The Impact of Self-Compassion on Engagement During a Writing Exposure Session for Posttraumatic Stress

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ABSTRACT

THE IMPACT OF SELF-COMPASSION ON ENGAGEMENT DURING A WRITING EXPOSURE SESSION FOR POSTTRAUMATIC STRESS

Jessica R. Ellem, Ph.D.
Department of Psychology
Northern Illinois University, 2023
David P. Valentiner, Director

Posttraumatic stress disorder (PTSD) affects 6-17% of college students in the United States, which can negatively impact academic achievement and is associated with other emotional difficulties. Exposure therapy, including written exposure therapy as been found to be efficacious for treating. However, concerns of treatment dropout and low symptom improvement are barriers to treatment success. Experiential avoidance in treatment has been problematic and may influence outcomes. The current study sought to reduce the use of experiential avoidance in exposure sessions through the promotion of self-compassion, an extension of kindness, humanity and mindfulness to the self. Furthermore, the current study also examined the impact of self-compassion induction on self-reported PTSD symptoms. The study recruited introductory psychology students who had PTSD symptoms following exposure to a traumatic event and randomly assigned these participants to two groups: an exposure-with-self-compassion component group and an exposure-only group. Using PROCESS mediation analysis, the main findings indicated that the self-compassion intervention was not effective in increasing state self-compassion and was not associated with any notable changes in state experiential avoidance. However, both conditions showed improvement in PTSD symptoms, providing support for written exposure treatment.
THE IMPACT OF SELF-COMPASSION ON ENGAGEMENT DURING A WRITING EXPOSURE SESSION FOR POSTTRAUMATIC STRESS

BY
JESSICA R. ELLEM

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A DISSERTATION SUBMITTED TO THE GRADUATE SCHOOL IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE DOCTOR OF PHILOSOPHY

DEPARTMENT OF PSYCHOLOGY

Doctoral Director:
David P. Valentiner
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CHAPTER 1
INTRODUCTION AND LITERATURE REVIEW

Exposure to traumatic events among college students is fairly high (67-84%; Read et al., 2011), and estimates of subsequent development of posttraumatic stress disorder (PTSD) range from 6-17% (Lauterbach & Vrana, 2001; Marx & Sloan, 2003; McDevitt-Murphy et al., 2007; Smyth et al., 2008; Read et al., 2011; Twamley et al., 2004). Psychopathological consequences such as PTSD have a negative impact on academic success (Bruffaerts et al., 2018) as well as the development of other mental health difficulties including excessive alcohol consumption (Read et al., 2014; Tripp et al., 2015), depression (Boyraz et al., 2015), and emotion dysregulation (Boden et al., 2013; Tripp et al., 2015). Exposure-based therapy, which requires clients to confront feared stimuli (Hembree et al., 2003; Norton & Price, 2007), has been effective in reducing PTSD symptomatology (Cooper & Clum, 1989; Foa et al., 1999; Hembree et al., 2003; Resick et al., 2002; Taylor et al., 2001). Despite its efficacy, many individuals undergoing evidence-based treatment for PTSD do not experience clinically significant symptom reduction (Marker et al., 2019), and many do not complete treatment (McDonagh et al., 2005). These issues necessitate further research into the continued development of evidence-based interventions. Self-compassion, the extension of kindness, humanity, and mindfulness to the self (Neff, 2011), offers a potential way to increase the efficacy of exposure therapy. Self-compassion, when paired with exposure-based therapy, may help to facilitate engagement in exposure treatment, leading to increased effectiveness and retention.
The current study was designed to serve two purposes. First, the study primarily sought to determine whether promoting self-compassion during an empirically-supported exposure writing exercise for PTSD would be associated with higher engagement. The second purpose was to ascertain whether self-compassion reduced subsequent self-reported posttraumatic stress symptoms (PTSS).

To provide a context for the current study, this text begins with a literature review followed by a delineation of study hypotheses and a description of study methods. The literature review will first present descriptive and epidemiological information on PTSD followed by a review of emotion processing therapy (Foa & Kozak, 1986; Lang, 1979) and inhibitory learning (Craske et al., 2008). Next, a review of exposure therapy and issues associated with exposure-based treatment will be presented. Lack of treatment engagement will be identified as a potential mechanism to explain why some patients do not succeed in treatment. This discussion will follow with a rationale for how the construct of experiential avoidance is a reasonable proxy for measuring engagement in treatment. A review of the existing research on self-compassion, its relationship with the aforementioned constructs, and how it may improve upon exposure treatment will then be presented. Following the literature review, the design of the current study (including a priori hypotheses and methods) and results will be presented followed by a discussion.

Existing research in the extant self-compassion and written exposure therapy (Sloan & Marx, 2019) literatures strongly suggests that a session of written exposure that is preceded by a self-compassion induction will increase engagement compared to one that is not. Because engagement in treatment is thought to improve PTSD symptomatology (Jaycox et al., 1998; Rauch et al., 2018), the exposure with self-compassion condition used in this study was expected
to be associated with lower PTSS at follow-up compared to the exposure-only condition. Figure 1 illustrates the expected relationships among the study variables.

Figure 1. Model of hypothesized relationships among variables of interest.

Note: Covariates not shown

Posttraumatic Stress Disorder

PTSD is characterized by prolonged emotional and behavioral reactions to a traumatic event, as defined by the American Psychiatric Association (2013). Although diagnostic criteria have fluctuated over time, traumatic events commonly include physical or sexual violence, combat, accidents, and natural disasters among other categories. Symptoms interfere with daily functioning and include intrusive memories, avoidance, negative changes in thinking and mood, and changes in physical and emotional reactions.

Following exposure to a traumatic event, 7% of adults worldwide meet criteria for PTSD (Winders et al., 2020). Others (8-15%) that have experienced trauma may develop persistent
posttraumatic stress symptoms (PTSS) that do not meet full diagnostic criteria for PTSD (Benjet et al., 2016; Bistricky et al., 2017; Kilpatrick et al., 2013; Winders et al., 2020).

College students are an at-risk population that suffers from context-specific consequences (e.g., dropping out of school) as a result of PTSD and other mental health issues. Mental illness is highly prevalent among college students (Eisenberg et al., 2012; Dschaak et al., 2019; Kessler et al., 2017; Liu et al., 2018), and exposure to traumatic events among college students is high (Read et al., 2011) with estimates of subsequent development of PTSD among trauma-exposed students ranging from 6-17% (Lauterbach & Vrana, 2001; Marx & Sloan, 2003; McDevitt-Murphy et al., 2007; Smyth et al., 2008; Read et al., 2011; Twamley et al., 2004). Psychopathology such as PTSD may negatively impact academic achievement (Bruffaerts et al., 2018) and school retention (Hartley, 2010). PTSD has also been associated with emotion regulation difficulties (Boden et al., 2013; Tripp et al., 2015; Tull, Barrett, et al., 2007) and depression symptoms (Boyraz et al., 2015) among college students.

Multiple research groups have proposed explanatory theories describing the underlying mechanisms behind the development and maintenance of PTSD. These theories include, but are not limited to, emotion processing theory (EPT; Foa & Kozak, 1986; Lang, 1979), inhibitory learning model (ILM; Craske et al., 2008), dual representation theory (Brewin & Joseph, 1996), the meaning making model (Park & Folkman, 1997), and the cognitive model of PTSD (Ehlers & Clark, 2000). These theories have developed over time, building on one another and adding to the field’s working knowledge of PTSD. The following review describes EPT (Foa & Kozak, 1986) as well as the ILM (Craske et al., 2008) as these theories specifically relate to exposure therapy.
Emotion Processing Theory and Inhibitory Learning Model

EPT (Foa & Kozak, 1986; Foa & Rothbaum, 1998; Foa et al., 1989; Lang 1977, 1979) builds on Mowrer’s theory (1951) that when a neutral stimulus has been paired with an aversive stimulus, avoidance of the neutral stimulus prevents the extinction of fear. EPT is one of the most commonly-cited theories that explains how people recover from fear through exposure therapy and how exposure treatments work.

In the context of PTSD specifically, EPT posits that the memories of the trauma are not adequately processed, leading to symptoms (Winders et al., 2020). EPT is rooted in Lang’s (1977, 1979) bioinformational conceptualization of fear, which suggests that pathological fear is represented in memory as a fear network that includes information about the feared stimuli or situation (i.e., the traumatic event), responses (e.g., behavioral, physiological, and verbal), and the meaning associated with the situation (Foa & Kozak, 1986). Reduction of PTSS requires that individuals who experience a traumatic event reconcile what information was presented by the trauma with what they knew previously.

When traumatic memories are not processed, a fear structure develops (Foa & Kozak, 1986). Stimuli associated with the traumatic event will activate the fear network, bringing about hyperarousal. Individuals will then avoid the associated stimuli in order to avoid the feeling of fear. However, this avoidance then maintains fear of the stimuli over time, and then fear and avoidance generalize to unrelated stimuli, maintaining PTSS (Polusny & Follette, 1995; Rosenthal et al., 2005; Thompson & Waltz, 2010; Varra & Follette, 2005). EPT (Foa & Kozak, 1986; Lang, 1979) describes how avoidance precludes processing and how approach facilitates...
processing. Approach and avoidance impact whether supportive or corrective information is integrated into memory, leading to alterations in the fear structure.

One of the key contributions of EPT is the proposal that response elements, such as racing heart, are central to the fear structure. By implication, the theory emphasizes the importance of the ways in which individuals think about their physiological, affective, cognitive, and behavioral responses during both the trauma and recall of the trauma. EPT will be discussed further as a mechanism through which exposure therapy operates (see the Exposure Therapy section below).

Since the dissemination of EPT as an explanatory model of fear maintenance and recovery, additional evidence in the literature has necessitated some revisions. Specifically, elements of exposure therapy (e.g., degree of fear reduction, level of distress at the end of session) as it was commonly described and implemented are considered important indicators of extinction of the fear association but may not predict therapeutic success (Craske et al., 2008). The ILM (Craske et al., 2008) adds that fear associations may spontaneously recover because safety associations have not been adequately strengthened beyond the fading of fear associations, and the previously mentioned indicators do not demonstrate sufficient development of safety associations. The ILM (Craske et al., 2008) attempted to address issues associated with exposure therapy and EPT.

Building upon EPT, ILM proposes strategies to develop learning of new safety associations in conjunction with corrective information about the danger of feared stimuli. These strategies, which are used to enhance retrieval of the learned associations, include increased variability, altering the exposure schedule, varying the contexts of exposure, and use of retrieval cues (Weisman & Rodebaugh, 2018). The strategy of increasing the variability in the experience
of the stimuli during exposure involves making changes to certain characteristics of the feared stimuli (Craske et al., 2008; Craske et al., 2014; Weisman & Rodebaugh, 2018). This strategy requires that during exposure, facilitators alter the duration, difficulty, and number/type of stimuli, to increase the generalizability of learning (Schmidt & Bjork, 1992; Weisman & Rodebaugh, 2018). The strategy of altering the exposure schedule has been recommended as well in order to allow for more time to successfully retrieve new learned associations (Bjork & Bjork, 1992). Evidence on the effectiveness of this strategy is mixed as there is variability across studies as to how intensive, or massed, exposures are defined and difficulties accounting for other therapeutic experiences that may occur between regularly scheduled exposure sessions (Weisman & Rodebaugh, 2018). The strategy of varying the contexts in which exposure occurs (e.g., exposure in a therapy room versus an outside environment) has also been suggested to help generalize learning to other contexts, but more research is needed to determine this strategy’s effectiveness. The strategy of the use of retrieval cues as they relate to safety associations as opposed to fear associations in exposure may additionally be helpful; however, further research is needed as some researchers suggest that these retrieval cues may function as safety behaviors (Weisman & Rodebaugh, 2018).

A broad understanding of EPT and ILM, specifically, is important to this study because EPT explains the process by which people fail to resolve PTSS following a traumatic event. This information was useful in developing interventions, specifically exposure-based treatments, which are designed to reduce fear of associated stimuli. Despite the promise of exposure treatments, issues still remain (to be discussed in the Issues with Exposure Therapy section below). The ILM did improve upon EPT’s initial conceptualization of how fear responses develop and improve in reaction to certain stimuli through the development of safety
associations, but there are still mixed findings about the effectiveness of the strategies suggested. Although it was beyond the scope of the current study to address all issues with exposure-based treatments, it may be possible to improve upon the efficacy of exposure through increasing engagement in session. Both EPT and ILM maintain that for exposure to work, the fear structure must be activated, which requires experiential engagement. Engagement with the trauma memory with the absence of lasting aversive consequences constitutes corrective information that can modify the fear structure and may aid in developing the necessary safety associations for lasting improvement.

Exposure Therapy

Exposure-based therapy involves confronting feared stimuli that may include memories, situations, objects, sensations, and images (Hembree et al., 2003; Norton et al., 2011; Norton & Price, 2007). Exposure therapy has been successfully applied to an array of disorders (Conley et al., 2019; Fisher & Wells, 2005; Hembree et al., 2003; Norton et al., 2011; Norton & Price, 2007), demonstrating estimated efficacy rates in up to 85% of clients (Abramowitz, 2006; Foa et al., 2005; Simpson et al., 2013). For example, in a study of the efficacy of prolonged exposure therapy for PTSD in almost 2,000 veterans (Eftekhari et al., 2013), there was an over 40% reduction in the number of patients who met criteria for PTSD from pre- to post-treatment. Overall, exposure-based therapies are considered an effective method for treating various psychological disorders including PTSD.

Elements of exposure therapy are common to many PTSD therapeutic interventions including prolonged exposure therapy (PE; Foa et al., 2007), narrative exposure therapy (Schauer et al., 2011), and written exposure therapy (WET; Sloan & Marx, 2019). Exposure therapy in
PTSD treatment often involves repetitive confrontation of the traumatic memory and related situations and stimuli, both imaginal and in vivo (Hembree et al., 2003). Multiple studies have shown exposure therapy to effectively reduce the severity of PTSS across various traumas including combat (Cooper & Clum, 1989; Keane et al., 1989), rape and nonsexual assault (Foa et al., 1999; Resick et al., 2002), and other types of events (Devilly & Spence, 1999; Marks et al., 1998; Taylor et al., 2001). Despite clinical assumptions that exposure may be too difficult for clients (Becker et al., 2004; Eftekhari et al., 2020; Najavits, 2015; Ruzek et al., 2014; van Minnen et al., 2010), evidence suggests that the absence of a trauma-focus within therapeutic treatment for PTSD often results in poorer outcomes despite these therapies potentially being more “tolerable” (Bisson et al., 2013; Bradley et al., 2005; Jonas et al., 2013; Lewis et al., 2020).

**Emotion Processing Theory, Inhibitory Learning, and Exposure for PTSD**

EPT, the theory most commonly associated with exposure therapy, is important for understanding why exposure is effective (Wisco et al., 2016). According to Foa and Kozak (1986), emotion processing is the continuous alteration of the fear structure. Thus, according to EPT, activation of the fear structure during exposure is considered essential for treatment outcomes (Borkovec & Sides, 1979; Foa & Kozak, 1986; Jaycox et al., 1998; Kozak et al., 1988; Lang et al., 1970; Watson & Marks, 1971). As Lang’s (1977, 1979) bioinformational theory of emotion would suggest, fear associated with a traumatic event is represented in memory through feared stimuli, responses, and their respective meanings (Foa et al., 1989; Foa et al., 1995). Exposure is thought to be successful because it provides corrective information to the fear structure. The fear structure must be accessed in order for extinction learning (i.e., inhibitory learning) to occur (Benito & Walther, 2015; Foa et al., 1986). Yet, simply activating fear in
response to triggering stimuli is not enough for exposure to be effective, but rather exposure must be repeated, prolonged, and controlled for participants to learn, alter the structure of their fear, and extinguish fear (Foa et al., 1986; Price et al., 2011). Learning, specifically inhibitory learning, is arguably a key component in reducing anxiety following exposure therapy (Curreri et al., 2020; Craske et al., 2014).

ILM (Craske et al., 2008; Craske et al., 2014) built upon EPT in suggesting that it is not enough to just activate and process trauma memories, but safety must also be associated with previously feared stimuli for exposure success. ILM proposes that the feared stimulus following exposure has both the original, fear-based meaning and the inhibitory, safety-based meaning (Weisman & Rodebaugh, 2018). Following corrective information, new associations (i.e., the feared stimulus is not dangerous) are eventually incorporated with previously learned associations (i.e., the feared stimulus is dangerous; Curreri et al., 2020; Craske et al., 2014; Sloan & Marx, 2004).

This learning may also be associated with changes in cognition regarding fear. As one learns that the stimulus is not dangerous, changes in thinking about the stimulus can arise, reminiscent of cognitive models of PTSD (Ehlers & Clark, 2000). However, because the stimulus still maintains the original association, spontaneous recovery of the association can occur; when previous associations are not eliminated or reduced substantially, they can re-emerge (Weisman & Rodebaugh, 2018). This re-emergence suggests the importance of the development of safety-based associations to inhibit fear associations (Craske et al., 2008; Craske et al., 2014; Weisman & Rodebaugh, 2018).

The duration of exposure trials necessary to achieve results varies in different treatment protocols, but it remains consistent that exposure often needs to be of sufficient trial duration and
without in-session avoidance. For example, the prolonged exposure protocol (Foa et al., 2007) suggests approximately eight sessions, and WET (Sloan & Marx, 2019) specifies five sessions. Regarding when change occurs through exposure sessions, studies have been conducted recently on exposure therapy to address this question. Although within-session change may occur during treatment, it is not considered a sole indicator of growth in PTSD treatment (Rauch et al., 2018; Wisco et al., 2016). Wisco and colleagues (2016) investigated the relationship among fear activation and both within-session and between-session change in physiological arousal as a response to WET using hierarchical linear modeling. Findings indicated that fear activation and self-reported arousal between sessions rather than actual physiological arousal was significantly related to treatment outcomes. Although subject to error in interpretation, it is important to note that within-session change of self-reported arousal was not associated with treatment outcomes in this study.

However, it has been empirically suggested (with exceptions, see review by Craske et al., 2008) that within-session habituation may underlie between-session changes (Norton et al., 2011). One study (Rauch et al., 2018) used virtual reality exposure for PTSD and examined subjective units of distress (SUDS) ratings throughout treatment. Results indicated that both the number of treatment sessions as well as time in session were significant negative predictors of SUDS scores. Across sessions, engagement often increased within session; fear habituation and extinction also increased across sessions. These findings overall suggest that engagement as a within-session variable may help to drive overall between-session treatment gains. Considering these findings and the overall importance of fear activation for successful exposure treatment, it is important to examine means of increasing engagement in session.
Engagement and Exposure

Before discussing engagement within exposure further, it is important to distinguish between different forms of engagement. In some treatment research, engagement is thought of as more directly observable behaviors such as completion of homework assignments, shared decision making, and change talk (Glenn et al., 2013). Although these behaviors might reflect or indirectly tap into engagement, the term “engagement” in the proposed study concerns engaging in an exposure session in an experiential way (e.g., confronting or engaging with negative thoughts, feelings, and environmental stimuli).

Engagement during exposure is thought to be an important mechanism for PTSD recovery (Foa & Kozak, 1986; Horowitz, 1986; Jaycox et al., 1998; Rubenstein, 2003; van Minnen & Hagenaars, 2002). In a study (Jaycox et al., 1998) of 37 female sexual assault victims, results using hierarchical linear modeling suggested that participants who demonstrated higher initial activation and greater between-session habituation were more likely to achieve lower scores on depression and anxiety measures as well as report reductions in PTSD symptoms of at least 50%. In this particular study, fear was measured through SUDS ratings. Fear activation is sometimes operationalized as initial or peak reported SUDS (Benito & Walther, 2015). A more recent study (Rubenstein, 2003) analyzed SUDS among 18 adults with PTSD in cognitive behavioral treatment. Results found that higher levels of emotional activation (thought of as engagement) in the first session in addition to habituation was associated with better treatment outcomes. Similarly, in an earlier study of female assault victims with PTSD (Foa et al., 1995), facial expression analyses indicated that fearful expressions during initial exposure to the memory were correlated with positive treatment outcomes. These studies use indicators of fear
activation, which is not necessarily synonymous with engagement. However, it is important to consider these results as experiential engagement may be a contributing factor in activation.

Because activation in treatment appears to lead to better treatment outcomes in PTSD research, and because engagement is necessary for activation, the current study intended to examine a method to increase engagement in an exposure session. The extant literature suggests that engagement is an important mechanism for change but is still limited. In research on participants with obsessive compulsive disorder, conditions that promoted attention on the feared stimuli rather than distraction conditions (e.g., playing video games simultaneously) were associated with lower subjective anxiety between-sessions (Grayson et al., 1982). Although these findings were not replicated in a later study (Grayson et al., 1986), heart rate was observed to remain elevated in the distraction condition. Telch and colleagues’ (2004) study on a claustrophobic sample found that although attempts to increase fear activation in exposure were unsuccessful, distraction during exposure sessions resulted in poorer outcomes. These studies suggest that a lack of experiential engagement, demonstrated by methods to distract from the feared stimuli, attenuates symptom reduction in non-PTSS samples. Concerning PTSS, engagement with the trauma memory is an important component of exposure treatment, as when the memory is more vivid, the fear structure is more activated, which is related to improved outcomes (Foa et al., 1995; Jaycox et al., 1998; Lang et al., 1998; Rauch et al., 2004).

Vividness during exposure is one way engagement and activation have been operationalized. Some researchers have looked at vividness of the trauma memory during exposure and the association it has with PTSS related outcomes. Rauch et al. (2004) asked female assault survivors about vividness and SUDS during an imaginal exposure session approximately every ten minutes. Early in exposure treatment, vividness ratings and SUDS
rating were highly correlated. Over time, these correlations, as well as both SUDS and vividness ratings, decreased. In later exposure sessions, vividness was not significantly related to treatment outcomes like SUDS ratings, which was unexpected. In a replication and extension (Mota et al., 2015), similar variables were examined in a sample of both men and women with comorbid PTSD and substance use. Findings indicated that vividness during exposure was negatively associated with post-treatment PTSD scores even after considering SUDS scores. Additionally, vividness later in treatment was more important to outcomes than early vividness scores. These findings support the results from a prior study (Hackmann et al., 2004) that vividness and distress associated with the traumatic memories decreased following treatment. Vividness may change over the course of treatment because participants who are more engaged at the start of treatment may be more likely to experience the required fear activation for exposure to work. Participants may be less avoidant of the traumatic memory, creating a more vivid memory with which to engage. Thus, these participants make greater gains in treatment. The memory becomes less distressing and less important as treatment goes on, resulting to lower SUDS ratings later in treatment.

Currently, it remains unclear how to increase engagement during treatment. Reducing experiential avoidance may provide a method to increase engagement. Experiential avoidance, to be discussed, could be a hindering factor in engagement in exposure therapy (Conley et al., 2019) and may be exhibited through the cognitive, emotional, and/or behavioral avoidance of the trauma memory and associated stimuli. If the propensity to avoid the traumatic memory can be reduced prior to starting the first exposure session, then treatment gains may be greater over time. As will be described later, self-compassion might reduce experiential avoidance of the
trauma memory, allowing for increased engagement in the exposure session, leading to greater between session gains.

**Written Exposure Therapy**

The current study used WET as the exposure intervention. Thus, a brief description of WET and the literature on the efficacy and outcomes of written exposure follows. Rooted in studies on the benefits of expressive writing (Pennebaker, 1997; Pennebaker & Beall, 1986) and developed by Sloan and Marx (2019; most recent protocol), WET is a five-session, exposure-based treatment. In each session, individuals participate in a structured writing activity for approximately 30-minutes per session. Each writing prompt requests that the individual detail their traumatic experience from beginning to end, including thoughts and emotions experienced during the event. After each session, therapists provide feedback to the individual in order to facilitate expanding and processing their ideas.

In general, disclosure of stressful experiences through writing has been shown to have both physical and mental health benefits (Boals; 2012: Frattaroli, 2006; Konig et al., 2014; Pennebaker & Beall, 1986). In one study conducted by Konig and colleagues (2014) with a predominately female sample of over 200 college students, physical and mental health outcomes among participants following emotional disclosure writing were compared to outcomes following writing about a neutral topic. Findings demonstrated that trauma, depression, and physical illness symptoms decreased in both writing conditions, but only participants in the emotional disclosure group maintained improvements at their one-month follow-up. This study’s results converged with findings from Pennebaker and Beall (1986), who studied writing groups focused on both the facts and emotions associated with participants’ trauma. The authors
concluded that writing about trauma shows positive short-term increases in both physiological and self-reported arousal. Additionally, results of writing about trauma were associated with decreases in health problems in the following six months as measured by reported health center visits. These findings also converge with findings from Smyth (1998) that emotional expression through writing led to significant health benefits and improvement compared to a control group. Smyth (1998) suggested that written disclosure (i.e., emotional disclosure or expressive writing) may affect outcomes through the promotion of cognitive changes. In essence, writing about an emotional experience may help participants make sense of an event, which can lead to positive symptom change. The idea of emotional healing through writing has been applied specifically to trauma experiences through WET (Sloan et al., 2012).

WET is a treatment for PTSD that has been shown to lead to significant reductions in PTSD symptom severity (Rauch & Rothbaum, 2016; Sloan et al., 2012). In a recent study (Thompson-Hollands et al., 2018), WET was compared to cognitive processing therapy (CPT; Resick & Schnicke, 1993), which is an evidence-based cognitive therapy protocol for the treatment of PTSD. The study by Thompson-Hollands and colleagues examined long-term gains in PTSD and depression symptoms among 126 civilians and veterans that were randomized to either receive CPT or WET. WET demonstrated sustained effects for one-year post-treatment. Although CPT was associated with more rapid gains, both CPT and WET treatment groups showed substantial decreases in PTSS and depression through a 60-week assessment. Although the mechanisms through which these two treatment protocols lead to symptom improvement may differ, findings indicate that WET yields promising treatment results that are comparable to CPT.
As previously mentioned, emotion processing theory is one of the most cited theories associated with exposure therapy (Wisco et al., 2016). Exposure is one of the primary mechanisms that Sloan and Marx (2019) suggest as an explanation for WET’s effectiveness. Writing about the traumatic experience exposes participants to their memory of the event, leading the memory to become less aversive. A WET session, like other exposure sessions, brings about the novel experience of habituation (i.e., being in the presence of the fear stimulus and experiencing decreasing anxiety and discomfort). The new information is incompatible with the previous association, providing corrective information about the stimuli, its meaning, and the response to the stimuli (Sloan & Marx, 2004).

For exposure therapy to be effective, it is necessary to achieve a sufficient degree of initial fear activation (Wisco et al., 2016). As previously discussed, Wisco and colleagues (2016) investigated the relationship among initial fear activation, within-session change (i.e., change in fear during a therapy session), and between-session change (i.e., change in fear between therapy sessions). They examined indicators of physiological arousal related to the use of WET with motor vehicle accident survivors. Findings indicated that WET allows participants to achieve the initial fear activation necessary for exposure to be effective. Wisco’s (2016) results support the conclusions drawn from prior findings of Guastella and Dadds (2006) who observed improved outcomes between sessions of WET. In written emotional disclosure therapy, findings have also indicated an association between heart rate and therapeutic outcomes (Epstein et al., 2005; Konig et al., 2014; Sloan & Marx, 2004; Sloan et al., 2005). Specifically, there is greater initial heart rate activation in writing about an emotional topic over a neutral topic, and greater heart rate
activity in emotional disclosure was associated with reduced depression (Epstein et al., 2005; Konig et al., 2014). Based on the combination of these findings, WET can be expected to sufficiently activate the fear structure, which is necessary for exposure to be effective, leading to improved PTSS outcomes.

Written exposure treatments, such as WET, seem to involve mechanisms similar to those underlying PE (Foa et al., 2007), such as habituation and extinction (Reinhold et al., 2018). In writing about traumatic experiences, participants confront the memory and its triggers, which could lead to habituation and extinction or inhibitory learning (Rankin et al., 2009; Reinhold et al., 2018) as explained by EPT (Foa & Kozak, 1986; Lang 1977; 1979). As such, WET is an appropriate representative of exposure-based intervention for the present study.

**Issues with Exposure Therapy**

**Dropout**

Despite the efficacy of exposure therapy, premature dropout and significant post-treatment distress remain concerns for some clients. Among CBT-based treatments (including exposure-based), dropout is common (Marker et al., 2019; Swift & Greenberg, 2012). Regarding therapeutic treatments designed for addressing trauma, the existing literature on dropout rates is mixed. For example, according to meta-analyses by Bradley et al. (2005) and Hembree et al. (2003) assessing PTSD clinical trials, dropout rates across trauma-focused treatment modalities were about 20%. In a meta-analysis of 42 studies conducted by Imel et al. (2013), no significant differences in dropout rates were found across PTSD treatments, including PE and CPT (18% on average across treatments). Yet, in a larger meta-analysis of 115 studies (Lewis et al., 2020),
trauma-focused therapies including PE, CPT, and WET were found to be associated with greater dropout rates compared to non-trauma focused therapies (e.g., supportive counseling, interpersonal psychotherapy, present-centered therapy, etc.). Confronting traumatic stimuli could be considered demanding for a client, which has been suggested to result in dropout (Lewis et al., 2020; Pitman et al., 1991; Tarrier et al., 1999). Because of concerns about this demand (Becker et al., 2004; Hembree et al., 2003; Najavits, 2015; Ruzek et al., 2014; van Minnen et al., 2010), clinicians are often hesitant about using trauma-focused therapies, including exposure therapy (Becker et al., 2004; Cook et al., 2017; van Minnen et al., 2010) and attempt to use certain patient characteristics (e.g., multiple traumas, higher severity of symptoms, etc.) at their own discretion to determine if patients can tolerate exposure treatment (Eftekhar et al., 2020).

In addition to meta-analyses that concentrated on the presence of a trauma focused treatment, research on dropout rates in exposure-based trauma treatment compared to non-exposure trauma treatments are also somewhat varied. When considering only exposure-based trauma treatments, dropout rates have reportedly ranged from 0% (Neuner et al., 2008) to 41% (McDonagh et al., 2005), but a similar gap is present in treatments that are not trauma-focused (0% - 48%; Cottraux et al., 2008; Schaal et al., 2009). Swift and Greenberg (2012, 2014) demonstrated through moderation analyses that no significant differences in dropout were found between CBT, humanistic, psychodynamic, integrative, supportive, or solution-focused therapies (e.g., 17% - 21%) and that clients’ rationale for dropping out of treatment is more strongly related to other therapy factors (e.g., therapist or client characteristics) rather than treatment approach. These findings suggest that there may not be anything specific to trauma-based, exposure treatments that leads to increased dropout. In support of this idea, Hembree and colleagues (2003) conducted a literature search on 25 CBT-based treatments for PTSD. Findings
yielded comparable dropout rates among treatment modalities (20.5% from exposure treatments, 22.1% from cognitive therapy or stress inoculation training, 26.9% from combinations of exposure and other CBT techniques, and 18.9% from eye movement desensitization training), suggesting there are no notable differences in dropout between exposure-based and non-exposure-based treatments. Based on the findings on dropout rates in trauma-focused and exposure-based treatments compared to their counterparts, more research should be conducted to clarify the impact of trauma-focus and exposure on retention. Nevertheless, dropout among exposure-based trauma treatments could be improved.

In addition to the form of treatment as a potential factor influencing treatment retention, there are mixed findings on whether patient characteristics influence dropout as well (van Minnen et al., 2002). Some studies have found no differences in demographic variables between those who complete treatment and those who do not (Marks et al., 1998; van Minnen et al., 2002; Tarrier et al., 1999). The review conducted by Lewis and colleagues (2020) found no evidence of significantly greater dropout in studies based on gender, education, method of recruitment, or trauma type. However, in samples of veterans being treated with PE, there is evidence to suggest that younger veterans were more likely to drop out of treatment than older veterans (Eftekhari et al., 2020; Garcia et al., 2011; Goodson et al., 2017; Kehle-Forbes et al., 2016; Mott et al., 2014). Beyond trauma-based treatments, this finding is seemingly consistent with various types of therapeutic treatments for PTSD (Eftekhari et al., 2020; Lu et al., 2011). The present study targeted a younger sample (e.g., college students), and thus findings from this study was thought to possibly increase retention in exposure treatments among younger populations.

It is also possible that initial experiential engagement influences dropout. As previously mentioned, fear activation is considered a necessary component to successful treatment
(Borkovec & Sides, 1979; Foa & Kozak, 1986; Jaycox et al., 1998; Kozak et al., 1988; Lang et al., 1970; Watson & Marks, 1971). In a study of over 100 outpatient participants with anxiety, Norton and colleagues (2011) found those who experienced less initial fear activation were more likely to drop out. Although it is unclear what barriers prevented the initial fear activation in this study, this finding suggests the potential importance of early engagement in exposure treatment. Specifically, if individuals engage in experiential avoidance tactics during treatment, the initial fear activation may not occur, which may prevent treatment gains and contribute to dropout. Consistent with this notion, a study by Bellau (et al., 2017) on anxiety sensitivity and PE dropout found that pre-treatment interventions that address anxiety sensitivity and cognitive flexibility could improve retention rates for those with high anxiety. Experiential avoidance can be viewed as a form of cognitive inflexibility (Bardeen & Fergus, 2016), and addressing experiential avoidance prior to exposure sessions may help with initial engagement.

**Symptom Improvement**

Related to dropout, another issue of exposure treatment is lack of improvement. A significant number of clients do not respond to CBT-based treatments despite their efficacy (Arch & Craske, 2009; Kirby, 2016; Marker et al., 2019). For example, even though reductions in PTSD symptoms are observed in treatment, disruptions in quality of life may still occur following treatment (Schnurr et al., 2003; Seligowski et al., 2014). According to existing research, there is not one singular reason for lack of significant improvement. Both treatment-related factors (e.g., poorly conducted exposure, inappropriate dose, etc.) and client-related factors (e.g., comorbidities, low motivation, etc.) could be responsible for lack of progress in any given session (Glenn et al, 2013).
One potential client-related factor that could be a barrier to treatment success in exposure therapy is experiential engagement. Several studies have suggested that those who engage in treatment have better outcomes (Kamphuis & Telch, 2000; Norton et al., 2011; Price et al., 2011). In a sample of 106 outpatient anxiety participants, findings indicated that participants who had higher initial activation and habituation across exposure sessions demonstrated significantly greater improvement over clients who only had moderate activation and did not habituate (Norton et al., 2011). Activation was presumed to indicate engagement. Another study (Kamphuis & Telch, 2000) found that sustained attention (i.e., continued focus on stimuli), a potential indicator of engagement, on threatening stimuli during exposure was associated with improved response to treatment. In support of the Kamphius and Telch (2000) findings, avoidance of attention to anxiety-provoking stimuli in treatment has also been associated with poorer outcomes among those with social phobia (Price et al., 2011). These findings point to the importance of initial engagement in treatment in improving outcomes.

As demonstrated by the collective findings on dropout and improvement, there are still lingering issues in retention and treatment response that may be improved by increasing experiential engagement. Increasing engagement in exposure could be achieved by reducing experiential avoidance (Conley et al., 2019), meaning that one would be less avoidant of negative internal experiences that might interfere with initial fear activation and habituation to trauma-related stimuli. Improved initial engagement would then theoretically lead to increases in symptom improvement and retention (Bellau et al., 2017; Kamphuis & Telch, 2000; Norton et al., 2011; Price et al., 2011; Telch et al., 2004).
Experiential Avoidance

Many of the theories explaining the development of PTSD include a component of avoidance, suggesting its importance as a maintaining factor of PTSS. Although avoidance can be adaptive at times (Dinis et al., 2015; Kashdan et al., 2006), avoidance as a rigid method for dealing with negative experiences can exacerbate the symptoms of PTSD an individual is attempting to avoid. This avoidance is associated with long-term negative effects (e.g., emotional distress, increased symptoms; Badour et al., 2012; Bardeen & Fergus, 2016). Yet, because avoidance alleviates distress in the short-term, reducing reliance on avoidance can be challenging (Abramowitz & Moore, 2007; Bardeen & Fergus, 2016; Blackledge & Hayes, 2001; Dinis et al., 2015). Experiential avoidance (EA; Hayes, 2004) is one form of avoidance that operates similarly by providing temporary relief from distress but exacerbating symptoms long term. EA has been connected as both a risk and maintaining factor of PTSS (Blackledge, 2004; Cameron et al., 2010; Ghafoori, 2018; Orcutt et al., 2005; Orcutt et al., 2020; Roemer et al., 2005; Rosenthal et al., 2006). EA has also been shown to be a measurable construct of engagement in therapeutic sessions (Conley et al., 2019), demonstrating EA’s relevance to the proposed study.

EA is conceptualized as an unwillingness to engage with internal experiences (i.e., thoughts, feelings) by using maladaptive coping strategies to avoid them (Bardeen & Fergus, 2016; Hayes et al., 1996). Hayes and colleagues (2006) proposed six interrelated processes that interact to contribute to psychological inflexibility, a central component of acceptance and commitment. EA is thought to be one of these processes (Bardeen & Fergus, 2016). Engaging in EA, a form of psychological inflexibility, often means there is substantial effort to control how and when negative internal experiences occur (Dinis et al., 2015; Hayes, 1994). There are many
forms that EA could take, such as dissociation, thought suppression, and suppression of emotional expression (Hayes et al., 1996; Hayes et al., 2004; Valentiner et al., 2006). These coping styles have been shown to be associated with PTSS (Bryant & Harvey, 1995; Ehlers et al., 1998; Jacobsen et al., 2002, Orcutt et al., 2005; Purdon, 1999; Sharkansky et al., 2000; Steil & Ehlers, 2000).

Relationship to PTSD

Orcutt and colleagues (2020) discussed three possible models for the EA relationship with PTSD: common cause, predisposition, and pathoplasticity. The common cause model refers to the idea that both EA and PTSD have similar origins, but EA does not necessarily lead to PTSD and vice versa. The predisposition model, akin to the diathesis-stress model (Klein et al., 2011), suggests that EA and PTSD have distinct, although perhaps overlapping, etiologies and that EA causes or exacerbates PTSD (Orcutt et al., 2020). Finally, the pathoplasticity model suggests that EA does not necessarily cause the development of PTSD (as proposed by the predisposition model) but does propose that EA shapes the presentation of PTSD in its symptomatology and treatment response.

Multiple studies have examined PTSD and EA to understand the relationship between the two constructs. Findings from one study (Orcutt et al., 2005) of over 200 college students that measured EA through questionnaires suggested that engaging in suppression and avoidance tactics was associated with higher levels of PTSS. Mediation analyses indicated that EA partially mediated the relationship between trauma exposure and PTSD symptomatology, suggesting that EA may be a partial explanation for the development of PTSD symptoms. A separate study (Palm & Follette, 2011) assessed EA in 248 female participants (Age $M = 24.5$) who had a
history of personal victimization. Findings showed that EA was not only significantly correlated with PTSD severity, but EA may also explain the relationship between overall cognitive flexibility (i.e., other elements of psychological flexibility excluding EA) and PTSD severity. The findings from these studies do not illustrate causality; however, EA does seem to be an important construct for understanding the onset of PTSD. Furthermore, EA is thought to help maintain PTSS long term because EA strategies substantially decrease the opportunity to learn new safety associations (Blackledge, 2004; Thompson & Waltz, 2010), an important component for lasting improvement according to inhibitory learning (Craske et al., 2008; Weisman & Rodebaugh, 2018).

EA itself may also be reduced through exposure therapy because exposure approaches are contrary to avoidance (Orcutt et al., 2020). In a series of case studies (Ghafoori, 2018) of five participants with comorbid PTSD and Generalized Anxiety Disorder (GAD), decreases in self-reported PTSS, GAD, and depression at a one-month follow-up were observed in all participants in addition to reported decreases in EA in four of the five participants following participation in PE. This finding converges previous research in which 165 adults with PTSD and alcohol-dependence demonstrated improvements in avoidant coping after participating in both PE and supportive counseling for alcohol use (Zang et al., 2017).

**Engagement in Treatment**

Considering that exposure therapy (among other therapeutic interventions) requires emotional and cognitive engagement in the treatment, the use of EA strategies may disrupt session effectiveness. Clients ceasing the use of maladaptive EA coping strategies during sessions may increase engagement with trauma-related stimuli, leading to improved outcomes.
A recent study (Conley et al., 2019) considered the role of EA in an exposure task related to obsessive-compulsive (OC) contamination concerns. The study specifically considered the impact of facets of EA from the Multidimensional Experiential Avoidance Questionnaire (MEAQ; Gámez et al., 2011) through examination of the MEAQ subscales’ associations with task engagement as measured by self-reported verbal and disgust ratings. The findings suggested that certain forms of EA (distraction/suppression, repression/denial, and procrastination) were associated with decreased engagement in the behavioral approach task. Furthermore, use of these forms of EA was associated with significantly less improvement in OC symptomatology. The study also suggested that targeting these specific forms of EA may improve exposure-based treatment response. Although the Conley et al. (2019) study examined OC rather than PTSS, the idea of approaching feared stimuli is a consistent aspect of exposure therapy in both diagnoses. Thus, the study’s findings illustrate that EA may interfere with engagement in PTSS exposure treatment as well.

As demonstrated by the Conley et al. (2019) study, EA during exposure may appear differently among participants (e.g., use of distraction versus procrastination). For instance, although both thought suppression and suppression of emotional expression are forms of EA, they are distinct (Valentiner et al., 2006). Thought suppression specifically refers to attempting to turn away from negative thoughts, whereas suppression of emotional expression refers to inhibiting emotionally expressive behavior. Valentiner et al. (2006) assessed emotion regulation techniques specifically related to disgust, including suppression techniques using a film paradigm. The findings suggested that thought suppression techniques were highly correlated but distinct from emotional expression suppression. Furthermore, the findings (Valentiner et al., 2006) supported the idea that thought suppression contributes to stronger feelings of disgust.
(suppression of emotional expression was marginally significant). This finding is similar to the finding that the use of EA as a coping strategy for PTSS is associated with increased symptomatology (Orcutt et al., 2005; Palm & Follette, 2011). Certain EA strategies may be more detrimental to exposure outcomes than others (Conley et al., 2019).

It is important to note that EA measures such as the MEAQ used in the Conley et al. (2019) study typically assess for trait EA, or what one would consider a trait level of EA. Although it is useful to consider EA as a response style overall, there may be contextual differences. For example, individuals might not be experientially avoidant during active treatment but use EA coping strategies when not under the guidance of a clinician. WET, unlike other forms of exposure therapy, does not typically have clinicians monitoring for activation and treatment engagement during the writing itself, so determining whether an individual is engaging with the task would be helpful. There have been measures of state EA that have demonstrated sensitivity to momentary changes in EA. For example, Asher and colleagues (2021) demonstrated that in a social anxiety inducing task, both momentary social anxiety and momentary EA decreased, as measured by a set of questions related to experiential engagement in the task. The measure of momentary EA as it relates to social anxiety has been used successfully in other studies (Kashdan et al., 2013; Kashdan et al., 2014). Although SUDS has been used previously to track fear activation and engagement, SUDS are usually collected throughout an exposure session. Furthermore, the use of SUDS as an equivalent of experiential engagement cannot be totally assumed. A state measure of EA such as the one used by Kashdan et al. (2013, 2014) and Asher et al. (2021) was thought to be helpful in the present study to determine the specific use of EA immediately following a written exposure session.
The current study aimed to increase experiential engagement overall in a written exposure session for PTS. Measured reductions in EA could be indicative of increased engagement because lower EA indicates greater approach to rather than avoidance of feared stimuli. One potential method for improving engagement through reduced EA is by increasing self-compassion. In a review of compassion-based interventions (Kirby et al., 2016), compassion is thought to help with adopting an empathetic and understanding stance toward others and the self as well as increasing the ability to tolerate feelings of distress (Gilbert, 2005, 2009, 2010). Completing a self-compassion break (Neff, 2021) prior to sessions may help a participant focus less on negative thoughts about oneself as well as increase self-efficacy and acceptance of oneself and their negative experiences, decreasing EA and improving treatment effectiveness.

**Self-Compassion**

Self-compassion is a complex, multi-faceted construct with multiple definitions. Self-compassion has been conceptualized as the acceptance of oneself and includes sensitivity to suffering, understanding, and forgiveness of the self (Gilbert & Procter, 2006; McKay & Fanning, 1992; Steindl et al., 2018). Self-compassion has also been described as treating the self with care, especially following difficult situations (Warren et al., 2016). Neff’s model (2003b), later refined by Warren et al. (2016), proposed a three-component model in which the spectra of self-kindness versus self-judgment, common humanity versus isolation, and mindfulness versus over-identification interact to generate a self-compassionate mindset. The self-kindness versus self-judgment spectrum refers to the propensity to treat oneself with warmth and unconditional positive regard, or to be caring toward oneself (Candea & Szentagotai-Tatar, 2018; Neff, 2003b; Warren et al., 2016); Common humanity versus isolation refers to a level of acceptance of
human imperfection—that all human beings are fallible and face challenges. Finally, mindfulness versus over-identification refers to one’s level of accuracy in one’s awareness of experiences, such that this awareness neither avoids nor exaggerates painful feelings and thoughts.

Where an individual falls on each of these spectra produces a self-compassionate mindset (Phillips, 2019) ranging from uncompassionate self-responding to moderately self-compassionate to highly self-compassionate. Those that are considered uncompassionate to the self tend to be high on self-judgment, isolation, and over-identification while also being low on the components that define self-compassion. Conversely, those considered highly self-compassionate are high in self-kindness, humanity, and mindfulness while also being low on the negative components. Moderately self-compassionate individuals are in between uncompassionate self-responding and highly self-compassionate with differing levels of both positive and negative components.

The compassion-focused therapy model (CFT; Gilbert 2009, 2014) attempts to explain individual differences in self-compassion. CFT suggests that experiences of warmth and safety from parents in early childhood influence positive development of a soothing system, reducing feelings of distress associated with threat and increasing social affiliative behavior. When children receive more threat than comfort from their parents, it is thought that children develop anxious and avoidant interpersonal styles and have difficulty in soothing themselves. In support of this theory, studies have pointed to a history of parental rejection and overprotection as correlates with lower trait self-compassion (Galili-Weinstock et al., 2019; Pepping et al., 2015). According to CFT (Gilbert, 2009) and important to this proposal, self-compassion skills can be developed later in life through intervention.
Emotional Benefits of Self-Compassion

Increased self-compassion has been associated with positive outcomes (Kirby et al., 2017; Steindl et al., 2018; Warren et al., 2016; Zessin et al., 2015) including improved mental, physical, and emotional well-being, healthier interpersonal relationships, and better mental-health treatment outcomes (Kirby et al., 2017; Steindl et al., 2018; Warren et al., 2016). In a meta-analysis of 65 articles, Zessin and colleagues (2015) found that self-compassion is strongly related to both psychological and cognitive well-being (i.e., cognitive evaluation of life satisfaction) and described preliminary evidence for a causal relationship between self-compassion and well-being. Some studies’ findings suggested that self-compassion may protect against the development of PTSS as a response to trauma exposure (Kearney et al., 2013; Miron et al., 2015; Thompson & Waltz, 2008). By contrast, lack of self-compassion has been found to have harmful effects (Hayes, 2008; Miron et al., 2015) including increased risk of depression (Krieger et al., 2016), psychological distress (Marsh et al., 2018), and low self-worth (Neff, 2011). Thus, attempts to increase self-compassion may be useful in addressing negative psychological experiences, especially for PTSS.

Additional studies have shown the positive mental health benefits of engaging in self-compassion. Spontaneous positive changes in self-compassion over time have been shown to be connected to increases in social affiliative states and decreases in depression, anxiety, self-criticism, self-blame, rumination, and thought suppression (Neff et al., 2007; Terry et al., 2011). Self-compassion has also been associated with reduced negative biopsychological responses associated with stress and anxiety (Arch et al., 2014; Arch et al., 2016; Williamson, 2020) in addition to buffering against the effects of stressful experiences such as rejection and negative
external evaluations (Leary et al., 2007). For instance, Odou and Brinker (2014) conducted a study with 186 participants who had experienced any negative event (i.e., traumatic or not). Participants who were asked to write in a self-compassionate way demonstrated greater improvement in mood relative to an emotionally expressive control group, suggesting that being self-compassionate after an event may provide relief from negative affective states and increase emotion processing.

Self-compassion is an excellent candidate for intervention in individuals with PTSS due to its demonstrated associations with improved emotion regulation (Morris & Gray, 2015; Powers et al., 2015), as PTSD has been association with emotion dysregulation (Ehring & Quack, 2010; McLean & Foa, 2017; Shepherd & Wild, 2014). It has been proposed that emotion differentiation (e.g., emotion identification), an early part of emotion regulation, and self-compassion are related processes (Galili-Weinstock et al., 2019). Specifically, self-compassion may help emotion differentiation skills as demonstrated by a study conducted by Galili-Weinstock and colleagues (2019). This study assessed a predominately female sample of 136 adults who were enrolled in a psychodynamic treatment. Findings indicated that clients who struggled to distinguish their negative emotions from one another were less able to practice components of self-compassion, measured by both trait and weekly self-compassion survey measures. This finding suggests that self-compassion may be an important aspect of emotion differentiation, and thus, emotion regulation. When an individual increases their self-compassion, specifically self-kindness and mindfulness, negative emotions may be less aversive and easier to differentiate.

Self-compassion also has demonstrated effects on EA, conceptualized as a form of emotion dysregulation (Tull & Roemer, 2007) and a construct frequently found to moderate
and/or mediate the relationship between traumatic event exposure and PTSS (Blackledge, 2004; Cameron et al., 2010; Gahfoori, 2018; Orcutt et al., 2005; Orcutt et al., 2020; Roemer et al., 2005; Rosenthal et al., 2006). Rather than approaching the traumatic stimuli with self-compassion, some people with PTSD engage in EA to cope with unpleasant emotional experiences. If self-compassion can be promoted in those with PTSS, confronting unpleasant emotional experiences through exposure sessions will likely be less aversive. Priming self-compassion may lead to less EA in an exposure session but may also lead to improved emotion regulation when confronted with trauma-related stimuli over time, demonstrated by decreases in the use of EA overall. Improvements in emotion regulation as well as EA may lead to improvements in PTSS.

Self-Compassion and PTSD

In the context of trauma, self-compassion is thought of as an adaptive approach to engaging with traumatic memories and a method of relieving associated symptoms (Germer & Neff, 2013; Winders et al., 2020). In a meta-analysis of 35 studies, Winders and colleagues (2020) found that increased self-compassion was associated with reduced PTSS. Negative alterations in cognition and mood are one category of symptoms included in the PTSD diagnosis. For example, secondary emotions often arise following a trauma such as self-blame, shame, and guilt (Lee et al., 2001). These secondary emotions are examples of basic emotional responses (e.g., fear, anger, sadness, etc.) combined with cognitive appraisals (see Resick et al., 2016) that produce maladaptive beliefs that contribute to and help maintain PTSS. For instance, shame, one such appraisal, is believed to contribute to PTSS (DePrince et al., 2011). Yet, practicing self-compassion is associated with decreased levels of shame overall (Gilbert & Procter, 2006;
Johnson & O'Brien, 2013; Keene & Epps, 2016; Winders et al., 2020; Woods & Proeve, 2014). Although exposure is an effective behavioral treatment against PTSS, inducing self-compassion may reduce negative internal experiences such as negative alterations in cognition (e.g., shame) that may linger post-treatment and be harder to access with only exposure (Lee et al., 2001; Winders et al., 2020).

Avoidance is another PTSD symptom for which self-compassion has been shown to have positive effects (Leary et al., 2007; Neff, 2003b; Neff et al., 2007; Thompson & Waltz, 2010; Winders et al., 2020). For example, self-compassion has been associated with less thought suppression (Leary et al., 2007; Neff, 2003b; Neff et al., 2007; Winders et al., 2020), a behavioral manifestation of EA. In one study of 210 participants, Thompson and Waltz (2010) found that those high in trait self-compassion were less likely to avoid painful thoughts and memories related to a traumatic event, perhaps facilitating a natural process of exposure and fewer PTSD symptoms. In the context of the current study, priming self-compassion may encourage participants to view themselves with more self-kindness and be able to approach their traumatic memory at the time of the exposure session, encouraging less use of EA tactics like thought suppression. A successful exposure session during which participants can experientially engage with the traumatic event may lead to decreased avoidance of trauma-related stimuli, thereby more effectively reducing PTSS.

Aside from self-compassion acting as a buffer against the onset of PTSD symptoms (see Barlow et al., 2017; Barnard & Curry, 2011; Cohn et al., 2009; Játiva & Cerezo, 2014; MacBeth & Gumley, 2012; Neff & McGehee, 2010; Seligowski et al. 2014; Zeller et al., 2015), it may also be useful as a mediating factor in reducing PTSD symptoms (Hiraoka et al., 2015; Kearney et al., 2013; Maheux & Price, 2016; Scoglio et al., 2018). In an informative study to the present
study, Hoffart and colleagues (2015) randomized participants with PTSD to a standard PE treatment group with imaginal exposure or to another PE group that used imagery rescripting instead of imaginal exposure. During the rescripting exercise, participants were asked to approach their traumatic memory as their current traumatized self and “talk” with their self in the moment of the trauma to facilitate increases in the components of self-compassion, especially self-kindness. The Hoffart et al. (2015) study found that fostering self-kindness in the therapeutic treatment led to improvements in PTSD symptoms and decreases in the negative components of self-compassion as demonstrated by comparative changes in self-compassion between the treatment groups. This finding suggests that increases in self-kindness facilitate contact with negative internal experiences with the trauma memory, thus leading to symptom improvement. Perhaps participants in Hoffart’s (et al., 2015) study who received the self-compassion imagery rescripting were better able to experientially engage with their traumatic memory, leading to symptom improvement. Considering these findings, the current study could provide more information about the mechanisms through which self-compassion facilitates change in psychological interventions, specifically providing insight into the relationship between self-compassion and reductions in state EA during exposure sessions.

Self-Compassion and Experiential Avoidance

Although self-compassion as a method for reducing EA has not been studied explicitly in a PTSD sample, there are some findings to suggest that self-compassion is related to EA. For instance, mindfulness therapy (Kearney et al., 2012) and acceptance and commitment therapy (ACT; Orsillo & Batten, 2005) incorporate elements of self-compassion (e.g., mindfulness, a nonjudgmental approach to the self, acceptance of struggle) and have been shown to lead to
significant decreases in self-reported EA. For example, in a cross-sectional study of participants with chronic pain who completed trait-level survey measures (Costa & Pinto-Gouveia, 2013), self-compassion was significantly and negatively correlated with EA ($r = -0.690, p < 0.001$). Higher levels of self-reported self-compassion were then associated with less self-reported depression, anxiety, and stress related symptoms as determined by hierarchical linear regression analyses.

In addition to self-kindness and humanity, mindfulness is a component of self-compassion (Neff, 2003b). However, specific aspects of mindfulness may make self-compassion effective as an approach to mental health difficulties. In a Thompson and Waltz (2010) study of 378 students with PTSD, EA was positively associated with PTSS. However, EA was also associated with mindfulness, which is not typically associated with PTSS (Follette et al., 2006; Kearney et al., 2013; Owens et al., 2012; Smith et al., 2011). The researchers noted an important difference between mindful awareness and mindful acceptance (Cardaciotto et al., 2008; Thompson & Waltz, 2010). Mindful awareness is the ability to observe and describe one’s cognitive and emotional experience, but awareness does not necessarily mean acceptance of internal experiences. Lower mindful acceptance is associated with higher symptomatology (Thompson & Waltz, 2010; Tull, Barrett, et al., 2007). Although it is difficult to discern the nature of the effects each variable has on the other due to the cross-sectional and group-aggregate nature of the Thompson and Waltz study (2010), participants who engaged in EA may be mindfully aware that they are doing so to avoid dealing with traumatic stress related stimuli. In other words, individuals who are “mindful” may be mindfully aware and still engage in EA, knowing that they are avoiding trauma-related stimuli, potentially negating symptom reduction.
Perhaps increases in the three components of self-compassion produce not just mindful awareness, but mindful acceptance of internal experiences.

Although self-compassion has not been previously connected to engagement in exposure therapy, self-compassion appears as though it could be decreasing PTSS symptoms through decreased EA. Akin to EA, fear of self-compassion (i.e., reacting to self-compassion with resistance and fear) has also been suggested as an example of psychological inflexibility (Miron et al., 2015), which is conceptualized as rigid attempts to control negative internal experiences (Hayes et al., 2006). Miron and colleagues (2015) conducted a cross-sectional survey study of 205 undergraduate students on the relationship between fear of self-compassion, psychological inflexibility, and PTSS. In the study, psychological inflexibility was measured by the Acceptance and Action Questionnaire-II (Bond et al., 2011), a measure of EA and general psychological inflexibility. Results indicated that EA/psychological inflexibility moderated the relationship between fear of self-compassion and PTSS. For those with PTSD, resisting self-compassion may exacerbate distress. In the context of the current study, increasing self-compassion would likely increase psychological flexibility (i.e., decrease EA), thus leading to lower PTSS over time.

Fear of self-compassion has also been found to impact disclosure of potentially traumatic events, relevant to the present study. In a study examining the impact of self-compassion training on the relationship between fear of self-compassion and perceived risk of written disclosure of a negative event (Dupasqier et al., 2017), participants were randomly assigned to three writing conditions with one of the conditions focused on the use of prompts related to the components of self-compassion (e.g., self-kindness, common humanity, and mindfulness). Participants were then asked to write a letter to another participant describing the negative event and to complete questionnaires including measures of fear of self-compassion (the same used as in the Miron et
al., 2015 study), distress disclosure, and perceived risk (Dupasqier et al., 2017). Findings demonstrated that practicing self-compassion was associated with lower perceived risk of disclosing their negative event to another participant in writing. Findings from the Dupasqier (2017) study provides support for the use of state self-compassion inductions to improve psychological flexibility and concerns with exposure such as perceived risk of disclosing a traumatic event, which is relevant to the use of WET as a written exposure intervention in the present study. Fear of self-compassion is beyond the scope of the current study but could be considered in interpretation of the current study’s ultimate findings and future research.

Self-Compassion to Increase Engagement

As previously stated, self-compassion (with all components) has not been actively researched as a means to increase experiential engagement in exposure therapy. Despite this, there are a few studies that have attempted to increase engagement in exposure therapy using specific components of self-compassion. It has been suggested that practicing mindfulness, a component of self-compassion, generally improves attention to feared stimuli (Anderson et al., 2007; Jha et al., 2007; Treanor, 2011). In one study of six participants, Curreri and colleagues (2020) considered the effect of avoidance strategies and mindful awareness on emotional responses, operationalized to include mindful acceptance, in exposure therapy. Findings in the Curreri et al. (2020) study indicated that practicing mindful emotion awareness during exposure therapy was associated with decreases in the use of avoidance and increases in general levels of mindfulness, as measured by the distress avoidance and distraction/suppression subscales from the MEAQ and the Responses to Emotions Questionnaire (REQ; Campbell-Sills et al., 2006), respectively. These results provide preliminary support for the current study’s hypotheses that
self-compassion will facilitate similar changes in EA. However, although self-compassion includes mindfulness as one of its core components, this study did not consider self-compassion overall, and there were individual differences in response to emotion awareness training and exposure in the small sample. Despite these limitations, the study findings suggest that an element of self-compassion could be effective in decreasing EA during exposure sessions for the present study.

Similar to the Curreri (et al., 2020) study, laboratory studies (Eifert & Heffner, 2003; Levitt et al., 2004) have shown that present-focused, non-judgmental mindful attention strategies used in aversive challenges were related to lower levels of avoidance and anxiety compared to the use of thought suppression and other avoidance strategies. Brake and colleagues (2016) found that participants instructed to alternate between mindfulness and suppression strategies across anxiety exposure sessions reported initial higher distress during mindfulness but greater decreases in distress over time. Again, these studies do not consider self-compassion specifically, necessitating further research on the impact of self-compassion on exposure therapy. Despite this, because mindfulness is a component of self-compassion, the findings of these mindfulness studies provide a basis for conceptualizing the role self-compassion may have on treatment outcomes for which mindfulness alone has been found to play a role.

Self-compassion may also have additional positive effects in the context of exposure therapy that could have lasting impacts on the self and perceptions of therapeutic interventions, which could lead to increased engagement. Greater self-compassion has been associated with increased self-efficacy (Iskender, 2009) as participants see themselves as having the ability to overcome difficulties (Czyz et al., 2013). Students have self-reported beliefs that their problems are too minor to require professional help (Czyz et al., 2013). Along with increased self-efficacy,
participants with a higher self-compassionate mindset may recognize that their painful feelings need not be suppressed (Neff et al., 2007), reducing the minimization of negative experiences and increasing help-seeking. Priming self-compassion may also serve to increase a positive outlook on therapeutic experiences. There is evidence to suggest that practicing self-compassion increases willingness to engage in health promoting behaviors, including mental health (Dschaak et al., 2019; Sirois et al., 2015; Terry et al., 2013). Additionally, findings have indicated that self-compassion reduces help-seeking self-stigma among both male and female identifying students (Heath et al., 2017; 2018). Increasing self-compassion may not only influence EA in session but may increase positive evaluations of treatment, potentially contributing to improved treatment retention as well as symptom improvement.

Summary of Introduction

Mental health concerns are common among college students and are associated with negative academic outcomes (Dschaak et al., 2019; Hartley, 2010). Among these concerns is PTSD, a disorder characterized by chronic, intense thoughts and emotions following exposure to a traumatic event (American Psychiatric Association, 2013). Of college students exposed to trauma, 6-17% develop PTSD (Lauterbach & Vrana, 2001; Marx & Sloan, 2003; McDevitt-Murphy et al., 2007; Read et al., 2011; Smyth et al., 2008; Twamley et al., 2004). Although there are multiple theories on the development of PTSD, one of the most cited is EPT (Lang, 1979; Foa & Kozak, 1986; Wisco et al., 2016), which is commonly associated with exposure therapy treatments such as PE (Foa et al., 2007) and WET for PTSD (Sloan & Marx, 2019). Exposure therapy has clients confront feared stimuli associated with the traumatic event and is considered
an essential component of effective treatments for PTSD and anxiety-based disorders (Hembree et al., 2003; Norton & Price, 2007; Norton et al., 2011).

Despite the effectiveness of exposure therapy, there are some lingering issues including high drop-out rates and lack of improvement among some recipients (Gilbert, 2014; Imel et al., 2013; Kirby, 2016). College students, even though they have relatively high rates of exposure to trauma (Read et al., 2011) and subsequent development of PTSD symptoms (Lauterbach & Vrana, 2001; Marx & Sloan, 2003; McDevitt-Murphy et al., 2007; Smyth et al., 2008; Read et al., 2011; Twamley et al., 2004), often do not seek help (Dschaak et al., 2019; Ketchen et al., 2015; Rickwood & Braithwaite, 1994). Younger people who do seek treatment tend to leave treatment sooner than older adults as demonstrated in a veteran sample (Eftekhari et al., 2020; Garcia et al., 2011; Goodson et al., 2017; Kehle-Forbes et al., 2016; Mott et al., 2014). If college students enter treatment, it is important for emotional engagement and inhibitory learning to occur (Jaycox et al., 1998; Rubenstein, 2003; van Minnen & Hagenaars, 2002) for exposure to be successful. EA, known as both the unwillingness to experience unwanted internal processes (e.g., thoughts, emotions) and the use of maladaptive coping strategies (Bardeen & Fergus, 2016; Hayes et al., 1996), is related to PTSD (see e.g., Bryant & Harvey, 1995; Ehlers et al., 1998; Jacobsen et al., 2002; Orcutt et al., 2005; Purdon, 1999; Sharkansky et al., 2000; Steil & Ehlers, 2000). EA has also been observed as opposing engagement in a behavioral exposure task (Conley et al., 2019).

One method for increasing engagement in exposure to improve outcomes could be the priming of self-compassion. Self-compassion involves the understanding and acceptance of oneself and painful life situations through self-kindness, humanity, and mindfulness (Gilbert & Procter, 2006; McKay & Fanning, 1992; Neff, 2003b; Warren et al., 2016). Although it has not
been systematically evaluated in exposure therapy, self-compassion has shown promising associations related to PTSD symptoms (Hiraoka et al., 2015; Seligowski et al., 2014; Thompson & Waltz, 2008) and constructs representative of EA such as thought suppression (Ghafoori, 2018; Miron et al., 2015; Neff et al., 2007). Self-compassion can be experimentally induced (Ziemer, 2014) and trained (Ferrari et al., 2019), indicating that it could be used in conjunction with an exposure intervention such as WET. Inducing self-compassion may decrease EA, thus increasing engagement and thereby reducing PTSS. Positive experiences in reduction could lead to higher retention rates in treatment and overall treatment success.

Current Study

The present study sought to expand existing knowledge about recovery following trauma through exposure-based treatments. It has been established that exposure therapy for PTSD, such as prolonged exposure or written exposure therapy, is efficacious in reducing PTSS symptoms (Hembree et al., 2003; Rauch & Rothbaum, 2016). Yet not all clients improve (Kirby et al., 2016; Schnurr et al., 2003; Seligowski et al., 2014), which may be due to EA (Conley et al., 2019). The current study hoped to provide a method to decrease EA during an exposure session to facilitate improved outcomes. Studies such as Hoffart et al. (2015) and Curreri et al. (2020) provide some evidence to suggest that elements of self-compassion (e.g., self-kindness and mindfulness, respectively) could have positive impacts on treatment engagement and PTSS.

The first aim of the study was to determine if priming self-compassion will increase state self-compassion scores compared to an exposure-only condition. The second aim of the study was to then determine if priming self-compassion will be associated with decreases in state EA during a written exposure session. College students have often been exposed to trauma and some
develop PTSS as a result (Read et al., 2011). Engaging in self-compassion prior to exposure may help students to approach exposure mindfully and with self-kindness, enabling them to approach rather than avoid unpleasant internal experiences. The final aim was to examine how a single instance of self-compassion priming immediately prior to exposure impacts self-reported PTSS symptoms at follow-up compared to exposure alone.

Hypotheses

**Contextual Hypotheses**

The relationships investigated likely occur in the context of other relationships that are relevant but not central to the aim of the present study and are, thus, considered contextual.

*Hypothesis 1.* Participants are expected to have lower PTSS scores at follow-up regardless of condition.

*Hypothesis 2.* Baseline self-compassion scores are expected to be positively associated with state self-compassion scores following the self-compassion intervention after controlling for baseline PTSS scores.

*Hypothesis 3.* Baseline self-compassion scores are expected to be negatively associated with state EA following the self-compassion intervention after controlling for baseline PTSS scores.

*Hypothesis 4.* Baseline self-compassion scores are expected to be negatively associated with PTSS scores at follow-up after controlling for baseline PTSS scores.

*Hypothesis 5.* Baseline PTSS scores are expected to be positively associated with PTSS scores at follow-up after controlling for baseline self-compassion.
Primary Hypotheses

There was an exposure with a self-compassion group and an exposure-only group that did not receive the self-compassion intervention. The hypothesized relationship between variables of interest is illustrated in Figure 1.

Hypothesis 6 (Manipulation Check). As demonstrated by coefficient $a$ in Figure 1, the exposure-with-self-compassion group is expected to have higher state self-compassion scores after the self-compassion intervention compared to the exposure-only group, after controlling for baseline self-compassion and baseline PTSS scores.

Hypothesis 7. As demonstrated by coefficient $c$ plus [coefficient $a$ x coefficient $b$] in Figure 1, it is expected that there will be a negative total effect of the exposure-with-self-compassion condition on state EA after controlling for baseline self-compassion and baseline PTSS scores.

Hypothesis 8. As demonstrated by coefficient $f$ plus [coefficient $a$ x coefficient $e$] plus [coefficient $c$ x coefficient $d$] plus [coefficient $a$ x coefficient $b$ x coefficient $d$] in Figure 1, it is expected that there will be a negative total effect of the exposure with self-compassion condition on PTSS scores at follow-up after controlling for baseline self-compassion and baseline PTSS scores.

Hypothesis 9. As demonstrated by [coefficient $a$ x coefficient $b$ x coefficient $d$] in Figure 1, it is expected that there will be a negative indirect effect of the exposure with self-compassion condition on PTSS scores at follow-up through state self-compassion and state EA after controlling for baseline self-compassion and baseline PTSS scores.
CHAPTER 2
METHODS

Participants

The sample consisted of 47 trauma-exposed college students recruited from introductory psychology courses at a large Midwestern university. The sample identified as 42.6% White, 19.1% Biracial, 17% Black, 8.51% Hispanic/Latinx, and 4.3% Asian or Pacific Islander with others preferring not to respond. The sample predominately identified as female (75.5%) with an average age of 19.46. All introductory psychology students that are 18 and older participate in a mass survey at the beginning of each semester. The current study recruited participants from mass survey participants who indicated that they have been exposed to at least one traumatic event and have associated PTSS. Participants demonstrating suicidality at screening were excluded from the study.

Measures

Life Events Checklist for DSM-5

The Live Events Checklist (LEC-5), an updated version of the LEC, is a self-report measure used to assess exposure to traumatic events over the course of a lifetime (Appendix A, Blake et al., 1990; Gray et al., 2004). The measure lists 17 different traumatic events (e.g., sexual assault, combat, motor vehicle accident, etc.) for which participants indicated if they directly experienced the event, witnessed it, learned about it, or it was part of their job (as well as
the event not applying to them). In the current study, participants were asked to consider their worst event when completing the PTSD Checklist for DSM-5 (Weathers, Blake, et al., 2013).

PTSD Checklist for DSM-5

The PTSD Checklist (PCL) for DSM-5 (Appendix A; Weathers, Litz, et al., 2013) is a 20-item questionnaire that uses a five-point Likert scale (0 = Not at all to 4 = Extremely) to assess PTSD symptoms experienced in the past month in screening and the past week at baseline and follow-up. Higher scores, specifically scores of approximately 31-33 or above, are generally accepted as indicative of a PTSD diagnosis (Bovin et al., 2016). A recent study (Bovin et al., 2016) among a veteran sample indicated that the PCL-5 had good internal consistency (α = 0.96) and high test-retest reliability (r = 0.84). Similar findings on internal consistency of the PCL-5 have been demonstrated in college student and exclusively female samples (Moody & Lewis, 2019). The measure also demonstrates convergent validity with other PCL scales and measures of depression and anxiety as well as divergent validity with measures of alcohol abuse and psychopathy (Bovin et al., 2016). The PCL-5 was used to measure PTSS as both a control variable (PTSS baseline) and for indications of symptom severity at follow-up (PTSS follow-up).

In the present study, the PCL-5 had acceptable internal consistency at baseline (α = 0.76) and excellent internal consistency at follow-up (α = 0.93). No particular items at baseline were observed to be problematic in contributing to lower internal consistency compared to follow-up. Although there was variability in where participants completed the follow-up, all participants completed the baseline measures under the same conditions.
Suicidal Ideation Attributes Scale

The Suicidal Ideation Attributes Scale (SIDAS; Van Spijker et al., 2014) was used to assess for suicidal ideation as an exclusion criterion. The SIDAS is a five-item, 11-point measure with varying anchors to assess frequency (“In the past month, how often have you had thoughts about suicide?”) as well as level of distress (“In the past month, to what extent have you felt tormented by thoughts about suicide?”) among other markers. Participants who respond with a 0 (i.e., Never) on item number one, the frequency question, do not continue to answer other items. According to Van Spijker et al. (2014), the risk for suicidal planning increases six-fold between zero to low ideation (scores 1-20), so a cut-off score of 1 is recommended. However, in the current study, participants were allowed to continue if their initial question score was 3 or below and, after interview with me, their thoughts reported were egodystonic. Participants who were at low levels of ideation received referrals for psychological services. Those above the moderate cut-off score (n = 7) were referred directly to either the Psychological Services Clinic or Counseling and Consultation Services; I was present for appointment scheduling. The SIDAS has been shown to have good internal consistency (α = 0.91) among a sample of over one thousand adults as well as adequate convergent validity with the Columbia-Suicide Severity Rating Scale (Posner et al., 2011; r = 0.61) and the Patient Health Questionnaire-9 (Kroenke et al., 2001; r = 0.65), a commonly used measure of depression (Van Spijker et al., 2014). In the current study, internal consistency was low (α = 0.50). However, many of the participants did not complete the additional four questions, so it is unclear how the reliability of this measure could be impacted by additional respondents.
State Measure of Experiential Avoidance

A state measure of EA (Appendix A) for PTSS had not been developed prior to the current study to my knowledge. However, Kashdan and colleagues (2014) developed four questions to assess experiential avoidance in the moment for social anxiety. These questions were minimally modified to fit the current study and include: “How much did you try to hide your feelings of anxiety or fear from others,” “To what degree did you give up saying what you like (or mattered to you) in order to control and manage anxiety or fear,” “How much did you control your anxiety or fear-related feelings or thoughts,” and “How upset and bothered were you about anxiety or fear-related feelings or thoughts?” These questions were assessed on a 7-point scale (1 = not at all to 7 = very much). According to Kashdan et al. (2014), this measure of state EA correlated adequately with a trait measure of EA, the AAQ-II (Bond et al., 2011) at .75 (p < 0.001) and showed good reliability (r = 0.87). A study conducted by Asher and colleagues (2021) also found excellent reliability (r = 0.91). This measure was used to assess experiential avoidance immediately after exposure (i.e., State EA). Internal consistency in the present study was not acceptable (α = 0.68). Reviewing the items, the third item (“how much did you control your anxiety or fear-related feelings or thoughts?”) negatively affected reliability; its removal would have resulted in an improved internal consistency of 0.80. Because the reliability was below 0.70, an additional measure related to state-level experiential avoidance was included.

Experiencing Scale

The Experiencing Scale (ES, Appendix A) was adapted for the purposes of this study from the Coping with Disgust Questionnaire (CDQ) developed by Valentiner and colleagues
(2006) to assess disgust related experiences after watching a film. The resulting scale is an 8-item, 5-point scale measure (1 = *Strongly Disagree* to 5 = *Strongly Agree*). The questions were minimally modified to fit the needs of the current study and include: “During the writing exercise, I let myself feel difficult and painful feelings,” “During the writing exercise, I let my thoughts happen naturally,” and “During the writing exercise, I reacted spontaneously.” Higher scores on this scale are consistent with lower experiences of EA. The first four items came from the original experiencing scale which demonstrated an internal consistency of 0.67. In preliminary analyses, adding four additional equivalent items according to the Spearman-Brown prophecy formula (Spearman, 1910) would increase internal consistency to 0.80. Results from the current study indicated good internal consistency (α = 0.89), so the measure was included in the final analyses.

**Self-Compassion Scale**

The Self-Compassion Scale (SCS; Appendix A; Neff, 2003a) is a 26-item, 5-point scale measure (1 = *Almost never* to 5 = *Almost always*) that assesses an individual’s engagement in self-compassion across the three categories of self-kindness, humanity, and mindfulness. Additionally, the measure also assesses the opposing components of self-judgment, isolation, and over-identification, which are reverse scored. Scores are analyzed on a continuum with no clinical cut-offs. The scale was developed using an exploratory factor analysis and then a confirmatory factor analyses in a separate sample (Neff, 2003a). The SCS demonstrates good internal consistency (α = 0.92) and test-retest reliability (α = 0.93). The measure has been analyzed using exploratory structural equation modeling and found excellent fit for the use of a total score with 95% of the item variance explained (Neff et al., 2019). The measure has also
been found to perform similarly across diverse groups (Tóth-Király & Neff, 2020). This measure was used to measure self-compassion prior to manipulation (SCS baseline) and demonstrated excellent internal consistency ($\alpha = 0.92$).

**State Self-Compassion Scale Short-Form**

The State Self-Compassion Scale Short-Form (SSCS-SF; Appendix A; Neff et al., 2021) is a six-item, 5-point scale measure ($1 = \text{Not at all true for me}$ to $5 = \text{Very true for me}$) assessing global state self-compassion, or how an individual’s feelings towards themselves in the present moment. Scores are analyzed on a continuum with no clinical cut-offs with three items reverse-scored. The scale was developed alongside a long-form of the SSCS-SF using bi-factor exploratory structural equation modeling and confirmatory factor analysis. The SSCS-SF demonstrates good internal consistency ($\alpha = 0.86$) and correlated strongly with the long-form ($r = 0.957$, $p < 0.001$). Furthermore, the long-form showed content validity and predictive validity associated with positive and negative affect. Due to the recency of the development of both the long-form and short-form of this measure, other psychometric properties are unavailable at this time. This measure was used for a manipulation check to determine state levels of self-compassion after manipulation (state SC) and demonstrated acceptance internal consistency ($\alpha = 0.76$).

**Demographics**

A short demographics form was included to assess gender, age, ethnicity, income, and academic major in the mass survey (Appendix B).
Procedure

As previously stated, participants were recruited from introductory psychology courses from their participation in the mass survey at the start of the semester. Participants completed a demographics measure, the LEC-5, which will determine trauma exposure, and the PCL-5, which served as the screening measure of PTSS as part of the mass survey. Participants were subsequently contacted and invited to participate in the study in-person if they demonstrated PTSS with a score of at least 20 on the PCL-5. A minimum symptom score of 20 allows for the observation of significant decrease in scores. Participants who consented to the study were provided course credit for their participation. After providing consent, participants were screened for suicidal ideation using the SIDAS. Participants who indicated elevated suicidal ideation (SIDAS score of 4 or higher on question 1) were discontinued and referred to either the Psychological Services Center, which operates in the same building as data collection, or Counseling and Consultation Services on campus.

Participants were randomly assigned to two groups: exposure with self-compassion ($N=24$) or exposure ($N=23$) only. Participants completed the baseline measures (LEC-5, PCL-5, SCS) before starting the study to determine current levels of PTSS and self-compassion as these levels may have changed. Participants who must met eligibility requirements again were included in the data for analysis. Within the total sample ($N=47$), 31.91\% of the participants designated a sexual assault as their index traumatic event, a higher percentage than any other indicated trauma in the study. Associated average baseline PTSS ($M=35.548$) was slightly above the clinically indicated score for PTSD on the PCL-5 (Bovin et al., 2016). Baseline data indicated that these participants had moderate levels of self-compassion prior to intervention ($M$
= 69.184 out of 130). Participants who were assigned to the exposure with self-compassion condition first listened to a five-minute self-compassion break (Neff, 2021; Appendix C for script). They then completed the SSCS-SF as a manipulation check. Following the SSCS-SF, participants were read a prompt (Appendix D) from the written exposure therapy for PTSD manual (Sloan & Marx, 2019) for session 1 and provided a hard copy of instructions for writing. Participants were then given thirty minutes to engage in the written exposure session. For those who were assigned to the exposure-only condition, all procedures remained the same except they did not listen to a self-compassion break prior to completing the SSCS-SF and writing prompt. After completion of the writing exercise, participants completed the state EA questionnaire. Following this measure, participants were then debriefed and provided a list of counseling resources in the area.

Participants regardless of condition were asked to complete a follow-up assessment two weeks after their exposure session. The follow-up assessment was delivered online through Qualtrics (2021), which they could choose to complete in-lab or at home and included the PCL-5 to assess participants' self-reported levels of PTSS. Participants received course credit for their participation in this study at each time point.
CHAPTER 3

RESULTS

Preliminary Results

Missing Data

Preliminary data analyses determined if missing data was missing completely at random (MCAR) using Little’s MCAR test (Little, 1998) in SPSS. Data that are MCAR means that there are no patterns of missing data. If data were not MCAR, evaluating data for missing at random (MAR) would mean determining if there were differences between missing and observed data points, suggesting that missing data was influenced by observed data (Bhaskaran & Smeeth, 2014). When assessing for MCAR, if the $p$-value is less than 0.05, the data is considered not missing completely at random. The data were MCAR ($p = .358$), so no additional missingness analyses were conducted.

To address missing item data, scale construction relied upon mean substitution provided that no more than 20% of the items was missing per scale per participant. Mean substitution uses the mean of the responses to other items on the scale for each participant given that they have answered a sufficient number of items in a scale (Mazza et al., 2015). Because many of the data were collected in-lab and survey measures required response (with the option of prefer not to respond included), there were very little missing data for which mean substitution could be applied with the highest percentage of missing data for an individual measure being 0.53%.
Reliability

Reliability analyses were conducted for all measures and deemed sufficient if Cronbach’s alpha was at least .70. Since the Kashdan et al. (2014) measure reliability was less than 0.70, the Experiencing Scale (reverse coded) was used instead to assess for state experiential avoidance and will be referred to as State EA moving forward. Note that the correlation between these scales was $r = 0.078$ ($p = 0.601$), suggesting that they measure somewhat different constructs.

Mediation Analysis

SPSS Version 27 (IBM, 2017) with bootstrapping using 5000 iterations was used to test Hypothesis 1. The PROCESS macro for SPSS (Hayes, 2022) with bootstrapping using 5000 iterations was used to test the other contextual hypotheses (Hypotheses 2 through 5) and the primary hypotheses (Hypotheses 6 through 9). With the use of bootstrapping in SPSS and PROCESS, multiple data sets are created using the Monte Carlo method. Bootstrapping addresses a variety of possible statistical problems associated with traditional parametric analyses, including violations of normality assumptions, homoscedasticity, and multicollinearity (Preacher & Hayes, 2008).

All analyses that follow were tested for significance based on the criterion of $p < .05$ using two-tailed tests. The PROCESS model included one independent variable (dummy coded as 0 = exposure-only and 1 = exposure-with-self-compassion), two serial mediators, and one dependent variable. The model is illustrated in Figure 1. In the present study, the assigned condition (i.e., exposure-only coded 0 versus the exposure-with-self-compassion conditions coded 1) is the independent variable (X), state self-compassion is the first mediator (M1), state
EA is the second mediator (M2), and PTSS at follow-up is the dependent variable (Y). Model 6 tests the relationships between variables. Additionally, assessing this model allowed for the inclusion of covariates and for indirect, direct, and total effects to be tested. Trait self-compassion and PTSS scores at baseline were included as covariates in tests of Hypotheses 2 through 9. See Tables 1 and 2 for correlations among variables and descriptive statistics of variables, respectively.

Selection Effects

Over the course of data collection, 545 undergraduate psychology students were invited to participate based on their PCL-5 screening scores. ANOVA analyses of characteristics between those who registered for the study and those who did not register were conducted. According to chi-square analyses, there were no significant differences in gender between those who registered for the study and those who did not register for the study in both the fall ($\chi^2(4) = 5.222, p = .265$) and spring ($\chi^2(6) = 6.206, p = .401$) semesters. There were significant differences in racial identity between those who registered for the study and those who did not register for the study in the fall semester ($\chi^2(4) = 16.370, p < .05$), with White students being more likely to register compared to Black, Hispanic, Asian, and Biracial students. There were no significant differences in the spring semester ($\chi^2(4) = 1.492, p = .828$).

Using independent sample t-tests, there were no statistically significant differences between group means on self-compassion screening scores ($t(545) = 1.478, p = .140$). However, there was a statistically significant difference between groups on PCL-5 screening scores ($t(529) = 2.278, p < .05$). Those who registered for the study had a mean PCL-5 score of 30.974 ($SD = 14.215$). Those who did not register for the study had a mean PCL-5 score of 34.660 ($SD =}$
Table 1

Correlations Among Variables

<table>
<thead>
<tr>
<th>Condition</th>
<th>PTSS Condition</th>
<th>Self-Compassion Baseline</th>
<th>State Self-Compassion</th>
<th>State Experiential Experiencing</th>
<th>State Experiential Avoidance</th>
<th>PTSS Follow-Up</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTSS Baseline</td>
<td>-0.001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Compassion Baseline</td>
<td>0.189</td>
<td>-0.045</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State Self-Compassion</td>
<td>0.193</td>
<td>-0.118</td>
<td>0.566**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experiencing</td>
<td>0.317*</td>
<td>0.036</td>
<td>0.398**</td>
<td>0.441**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>State Experiential Avoidance</td>
<td>-0.115</td>
<td>0.137</td>
<td>0.205</td>
<td>0.002</td>
<td>0.078</td>
<td></td>
</tr>
<tr>
<td>PTSS Follow-Up</td>
<td>-0.023</td>
<td>0.637**</td>
<td>-0.062</td>
<td>-0.108</td>
<td>-0.041</td>
<td>0.189</td>
</tr>
</tbody>
</table>

Note: N = 47. *p < .05, **p < .01
Table 2

Descriptive Statistics of Scales

<table>
<thead>
<tr>
<th>Scale Name</th>
<th># of items</th>
<th>alpha</th>
<th>Mean (SD)</th>
<th>Range Theoretical</th>
<th>Range Observed</th>
<th>Skew</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PTSD Checklist for DSM-5</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline</td>
<td>20</td>
<td>0.761</td>
<td>35.548 (10.769)</td>
<td>0-80</td>
<td>20-70</td>
<td>0.957</td>
<td>1.305</td>
</tr>
<tr>
<td>Follow-Up</td>
<td>20</td>
<td>0.931</td>
<td>27.531 (16.080)</td>
<td>0-80</td>
<td>0-63</td>
<td>0.021</td>
<td>-0.736</td>
</tr>
<tr>
<td><strong>Self-Compassion Measures</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Compassion Scale</td>
<td>26</td>
<td>0.921</td>
<td>69.184 (17.167)</td>
<td>26-130</td>
<td>28-106</td>
<td>-0.085</td>
<td>0.407</td>
</tr>
<tr>
<td>State Self-Compassion Scale</td>
<td>6</td>
<td>0.765</td>
<td>17.089 (4.463)</td>
<td>6-30</td>
<td>7-26</td>
<td>0.005</td>
<td>-0.409</td>
</tr>
<tr>
<td><strong>Experiential Avoidance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State Experiential Avoidance</td>
<td>4</td>
<td>0.682</td>
<td>16.383 (6.038)</td>
<td>0-28</td>
<td>4-28</td>
<td>-0.122</td>
<td>-0.760</td>
</tr>
<tr>
<td>Experiencing Scale</td>
<td>8</td>
<td>0.892</td>
<td>31.863 (6.830)</td>
<td>8-40</td>
<td>10-40</td>
<td>-1.024</td>
<td>1.426</td>
</tr>
</tbody>
</table>

Note: N = 47
16.303. The aim was to recruit those with moderate to high levels of PTSS but since an integral aspect of PTSD is avoidance, it is expected that those with higher levels of PTSS would be less likely to register.

Analyses for Contextual Hypotheses

Figure 2 presents the findings of the present study and will be discussed in more detail in the following pages.

Figure 2. Model of the results of relationships among variables.

Note: N = 47. Covariates not shown.

**Hypothesis 1**

Hypothesis 1, that both the exposure-only and the exposure with self-compassion conditions will have lower PTSS scores at follow-up than at baseline, was tested using a paired t-test. Condition (0 = exposure-only, 1 = exposure-with-self-compassion) was the independent variable. PTSS at baseline and follow-up was the dependent variable. Hypothesis 1 was
supported \((t(46) = -11.081, p < .01; m = -26.021, 95\% \text{ CI} [-30.748, -21.294])\). At baseline, PCL-5 scores for the sample had an average PCL-5 score of 35.548 (SD = 10.769). The average PCL-5 score at follow-up was 27.531 (SD = 16.080).

Hypothesis 2

Hypothesis 2, that baseline trait self-compassion will be positively associated with state self-compassion post-intervention, was tested using PROCESS Model 6’s (Hayes, 2022) test of the total covariate relationship after controlling for baseline PTSS scores. Baseline trait SCS was the independent variable. SCS-SF was the dependent variable. The full results of these PROCESS models are described below, in the sections describing the tests of Hypotheses 6 through 9. Hypothesis 2 was supported. The coefficient between baseline trait SCS and SCS-SF was positive and significant \((B = 0.147, p < .01, 95\% \text{ CI} [0.075, 0.208])\).

Hypothesis 3

Hypothesis 3, that baseline self-compassion will be negatively associated with state EA post-intervention, was tested using PROCESS Model 6’s (Hayes, 2022) test of the total covariate relationship after controlling for baseline PTSS scores. Baseline trait SCS was the independent variable. State EA at follow-up was the dependent variable. The full results of these PROCESS models are described below, in the sections describing the tests of Hypotheses 6 through 9. Hypothesis 3 was not supported. The coefficient between baseline trait SCS and state EA was negative but not significant \((B = -0.076, p = .240, 95\% \text{ CI} [-0.204, 0.052])\).
Hypothesis 4

Hypothesis 4, that baseline trait self-compassion will be negatively associated with PTSS at follow-up, was tested using PROCESS Model 6’s (Hayes, 2022) test of the total covariate relationship after controlling for baseline PTSS scores. Baseline trait SCS was the independent variable. PTSS follow-up was the dependent variable. The full results of these PROCESS models are described below, in the sections describing the tests of Hypotheses 6 through 9. Hypothesis 4 was not supported. The coefficient between baseline trait SCS and PTSS at follow-up was negative but not significant ($B = -0.008, p = .955, 95\% \text{ CI } [-0.289, 0.274])$.

Hypothesis 5

Hypothesis 5, that baseline PTSS scores will be positively associated with PTSS scores at follow-up, was tested using PROCESS Model 6’s (Hayes, 2022) test of the total covariate relationship after controlling for baseline self-compassion. Baseline PTSS was the independent variable. PTSS at follow-up was the dependent variable. The full results of these PROCESS models are described below, in the sections describing the tests of Hypotheses 6 through 9. Hypothesis 5 was supported. The coefficient between baseline PTSS and PTSS at follow-up was positive and significant ($B = 0.954, p < .01, 95\% \text{ CI } [0.588, 1.320])$. 
Primary Analyses

The following results are shown in Figure 2.

Hypothesis 6

Hypothesis 6, that the exposure with self-compassion condition will have higher state self-compassion scores after manipulation compared to the exposure-only condition (coefficient $a$; Figure 1), was tested using mediation analysis through PROCESS Model 6 (Hayes, 2022). Condition ($0 =$ exposure-only, $1 =$ exposure-with-self-compassion) was the independent variable. State SCS was the dependent variable. Condition was hypothesized to have a positive coefficient. Hypothesis 6 was not supported. The coefficient between condition and State SCS was positive but not significant ($B = 0.799$, $p = .478$, 95% CI [-1.452, 3.051]).

Hypothesis 7

Hypothesis 7, that there will be a total effect of the condition on state EA through state self-compassion (coefficient $c$ plus coefficient $a \times$ coefficient $b$; Figure 1), was tested using mediation analysis through PROCESS Model 6 (Hayes, 2022). Condition ($0 =$ exposure-only, $1 =$ exposure-with-self-compassion) was the independent variable. State EA was the dependent variable. State SCS was the mediator variable. Condition was hypothesized to have a negative coefficient. Hypothesis 7 was not supported. The coefficient demonstrated a negative total effect but was not significant ($B = 3.014$, $p = .104$, 95% CI [-6.669, 0.641]).
Hypothesis 8

Hypothesis 8, that there will be a total effect of the self-compassion intervention on PTSS at follow-up (coefficient $f$ plus coefficient $a$ x coefficient $e$ plus coefficient $c$ x coefficient $d$ plus coefficient $a$ x coefficient $b$ x coefficient $d$; Figure 1), was tested using mediation analysis through PROCESS Model 6 (Hayes, 2022). Condition (0 = exposure-only, 1 = exposure-with-self-compassion) was the independent variable. PTSS at follow-up was the dependent variable. State SCS and State EA were the mediator variables. Condition was hypothesized to have a negative coefficient. Hypothesis 8 was not supported. The coefficient demonstrated a negative but not significant total effect ($B = -0.073$, $p = .986$, 95% CI [-8.225, 8.079]).

Hypothesis 9

Hypothesis 9, that there will be an indirect effect of the exposure with a self-compassion component on PTSS at follow-up through both state self-compassion and state EA (coefficient $a$ x coefficient $b$ x coefficient $d$; Figure 1), was tested using mediation analysis through PROCESS Model 6 (Hayes, 2022). Condition (0 = exposure-only, 1 = exposure-with-self-compassion) was the independent variable. PTSS at follow-up was the dependent variable. State SCS was the first mediator variable, and State EA was the second mediator variable. Condition was hypothesized to have a negative coefficient. Hypothesis 9 was not supported. The coefficient demonstrated a negative but not significant indirect effect ($B = -0.052$, 95% CI [-0.677, 0.391]). No other significant indirect effects were observed.
Additional Analyses

For the originally proposed model (see Figure 1), approximately 28 participants were recommended to achieve 80% power with an error probability rate of .05 according to Cohen’s D. An effect size of 1.143 was used in the power analysis because Dupasquier and colleagues (2017) found that effect size for the relationship between induced self-compassion and reduced fear of written disclosure of a traumatic event. That finding had some similarities to decreased avoidance in the context of the current study and corresponds with combined coefficient c in Figure 1, which was the primary expectation of the current study (Hypothesis 7).

Additional analyses were conducted with less stringent criteria by expanding inclusion to first a PCL-5 baseline score of 15 or higher, and then a PCL-5 baseline score of 10 or higher. The pattern of results did not change with these less stringent criteria. With a PCL baseline score of 15 or higher, the total number of participants increased to 57. The coefficient demonstrated a negative but not significant total direct effect \( B = -0.1574, \ p = .962, \ 95\% \ CI [-6.792, 6.477]; \) see Hypothesis 8. The indirect effect (see Hypothesis 9) from condition \( (0 = \) exposure-only, \( 1 = \) exposure-with-self-compassion) through both mediators (i.e., state self-compassion and state EA) to follow-up PCL-5 scores (i.e., PTSS) was negative but not significant \( (B = -0.036, \ 95\% \ CI [-0.398, 0.257]) \). With a PCL baseline score of 10 or higher, the total number of participants increased to 66. The coefficient demonstrated a positive and not significant total direct effect \( B = 1.729, \ p = .573, \ 95\% \ CI [-4.380, 7.839]) \), which is not in the hypothesized direction. The indirect effect from condition \( (0 = \) exposure-only, \( 1 = \) exposure-with-self-compassion) through both mediators (i.e., state self-compassion and state EA) to follow-up PCL-5 scores (i.e., PTSS) was negative but not significant \( (B = -0.061, \ 95\% \ CI [-0.439, 0.191]) \).
An additional analysis was conducted examining the model but omitting the PCL-5 scores at follow-up. This analysis used PROCESS model 4 (Hayes, 2022). Condition (0 = exposure-only, 1 = exposure-with-self-compassion) was the independent variable (X). State self-compassion was the mediator (M). State EA was the dependent variable (Y). Baseline PTSS and baseline trait SCS were entered as covariates. This analysis had a sample size of 60. A similar pattern of results emerged. The coefficient demonstrated a negative but not significant total effect ($B = -2.251, p = .151, 95\% \text{ CI} [-5.348, 0.847]$). The coefficient demonstrated a negative but not significant direct effect ($B = -1.177, p = .218, 95\% \text{ CI} [-3.070, 0.716]$). The coefficient demonstrated a negative but not significant indirect effect ($B = -0.292, 95\% \text{ CI} [-1.220, 0.272]$).

With less stringent criteria that included participants with a PCL-5 baseline score of 15, the total number of participants increased to 72. With the increased number of participants, the coefficient demonstrated a negative but not significant total effect ($B = -1.873, p = .180, 95\% \text{ CI} [-4.634, 0.888]$). Although negative, a significant direct effect was not observed ($B = -1.456, p = .097, 95\% \text{ CI} [-3.184, 0.273]$). The coefficient demonstrated a negative but not significant indirect effect ($B = -0.301, 95\% \text{ CI} [-1.164, 0.206]$). These analyses were repeated for a PCL-5 baseline cut-off score of 10 increasing the total number of participants to 86. With the increased number of participants, the coefficient demonstrated a negative but not significant total effect ($B = -0.811, p = .547, 95\% \text{ CI} [1.856, -0.547]$). The coefficient demonstrated a negative and marginally significant effect ($B = -1.510, p = .053, 95\% \text{ CI} [-3.038, 0.018]$). The coefficient demonstrated a negative but not significant indirect effect ($B = -0.381, 95\% \text{ CI} [-1.240, 0.085]$).

Furthermore, the analyses were repeated using the State Experiential Avoidance measure as initially proposed in place of the Experiencing Scale. The patterns of results were the same as those described above.
CHAPTER 4
DISCUSSION

The current study had two main aims: to examine the effect of a brief self-compassion intervention on experiential engagement in a written exposure task and to determine whether the intervention had a subsequent effect on PTSS over time. There is a high rate of exposure to traumatic experiences (Read et al., 2011) and associated academic difficulties (Bruffaerts et al., 2018) among college students. Although exposure-based treatments are generally efficacious (Cooper & Clum, 1989; Foa et al., 1999; Hembree et al., 2003; Resick et al., 2002; Taylor et al., 2001), difficulties with exposure treatment retention (McDonagh et al., 2005) and symptom reduction (Marker et al., 2019) indicate that improvements are needed. Augmenting existing evidence-based treatments to include a brief self-compassion intervention was hypothesized to increase engagement with an exposure-based task and thus lead to improved outcomes within the student sample.

The current study’s results did not support the majority of hypotheses. Participants in both the exposure-only and exposure-with-self-compassion conditions showed reductions in PTSS after completing a one session protocol of WET. However, the self-compassion intervention condition was ineffective in producing higher levels of state self-compassion and experiential engagement compared to the exposure-only intervention condition, and ultimately, did not produce significantly greater reductions in PTSS. The following discussion will explore possible explanations for null findings, considering whether the null findings are due to an
insufficient dose of the self-compassion intervention, the inapplicability of the self-compassion intervention to some participants, and other potential explanations in light of study limitations. In addition, implications and future directions will be discussed.

Contextual Hypotheses

The first set of hypotheses regarded predictions examining whether the variables of interest relate to each other in this research context in the same way that they are expected to relate to each other in a real-world, clinical context. Hypothesis 1 predicted that PTSS scores would meaningfully improve between baseline and follow-up, regardless of condition. It was supported by the data. Together, the conditions averaged a pre-intervention score of 35.55 (SD = 10.77) and a post-intervention score of 27.53 (SD = 16.08) on the PCL-5. This finding further supports WET as an efficacious intervention for reducing PTSD symptoms alongside previous WET studies but in a subthreshold, nonmilitary (college) sample (Rauch & Rothbaum, 2016; Sloan et al., 2021), albeit with the significant limitation of lacking a non-WET comparison condition. A handful of previous studies have suggested single-session writing interventions can produce significant improvements (Henry et al., 2010; Lancaster et al., 2015; Slavin-Spenny et al., 2011; Smyth & Helm, 2003), so it is possible that a single session of WET can be effective in reducing PTSS above and beyond natural recovery. However, because the current study did not include a non-WET comparison condition, definitive conclusions about the effectiveness of a single-session WET intervention cannot be drawn from these data. That is, the observed decrease in PCL-5 scores might reflect a maturational effect, regression to the mean, reactivity, or another non-causal situation. Future studies might examine such questions to add to the existing
knowledge of trauma treatments and potentially provide an attractive option for clients seeking services.

Hypothesis 2 predicted that trait self-compassion baseline scores would be associated with state levels of self-compassion. Hypothesis 5 predicted that baseline PTSS scores would be associated with PTSS scores at follow-up. Data supported these hypotheses. These results serve as a partial replication of Waring and Kelly (2019), which demonstrated similar findings that higher levels of trait self-compassion are associated with higher levels of reported state self-compassion (Waring & Kelly, 2019). Furthermore, even though change was observed regardless of initial PCL-5 scores, the higher the PCL-5 score was at baseline, the higher the score was at follow-up. This finding is consistent with the field’s existing knowledge about symptom severity and clinical improvement.

Hypothesis 3 predicted that baseline self-compassion would be negatively associated with state EA. Data did not support this hypothesis. Baseline self-compassion was not found to be significantly associated with state EA, failing to replicate previous studies examining similar constructs. However, the nonsignificant observed relationship was in the hypothesized direction. To our knowledge, very little research has been done on state EA as a construct and even less on the relationship between self-compassion and state EA. However, as previously mentioned, there have been studies examining the relationship between trait self-compassion and trait EA in different populations. For instance, Costa and Pinto-Gouveia (2013) found that there was a significant, negative association between trait self-compassion and trait EA among chronic pain patients, which informed Hypothesis 3. The correlations between state EA and baseline self-compassion were consistent with the findings of Costa and Pinto-Gouveia (2013), which assessed trait EA, in that the association was in the hypothesized direction and significant albeit
almost half the size in magnitude. However, when examining the relationship between state EA and baseline self-compassion in the context of PROCESS Model 6 (Hayes et al., 2022), the relationship was not significant. The use of baseline PTSD and state self-compassion as statistical controls, both of which Costa et al. (2013) did not include, created a high hurdle test. Furthermore, Costa et al. (2013) had a larger sample of 105 participants compared to the current study; the current study’s smaller sample size may have influenced the significance of the relationship between baseline self-compassion and state EA.

Hypothesis 4 predicted that baseline trait self-compassion would be negatively associated with follow-up PTSS. Data did not support this hypothesis. Again, although in the hypothesized direction, baseline self-compassion was not significantly associated with follow-up PTSS scores. In the literature, self-compassion has been shown to be protective against PTSD (Kearney et al., 2013; Miron et al., 2015; Thompson & Waltz, 2008) and may have been a mediating factor in improvement in another study (Hoffart et al., 2015). Thus, it was expected that higher levels of baseline trait self-compassion would be associated with lower levels of PTSS at follow-up. Although also in the expected direction, baseline trait self-compassion was not associated with baseline PTSS. However, the sample in the current study was notably smaller compared to the Hoffart study (2015) whose beta coefficient between self-kindness (a component of self-compassion) and PTSS ($B = -1.112; p < 0.011$) was much larger than the current study’s sample ($B = -0.008, p = .955$). Additionally, Hoffart’s study used a clinical sample from a PTSD treatment program. Even though baseline PTSS in the current study’s sample averaged above the recommended clinical cut-off (Weathers, Blake, et al., 2013; see Table 2), it is possible that answering survey questions in the context of course-related research requirements differs from clinical settings in terms of approach and attitude towards the tasks (to be discussed below).
Future studies could consider replication with a larger sample as well as within a clinical sample to further clarify these findings.

The findings from contextual hypotheses 1, 2, and 5 suggest that the overall paradigm was effective in that participants seemingly did engage in processing of the traumatic events, and PTSS decreased. Despite the apparent success of the written intervention in achieving symptom reduction, factors involving sample characteristics likely influenced the outcomes of hypotheses 2 and 3. It is also possible that the measurement of state EA was flawed (to be discussed below). Because the results were in the hypothesized direction but lacked significance compared to studies that examined similar questions, the current study cannot conclusively determine that trait levels of self-compassion are not associated with experiential engagement nor PTSS post-treatment. Overall, the findings from the tests of Hypothesis 2, that trait self-compassion and state self-compassion were related, combined with the lack of support for hypotheses 3 and 4, likely had implications for the primary hypotheses in this study. That is, the failure to confirm these contextual hypotheses suggests that the current study could not meaningfully test the primary hypotheses.

Primary Hypotheses

The first of the two primary aims of the current study was to examine the role of state self-compassion on experiential engagement during a written exposure task for individuals with PTSS. Hypotheses 6 and 7 were related to this aim. The current study utilized the self-compassion break (Neff, 2021), a five-minute guided audio exercise to hopefully induce changes in state self-compassion for the exposure with self-compassion intervention group, regardless of baseline levels of trait self-compassion.
Hypothesis 6 predicted that the exposure with self-compassion condition would report higher levels of state self-compassion after the self-compassion intervention. Data did not support this hypothesis. There were no significant differences between the exposure-only group and the exposure with self-compassion group, indicating that the manipulation was unsuccessful. There could be multiple reasons that this exercise did not produce the expected results specifically related to the use of the self-compassion break, the context of the intervention occurring in a research setting, and possible differences in participants. Concerning the self-compassion break, the current study used the self-compassion break for efficiency in delivering the self-compassion intervention as exposure tasks can be demanding (Lewis et al., 2020; Pitman et al., 1991; Tarrier et al., 1999). A five-minute audio exercise was appealing as an easily accessible exercise with low cognitive demand. Furthermore, this accessibility would make incorporation in practical applications relatively easy. However, the studies referenced in the existing literature on inducing self-compassion in a research setting (Dupasqier et al., 2017; Hoffart et al., 2015) used more involved techniques for inducing self-compassion such as writing prompts or imagery rescripting exercises, respectively. Perhaps a self-compassion break is not sufficient to induce higher levels of state self-compassion in one session. Future research could consider its repeated use in multiple sessions to determine if there is a cumulative effect on state self-compassion over time and if changes would be associated with improved outcomes as the literature suggests. Another consideration would be to repeat the current study with a more powerful self-compassion intervention, such as a writing prompt as the self-compassion intervention instead of the self-compassion break. An additional writing prompt would be more time-consuming and demanding for the participant when paired with a session of WET.
Another possibility for why the manipulation was ineffective was the context in which the activities were performed by the research participants. The participants are engaging with the activities for course credit and know they are participating in a research project. Their attitudes towards the activities and respective engagement would likely differ from someone who is treatment-seeking. Perhaps there would be differences in attention to the listening task between those who are doing so for research course credit versus those who are doing so in the context of self-initiated therapy. Future research should consider the use of the current study protocol within a clinical population to determine if there are any differences in outcomes.

An additional consideration for why the manipulation was unsuccessful could be due to the applicability of the self-compassion intervention to some participants. The experience of PTSD is heterogenous (Young & Breslau, 2016), thus there may be variance in the symptom presentations of PTSS in the current sample. These variations may have influenced the effectiveness of the intervention. For example, self-compassion has been associated with changes in self-blame among other negative internal experiences (Neff et al., 2007; Terry et al., 2011). Although PTSD is associated with self-blame (Lee et al., 2001), the heterogenous nature of the experience of PTSD does not guarantee that self-blame will be experienced by an individual following a traumatic event. The self-compassion intervention may be more effective for participants who experience higher levels of self-blame. The current study did not include measures specific to certain internal experiences such as beliefs and emotions associated with PTSD beyond the PCL-5. Future research could consider a similar study that explores moderating effects of self-blame and other associated internal experiences with PTSD (e.g., other blame, depression) on the relationship between condition and state self-compassion.
Hypothesis 7 predicted that there would be a total effect of the exposure with self-compassion intervention on state EA. Data did not support this hypothesis. Given that the total effect was not significant, an indirect effect is unlikely. Correlation analyses indicated that State EA, measured by the Experiencing scale (reversed) in the main analyses, was significantly correlated with state self-compassion (see Table 1). This finding provides some evidence of construct validity for these two scales. This correlation was expected in the current study as previous studies have indicated evidence that self-compassion is associated with lower EA (Costa & Pinto-Gouveia, 2013; Dupasquier et al., 2017). As previously discussed, it is possible that the method for inducing self-compassion and/or context within which self-compassion was induced could be interfering with the effectiveness of the self-compassion intervention, which would lead to lack of difference in state self-compassion between the two intervention conditions. As previously mentioned, future research could adjust the protocol for increasing state self-compassion to address these concerns before determining if state self-compassion does not impact experiential engagement in exposure.

The second of the primary aims of the study assessed for how expected changes in experiential engagement would impact PTSS over time as a result of manipulations in state self-compassion. Engagement in exposure treatment for PTSD was important to consider as engagement in therapeutic treatment is associated with improved outcomes (Kamphius & Telch, 2000; Norton et al., 2011; Price et al., 2011). This aim was tested using Hypotheses 8 and 9.

Hypothesis 8 predicted that there would be a total effect of the intervention on PTSS at follow-up. Hypothesis 9 predicted that there would be an indirect effect of condition on PTSS through both state self-compassion and state EA. Data did not support either hypothesis. Experimental condition was not associated with PTSS at follow-up nor were any significant
indirect effects or total effects observed. The ineffectiveness of the manipulation could be a sufficient reason for the lack of significant results in the current study. Strengthening this conclusion were the additional analyses conducted in which increasing the number of participants or expanding the inclusion criteria did not change the significance of the results.

Another possible consideration is that state EA was not adequately captured. There are few sources examining the concept of state EA and even fewer measures. Both measures in the current study intended to assess for state EA were modified for the current study from other measures that do not have adequate psychometric data or a history of widespread implementation. Correlations in the current study indicate that the Experiencing scale performed as it should such that as both trait and state self-compassion increase, EA decreases. However, in the context of the PROCESS Model 6 when controlling for PTSS, the relationship does not hold. Furthermore, the Experiencing scale did not correlate significantly with the Multidimensional Experiential Avoidance Questionnaire (MEAQ; Gamez et al., 2011), which was administered at follow-up. Yet, there are multiple measures of trait level EA aside from the MEAQ, but it is not known based on the current study if the experiencing scale aligns better with those other measures. Also of note is the correlation between the Experiencing scale (reversed) and the State EA measure in the current study ($r = 0.078, p = 0.601$). The small correlation indicates that these measures are not assessing the same construct, but considering the lack of existing research on measurement of state experiential avoidance, it cannot be definitively concluded which measure, if either, is assessing state EA. Future research could further examine the performance of the Experiencing scale against multiple trait-level experiential avoidance measures [e.g., MEAQ; Brief Experiential Avoidance Questionnaire (Gamez et al., 2014); Acceptance and Action Questionnaire-II (Bond et al., 2011)] to determine if the Experiencing scale measures what it
intends to measure. The same could be said for the Kashdan et al. (2014) EA scale included in the study, which had inadequate reliability and similarly did not correlate with the MEAQ nor PCL-5 scores.

Summary

The current study was expected to provide information on the effect of a self-compassion intervention on engagement in exposure and trauma symptoms. Learning the contribution of self-compassion on exposure engagement may help to improve therapeutic outcomes and retention rates, especially among individuals who struggle to persist during exposure-based PTSD interventions. Theoretically, results of the study could add to our knowledge on methods for improving exposure as well as reducing maladaptive coping strategies, like EA during exposure sessions.

The study’s findings did not produce the expected results. However, specific factors such as context, measurement, and design could have influenced these findings. Because of these factors and limitations of the current study, it should not be definitively concluded that self-compassion does not influence experiential engagement and that this relationship in turn does not lead to improved outcomes. Additional research that expands and improves upon the current study’s methods would be useful in learning more about the relationship among the variables studied.

Limitations

There are several other limitations to the current study. One of the major limitations is the reliance on self-reported data, which may inflate correlations due to common method variance.
(Lindell & Whitney, 2001). Additionally, the use of mass survey data for demographics impacted the assessment of the influence of these variables as questions and response options did not align across semesters, making a data merge not feasible.

The sample is limited to introduction to psychology students, which limits the generalizability to other samples. Furthermore, the sample is not necessarily representative of the sample found in a clinical setting, which is the setting that may see the most benefit from an intervention study and would be most likely to engage in tasks directed by a clinician. Some students in the sample may already be seeking treatment which may have affected results and was not assessed. It should also be noted that those with higher levels of PTSS during screening were less likely to register for the study. This finding is expected since a characteristic of PTSD is avoidance (American Psychiatric Association, 2013; Foa & Kozak, 1986). The description and invitation for the study mentioned the term “trauma,” which contributes to the possibility that those with higher PTSS were deterred from participating and could have influenced outcomes of the study.

Results from additional analyses expanding inclusion criteria indicated that effectiveness of the self-compassion induction exercise did not change when allowing those with lower PCL-5 scores to be included in the analyses. Expansion of inclusion criteria does mean that the participant pool would include those with mild to moderate PTSS rather than just moderate to severe PTSS, and it is possible that the lack of power among those with moderate to severe PTSS affected the significance of findings. When expanding the inclusion criteria to a PCL-5 of 10, the sample size increased to 86, which would be adequate for power. Still, no significant effects were found. However, the inclusion criteria then involved those with mild PTSS symptoms, and the intervention may have a different impact on varying levels of PTSS. The study had
difficulties with attrition at follow-up and also screened out approximately one-third of registrants due to SIDAS scores, which may have been influenced by PTSS related to avoidance and severity, respectively. It is not clear how the intervention would perform with an adequately powered sample of those with moderate to severe PTSS. However, it is important to note that a power analysis using the effect sizes in the current study concerning intervention condition on PCL-5 scores at follow-up would require 1700 participants to achieve 80% power.

Another potential limitation involves assessing for the influence of the components of self-compassion. Prior research (Curreri et al., 2020; Hoffart et al., 2015) has shown effects of both self-kindness and mindfulness as stand-alone factors. The proposed study uses the self-compassion break which combines the three components of self-compassion (self-kindness, mindfulness, and common humanity) in one intervention. The current design does not allow for assessment of the impact of each component of self-compassion on EA individually in a meaningful way. Additionally, as previously mentioned, the self-compassion break was not an effective method for inducing self-compassion in the current sample. Thus, there is the potential for future research to conduct this study with a different method of inducing self-compassion as well as consideration of self-compassion overall versus parsing out the impact of each component of self-compassion.

There are also some limitations concerning measurement of variables. Finally, the current study used the “worst event” method as subjectively identified by the participant on the LEC-5 and PCL-5 to assess for PTSD symptoms. This method, though efficient and experientially supported, assumes that the “worst” event is the cause of PTSS (Breslau et al., 1998; Breslau et al., 2004; Kessler et al., 1995) where other events may be causing current symptoms of distress.
(Naifeh & Elhai, 2010). Future studies could consider the use of more specific measures or methods to gauge whether current symptomatology is related to a specific event.

Clinical Implications

The current study found results that are consistent with the view that the use of a single session of WET is an effective treatment for PTSD. Although more research needs to be conducted to further the findings from the current study, it is possible that even a single session of WET could be effective in reducing PTSS. Single-session interventions may be useful in addressing limited resources and access to treatment (Schleider et al., 2021) while also effectively leading to symptom improvement and addressing therapeutic retention. Regarding the self-compassion component of the current study’s design, there are several factors to consider that may have impacted the results. However, according to the current study’s findings, one-time use of a self-compassion break as an adjunct to exposure is not likely to make a noticeable difference.
REFERENCES


APPENDIX A

MEASURES
PCL-5 with LEC-5 and Criterion A

Part 1

**Instructions:** Listed below are a number of difficult or stressful things that sometimes happen to people. For each event check one or more of the boxes to the right to indicate that: (a) it happened to you personally; (b) you witnessed it happen to someone else; (c) you learned about it happening to a close family member or close friend; (d) you were exposed to it as part of your job (for example, paramedic, police, military, or other first responder); (e) you’re not sure if it fits; or (f) it doesn’t apply to you.

Be sure to consider your entire life (growing up as well as adulthood) as you go through the list of events.

<table>
<thead>
<tr>
<th>Event</th>
<th>Happened to me</th>
<th>Witnessed it</th>
<th>Learned about it</th>
<th>Part of my job</th>
<th>Not sure</th>
<th>Doesn’t apply</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Natural disaster (for example, flood, hurricane, tornado, earthquake)</td>
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<td>2. Fire or explosion</td>
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<td>3. Transportation accident (for example, car accident, boat accident, train wreck, plane crash)</td>
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<td>4. Serious accident at work, home, or during recreational activity</td>
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<td>5. Exposure to toxic substance (for example, dangerous chemicals, radiation)</td>
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<td>6. Physical assault (for example, being attacked, hit, slapped, kicked, beaten up)</td>
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<td>7. Assault with a weapon (for example, being shot, stabbed, threatened with a knife, gun, bomb)</td>
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<td>8. Sexual assault (rape, attempted rape, made to perform any type of sexual act through force or threat of harm)</td>
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<td>9. Other unwanted or uncomfortable sexual experience</td>
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<td>10. Combat or exposure to a war-zone (in the military or as a civilian)</td>
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<tr>
<td>11. Captivity (for example, being kidnapped, abducted, held hostage, prisoner of war)</td>
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<td>12. Life-threatening illness or injury</td>
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<td>13. Severe human suffering</td>
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<td>14. Sudden violent death (for example, homicide, suicide)</td>
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<tr>
<td>15. Sudden accidental death</td>
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<tr>
<td>16. Serious injury, harm, or death you caused to someone else</td>
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<td>17. Any other very stressful event or experience</td>
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</tbody>
</table>
### PCL-5

**Instructions:** Below is a list of problems that people sometimes have in response to a very stressful experience. Please read each problem and then select one of the options to indicate how much you have been bothered by that problem in the past week. The options include not at all, a little bit, moderately, quite a bit, and extremely.

<table>
<thead>
<tr>
<th>In the past week, how much were you bothered by:</th>
<th>Not at all</th>
<th>A little bit</th>
<th>Moderately</th>
<th>Quite a bit</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Repeated, disturbing, and unwanted memories of the stressful experience?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. Repeated, disturbing dreams of the stressful experience?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. Suddenly feeling or acting as if the stressful experience were actually happening again (as if you were actually back there reliving it)?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. Feeling very upset when something reminded you of the stressful experience?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. Having strong physical reactions when something reminded you of the stressful experience (for example, heart pounding, trouble breathing, sweating)?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6. Avoiding memories, thoughts, or feelings related to the stressful experience?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7. Avoiding external reminders of the stressful experience (for example, people, places, conversations, activities, objects, or situations)?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8. Trouble remembering important parts of the stressful experience?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9. Having strong negative beliefs about yourself, other people, or the world (for example, having thoughts such as: I am bad, there is something seriously wrong with me, no one can be trusted, the world is completely dangerous)?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10. Blaming yourself or someone else for the stressful experience or what happened after it?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11. Having strong negative feelings such as fear, horror, anger, guilt, or shame?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12. Loss of interest in activities that you used to enjoy?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13. Feeling distant or cut off from other people?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>14. Trouble experiencing positive feelings (for example, being unable to feel happiness or have loving feelings for people close to you)?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>15. Irritable behavior, angry outbursts, or acting aggressively?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>16. Taking too many risks or doing things that could cause you harm?</td>
<td>0</td>
<td>1</td>
<td>2</td>
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<td>4</td>
</tr>
<tr>
<td>17. Being “superalert” or watchful or on guard?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>18. Feeling jumpy or easily startled?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>19. Having difficulty concentrating?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>20. Trouble falling or staying asleep?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

*Past-month administered as a screener*
Suicidal ideation attributes scale

In the past month, how often have you had thoughts about suicide? (0 = Never, 10 = Always)

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
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</table>

In the past month, how much control have you had over these thoughts? (0 = No control, 10 = Full control)

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<tr>
<th>0</th>
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<th>4</th>
<th>5</th>
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</table>

In the past month, how close have you come to making a suicide attempt? (0 = Not close at all, 10 = Made an attempt)

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<tr>
<th>0</th>
<th>1</th>
<th>2</th>
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<th>4</th>
<th>5</th>
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<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
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</table>

In the past month, to what extent have you felt tormented by thoughts about suicide? (0 = Not at all, 10 = Extremely)

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<th>0</th>
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<th>5</th>
<th>6</th>
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<th>10</th>
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</table>

In the past month, how much have thoughts about suicide interfered with your ability to carry out daily activities, such as work, household tasks or social activities? (0 = Not at all, 10 = Extremely)

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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<th>9</th>
<th>10</th>
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Note: Respondents who respond “0 – Never” to the first item skip all remaining items and score a total of zero.
State Experiential Avoidance Measure

**Directions:** Please respond to the following questions, thinking about your experience during the writing exercise only.

Not at all = 0  1  2  3  4  5  6  7= Very Much

1. How much did you try to hide your feelings of anxiety or fear from others?

Not at all = 0  1  2  3  4  5  6  7= Very Much

2. To what degree did you give up expressing what you would like to (or mattered to you) in order to control and manage anxiety or fear?

Not at all = 0  1  2  3  4  5  6  7= Very Much

3. How much did you control your anxiety or fear-related feelings or thoughts?
4. How upset and bothered were you about anxiety or fear-related feelings or thoughts?
**Experiencing Scale**

Instructions: The following statements describe what some people experienced and how they coped **during the writing exercise**. Please indicate how much you agree or disagree with each of the following statements.

1. During the writing exercise, I did NOT ignore my painful or uncomfortable thoughts.

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<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Strongly</td>
<td>Somewhat</td>
<td>Neither Agree</td>
<td>Somewhat</td>
<td>Strongly</td>
</tr>
<tr>
<td>Disagree</td>
<td>Disagree</td>
<td>Nor Disagree</td>
<td>Agree</td>
<td>Agree</td>
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2. During the writing exercise, I let myself feel difficult and painful feelings.

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<td>Strongly</td>
<td>Somewhat</td>
<td>Neither Agree</td>
<td>Somewhat</td>
<td>Strongly</td>
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<tr>
<td>Disagree</td>
<td>Disagree</td>
<td>Nor Disagree</td>
<td>Agree</td>
<td>Agree</td>
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3. During the writing exercise, I felt free to feel and act upset, hurt, angry, guilty, etc.

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<td>Strongly</td>
<td>Somewhat</td>
<td>Neither Agree</td>
<td>Somewhat</td>
<td>Strongly</td>
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<tr>
<td>Disagree</td>
<td>Disagree</td>
<td>Nor Disagree</td>
<td>Agree</td>
<td>Agree</td>
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4. During the writing exercise, I did NOT try to stop my disturbing and upsetting thoughts.

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<tr>
<td>Strongly</td>
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<td>Neither Agree</td>
<td>Somewhat</td>
<td>Strongly</td>
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<tr>
<td>Disagree</td>
<td>Disagree</td>
<td>Nor Disagree</td>
<td>Agree</td>
<td>Agree</td>
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</table>
5. During the writing exercise, I reacted spontaneously.

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<td></td>
<td>Strongly</td>
<td>Somewhat</td>
<td>Neither Agree</td>
<td>Somewhat</td>
<td>Strongly</td>
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<td></td>
<td>Disagree</td>
<td>Disagree</td>
<td>Nor Disagree</td>
<td>Agree</td>
<td>Agree</td>
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</table>

6. During the writing exercise, I let my thoughts happen naturally.

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<td>Strongly</td>
<td>Somewhat</td>
<td>Neither Agree</td>
<td>Somewhat</td>
<td>Strongly</td>
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<tr>
<td></td>
<td>Disagree</td>
<td>Disagree</td>
<td>Nor Disagree</td>
<td>Agree</td>
<td>Agree</td>
</tr>
</tbody>
</table>

7. During the writing exercise, I did not hold back my feelings.

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<td>Strongly</td>
<td>Somewhat</td>
<td>Neither Agree</td>
<td>Somewhat</td>
<td>Strongly</td>
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<tr>
<td></td>
<td>Disagree</td>
<td>Disagree</td>
<td>Nor Disagree</td>
<td>Agree</td>
<td>Agree</td>
</tr>
</tbody>
</table>

8. During the writing exercise, I did not fight against my painful and disturbing thoughts.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly</td>
<td>Somewhat</td>
<td>Neither Agree</td>
<td>Somewhat</td>
<td>Strongly</td>
</tr>
<tr>
<td></td>
<td>Disagree</td>
<td>Disagree</td>
<td>Nor Disagree</td>
<td>Agree</td>
<td>Agree</td>
</tr>
</tbody>
</table>
Self-Compassion Scale (SCS)

**HOW I TYPICALLY ACT TOWARDS MYSELF IN DIFFICULT TIMES**

Please read each statement carefully before answering. For each item, indicate how often you behave in the stated manner, using the following 1-5 scale. Please answer according to what really reflects your experience rather than what you think your experience should be.

<table>
<thead>
<tr>
<th>Almost never</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Almost always</th>
<th>5</th>
</tr>
</thead>
</table>

1. I’m disapproving and judgmental about my own flaws and inadequacies.
2. When I’m feeling down I tend to obsess and fixate on everything that’s wrong.
3. When things are going badly for me, I see the difficulties as part of life that everyone goes through.
4. When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world.
5. I try to be loving towards myself when I’m feeling emotional pain.
6. When I fail at something important to me I become consumed by feelings of inadequacy.
7. When I’m down, I remind myself that there are lots of other people in the world feeling like I am.
8. When times are really difficult, I tend to be tough on myself.
9. When something upsets me I try to keep my emotions in balance.
10. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.
11. I’m intolerant and impatient towards those aspects of my personality I don’t like.
12. When I’m going through a very hard time, I give myself the caring and tenderness I need.
13. When I’m feeling down, I tend to feel like most other people are probably happier than I am.
14. When something painful happens I try to take a balanced view of the situation.
15. I try to see my failings as part of the human condition.
16. When I see aspects of myself that I don’t like, I get down on myself.
17. When I fail at something important to me I try to keep things in perspective.
18. When I’m really struggling, I tend to feel like other people must be having an easier time of it.
19. I’m kind to myself when I’m experiencing suffering.
20. When something upsets me I get carried away with my feelings.
21. I can be a bit cold-hearted towards myself when I’m experiencing suffering.
22. When I’m feeling down I try to approach my feelings with curiosity and openness.
23. I’m tolerant of my own flaws and inadequacies.
24. When something painful happens I tend to blow the incident out of proportion.
25. When I fail at something that’s important to me, I tend to feel alone in my failure.
26. I try to be understanding and patient towards those aspects of my personality I don’t like.

**Reference**

State Self-Compassion Scale - Short form

HOW I FEEL TOWARDS MYSELF RIGHT NOW

Think about a situation you are experiencing right now that is painful or difficult. It could be some challenge in your life, or perhaps you are feeling inadequate in some way. Please indicate how well each statement applies to how you are feeling toward yourself right now as you think about this situation, using the following scale:

Not at all
true for me
1

2
3
4
5

Very
true for me

1. I’m giving myself the caring and tenderness I need.
2. I’m obsessing and fixating on everything that’s wrong.
3. I’m remembering that there are lots of others in the world feeling like I am.
4. I feel intolerant and impatient toward myself.
5. I’m keeping things in perspective.
6. I feel like I’m struggling more than others right now.
APPENDIX B

DEMOGRAPHICS QUESTIONNAIRE
1. What is your age? ________

2. What is your gender?
   a. Female
   b. Male
   c. Transgender female
   d. Transgender male
   e. Another gender identity: ________
   f. Prefer not to respond

3. What was your sex assigned at birth?
   a. Female
   b. Male
   c. Another sex assigned at birth: ________
   d. Prefer not to respond

4. What is your race/ethnicity? Please select all that apply.
   a. Asian or Pacific Islander
   b. Bi-racial
   c. Black
   d. Hispanic/Latinx
   e. Middle Eastern
   f. Native American
   g. White
   h. Another race/ethnicity: ________
   i. Prefer not to respond
5. What is your sexual orientation?
   a. Heterosexual
   b. Homosexual
   c. Bisexual
   d. Another sexual orientation: ________
   e. Prefer not to respond

6. What is your class standing?
   a. Freshman
   b. Sophomore
   c. Junior
   d. Senior
   e. Another class standing: ______
   f. Prefer not to respond

7. Are you fluent in English for reading and writing?
   a. Yes
   b. No
   c. Prefer not to respond

8. How would you describe your employment status?
   a. Employed full-time
   b. Employed part-time
   c. I do not work outside of school
   d. Prefer not to respond
9. What is your yearly family/parental income?
   a. Less than $30,000
   b. $30,001 - $40,000
   c. $40,001 - $50,000
   d. $50,001 - $60,000
   e. $60,001 - $70,000
   f. $70,001 - $80,000
   g. $80,001 - $90,000
   h. Greater than $90,000
   i. Prefer not to respond

10. Have you ever served in the military, and if so, which branch?
    a. No
    b. Yes, Army
    c. Yes, Navy
    d. Yes, Air Force
    e. Yes, Marine Corps
    f. Yes, Coast Guard
    g. Prefer not to respond

11. In what capacity did you serve?
    a. I did not serve in the military
    b. Active Duty
    c. Reserves
    d. National Guard
    e. Prefer not to respond
12. Have you ever been deployed to a war zone?
   a. Yes
   b. No
   c. Prefer not to respond

13. Are you currently in therapy or counseling focused on a traumatic/stressful experience?
   a. Yes
   b. No
   c. No, but I have been in the past
   d. Unsure
   e. Prefer not to respond
APPENDIX C

SELF-COMPASSION BREAK TRANSCRIPT
Self-Compassion Break Transcript

(Recording to be used: https://tinyurl.com/42p2stmw)

This practice is called the self-compassion break and it's something you can do anytime during the day or at night when you need a little self-compassion.

Go to practice this exercise we actually need to call up a little suffering.

So I'll invite you to think about a situation in your life right now that is difficult for you maybe you're feeling stress or you're having a relationship problem or you're worried about something that might happen.

And if I even think of something that is difficult but not overwhelmingly difficult especially if you're new to practicing the self-compassion break.

Finding a situation in getting in touch with it.

What's going on.

What happened or what might happen.

Who said what.

Really bring the situation to life in your mind's eye.

And then I'm going to be saying the series of phrases that are designed to help us remember the three components of self-compassion.

When we need it most.

So the first phrase is.

This is a moment of suffering.

Right we're bringing mindful awareness to the fact that suffering is present.

And I'd invite you to find some language that speaks to you.

Something like.
This is really hard right now.

Or I'm really struggling.

We're actually turning toward our difficulty acknowledging it naming it.

This is the moment of suffering.

The second phrase is.

Suffering is a part of life.

Okay well reminding ourselves of our common Humanity suffering is a part of life.

And again finding language that speaks to you.

It may be something like.

It's not abnormal to feel this way.

Many people are going through similar situations.

Write the degree of suffering may be different the flavor of suffering may be different.

But suffering is a part of life.

Art of Being Human.

And then the third phase is.

May I be kind to myself in this moment.

And support bringing kindness to yourself I'd invite you to preps put your hands over your heart.

Or some other place on your body that feels soothing and comforting.

Feeling the warmth of your hands.

The Gentle Touch.

Letting those feelings of care stream through fingers.

May I be kind to myself.

And you seen any language that supports that sense of kindness.
Perhaps language you would use with a good friend you cared about who was going through a very similar situation.

You know what maybe something like I’m here for you.

Going to be okay.

I care about you.

You can even try using at the menu test is that feels comfortable.

You know darling I’m so sorry.

Are you can try calling yourself by your first name.

Anything that feels natural to express your deep wish.

That you be well and happy and free from suffering.

And then letting go of the practice and noticing how your body feels right now.

Allowing any Sensations to be.

Just as they are allowing yourself to be just as you are in this moment.
APPENDIX D

WRITTEN EXPOSURE PROMPT #1
Written Exposure Prompt #1

In this session, I would like you to write about your trauma. Don’t worry about spelling or grammar. I would like you to write about the details of the trauma as you remember it now – for example, how the trauma event happened and whether other people were involved. In writing about the details of the trauma, it is important to write about the specifics of what happened and what you were thinking and feeling as the trauma was happening. Try to be as specific in recounting the details as possible. It is also important that you really let go and explore your very deepest emotions and thoughts about the trauma. Just be sure to be as detailed about the trauma as possible and also to write about your thoughts and feelings as you remember them during (and immediately after) the trauma.

For this writing session, I’d like you to write about the trauma starting at the beginning. For instance, you could begin with the moment you realized the trauma was about to happen. As you describe the trauma, it is important that you provide as many specific details as you can remember. For example, you might write about what you saw (i.e., headlights of the car approaching you, person approaching you), what you heard (e.g., car horn, screeching tires, explosion, threats), or what you smelled (e.g., rubber, blood). In addition to writing about the details of the trauma, you should also be writing about your thoughts and feelings during the trauma as you remember it now. For example, you might have had the thought “I’m going to die,” “This can’t be happening,” or “I’m going to be assaulted.” And you might have felt terrified, frozen with fear, or angry at another person involved.

Remember, you don’t need to finish writing about the entire trauma in this session. Just focus on writing with as much detail as possible and include the thoughts and feelings you experienced
during and immediately after the trauma. Remember, the trauma is not actually happening again, you are simply recounting it as you look upon it now.