finding points to a need to address interpersonal issues across all phases of treatment in order to offset the potential obstacles they pose and to ensure the strength of the alliance and, thus, successful therapeutic outcome (Lawson et al., 2020; Lawson et al., 2017).

Other Alliance Barriers in PTSD Treatment

Interpersonal issues are far from the only aspect of PTSD that contributes to difficulties forming and maintaining a strong therapeutic alliance. Dissociation is another common symptom of PTSD that can serve as a barrier to the therapeutic alliance (Lawson et al., 2017; Lawson et al., 2020). Strong emotions brought up by perceived similarities between the therapeutic relationship and previous traumatic relationships can trigger dissociation as a coping mechanism, which then disrupts the connection between the client and their therapist (Lawson et al., 2017; Lawson et al., 2020). Anger can also disrupt the therapeutic alliance, as it is common in those with PTSD but difficult for clinicians to handle (Dalenberg, 2004), often leading to alliance ruptures (Cloitre et al., 2004). Psychological phenomena associated with PTSD, such as avoidance, mistrust, and emotional dysregulation, can serve as a barrier to forming a strong alliance (Howard et al., 2022; McLaughlin et al., 2014), and maladaptive coping strategies

employed to endure these phenomena can also impede the development of the alliance (Reynolds et al., 2017).

Additionally, comorbidities of PTSD can make forming a strong therapeutic alliance difficult (McLaughlin et al., 2014). In particular, the anhedonia and demotivation associated with depression can weaken the bond and task components of the alliance, respectively (McLaughlin et al., 2014). Alexithymia also has an initial negative impact on the alliance, but its effect fades over time, possibly because therapy improves the client's ability to name their feelings (Reynolds et al., 2017).

Essentially, although patients with PTSD (especially those with interpersonal or complex index traumas) are in greater need of a strong therapeutic alliance than the general clinical population, they also greatly struggle to form this alliance (Doukas et al., 2014; Lawson et al., 2020). Crucially, however, this does not mean that forming a therapeutic alliance is a lost cause in PTSD psychotherapy.

Building a Therapeutic Alliance in PTSD Psychotherapy

While it is important to acknowledge the difficulties that may arise when forming a therapeutic alliance in PTSD psychotherapy, the literature makes it abundantly clear that strong alliances with traumatized clients are possible (Ellis et al., 2018; Howard et al., 2022; Reynolds et al., 2017; Lawson et al., 2020). Even early in therapy, clients with a trauma history can have an alliance comparable in strength to those not experiencing trauma (Ellis et al., 2018), which bodes well for the success of PTSD psychotherapy based on the impact of early alliance on therapeutic outcome (Keller et al., 2010; Cloitre et al., 2004; McLaughlin et al., 2014). Strong therapeutic alliances can and do develop across PTSD psychotherapy modalities (Howard et al., 2022), including trauma-focused therapies like CPT and PE which are often underutilized due to

unfounded concerns about these kinds of therapies damaging the alliance (Chen et al., 2020). In fact, the collaborative therapeutic style of trauma-focused cognitive-behavioral therapies might be part of what facilitates the formation of the therapeutic alliance in these modalities (Beierl et al., 2021). When building a therapeutic alliance with a traumatized client, the therapist must remember that they are creating the context in which the client will heal from trauma (Zaleski et al., 2016). They must do their best to facilitate a relationship that allows the client to feel safe, secure, and supported while remembering their trauma, mourning their loss, and reconnecting with themselves while turning away from trauma-related cognitions and beliefs (Zaleski et al., 2016). This process demands an explicit focus on alliance building as well as a commitment to avoid or repair any damage that may occur throughout therapy.

Factors Impacting the Therapeutic Alliance in PTSD Psychotherapy

Many factors influence how strong the therapeutic alliance will be in PTSD psychotherapy. Attachment style and coping strategies predict the strength of the therapeutic alliance (Howard et al., 2022; Reynolds et al., 2017). Specifically, coping strategies such as acceptance, emotional support, instrumental support, planning, positive reframing, and venting are positively correlated with the strength of the alliance (Reynolds et al., 2017), suggesting that being able to healthily cope with distress improves the client's ability to engage in the therapeutic alliance. Of course, coping strategies can be taught to clients over the course of therapy, which would further strengthen the therapeutic alliance, so the directionality of this relationship is not certain. When clients enter therapy with an existing tendency to seek help from others and express emotions, either through emotional support or venting strategies, they are better equipped to engage in therapeutic work, which bolsters the strength of the alliance

(Reynolds et al., 2017). Psychophysiological variables, baseline PTSD symptoms, therapist competency, and client oxytocin levels can also predict alliance strength (Howard et al., 2022).

Although many of these factors are outside of the therapist's control, and the alliance may be more about the match between the client and the therapist (Sijercic et al., 2021) or the therapist's level of natural intuition (Stratford et al., 2009), there are still things that therapists can do to build and maintain the alliance. Although it may seem obvious, researchers emphasize being present and supportive when seeking to build a therapeutic alliance with a traumatized client. Due to the poor social support that those with PTSD often experience, the perceived quality of support provided by the therapist is essential to forming a strong alliance (Keller et al., 2010). Therapeutic presence, which is central to the development of the therapeutic alliance, involves maintaining a grounded, immersed, and expanded awareness with the intention of helping the client (Geller & Porges, 2014). It is also essential that the client feels understood and accepted in a way that is meaningful to them specifically (Lambert & Barley, 2001).

Building the Therapeutic Alliance Across PTSD Treatment Phases

In addition to its effects on the formation and strength of the therapeutic alliance, PTSD impacts the trajectory and maintenance of the alliance across phases of treatment. In PTSD psychotherapy, the therapeutic alliance must be built, maintained, and repaired throughout the course of treatment (Lawson et al., 2017). While the strength of the alliance tends to increase over time (Ellis et al., 2018), several studies have found a variable pattern of alliance strength with PTSD patients (Ellis et al., 2018; McLaughlin et al., 2014; Sijercic et al., 2021), possibly due to the client's struggles with interpersonal and attachment issues (McLaughlin et al., 2014). While a weaker alliance is associated with client dropout, this relationship is present for the relationship as a whole rather than at particular points within therapy (Sijercic et al., 2021). This

either suggests that a solid, stable alliance is necessary for trauma work, or that the alliance can fluctuate a bit in strength without automatically leading to dropout (Sijercic et al., 2021).

Rupture-Repair in PTSD Psychotherapy

While the rupture-repair cycle that occurs in the therapeutic alliance is present when treating any mental illness, it is particularly central to how the alliance functions in PTSD psychotherapy. In exposure therapies like PE, ruptures seem to be more likely when the exposure component of treatment is introduced and clients feel challenged and frightened at the prospect of reliving their trauma (McLaughlin et al., 2014). Ruptures may also occur in PTSD psychotherapy due to inaccurate interpretations, blaming statements, or boundary fluctuations from the therapist, which can elicit anger responses in the client (Dalenberg, 2004), possibly as a defense mechanism because these behaviors are reminiscent of the client's past traumatic relationship experiences. If the client expresses anger and the therapist does not respond, this is interpreted as a lack of care and can deepen an existing rupture (Dalenberg, 2004). Statements that come across as disbelief or minimization are often taken as betrayals by PTSD clients (Dalenberg, 2004), which feeds into trauma-based negative beliefs about relationships and, in turn, can do real harm to the alliance. Clients are also particularly sensitive and responsive to anything they perceive as hypocrisy in the therapist, especially when this manifests as an encouragement of emotional disclosure and connection early in treatment that is later rescinded by the therapist (Dalenberg, 2004). Alliance ruptures occur 46% of the time in PE, making them fairly common, but they are not necessarily detrimental to therapeutic outcome (McLaughlin et al., 2014).

Repairing a rupture if it occurs is more important than avoiding ruptures altogether, and repairing ruptures in the therapeutic alliance may actually be a corrective experience that

facilitates symptom reduction (McLaughlin et al., 2014). When a rupture due to client anger does arise in PTSD psychotherapy, clients prefer therapists who disclose their emotions and take partial responsibility for disagreements over those who remain non-reactive to anger. Therefore, although it may seem counterintuitive, showing a bit of anger towards the patient may actually be better for the success of treatment in the long run than showing no anger at all, as this teaches clients that anger is allowed to be expressed within the therapeutic relationship and will not result in abandonment or endangerment (Dalenberg, 2004).

Countertransference of negative emotions may also jeopardize the strength of the therapeutic alliance and must be handled properly in order to avoid a potential rupture. Therapists may react to disclosures of trauma experiences with fear or disgust, which distances them from the client and can reinforce the client's existing negative cognitions surrounding their trauma (Ellis et al., 2018). Anger is another emotion that poses a risk of countertransference in PTSD therapy (Dalenberg, 2004). Because behaviors stemming from anger, fear, or disgust may resemble the behaviors of early attachment figures who caused their index trauma, patients with PTSD may fear countertransference reactions in the therapist. Further, countertransference could confirm their trauma-related beliefs or lead them to view the therapist as a source of potential betrayals, both of which harm therapeutic alliance and outcome. When therapists do become inappropriately angry as part of a countertransference reaction, they are usually responding to a confrontation or a failure of the client to change their behaviors. Should a therapist anger episode occur, a genuine apology is the best course of action to maintain the quality of the alliance. Explaining the anger response in an attachment context can also help to repair a rupture caused by countertransference (Dalenberg, 2004).

There is some debate in the field over whether or not experiencing the rupture-repair cycle is necessary for successful PTSD treatment, but it is widely understood that leaving a rupture unrepaired leads to poorer outcomes and higher post-treatment PTSD severity (McLaughlin et al., 2014; Ellis et al., 2018). The therapeutic alliance is not something that is crafted once and then can be set aside for the remainder of therapy; it must be actively maintained in the face of ruptures, symptoms, and countertransference that can act as barriers to a strong, successful alliance (Lawson et al., 2020). The more effort a therapist makes to repair the alliance, the more successful therapy will be for the client (Dalenberg, 2004). If an effort is made to repair a misinterpreted rupture, this only makes the therapist more attentive; on the other hand, if an unnoticed rupture goes unaddressed, this threatens the alliance and could even lead to dropout (McLaughlin et al., 2014). Overall, anything resembling a rupture should be carefully attended to by the therapist and repaired in collaboration with the client in order to maintain the strength and quality of the therapeutic alliance.

Psychological and Neurological Mechanisms Underlying the Therapeutic Alliance's Curative Effect in PTSD Psychotherapy

It is both possible and necessary to form a strong therapeutic alliance in PTSD psychotherapy. The alliance is a relational environment in which treatment takes place as well as a curative component of treatment itself, and the mechanisms underlying this curative aspect are both psychological and neurological in nature. Exploring these mechanisms provides a more nuanced understanding of how the therapeutic alliance facilitates symptom resolution in PTSD psychotherapy.

Psychological Mechanisms: The Therapeutic Alliance and Attachment Theory

As discussed previously, trauma is known to impact attachment style, especially when this trauma is interpersonal and/or occurred during childhood. When an individual experiences trauma during childhood, their neurobiological development is altered, leading to long-term impacts on the nervous system that manifest as disrupted styles of attachment (Reynolds et al., 2017). Traumatized individuals often have attachment styles that are marked by avoidance, anxiety, or both (Reynolds et al., 2017; Pearlman & Courtois, 2009). Attachment style can also be understood as how traumatized individuals learned to cope when their needs were not met as children. If a child's basic needs are consistently unmet, ignored, or threatened, their goals in relationships with attachment figures will be oriented towards avoidance of harm rather than fulfillment of needs (Allison & Rossouw, 2013). This leads to incongruence between one's needs and their ability to fulfill them, which is permanently heightened in mental illnesses like PTSD and can prevent healthy coping beyond just relational contexts (Allison & Rossouw, 2013). Attachment issues manifest during therapy and can challenge the therapeutic relationship due to untrusting, unstable, and reactive relational behaviors exhibited by the client (Pearlman & Courtois, 2009). In fact, a therapist modeling a healthy relationship by being reliable and consistent may initially trigger the client's trauma defense mechanisms rather than offer them comfort or a sense of safety because the client's attachment style is not organized to respond to a secure relationship (Pearlman & Courtois, 2009).

Based on attachment theory, it is necessary to approach the treatment of PTSD in a relational manner, and building a strong therapeutic alliance offers an opportunity for the client to rework their attachment issues (Pearlman & Courtois, 2009). A predictable, respectful relationship is at the heart of a strong therapeutic alliance, and the safe environment that this

creates can reinstate healthy attachment and a sense of control within relationships that the client may have been missing before entering treatment (Allison & Rossouw, 2013). The safe relational environment of the alliance allows for exploration of the client's presenting issues (Skourteli & Lennie, 2010), which, particularly during moments of genuine encounter, can render the client more open to behavioral, cognitive, and affective change (Stratford et al., 2009). The therapeutic alliance itself also has attachment relationship qualities, allowing the therapist to act as a secondary attachment figure for the client (Skourteli & Lennie, 2010). Thus, engaging in a strong therapeutic alliance can be a corrective emotional experience for those struggling with attachment issues. Those with attachment issues often struggle when boundaries are unclear and may struggle to set boundaries for themselves, so the boundaried nature of the therapeutic alliance can help the client learn about boundaries in a safe relationship and may prevent a tendency to distance themself from others when they feel anxiety within the relationship. Providing a corrective emotional experience should not be conflated with telling the client only what they want to hear; rather, withholding clearly sought responses and instead responding in contrasting ways can begin to introduce dissonance into how the client expects others to act in a relationship, which ultimately supports a healthier attachment style (Skourteli & Lennie, 2010). Although this may raise concerns about creating conflict within the alliance, in the instance that a rupture does occur, repairing it can also be part of the corrective experience aspect of the therapeutic alliance's curative effect (McLaughlin et al., 2014). Just as ruptures should be expected to occur, the client's interpersonal and attachment issues will undoubtedly manifest within the therapeutic alliance (Skourteli & Lennie, 2010). When this happens, the therapist can gently draw their awareness to this in order to resolve these issues both within the client-therapist relationship and in the client's relationships with others (Skourteli & Lennie, 2010).

Reenactments of past traumatic relationship dynamics are also a common occurrence within the transference-countertransference dynamic of the therapeutic alliance (Pearlman & Courtois, 2009). Working with the client to conceptualize these reenactments in an attachment context can lead to a better understanding of their trauma, allow them to practice alternate relationship dynamics, and, ultimately, increase their capacity for emotion regulation and behavior change (Pearlman & Courtois, 2009). As the client experiences a secure, healthy relationship with their therapist, their internal working models that guide perceptions and expectations of themselves and others can be taken apart, analyzed, and reevaluated (Skourteli & Lennie, 2010). In fact, when attachment issues are explicitly addressed through the formation of a strong alliance, the client's attachment style can be strengthened and eventually even change from disrupted to secure (Pearlman & Courtois, 2009). Once the client can securely engage in the alliance, the alliance becomes even stronger due to their comfort with trust and intimacy (Reynolds et al., 2017), which opens up even more opportunities to address interpersonal issues, dissociation, and other PTSD symptoms (Pearlman & Courtois, 2009). Through psychological mechanisms like creating a safe relational environment, directly and indirectly exploring attachment issues, and offering a corrective relationship experience, the therapeutic alliance fosters symptom reduction for PTSD patients.

Neurological Mechanisms: The Neurophysiology of the Therapeutic Alliance

PTSD has wide-reaching impacts on the brain and nervous system. As discussed in Chapter One, brain regions and circuits associated with emotion regulation, sense of self, somatic awareness, and fear conditioning and extinction are dysfunctional in those with PTSD. Nervous system abnormalities lie in the dysregulation of the autonomic nervous system, resulting in a pathological fight/flight/freeze response to trauma triggers. The central neurological feature of

PTSD is a haywire stress response, facilitated by fear circuitry (mainly the hippocampus, amygdala, and medial prefrontal cortex) and overactive autonomic nervous system tone.

Neurological Correlates of the Therapeutic Alliance. The neurological mechanisms underlying the therapeutic alliance are complex and can be thought about in several different ways. To begin breaking this down, it is helpful to understand what neurophysiological activity is correlated with engagement in the therapeutic alliance. In moments of high therapeutic alliance, some brain regions are switched on while others are switched off (Stratford et al., 2009). The parietal cortex is the region that is most strongly activated, likely due to its role in cognitive and emotional insight and attention redirection, both of which are conducive to therapeutic work and trauma processing (Stratford et al., 2009; Stratford et al., 2012). The prefrontal cortex is active as well, working to integrate interpersonal and social behavior, regulate emotions and attachment, access memories, and coordinate cognitive representations of self and others (Stratford et al., 2009). This activation ensures that the prefrontal cortex is not in a state of alarm so that the client can think through the issues they are processing in therapy (Stratford et al., 2012). Temporal regions are attentive but relaxed, remaining in their optimal state to allow other brain regions to process trauma, which underlies the calm and insightful state fostered by the alliance (Stratford et al., 2012). The occipital lobe, on the other hand, is offline during moments of high therapeutic alliance, likely because attention is focused inward as the client is focused on problem solving in the present (Stratford et al., 2009). Further, the interactive affect regulation context of the therapeutic alliance leads to growth in the unconscious right brain where meaning making occurs, allowing clients to make meaning of their world outside of a trauma lens (Stratford et al., 2009). Beyond these regional correlates, mirror neuron activation and changes in oxytocin and cortisol secretion are also associated with the therapeutic alliance (Zilcha-Mano et al., 2019).

Mirror neurons are likely associated with the empathy aspects of the therapeutic alliance, oxytocin may be a correlate of the comfort that results from the alliance, and the change in cortisol levels could be due to alliance-facilitated stress reduction (Zilcha-Mano et al., 2019).

Neural Pathway Changes. From a neurological standpoint, the therapeutic alliance must be in place in order for therapeutic work to be possible due to the impact a lack of safety has on neurological functioning (Allison & Rossouw, 2013). The need for a safe space is rooted in neurobiology, and a good therapeutic alliance is neurobiologically necessary, particularly when treating those with stress circuits that have been impacted by trauma. When a client feels safe in therapy, neural patterns of avoidance and stress are downregulated, allowing them to engage in therapeutic work. The safe environment and corrective emotional experience provided by the therapeutic relationship can also create new neural pathways that may more closely match the open neural firing pattern that should be present for healthy functioning, potentially supporting proficiency in basic skills that were negatively impacted by trauma (Allison & Rossouw, 2013). Mood regulation is one such skill that can be learned this way; the therapist models grounded emotional functioning, which is then integrated on a neural level by the client to support new abilities surrounding emotion regulation (Stratford et al., 2012).

Brain Synchrony. Another way that researchers discuss the neurophysiological correlates of the therapeutic alliance is as synchrony between the brains of the client and therapist. The therapeutic alliance, when viewed through a neural synchrony lens, can be described as a right-brain to right-brain interaction between the client and therapist (Allison & Rossouw, 2013; Stratford et al., 2009). This leads to self-organization of the client's brain, down-regulation of limbic system responses that contribute to PTSD symptoms, and the establishment of safety (Allison & Rossouw, 2013), all of which benefit PTSD treatment.

Engaging in the alliance also facilitates shared neurophysiological activity between the therapist and client, allowing the client to integrate the neural wiring and affective functioning of their therapist, which counteracts their pathological neurophysiological functioning (Stratford et al., 2009). Some researchers have found that this neural synchrony, or inter-brain coupling, may actually be associated with a spontaneous synchronization of body movements that often occurs during therapy (Koole & Tschacher, 2016). They even go so far as to suggest that the alliance itself is a product of this neural synchrony, which occurs naturally in positive interpersonal relationships. Once a certain level of synchrony is established, the alliance forms, and this offers opportunities for joint problem solving, a shared subjective experience, and even affective co-regulation. This level of synchrony supports both implicit and explicit emotion regulation, which facilitates PTSD symptom resolution. Movement synchrony, the basis of this process, strengthens the therapeutic alliance and predicts end of therapy symptom reduction. This understanding of synchrony's role in the therapeutic alliance and in treatment more broadly, called the In-Sync Model, has preliminary supporting evidence, but more research should be conducted to determine the role of neural synchrony in the therapeutic alliance (Koole & Tschacher, 2016).

Nervous System Synchrony. The therapeutic alliance can also be understood as facilitating specific nervous system tone, partially through therapist-client synchrony. This understanding primarily rests upon polyvagal theory, which posits that when the nervous system detects safety, the autonomic nervous system (ANS) falls into an optimal physiological state where defenses are down-regulated and the client can best engage in therapeutic work (Geller & Porges, 2014). In addition to this safety circuit, which is associated with social communication, polyvagal theory describes a defense circuit, which is engaged when an individual detects threat

and may explain the biobehavioral shutdown that occurs following trauma. PTSD can prevent the downregulation of this defense circuit because of a sense that the world is perpetually unsafe, limiting the client's ability to engage in the therapeutic process. The safety circuit has the capacity to inhibit the defensive circuit, and since effective communication can only occur when these defensive mechanisms are inhibited, a safe environment must be established within therapy. As clients spend more time within the safe space of therapy, the neural pathways within the safety circuit strengthen, which in turn allows them to experience a sense of safety and optimal functioning more often. By approaching the therapeutic alliance with therapeutic presence, the therapist engages the client's safety circuit rather than their defense circuit. The therapist also models "neuroception" (Geller & Porges, 2014), the unconscious evaluation of risk that determines if defenses should engage or disengage, for the client so that their nervous system can begin to better detect safety. When the client and therapist share a sense of safety on a neurological level, the therapeutic alliance strengthens and therapy progresses well. Repeated encounters like this eventually train the client's vagal system into a healthier neuroception. Similar to the brain-to-brain coupling model of the therapeutic alliance, the therapist's nervous system remaining in a calm, present state allows the client's nervous system to regulate into a similar state (Geller & Porges, 2014).

State Creation. Some researchers think of the therapeutic alliance's neurological mechanisms as a collaborative state creation process that encourages therapeutic progress. There are a few shared states that could be part of the alliance's effect on treatment. A deep empathic state, facilitated by the limbic region, encourages awareness of others' emotional states and allows the therapist to access their implicit, emotional memory to assist the client in regulating their emotions (Stratford et al., 2012). The alliance can also involve a positive mood regulating

context wherein right-brain development in both the therapist and the client is encouraged (Stratford et al., 2012). A state of critical attunement has also been discussed as a neurological mechanism underlying the alliance, with the highs and lows of the therapist's affective state occurring in resonance with similar states in the client (Stratford et al., 2009). A relaxed state, facilitated by decreased temporal activity across therapy sessions, also contributes to workings of the alliance by making trauma processing possible (Stratford et al., 2009).

Counteraction of PTSD Neuropathology. Likely the strongest neurological mechanism underlying the therapeutic alliance's curative effect is the direct counteraction of PTSD neuropathologies. It is well established that neural firing can be changed from pathological patterns to healthy ones through psychotherapy (Allison & Rossouw, 2013), and even entirely new pathways can be developed that help repair attachment issues (Geller & Porges, 2014). In PTSD psychotherapy, the sense of safety established by the therapeutic alliance downregulates the pathological release of stress response neurotransmitters like adrenaline, cortisol, and norepinephrine, while also up-regulating serotonin, dopamine, and parasympathetic nervous system activity that is typically lacking in PTSD (Allison & Rossouw, 2013). The safety of the therapeutic alliance also addresses the overactivity of the amygdala that is present in PTSD because the client no longer needs to scan their environment for danger (Allison & Rossouw, 2013). The HPA axis, another area whose dysfunction is implicated in PTSD (Aliev et al., 2020), is also downregulated by the environment created by the alliance (Allison & Rossouw, 2013). Progesterone, which restores GABAergic tone after HPA axis activation, may also be increased by the therapeutic alliance (Zilcha-Mano et al., 2019). The controlled incongruence, open neural firing, and enhanced cortical activity involved in the therapeutic alliance all directly oppose pathological patterns of neural activity that are associated with the haywire stress response that

characterizes PTSD (Allison & Rossouw, 2013). Even the controlled stress that can be experienced in therapy, such as during a reenactment or rupture, can actually prevent the activation of this default pathological stress response, leading to symptom reduction (Allison & Rossouw, 2013).

There are many different ways of conceptualizing the therapeutic alliance from a neuroscience perspective, and it is important to remember that these theories are not mutually exclusive. Neural pathway creation, neural synchrony, nervous system tone, state creation, and direct counteraction of pathologies could each be one part of how the therapeutic alliance functions in the brain and body. The neurological mechanisms underlying the therapeutic alliance itself and its effects on treatment outcomes are deeply intertwined with the pathological mechanisms underlying PTSD, offering a clear picture of how the alliance is capable of reducing, or even resolving, symptoms of PTSD.

Resolution of Cognitive and Somatic PTSD Symptoms via the Therapeutic Alliance

When discussing PTSD treatment, it is essential to consider both cognitive and somatic symptoms, as a combination of these must be resolved in order for treatment to be maximally effective. As has been established previously, the therapeutic alliance can both support the efficacy of a specific treatment modality and can address symptoms directly. Thus, breaking down the symptoms that can be addressed by the alliance helps further clarify its role in PTSD psychotherapy.

Cognitive Symptom Resolution

Several cognitive symptoms of PTSD may be resolved by the therapeutic alliance. Interpersonal difficulties that may otherwise interfere with therapy can be repaired or reversed simply through engagement in the therapeutic alliance as a corrective relationship experience

(Cloitre et al., 2004; Lawson et al., 2017). This attachment-correcting aspect of the alliance could also encourage a shift away from trauma-related cognitions related to safety and trust, ultimately helping the client heal from the sense of betrayal that often accompanies trauma. As the therapeutic alliance shifts the client's beliefs surrounding relationships towards the positive and they are able to engage in relationships outside of a trauma lens, their relationships outside of therapy may improve, offering yet another support system as they continue to heal. The alliance also encourages the client to engage in healthy coping mechanisms, such as seeking emotional support from others or venting (Reynolds et al., 2017), which can eventually result in these coping strategies becoming accessible outside of therapy and improving symptoms. Cognitive symptoms that reach beyond the interpersonal realm, such as emotional dysregulation, can be stabilized through the therapeutic alliance (Geller & Porges, 2014). This effect can be explained by the neurological mechanisms underlying the alliance's curative effect, as neurological synchrony with an emotionally regulated therapist eventually improves the client's capacity to regulate on their own. The downregulation of stress and fear circuitry due to the therapeutic alliance could also improve cognitive symptoms of PTSD across the board, reducing the occurrence of flashbacks, the client's sense of hypervigilance, and their cognitive distortions surrounding danger.

Somatic Symptom Resolution

The therapeutic alliance is also capable of resolving somatic symptoms associated with PTSD. The alliance can have a curative impact on a bodily level by relieving the state of anxiety that PTSD clients often live in due to a constant perception of threat, as this anxiety takes a toll on physiological functioning (Stratford et al., 2012). Physiological activation in general, both in response to trauma cues and as a chronic experience, can be reduced by engagement in the

therapeutic alliance (Geller & Porges, 2014). Physiological measures of distress, such as heart rate and skin conductance, indicate that the therapeutic alliance can resolve somatic symptoms (Stratford et al., 2009). When the client's dysregulated nervous system synchronizes with the therapist's settled nervous system through the alliance, the somatic symptoms associated with the fight/flight/freeze response may be reduced. Nervous system synchrony within the therapeutic alliance should also allow the client to spend more time with their nervous system in a PNS state rather than an SNS state and, with practice, may help them build the regulation skills needed to intentionally shift away from SNS activation into a more relaxed PNS state to reduce somatic symptoms. Even the attachment component of the therapeutic alliance may regulate the nervous system within relationship contexts, allowing clients with PTSD to begin to feel physically settled in relationships with others. Further, as cognitive symptoms like anxiety, flashbacks, and hypervigilance improve due to the therapeutic alliance, so too will the somatic symptoms associated with them, such as tenseness, exhaustion, rapid heart rate, and other physical experiences linked to the fight/flight/freeze response.

The Integrative Nature of the Therapeutic Alliance

As discussed in Chapter One, integrative treatments that address both cognitive and somatic symptoms foster maximum PTSD symptom resolution. The therapeutic alliance impacts both the brain and body of the PTSD client (Stratford et al., 2009; Stratford et al., 2012) and exists across physical, emotional, cognitive, and relational dimensions (Geller & Porges, 2014). The alliance itself rests on the engagement of both mind and body (Zaleski et al., 2016), allowing it to resolve both cognitive and somatic symptoms and making it deeply integrative. When it comes to PTSD psychotherapy, typically neurological theories of the disorder inform somatic approaches while psychological theories inform cognitive approaches. The therapeutic alliance,

on the other hand, is integrative to its core, with both cognitive and somatic symptoms resolved through an integration of psychological and neurological mechanisms. These mechanisms are deeply intertwined; attachment theory has its roots in trauma neurobiology, meaning that the psychological and neurological mechanisms of the alliance inform and build upon one another (Reynolds et al., 2017; Allison & Rossouw, 2013). As a result, it is nearly impossible to detangle the symptoms that may be resolved by psychological or neurological mechanisms alone, making the therapeutic alliance inherently integrative in nature. This combination of neural development and cognitive and emotional processing fostered by the therapeutic alliance is precisely what makes it such a key factor in the therapeutic process (Stratford et al., 2012).

The integrative nature of the therapeutic alliance also has implications for PTSD psychotherapy more broadly. While a strong alliance is certainly necessary, it must be combined with a treatment modality in order to produce results (Beierl et al., 2021). Attachment issues and interpersonal difficulties must be resolved alongside other cognitive and somatic symptoms in order for PTSD therapy to be effective (Pearlman & Courtois, 2009). In other words, effective PTSD treatment requires an integration of two integrative components: a therapeutic alliance, which addresses both attachment and interpersonal issues, and an integrative PTSD psychotherapy, which addresses the remaining cognitive and somatic symptoms. The workings of the therapeutic alliance also inform the need for integration in modalities themselves, as its ability to heal trauma on a neurological and psychological level emphasizes the efficacy of bottom-up approaches (Allison & Rossouw, 2013). These approaches begin by focusing on somatic symptoms in order to foster a sense of security, particularly by regulating the nervous system. This allows clients to better engage in trauma processing on a cognitive level later in therapy. The therapeutic alliance mirrors this process of creating a sense of safety as a foundation

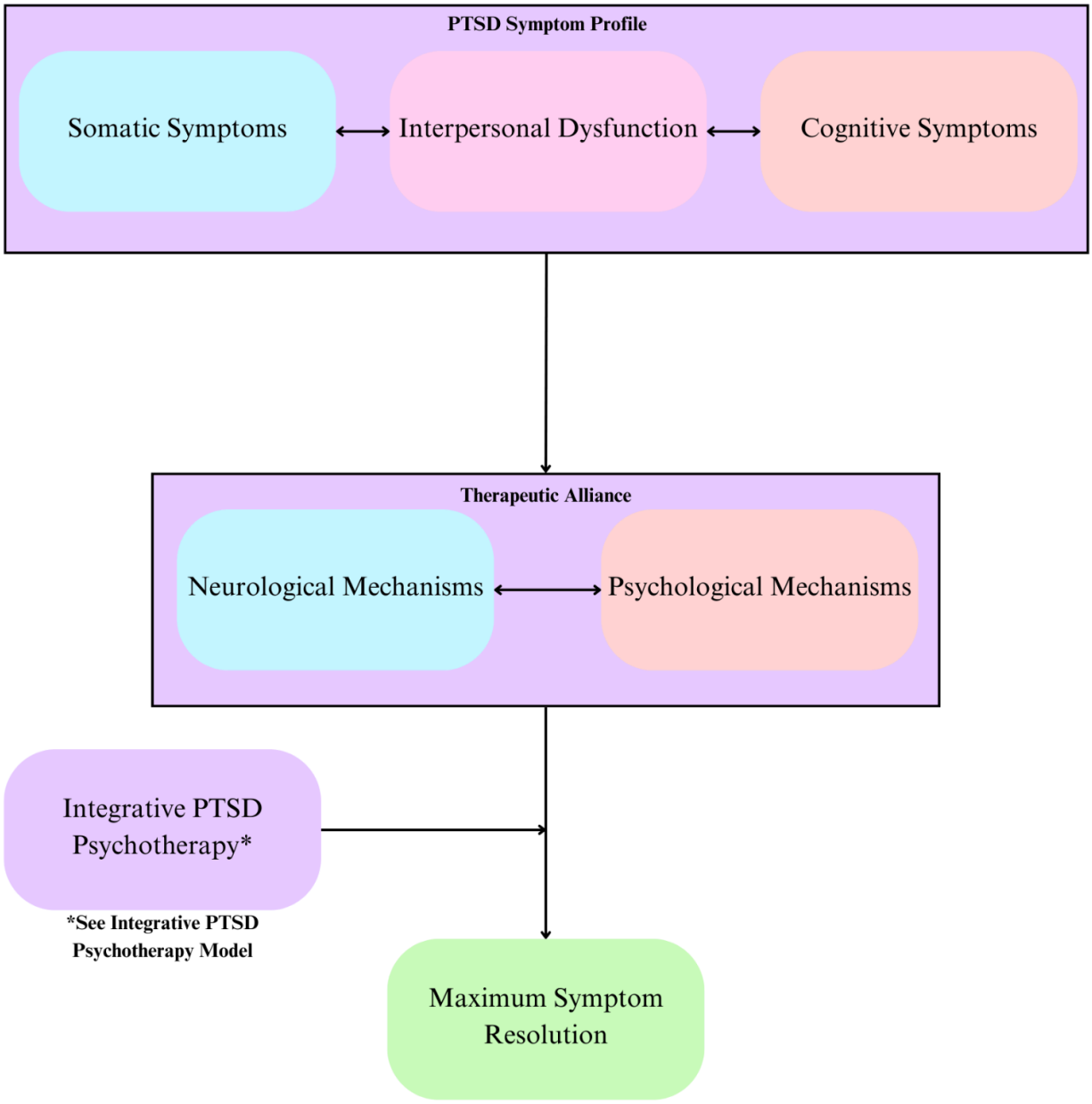
for future therapeutic work, and its efficacy supports the application of this integrative framework to modality-specific treatment components. The mechanisms, role, and efficacy of the therapeutic alliance as an integrative aspect of treatment support the idea that the most effective, holistic treatment for PTSD must be integrative as well (Pearlman & Courtois, 2009).

The Holistic PTSD Treatment Model

In Chapter One, I introduced the Integrative PTSD Psychotherapy Model, which argues for integration as best practice in the treatment of PTSD. When the therapeutic alliance enters the picture, it becomes clear that effective PTSD treatments must be more than simply integrative; they must be holistic. If psychotherapy is viewed as merely a method for resolving symptoms, the relational component that is capable of facilitating incredible healing is neglected, whereas if treatment is approached holistically, individuals with PTSD are able to fully process and heal from trauma. PTSD treatment must treat the client as a whole person, because trauma impacts every aspect of one's being. This means addressing not only cognitive and somatic symptoms, but also interpersonal dysfunction and the interplay between all aspects of the PTSD symptom profile. It also means acknowledging and leaning into the relational aspect of psychotherapy as intrinsic to the therapeutic process, from establishing the framework within which treatment will occur to directly resolving symptoms. Thus, I propose the Holistic PTSD Treatment Model, which places PTSD psychotherapy within the context of the therapeutic alliance rather than the other way around.

Figure 1

The Holistic PTSD Treatment Model



Components in the Holistic PTSD Treatment Model

The Holistic PTSD Treatment Model acknowledges the complexity of the PTSD symptom profile as well as the dual mechanisms of the therapeutic alliance, grounding the larger

mechanics of the model within the nuances of PTSD and its treatment. The concept of integrative PTSD psychotherapy is also given nuance by the inclusion of a reference to the Integrative PTSD Psychotherapy Model, which breaks down how integrative PTSD psychotherapy is achieved and why it is preferable over other types of treatment. The Holistic PTSD Treatment Model lays bare the complexities at play in PTSD treatment in a way that not only supports holistic PTSD treatment as best practice, but is holistic in its approach to doing so.

Treatment Components and Outcome in the Holistic PTSD Treatment Model

The Holistic PTSD Treatment Model also encompasses the therapeutic alliance's dual role in PTSD treatment: it both acts as a prerequisite to the introduction of integrative PTSD psychotherapy and contributes directly to symptom resolution. The therapeutic alliance is capable of addressing cognitive, somatic, and interpersonal symptoms of PTSD in a way that psychotherapy alone cannot, but also must be combined with a specific modality in order to be fully effective. The Holistic PTSD Treatment Model considers the specific modality component of therapy as one crucial part of treatment within the broader context of the therapeutic alliance, drawing attention to the centrality and necessity of the therapeutic alliance to therapeutic success. This is in contrast to the way that the therapeutic alliance is often discussed in PTSD treatment literature, where the alliance, if considered at all, is viewed as important but not necessarily foundational.

Application of the Holistic PTSD Treatment Model

The Holistic PTSD Treatment Model can inform both the creation and practice of PTSD therapies. The model advocates strongly for more explicit attention to the therapeutic alliance, which could be implemented by incorporating time dedicated to building an alliance into new PTSD therapies or setting aside time in therapy before beginning specific treatment methods to

build a strong alliance with the client. The model would demand that researchers consider what specific activities could encourage the creation of a strong therapeutic alliance and what could bolster this relationship at points of potential rupture within the therapy, such as the start of exposure. For therapists practicing existing PTSD therapies, the Holistic PTSD Treatment Model would guide them to prioritize the strength of the alliance and to shift the focus of therapy towards the client as a whole person with whom the therapist has a relationship rather than a set of symptoms that must be resolved through a specific set of therapeutic techniques. I suspect, and hope, that many therapists are intuitively approaching therapy in this way, in which case this model offers scientific backing and a sense of intentionality that may have previously been absent.

The holistic approach offered by the Holistic PTSD Treatment Model would also require that all aspects of the symptom profile be considered when assessing therapeutic outcome, as the client's cognitive, somatic, and interpersonal symptoms all must improve in order for them to fully heal. This could inform new assessment tools for measuring treatment success that would take the impact of the therapeutic alliance into account, ultimately offering a more accurate picture of maximum symptom resolution that could better determine the efficacy of PTSD psychotherapies. This aspect of the model could also encourage therapists to explicitly focus on these dimensions of symptom resolution when checking in on their client's progress and throughout their approach to treatment.

If the Holistic PTSD Treatment Method is broadly applied in both research and clinical settings, the impact on therapeutic outcomes could be significant. Shifting towards a holistic approach would mean that clients are able to access treatment that is more effective, affirming, and personalized than what is currently available. When traumatized clients are seen and treated

as their whole selves and therapy is approached with specific techniques nestled within an explicitly relational context, healing can happen more completely and comfortably. Trauma's impact permeates all aspects of life, and any therapy that fails to completely address and resolve this impact is doing a disservice to those seeking treatment. A disorder that holistically impacts the client demands a holistic approach to treatment; the Holistic PTSD Treatment Model makes this explicit and provides a path towards best practice.

Discussion

Limitations

The Holistic PTSD Treatment Model is not without its limitations. Firstly, the research that supports the model is based on multiple types of trauma. Much of the research on the importance of therapeutic alliance in PTSD treatment focuses on complex and/or interpersonal trauma, so this model may be more accurate for these types of trauma than for PTSD stemming from non-interpersonal, non-complex traumatic events. Secondly, this model does not consider cultural factors that may influence the formation of the therapeutic alliance and the role it plays in therapy. There is a great deal of research on the impact of cultural differences on psychotherapeutic efficacy and the alliance itself, the complexities of which are beyond the scope of this paper. Integrating a cultural component would further strengthen this model. Thirdly, the Holistic PTSD Treatment Model currently focuses only on one-on-one exposure therapies, but there are many other kinds of treatment that could be considered. As discussed in Chapter One, there is moderate evidence supporting the efficacy of non-trauma-focused treatments. There are also group therapies for PTSD, non-manualized treatments, and many other ways to approach working with traumatized clients that are not represented in the current model. Finally, this model incorporates another model, the Integrative PTSD Psychotherapy Model,

which has its own limitations. Were this model to falter based on its limitations, the validity of the Holistic PTSD Treatment Model would also be compromised.

Future Directions

There are several ways that the Holistic PTSD Treatment Model could be improved and expanded. Firstly, more research, both quantitative and qualitative, could be conducted to determine the direction of causality in the alliance-outcome relationship. Better understanding how the alliance seems to be contributing to therapeutic outcomes, especially given its multiple roles in the therapeutic process, would illuminate the mechanisms underlying the Holistic PTSD Treatment Model. Secondly, specific methods for building a strong therapeutic alliance could be developed. Although some research explores how best to facilitate the formation of an alliance, clearer guidance surrounding this process, especially with trauma survivors, could improve the quality of both therapy and research. These methods could eventually be incorporated into new treatments for PTSD or used to reduce variance when studying alliance formation, ultimately improving the research that supports the Holistic PTSD Treatment Model. Thirdly, the model would be greatly improved by the consideration of additional factors that influence the alliance in PTSD treatment. In particular, as mentioned previously, trauma type and culture may impact the formation of the alliance and as such should be incorporated into the Holistic PTSD Treatment Model. It is crucial to understand whether best practice looks different based on whether the trauma being treated is complex and interpersonal, like childhood sexual abuse, or stemming from a single event, like a natural disaster. Cultural differences may also influence the form that best practice in PTSD psychotherapy takes and must be considered to ensure that the Holistic PTSD Treatment Model is broadly applicable or, if it is not, to inform adjustments that could be made to the model to improve its effectiveness across cultures.

Embracing Relational Aspects of Psychotherapy

Research on psychotherapy tends to view the human aspect of therapy as mere variation or a confound that threatens the integrity of findings. However, the humanness of therapy is crucial to its efficacy, and the world of clinical psychology must embrace this. Therapy works precisely because of the presence of another person, the healing power of basic human connection, and the affirmation and support that can only be provided in relationship with others. If specific methods were adequate treatment on their own, all clients could expect full recovery through independently reading and incorporating techniques in manuals. This is not always the case; therapy often requires a relationship, and this need is not a weakness or something that can or should be eliminated. Holistic treatment approaches do not set human connection aside in their quest to resolve symptoms, opting instead to center treatment within a relational context that treats the client as a whole person. People heal with other people, and this is no less true when it comes to professional help. Accepting and incorporating this fact into treatment approaches will make them more endurable and effective, ultimately shifting the world of psychotherapy to better meet fundamental needs of the clinical population.

References

Aliev, G., Beeraka, N. M., Nikolenko, V. N., Svistunov, A. A., Rozhnova, T., Kostyuk, S., ... & Kirkland, C. E. (2020). Neurophysiology and psychopathology underlying PTSD and recent insights into the PTSD therapies—a comprehensive review. *Journal of clinical medicine*, *9*(9), 2951.

Allison, K. L., & Rossouw, P. J. (2013). The therapeutic alliance: Exploring the concept of "safety" from a neuropsychotherapeutic perspective. *International Journal of Neuropsychotherapy*, *1*(1), 21-29.

American Psychiatric Association. (2020). *What Is PTSD?* Psychiatry.org; American Psychiatric Association.

American Psychiatric Association. (2022). Posttraumatic Stress Disorder. In *Diagnostic and statistical manual of mental disorders* (5th ed., text rev.).

Beierl, E. T., Murray, H., Wiedemann, M., Warnock-Parkes, E., Wild, J., Stott, R., ... & Ehlers, A. (2021). The relationship between working alliance and symptom improvement in cognitive therapy for posttraumatic stress disorder. *Frontiers in Psychiatry*, *12*, 602648.

Borja, S. E., Callahan, J. L., & Long, P. J. (2006). Positive and negative adjustment and social support of sexual assault survivors. *Journal of Traumatic Stress: Official Publication of The International Society for Traumatic Stress Studies*, *19*(6), 905-914.

Brewin, C. R., & Holmes, E. A. (2003). Psychological theories of posttraumatic stress disorder. *Clinical psychology review*, *23*(3), 339-376.

Brom, D., Stokar, Y., Lawi, C., Nuriel‐Porat, V., Ziv, Y., Lerner, K., & Ross, G. (2017). Somatic experiencing for posttraumatic stress disorder: A randomized controlled outcome study. *Journal of traumatic stress*, *30*(3), 304-312.

Buchholz, J. L., & Abramowitz, J. S. (2020). The therapeutic alliance in exposure therapy for anxiety-related disorders: A critical review. *Journal of Anxiety Disorders*, *70*, 102194.

Chard, K. M., Ricksecker, E. G., Healy, E. T., Karlin, B. E., & Resick, P. A. (2012). Dissemination and experience with cognitive processing therapy. *Journal of Rehabilitation Research & Development*, *49*(5).

Chen, J. A., Fortney, J. C., Bergman, H. E., Browne, K. C., Grubbs, K. M., Hudson, T. J., & Raue, P. J. (2020). Therapeutic alliance across trauma-focused and non-trauma-focused psychotherapies among veterans with PTSD. *Psychological services*, *17*(4), 452.

Church, D., Hawk, C., Brooks, A. J., Toukolehto, O., Wren, M., Dinter, I., & Stein, P. (2013). Psychological trauma symptom improvement in veterans using emotional freedom techniques: a randomized controlled trial. *The Journal of nervous and mental disease*, *201*(2), 153-160.

Cloitre, M., Chase Stovall-McClough, K., Miranda, R., & Chemtob, C. M. (2004). Therapeutic alliance, negative mood regulation, and treatment outcome in child abuse-related posttraumatic stress disorder. *Journal of consulting and clinical psychology*, *72*(3), 411.

Dalenberg, C. J. (2004). Maintaining the safe and effective therapeutic relationship in the context of distrust and anger: Countertransference and complex trauma. *Psychotherapy: Theory, Research, Practice, Training*, *41*(4), 438.

Deacon, B. J., & Farrell, N. R. (2013). Therapist barriers to the dissemination of exposure therapy. In *Handbook of treating variants and complications in anxiety disorders* (pp. 363-373). New York, NY: Springer New York.

Doukas, A., D'Andrea, W., Doran, J., & Pole, N. (2014). Psychophysiological predictors of

working alliance among treatment‐seeking women with complex trauma exposure. *Journal of traumatic stress*, *27*(6), 672-679.

Ehring, T., Welboren, R., Morina, N., Wicherts, J. M., Freitag, J., & Emmelkamp, P. M. (2014). Meta-analysis of psychological treatments for posttraumatic stress disorder in adult survivors of childhood abuse. *Clinical psychology review*, *34*(8), 645-657.

Ellis, A. E., Simiola, V., Brown, L., Courtois, C., & Cook, J. M. (2018). The role of evidence-based therapy relationships on treatment outcome for adults with trauma: A systematic review. *Journal of Trauma & Dissociation*, *19*(2), 185-213.

Feinstein, D. (2008). Energy psychology: A review of the preliminary evidence. *Psychotherapy: Theory, Research, Practice, Training*, *45*(2), 199.

Feinstein, D. (2010). Rapid treatment of PTSD: why psychological exposure with acupoint tapping may be effective. *Psychotherapy: Theory, Research, Practice, Training*, *47*(3), 385.

Filipas, H. H., & Ullman, S. E. (2001). Social reactions to sexual assault victims from various support sources. *Violence and victims*, *16*(6), 673.

Fisher, J. (2019). Sensorimotor psychotherapy in the treatment of trauma. *Practice Innovations*, *4*(3), 156.

Fitzpatrick, S. S., Liebman, R. E., Monson, C. M., & Resick, P. A. (2023). Latent emotion profiles of PTSD and specific emotions predicting differential therapy outcomes in a dismantling study of cognitive processing therapy. *Journal of Anxiety Disorders*, *95*, 102681.

Geller, S. M., & Porges, S. W. (2014). Therapeutic presence: neurophysiological mechanisms

mediating feeling safe in therapeutic relationships. *Journal of Psychotherapy Integration*, *24*(3), 178.

Grabbe, L. (2020). Trauma Resiliency Model® therapy. *Psychotherapy for the Advanced Practice Psychiatric Nurse: A How-To Guide for Evidence-Based Practice*, 441.

Grabbe, L., & Miller-Karas, E. (2018). The trauma resiliency model: a "bottom-up" intervention for trauma psychotherapy. *Journal of the American Psychiatric Nurses Association*, *24*(1), 76-84.

Harvey, A. G., Bryant, R. A., & Tarrier, N. (2003). Cognitive behaviour therapy for posttraumatic stress disorder. *Clinical psychology review*, *23*(3), 501-522.

Hase, M., & Brisch, K. H. (2022). The therapeutic relationship in EMDR therapy. *Frontiers in Psychology*, *13*, 835470.

Held, P., Meade, E. A., Kovacevic, M., Smith, D. L., Pridgen, S., Coleman, J. A., & Klassen, B. J. (2022). Building strong therapeutic relationships quickly: The effect of the perceived working alliance on veterans' intensive PTSD treatment outcomes. *Psychotherapy*.

Hoppen, T. H., Jehn, M., Holling, H., Mutz, J., Kip, A., & Morina, N. (2023). The efficacy and acceptability of psychological interventions for adult PTSD: A network and pairwise meta-analysis of randomized controlled trials. *Journal of Consulting and Clinical Psychology*.

Howard, R., Berry, K., & Haddock, G. (2022). Therapeutic alliance in psychological therapy for posttraumatic stress disorder: A systematic review and meta‐analysis. *Clinical Psychology & Psychotherapy*, *29*(2), 373-399.

Katz, A. C., Norr, A. M., Buck, B., Fantelli, E., Edwards-Stewart, A., Koenen-Woods, P., ... &

Andrasik, F. (2020). Changes in physiological reactivity in response to the trauma memory during prolonged exposure and virtual reality exposure therapy for posttraumatic stress disorder. *Psychological Trauma: Theory, Research, Practice, and Policy*, *12*(7), 756.

Kaukinen, C., & DeMaris, A. (2009). Sexual assault and current mental health: The role of help-seeking and police response. *Violence against women*, *15*(11), 1331-1357.

Keller, S. M., Zoellner, L. A., & Feeny, N. C. (2010). Understanding factors associated with early therapeutic alliance in PTSD treatment: adherence, childhood sexual abuse history, and social support. *Journal of consulting and clinical psychology*, *78*(6), 974.

Kimbley, C. T., Cox, D. W., Kahn, J. H., & Renshaw, K. D. (2023). Feeling pressured to talk about trauma: How pressure to disclose alters the association between trauma disclosure and posttraumatic growth. *Journal of Traumatic Stress*.

Koole, S. L., & Tschacher, W. (2016). Synchrony in psychotherapy: A review and an integrative framework for the therapeutic alliance. *Frontiers in psychology*, *7*, 862.

Kuhfuß, M., Maldei, T., Hetmanek, A., & Baumann, N. (2021). Somatic experiencing–effectiveness and key factors of a body-oriented trauma therapy: a scoping literature review. *European journal of psychotraumatology*, *12*(1), 1929023.

Lambert, M. J., & Barley, D. E. (2001). Research summary on the therapeutic relationship and psychotherapy outcome. *Psychotherapy: Theory, research, practice, training*, *38*(4), 357.

Lanius, R. A., Vermetten, E., Loewenstein, R. J., Brand, B., Schmahl, C., Bremner, J. D., & Spiegel, D. (2010). Emotion modulation in PTSD: Clinical and neurobiological evidence for a dissociative subtype. *American journal of psychiatry*, *167*(6), 640-647.

Larsen, S. E., Fleming, C. J., & Resick, P. A. (2019). Residual symptoms following empirically

supported treatment for PTSD. *Psychological Trauma: Theory, Research, Practice, and Policy*, *11*(2), 207.

Lawson, D. M., Skidmore, S. T., & Akay‐Sullivan, S. (2020). The influence of trauma symptoms

on the therapeutic alliance across treatment. *Journal of Counseling & Development*, *98*(1), 29-40.

Lawson, D. M., Stulmaker, H., & Tinsley, K. (2017). Therapeutic alliance, interpersonal relations, and trauma symptoms: Examining a mediation model of women with childhood abuse histories. *Journal of Aggression, Maltreatment & Trauma*, *26*(8), 861-878.

Lilienfeld, S. O. (2007). Psychological treatments that cause harm. *Perspectives on psychological science*, *2*(1), 53-70.

Lowe, S. R., Blachman-Forshay, J., & Koenen, K. C. (2015). Trauma as a public health issue: Epidemiology of trauma and trauma-related disorders. In U. Schnyder & M. Cloitre (Eds.), *Evidence based treatments for trauma-related psychological disorders: A practical guide for clinicians.* (pp. 11–40). Springer International Publishing/Springer Nature.

MacNamara, A., Rabinak, C. A., Kennedy, A. E., Fitzgerald, D. A., Liberzon, I., Stein, M. B., & Phan, K. L. (2016). Emotion regulatory brain function and SSRI treatment in PTSD: neural correlates and predictors of change. *Neuropsychopharmacology*, *41*(2), 611-618.

Mahoney, D., & Markel, B. (2016). An integrative approach to conceptualizing and treating complex trauma. *Psychoanalytic Social Work*, *23*(1), 1-22.

Maren, S., Phan, K. L., & Liberzon, I. (2013). The contextual brain: implications for fear

conditioning, extinction and psychopathology. *Nature reviews neuroscience*, *14*(6), 417-428.

McLaughlin, A. A., Keller, S. M., Feeny, N. C., Youngstrom, E. A., & Zoellner, L. A. (2014). Patterns of therapeutic alliance: Rupture–repair episodes in prolonged exposure for posttraumatic stress disorder. *Journal of consulting and clinical psychology*, *82*(1), 112.

McLean, C. P., & Foa, E. B. (2011). Prolonged exposure therapy for post-traumatic stress disorder: A review of evidence and dissemination. *Expert review of neurotherapeutics*, *11*(8), 1151-1163.

McNally, R. J., Bryant, R. A., & Ehlers, A. (2003). Does early psychological intervention promote recovery from posttraumatic stress?. *Psychological science in the public interest*, *4*(2), 45-79.

Norr, A. M., Smolenski, D. J., Katz, A. C., Rizzo, A. A., Rothbaum, B. O., Difede, J., ... & Reger, G. M. (2018). Virtual reality exposure versus prolonged exposure for PTSD: Which treatment for whom?. *Depression and Anxiety*, *35*(6), 523-529.

Ogden, P., & Minton, K. (2000). Sensorimotor psychotherapy: One method for processing traumatic memory. *Traumatology*, *6*(3), 149-173.

Pearlman, L. A., & Courtois, C. A. (2005). Clinical applications of the attachment framework: Relational treatment of complex trauma. *Journal of Traumatic Stress: Official Publication of The International Society for Traumatic Stress Studies*, *18*(5), 449-459.

Reynolds, C., Simms, J., Webb, K., Corry, M., McDermott, B., Ryan, M., ... & Dyer, K. F. (2017). Client factors that predict the therapeutic alliance in a chronic, complex trauma sample. *Traumatology*, *23*(4), 294.

Risan, P., Binder, P. E., & Milne, R. (2016). Regulating and coping with distress during police

interviews of traumatized victims. *Psychological trauma: theory, research, practice, and policy*, *8*(6), 736.

Rich, K., & Seffrin, P. (2012). Police interviews of sexual assault reporters: Do attitudes matter?. *Violence and victims*, *27*(2), 263-279.

Shapiro, R., & Brown, L. S. (2019). Eye movement desensitization and reprocessing therapy and related treatments for trauma: An innovative, integrative trauma treatment. *Practice Innovations*, *4*(3), 139.

Shifrin, A., Sharma, S., Zeifman, R. J., Roth, M. L., Gifford, S., & Monson, C. M. (2023). Posttraumatic stress disorder treatment preference: Prolonged exposure therapy, cognitive processing therapy, or medication therapy?. *Psychological Services*, *20*(3), 474.

Sijercic, I., Liebman, R. E., Stirman, S. W., & Monson, C. M. (2021). The effect of therapeutic alliance on dropout in cognitive processing therapy for posttraumatic stress disorder. *Journal of traumatic stress*, *34*(4), 819-828.

Skourteli, M. C., & Lennie, C. (2010). The therapeutic relationship from an attachment theory perspective. *Counselling psychology review*, *26*(1), 20-33.

Solomon, E. P., & Heide, K. M. (2005). The biology of trauma: Implications for treatment. *Journal of interpersonal violence*, *20*(1), 51-60.

Stingl, M., Hanewald, B., Kruse, J., & Sack, M. (2021). Positive side effects in trauma-focusing PTSD treatment: Reduction of attendant symptoms and enhancement of affective and structural regulation. *Psychological Trauma: Theory, Research, Practice, and Policy*, *13*(6), 713.

Stratford, T., Lal, S., & Meara, A. (2009). Neurophysiology of therapeutic alliance. *Gestalt Journal of Australia and New Zealand*, *5*(2), 19-47.

Stratford, T., Lal, S., & Meara, A. (2012). Neuroanalysis of therapeutic alliance in the symptomatically anxious: The physiological connection revealed between therapist and client. *American Journal of Psychotherapy*, *66*(1), 1-21.

Thompson-Hollands, J., Lunney, C. A., Sloan, D. M., Wiltsey Stirman, S., & Schnurr, P. P. (2023). Treatment length and symptom improvement in prolonged exposure and present-centered therapy for posttraumatic stress disorder: Comparing dose–response and good-enough level models in two manualized interventions. *Journal of Consulting and Clinical Psychology*.

Van der Kolk, B. A. (2006). Clinical implications of neuroscience research in PTSD. *Annals of the New York Academy of Sciences*, *1071*(1), 277-293.

Van der Kolk, B. (2014). The body keeps the score: Brain, mind, and body in the healing of trauma. *New York*, *3*.

Vasquez, M. J. (2007). Cultural difference and the therapeutic alliance: an evidence-based analysis. *American Psychologist*, *62*(8), 878.

Wampold, B. E. (2019). A smorgasbord of PTSD treatments: What does this say about integration?. *Journal of Psychotherapy Integration*, *29*(1), 65.

Zaleski, K. L., Johnson, D. K., & Klein, J. T. (2016). Grounding Judith Herman's trauma theory within interpersonal neuroscience and evidence-based practice modalities for trauma treatment. *Smith College Studies in Social Work*, *86*(4), 377-393.

Zalta, A. K., Gillihan, S. J., Fisher, A. J., Mintz, J., McLean, C. P., Yehuda, R., & Foa, E. B. (2014). Change in negative cognitions associated with PTSD predicts symptom reduction in prolonged exposure. *Journal of consulting and clinical psychology*, *82*(1), 171.

Zilcha-Mano, S., Roose, S. P., Brown, P. J., & Rutherford, B. R. (2019). Not just nonspecific

factors: the roles of alliance and expectancy in treatment, and their neurobiological underpinnings. *Frontiers in behavioral neuroscience*, *12*, 293.

Appendix

Posttraumatic Stress Disorder Diagnostic Criteria in the DSM-5-TR

Posttraumatic Stress Disorder in Individuals Older Than 6 Years

Note: The following criteria apply to adults, adolescents, and children older than 6 years. For children 6 years and younger, see corresponding criteria below.

A. Exposure to actual or threatened death, serious injury, or sexual violence in one (or more) of the following ways:

1. Directly experiencing the traumatic event(s).
2. Witnessing, in person, the event(s) as it occurred to others.
3. Learning that the traumatic event(s) occurred to a close family member or close friend. In cases of actual or threatened death of a family member or friend, the event(s) must have been violent or accidental.
4. Experiencing repeated or extreme exposure to aversive details of the traumatic event(s) (e.g., first responders collecting human remains; police officers repeatedly exposed to details of child abuse).

   Note: Criterion A4 does not apply to exposure through electronic media, television, movies, or pictures, unless this exposure is work related.

B. Presence of one (or more) of the following intrusion symptoms associated with the traumatic event(s), beginning after the traumatic event(s) occurred:

1. Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s).

   Note: In children older than 6 years, repetitive play may occur in which themes or aspects of the traumatic event(s) are expressed.

2. Recurrent distressing dreams in which the content and/or affect of the dream are related to the traumatic event(s).

   Note: In children, there may be frightening dreams without recognizable content.

3. Dissociative reactions (e.g., flashbacks) in which the individual feels or acts as if the traumatic event(s) were recurring. (Such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of present surroundings.)

   Note: In children, trauma-specific reenactment may occur in play.

4. Intense or prolonged psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).
5. Marked physiological reactions to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).

C. Persistent avoidance of stimuli associated with the traumatic event(s), beginning after the traumatic event(s) occurred, as evidenced by one or both of the following:

1. Avoidance of or efforts to avoid distressing memories, thoughts, or feelings about . or closely associated with the traumatic event(s)
2. Avoidance of or efforts to avoid external reminders (people, places, conversations, activities, objects, situations) that arouse distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).

D. Negative alterations in cognitions and mood associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:

1. Inability to remember an important aspect of the traumatic event(s) (typically due to dissociative amnesia and not to other factors such as head injury, alcohol, or drugs).

2. Persistent and exaggerated negative beliefs or expectations about oneself, others, or the world (e.g., "I am bad," "No one can be trusted," "The world is completely dangerous," "My whole nervous system is permanently ruined").
3. Persistent, distorted cognitions about the cause or consequences of the traumatic event(s) that lead the individual to blame himself/herself or others.
4. Persistent negative emotional state (e.g., fear, horror, anger, guilt, or shame).
5. Markedly diminished interest or participation in significant activities.
6. Feelings of detachment or estrangement from others.
7. Persistent inability to experience positive emotions (e.g., inability to experience happiness, satisfaction, or loving feelings).

E. Marked alterations in arousal and reactivity associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:

1. Irritable behavior and angry outbursts (with little or no provocation) typically expressed as verbal or physical aggression toward people or objects.
2. Reckless or self-destructive behavior.
3. Hypervigilance.
4. Exaggerated startle response.
5. Problems with concentration.
6. Sleep disturbance (e.g., difficulty falling or staying asleep or restless sleep).

F. Duration of the disturbance (Criteria B, C, D, and E) is more than 1 month.

G. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

H. The disturbance is not attributable to the physiological effects of a substance (e.g., medication, alcohol) or another medical condition.

Specify whether:

With dissociative symptoms: The individual's symptoms meet the criteria for posttraumatic stress disorder, and in addition, in response to the stressor, the individual experiences persistent or recurrent symptoms of either of the following:

1. **Depersonalization:** Persistent or recurrent experiences of feeling detached from, and as if one were an outside observer of, one's mental processes or body (e.g., feeling as though one were in a dream; feeling a sense of unreality of self or body or of time moving slowly).

2. **Derealization:** Persistent or recurrent experiences of unreality of surroundings (e.g., the world around the individual is experienced as unreal, dreamlike, distant, or distorted).

Note: To use this subtype, the dissociative symptoms must not be attributable to the physiological effects of a substance (e.g., blackouts, behavior during alcohol intoxication) or another medical condition (e.g., complex partial seizures).

Specify if:

With delayed expression: If the full diagnostic criteria are not met until at least 6 months after the event (although the onset and expression of some symptoms may be immediate).

Posttraumatic Stress Disorder in Children 6 Years and Younger

A. In children 6 years and younger, exposure to actual or threatened death, serious injury, or sexual violence in one (or more) of the following ways:

1. Directly experiencing the traumatic event(s).

2. Witnessing, in person, the event(s) as it occurred to others, especially primary caregivers.
3. Learning that the traumatic event(s) occurred to a parent or caregiving figure.

B. Presence of one (or more) of the following intrusion symptoms associated with the traumatic event(s), beginning after the traumatic event(s) occurred:

1. Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s).

   Note: Spontaneous and intrusive memories may not necessarily appear distressing and may be expressed as play reenactment.
2. Recurrent distressing dreams in which the content and/or affect of the dream are related to the traumatic event(s).

   Note: It may not be possible to ascertain that the frightening content is related to the traumatic event.
3. Dissociative reactions (e.g., flashbacks) in which the child feels or acts as if the traumatic event(s) were recurring. (Such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of present surroundings.) Such trauma-specific reenactment may occur in play.
4. Intense or prolonged psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).
5. Marked physiological reactions to reminders of the traumatic event(s).

C. One (or more) of the following symptoms, representing either persistent avoidance of stimuli associated with the traumatic event(s) or negative alterations in cognitions and mood associated with the traumatic event(s), must be present, beginning after the event(s) or worsening after the event(s):

Persistent Avoidance Of Stimuli

1. Avoidance of or efforts to avoid activities, places, or physical reminders that arouse recollections of the traumatic event(s).
2. Avoidance of or efforts to avoid people, conversations, or interpersonal situations that arouse recollections of the traumatic event(s).

Negative Alterations in Cognitions

3. Substantially increased frequency of negative emotional states (e.g., fear, guilt, sadness, shame, confusion).
4. Markedly diminished interest or participation in significant activities, including constriction of play.
5. Socially withdrawn behavior.
6. Persistent reduction in expression of positive emotions.

D. Alterations in arousal and reactivity associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:

1. Irritable behavior and angry outbursts (with little or no provocation) typically expressed as verbal or physical aggression toward people or objects (including extreme temper tantrums).
2. Hypervigilance.
3. Exaggerated startle response.
4. Problems with concentration.
5. Sleep disturbance (e.g., difficulty falling or staying asleep or restless sleep).

E. The duration of the disturbance is more than 1 month.

F. The disturbance causes clinically significant distress or impairment in relationships with parents, siblings, peers, or other caregivers or with school behavior.

G. The disturbance is not attributable to the physiological effects of a substance (e.g., medication or alcohol) or another medical condition.

Specify whether:

With dissociative symptoms: The individual's symptoms meet the criteria for posttraumatic stress disorder, and the individual experiences persistent or recurrent symptoms of either of the following:

1. **Depersonalization:** Persistent or recurrent experiences of feeling detached from, and as if one were an outside observer of, one's mental processes or body (e.g., feeling as though one were in a dream; feeling a sense of unreality of self or body or of time moving slowly).

2. **Derealization:** Persistent or recurrent experiences of unreality of surroundings (e.g., the world around the individual is experienced as unreal, dreamlike, distant, or distorted).

Note: To use this subtype, the dissociative symptoms must not be attributable to the physiological effects of a substance (e.g., blackouts) or another medical condition (e.g., complex partial seizures).

Specify if:

With delayed expression: If the full diagnostic criteria are not met until at least 6 months after the event (although the onset and expression of some symptoms may be immediate).