Examining the Utility of a Brief Self-Compassion intervention for Emotion Regulation in individuals with Exposure to Trauma

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ABSTRACT

EXAMINING THE UTILITY OF A BRIEF SELF-COMPASSION INTERVENTION FOR EMOTION REGULATION IN INDIVIDUALS WITH EXPOSURE TO TRAUMA

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Northern Illinois University, 2021
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Research suggests that abilities to moderate and process trauma-related emotions may predict symptoms of posttraumatic stress, with the overuse of maladaptive emotion regulation strategies presenting a potential vulnerability to experiencing difficulties following trauma exposure. Self-compassion has been associated with the acceptance of negative emotions, with research finding evidence for positive associations between self-compassion and adaptive emotion regulation. Additionally, research suggests an inverse relationship between self-compassion and symptoms of posttraumatic stress. Self-compassion has been conceptualized and studied as a skill that can be learned, with studies finding support for improved abilities following targeted interventions. However, more research is needed to establish the effectiveness of interventions that can be delivered in a brief format, and to determine whether increases in self-compassion lead to improvements in emotion regulation in individuals with exposure to trauma.

This study utilized an experimental design to examine whether a single session of self-compassion training was effective for improving self-compassion and decreasing difficulties in emotion regulation, compared to muscle-relaxation training, for undergraduates with trauma.
exposure ($N = 85; 63.1\%$ female) enrolled in an Introduction to Psychology course. Analyses included a series of within- and between-subjects repeated-measures ANCOVAs in order to examine group differences in self-compassion and difficulties with emotion regulation. Additionally, a serial mediation model was used to examine changes in self-compassion and emotion regulation as mediators in the relationship between group and changes in negative affect. Results demonstrated associations among study variables in the expected directions but did not support study hypotheses regarding the experimental interventions. Limitations and future directions are discussed.
EXAMINING THE UTILITY OF A BRIEF SELF-COMPASSION INTERVENTION FOR EMOTION REGULATION IN INDIVIDUALS WITH EXPOSURE TO TRAUMA

BY

SARA HIMMERICH
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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

Dissertation Director:
Holly Orcutt
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DEDICATION

To my husband, Ryan, and Felicity, Ingrid, and Emmett, whose love and support encouraged me every step of the way.
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Posttraumatic stress disorder (PTSD) is a well-recognized mental health disorder that may develop following exposure to a traumatic event. Symptom clusters are characterized by intrusive memories, avoidance of trauma reminders, negative alterations in mood and cognitions, and hyperarousal (American Psychiatric Association [APA], 2013). However, there are likely additional unknown factors related to PTSD, as not everyone who has been exposed to a potentially traumatic event develops the disorder. For example, as many as 65% of college students report having experienced a trauma, but prevalence rates of PTSD are considerably lower and consistent with those of the broader population (i.e., 8-12%; Elhai et al., 2012; Read, Ouimette, White, Colder, & Farrow, 2011). Additionally, exposure to a traumatic event places an individual at risk for several negative consequences, such as increased problematic alcohol use (Jacobsen, Southwick, & Kosten, 2001; Read, Radomski, & Borsari, 2015; Stappenbeck, Bedard-Gillian, Lee, & Kaysen, 2013), increased stress sensitivity and academic stress (Woolman, Becker, & Klanecky, 2015), sleep disturbances (Lind et al., 2017), and smoking (Gabert-Quillen, Selya, & Delahanty, 2014). Given the potential for developing PTSD and subsequent negative effects following a trauma, it is helpful to understand factors that may increase risk for adverse reactions. The way in which individuals respond to trauma, including trauma-related emotions and reminders, has been suggested to play a role in the development and maintenance of symptoms of posttraumatic stress.
Emotion Regulation

Emotion regulation has been conceptualized as encompassing both a process of monitoring, evaluating, and expressing emotions as part of goal-directed behavior (Gratz & Roemer, 2004), as well as an ability to experience and spontaneously respond to emotional experiences (Gross, 1998). These theoretical approaches can be considered complementary, with emotion regulation broadly defined as the awareness and understanding of emotions, acceptance of emotions, ability to control avoidance behaviors in response to strong emotions, and judgment of appropriate coping strategies (Gratz & Roemer, 2004; Gross, 1998; Linehan, 1993). In recent literature, difficulties with emotion regulation have been found to be central to a number of psychological disorders, including PTSD. Reviews have found support for a link between six specific emotion regulation strategies (acceptance, avoidance, problem solving, reappraisal, rumination, and suppression) and diagnoses of anxiety, borderline personality disorder, depression, eating disorders, and substance use disorder (Aldao, Noel-Hoeksema, & Schweizer, 2010; Berking & Wupperman, 2012). Though there continues to be a focus on the clarification and conceptualization of emotion regulation, it is worthwhile to consider how this construct can be understood in the context of trauma.

Emotion Regulation Deficits in Individuals with Trauma Exposure

The way individuals interpret and manage trauma-related emotions represents an important area of investigation and may predict symptoms of posttraumatic stress. The symptom presentation associated with PTSD constitutes a range of potential difficulties regulating distressing emotions, such as increased arousal at reminders of the trauma and numbing of the
emotional experience (Ehring & Quack, 2010; Frewen & Lanius, 2006). Exposure to trauma has been associated with deficits in emotion regulation abilities in most domains, including emotional clarity, emotional awareness, impulse control, and emotional acceptance. Memories of the trauma may elicit heightened emotional and physiological responses, which, when coupled with an inability to down-regulate arousal symptoms, may lead to the experience of these responses as unpredictable and uncontrollable (Bouton, Mineka, & Barlow, 2001). Further, some individuals may learn to fear and avoid these trauma-related cues, resulting in the maintenance of symptoms of posttraumatic stress. Difficulties with regulating emotion are likely related to a greater appraisal of threat from the trauma and difficulty coping with trauma reminders (Bardeen, Kumpula, & Orcutt, 2013). Additionally, individuals with PTSD may experience secondary emotions, such as guilt and shame, which suggest a greater difficulty with efforts to modulate trauma emotions as they occur (Resick & Schnicke, 1992; Seligowski, Lee, Bardeen, & Orcutt, 2015).

Findings from a prospective research study provide support for a relationship between emotion regulation and posttraumatic stress. Bardeen and colleagues (2013) measured emotion regulation at multiple time points in a sample of 691 undergraduate women exposed to a campus mass shooting. Emotion regulation was assessed prior to the trauma, immediately following the trauma, and approximately eight months later. Using a cross-lagged panel design, results demonstrated that difficulty with emotion regulation was predictive of symptoms of posttraumatic stress both immediately following the mass shooting and at eight months post-shooting. Evidence was also found for a bidirectional relationship between emotion regulation and symptoms of posttraumatic stress. Taken together, results suggest emotion regulation
difficulties confer risk for developing PTSD after a trauma as well as interfere with a typical recovery trajectory (Bardeen et al., 2013).

Research by Badour and Feldner (2013) also found evidence for a link between emotion regulation difficulties and trauma symptoms. The study sample included 21 women with a history of sexual or physical assault. Participants listened to a brief, personalized script based on their traumatic event and data were collected throughout the intervention using physiological recording of skin conductance, as well as measures of emotion regulation and anxious reactivity. Results from hierarchical linear regression analyses found that associations between difficulties with emotion regulation and posttraumatic stress symptom severity emerged even after controlling for physiological responding and self-reported anxious reactivity (Badour & Feldner, 2013). These results point to the importance of the emotional response to the traumatic event and resulting cues as significant in the maintenance of symptoms of posttraumatic stress.

Additionally, an early study by Tull, Barrett, McMillan, and Roemer (2007) investigated associations between emotion regulation and trauma symptoms in a sample of male and female undergraduates. Individuals were assessed at a single time point for symptoms of posttraumatic stress, emotion regulation, and positive and negative affect. Results demonstrated that difficulties with emotion regulation were associated with severity of symptoms of posttraumatic stress, such that the greatest difficulties were found in those with diagnosable levels of PTSD. Individuals with more severe symptoms of PTSD were also found to struggle specifically with acceptance of emotions.
Maladaptive Emotion Regulation Strategies

Maladaptive use of expressive and thought suppression, which involves efforts to suppress unwanted emotional responses and behaviors (Nixon et al., 2008; Wegner, Schneider, Carter, & White, 1987), as well as attempts to reduce the outward display of emotions (Gross, 1998) have been linked to greater symptoms of posttraumatic stress. Expressive and thought suppression have been labeled response-focused emotion regulation strategies, as they involve attempts to moderate emotions that are fully developed (Gross, 1998). These response modulation strategies are considered maladaptive as they do not generally lead to a reduction in negative emotional experiences; rather, they often lead to increases. Additionally, suppression is frequently associated with the avoidance of negative emotions, which can maintain symptoms of PTSD (Gross & Levenson, 1997; Pineles et al., 2011). Indeed, several cross-sectional studies have found that increased use of suppression strategies for emotion regulation is associated with greater posttraumatic stress symptom severity in samples of undergraduate students (Eftekhari, Zoellner, & Vigil, 2009; Moore, Zoellner, & Mollenholt, 2008; Tull et al., 2007), adults with trauma exposure and current substance use (Bonn-Miller, Vujanovic, Boden, & Gross, 2011), adult survivors of trauma (Ehring & Quack, 2010) and survivors of torture (Nickerson et al., 2016).

Additional research has prospectively examined relationships among suppression emotion regulation strategies and symptoms of posttraumatic stress. For example, a study conducted by Boden and colleagues (2013) examined expressive suppression in a sample of 93 male military Veterans receiving residential treatment for PTSD. Participants reported on emotion regulation strategies at both intake and discharge from PTSD treatment, with a mean
length of stay of 83.7 days. While in treatment, participants primarily received cognitive processing therapy (CPT; Resick, Monson, & Chard, 2007) in a group format, which entails 14 therapy sessions with a focus on flexible use of adaptive emotion regulation strategies and symptoms of posttraumatic stress. Results demonstrated that use of expression suppression was associated with greater severity of PTSD symptoms at both intake and discharge and that a decrease in this strategy was linked to PTSD symptom severity at time of discharge. Specifically, the greater the decrease in an individual’s use of suppression during treatment, the lower the PTSD symptom severity at discharge, demonstrating a large effect size ($\eta^2 = .53$). These results were found after controlling for severity of symptoms at intake, length of stay, and participant age. Results from this study underscore the importance of reducing the use of maladaptive emotion regulation strategies for individuals with PTSD, as well as providing alternative methods of moderating emotions.

Additional research by Shepherd and Wild (2014) utilized an experimental design and the physiological measure of skin conductance to examine associations among PTSD and emotion and expressive suppression. A sample of 45 ambulance workers were shown images with either a neutral or negative valence and instructed to moderate their emotions by enhancing, maintaining, or decreasing their emotional response. Measures of skin conductance and ability to regulate emotions were collected throughout the task. Results demonstrated that greater severity of PTSD was associated with difficulty enhancing negative emotions, increased use of suppression strategies, and less adaptive cognitive reappraisal. The use of an experimental design and physiological measures found additional support for a link between PTSD symptom severity and use of maladaptive emotion regulation strategies.
In a similar vein, avoidance of distressing emotions and trauma-related cues has been strongly linked to increased symptoms of PTSD in individuals with trauma exposure. Conditioning-based theories of PTSD suggest that when a fear response becomes paired with stimuli during the traumatic event, associative learning occurs (Foa & Kozak, 1986; Keane, Zimering, & Caddell, 1985). Consequently, previously neutral cues become associated with the traumatic event and lead to generalization into a fear structure, causing an emotional response even without a threat of danger (Foa & Kozak, 1986). Difficulties with emotion regulation have been associated with an overuse of avoidance strategies for coping with the negative emotional response, thus maintaining symptoms of PTSD and interfering with extinction learning (Cloitre, Miranda, Stovall-McClough, & Han, 2005; Foa & Kozak, 1986; Foa & Rothbaum, 1998; Gratz, Bornovalova, Delany-Brumsey, Nick, & Lejuez, 2007; Keane et al., 1985; Marx & Sloan, 2005; Pineles et al., 2011). Avoidance strategies often result from negatively evaluating connections built between internal experiences of threat and danger with the subsequent emotional response (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). For example, research with a sample of 362 male and female undergraduates found that experiential avoidance was a more significant predictor of PTSD symptom severity, as well as psychological distress, than the characteristics and severity of the trauma itself (Plumb, Orsillo, & Luterek, 2004).

Research by Kashdan, Morina, and Priebe (2009) examined experiential avoidance in a sample of 174 Albanian refugees from the war in Kosovo. This study used a cross-sectional design and participants reported on symptoms of PTSD, social anxiety disorder, major depressive disorder, general distress, and quality of life. Multivariate linear models demonstrated that each of the disorders was related to greater experiential avoidance and distress, as well as lower quality of life, with medium to large effect sizes (partial $\eta^2$ range = 0.16-0.21).
Additionally, experiential avoidance partially mediated the association between symptoms of posttraumatic stress and quality of life, such that greater experiential avoidance was linked to lower quality of life. This study provides evidence for avoidance, a maladaptive emotion regulation strategy, as a potentially transdiagnostic factor in several psychological disorders.

Another study by O’Bryan, McLeish, Kraemer, and Fleming (2015) examined posttraumatic stress symptom clusters and the six domains of emotion regulation (i.e., clarity, awareness, impulse control, acceptance, goal-directed behavior, and emotion regulation strategies) in a sample of 297 college students with trauma exposure. Hierarchical linear regression analyses found that all domains of emotion regulation difficulty, except emotional awareness, were associated with re-experiencing, avoidance, negative alterations in cognitions and mood, and hyperarousal symptom severity of PTSD. Specifically, difficulties with accepting negative emotions, considered an aspect of experiential avoidance, was associated with greater avoidance and hyperarousal symptom severity. These results support the extant literature base in providing evidence of the detrimental impact of experiencing trauma-related emotions as uncontrollable and unpredictable.

Though there is a growing literature base documenting a relationship between posttraumatic stress and deficits in emotion regulation, many aspects are not understood. Limitations with current research include use of self-report measures and retrospective reporting, which reduces the accuracy of reporting on the intensity of emotion and how they were regulated at the time. Additionally, much of the current research includes samples that may not be generalizable to the broader population. As an example, samples of undergraduates often present with subthreshold symptoms of PTSD, which may differ from those seeking treatment for trauma. Given these limitations, it is beneficial to look beyond the trauma-focused literature and
broaden the scope to examine research with emotion regulation and psychological disorders as a whole.

Difficulties with emotion regulation are shared by a number of anxiety and mood disorders and have been implicated in both the development and maintenance of these disorders (Finlay-Jones, Rees, & Kane, 2015; Gross & Muñoz, 1995; Tull et al., 2007). Several experimental studies demonstrate the benefits of adaptive versus dysfunctional emotion regulation strategies for improved emotional functioning. Additionally, research suggests emotion regulation may be malleable, as several studies in this domain suggest interventions that have been enhanced with emotion regulation skills training may lead to increased use of adaptive emotion regulation strategies.

Campbell-Sills, Barlow, Brown, and Hofmann (2006) examined suppression in a sample of 60 individuals seeking treatment for clinically diagnosed mood and anxiety disorders. This study occurred in multiple parts, with the first involving participants watching a 20-minute emotion-provoking film clip while responding to their emotions naturally. Next, participants viewed a negatively valenced film clip and listened to a recording instructing them to either suppress or accept their emotional response. They then viewed the film clip again. Consistent with the authors’ hypotheses, results demonstrated that individuals in the suppression condition had greater negative affect after the clip and took longer to recover from the negative emotional response than those in the acceptance condition, demonstrating a medium effect size ($\eta^2 = .11$).

Similarly, a study by Ehring, Tuschen-Caffier, Schnulle, Fischer and Gross (2010) examined emotion regulation strategies (suppression and cognitive reappraisal) in a sample of 74 depressed and non-depressed individuals. Researchers examined emotion regulation by measuring strategies in three phases: 1) baseline self-report, 2) spontaneously used strategies,
and 3) experimentally instructed strategies. Participants viewed a sad film clip to induce negative mood during the second and third phases. Those with a history of depression were more likely to spontaneously use suppression to regulate emotions than those without history of depression. Additionally, individuals reported greater difficulty down-regulating negative emotions when instructed to use a suppression strategy versus using cognitive reappraisal. These results suggest that though individuals with a history of psychopathology may show more dysfunctional strategies for managing emotion, they are able to successfully apply more adaptive strategies when instructed to do so. This may be beneficial for those with trauma exposure and suggest exploration of interventions aimed at improving emotion regulation abilities.

**Emotion Regulation Skills Training**

Current literature suggests that emotion regulation may be improved through targeted skills training. A recent randomized controlled trial investigated the impact of a cognitive behavioral therapy (CBT) treatment program enhanced with emotion regulation skills training in a sample of individuals with major depressive disorder (Berking, Ebert, Cuijpers, & Hofmann, 2013). Participants included 432 inpatients who were enrolled in a 12-week CBT program where approximately half received the emotion regulation enhanced protocol. The emotion regulation training protocol was designed as a brief format of affect regulation training (ART; Berking & Schwartz, 2014) and included four 1.5-hour sessions and two 45-minute sessions, with content covering psychoeducation about biological and psychological origins of emotions, coping methods, acceptance of emotions, and identification of positive aspects of emotions. Hierarchical linear modeling found that participants in the emotion regulation enhanced CBT condition demonstrated greater reduction in negative affect (Cohen’s $d = 0.20$), greater emotion
regulation skills (Cohen’s $d = -0.12$), and greater reduction in symptoms of depression (Cohen’s $d = 0.16$). In sum, including specific skills targeted at emotion regulation, rather than simply symptoms of depression alone, led to improved outcomes following psychological treatment.

Additionally, Denny and Ochsner (2014) examined skills training in a sample of healthy individuals. They focused on the emotion regulation strategy of reappraisal, specifically, distancing and reinterpretation. Over four separate sessions, spaced two to five days apart, participants were given approximately 10 minutes of training in reappraisal strategies for coping with negative images and then exposed to distressing pictures in a laboratory session. Training resulted in self-reported decreases in negative affect in response to the pictures compared to baseline for those in the distancing group. Interestingly, these improvements in emotion regulation also translated to the perception of distress in daily life, as those in the distancing group reported significant decreases in everyday stressors.

With respect to PTSD, Skills Training in Affect and Interpersonal Regulation (STAIR; Cloitre, Koenen, Cohen, & Han, 2002) was developed and studied with promising results. STAIR was designed to target deficits in emotion regulation and subsequent interpersonal functioning in women who had experienced childhood abuse. Phase 1 of the intervention borrows heavily from general CBT training and DBT (Linehan, 1993) and is delivered over eight weeks, whereas Phase 2 includes approximately eight weeks of a modified prolonged exposure (PE; Foa & Rothbaum, 1998) protocol. Phase 1 sessions include topics such as labeling and identifying feelings, emotion management, distress tolerance, acceptance of emotions, and identification of trauma-based schemas (Cloitre et al., 2002). Phase 2 sessions are conducted according to the PE protocol, but with additional focus on using coping skills to moderate emotions. A randomized controlled trial of individuals with diagnosed PTSD included
investigation of STAIR versus support/exposure versus skills training/counseling (Cloitre et al., 2010). Results found that participants in the STAIR condition evidenced significantly greater improvements in emotion regulation (measured via the General Expectancy for Negative Mood Regulation Scale; Catanzaro & Mearns, 1990) and decreased symptoms of PTSD. Whereas STAIR appears to be effective for improving both emotion regulation and reducing symptoms of PTSD, implementation is hindered by many of the same limitations as other emotion regulation interventions, including lengthy treatment time and treatment dropout (ranging from 15-25%; Cloitre, Petkova, Wang, & Lu, 2012; Schottenbauer, Glass, Arnkoff, Tendick, & Gray, 2008).

Despite evidence for targeted interventions improving skills related to emotion regulation, both with individuals exposed to trauma as well as those with anxiety and mood disorders, future research should continue to explore mechanisms that may target emotion regulation transdiagnostically. Currently, most interventions are offered in conjunction with existing cognitive behavioral programs and have been utilized primarily with clinical populations, such as major depressive disorder (Berking et al., 2013), psychiatric inpatients (Berking et al., 2008), breast cancer survivors (Cameron, Booth, Schlatter, Ziginskas, & Harman, 2007) and borderline personality disorder (Gratz & Gunderson, 2006). Additionally, much of the extant research focuses on group interventions, which may present barriers for some, such as difficulties with scheduling or reluctance to share with peers. Several of the current interventions are also limited by the extensive time needed to complete the protocol, which may include either augmented or sequential sessions of therapy, extending the amount of time an individual is in treatment. Further, many protocols have been designed to target emotion regulation separate from symptom reduction, underscoring the need to better identify which components may be delivered as stand-alone treatments. Though many studies have identified
suppression and avoidance as likely factors in maladaptive emotion regulation, additional studies are needed that target acceptance. Emerging literature on interventions that improve acceptance of distressing emotions has begun to focus on the utility of targeting self-compassion, with promising results.

**Self-Compassion and PTSD**

Self-compassion has been described as a way of relating to oneself that is kind and understanding, particularly during times that are personally difficult or challenging (Neff, 2003). It has been proposed to include three main components: self-kindness (versus self-judgment), common humanity (versus isolation), and mindfulness (versus over-identification; Neff, 2003). Self-kindness refers to being kind to one’s self and non-judgmental rather than self-critical; common humanity involves viewing your own experiences as part of the larger human experience versus experiencing failures as isolating or separating; and mindfulness is being aware of one’s suffering and involves a conscious direction of awareness (Neff, 2003). Recent reviews have found significant support for a relationship between greater self-compassion and lower symptomatology with regard to disorders such as anxiety and depression (MacBeth & Gumley, 2012; Muris & Petrocchi, 2017). Additionally, self-compassion may foster emotion regulation and flexibility, promoting self-acceptance in the face of setback (Neely, Schallert, Mohammed, Roberts, & Chen, 2009; Neff, Hsieh, & Dejitterat, 2005; Neff, Rude, & Kirkpatrick, 2007). Further, some researchers have posited that self-compassion may interact with the dopamine system in the body, resulting in a deactivation of the threat-defense system. For example, self-compassion may facilitate self-soothing and increases in oxytocin, leading to greater feelings of safety and security (Gilbert, 2005; Uvnäs-Moberg, Handlin, & Petersson,
Last, self-compassion appears to activate brain areas that contribute to emotional processing (Hofmann, Grossman, & Hinton, 2011) and reduce negative emotions (Arimitsu & Hofmann, 2017).

A growing body of empirical literature suggests that self-compassion may be important for understanding symptoms of posttraumatic stress. Research has found that self-compassion is inversely related to many outcomes and associated symptoms of PTSD, including rumination, avoidance, self-criticism, and difficulties with emotion regulation (Barlow, Goldsmith Turow, & Gerhart, 2017; Leary, Tate, Adams, Batts, Allen, & Hancock, 2007; Maheux & Price, 2016; Neff, 2003; Thompson & Waltz, 2008). Additionally, some researchers suggest that self-compassion serves as a protective factor for PTSD, as greater levels of this construct have been associated with resilience in the presence of threat or trauma, as well as positive indicators such as posttraumatic growth (Arch et al., 2014; Hiraoka et al., 2015; Wong & Yeung, 2017).

Thompson and Waltz (2008) conducted one of the earliest studies to examine individual symptom clusters of PTSD in relation to self-compassion. This study included a sample of 210 university students who completed questionnaires related to posttrauma symptoms and self-compassion. Correlation analyses found that individuals with lower self-compassion endorsed greater avoidance symptoms of posttraumatic stress, though there was not a significant relationship between self-compassion and other symptom clusters. The authors hypothesized that individuals low in self-compassion may be more likely to avoid painful trauma memories and emotions, resulting in greater self-judgment and self-criticism.

An additional study by Zeller, Yuval, Nitzan-Assayag, and Bernstein (2014) examined self-compassion longitudinally in relation to symptoms of PTSD following a large forest fire. A sample of 64 high school students was assessed at three time points after the fire: four weeks
(Time 1), three months (Time 2), and six months (Time 3). The students were asked to report on symptoms of posttraumatic stress, depression, panic, and suicidality. Multilevel modeling of mediation (MLM) demonstrated that greater levels of self-compassion prospectively predicted lower levels of trauma-related symptoms; specifically, increases in self-compassion from Time 1 to Time 2 predicted a reduction in posttraumatic stress at Time 2 and Time 3 (Zeller et al., 2014).

Another recent study provided evidence for a relationship among symptoms of PTSD, self-compassion, and social support. Maheux and Price (2016) examined an empirical model with self-compassion as a mediator in the association between social support and PTSD in a community sample of 599 individuals recruited through Amazon’s Mechanical Turk. Participants completed measures of self-compassion, PTSD, depression, perceived social support and generalized anxiety disorder. Results from mediation analyses suggested that there was an indirect effect of social support on symptoms of PTSD via self-compassion, with self-compassion accounting for approximately 38% of the total effect of social support on PTSD. These findings suggest that social support may reduce symptoms of trauma through increased levels of self-compassion, providing support for a complex association among PTSD and self-compassion (Maheux & Price, 2016).

Further research has been conducted with veteran samples, demonstrating promising results. Kearney and colleagues (2013) found that engaging in a loving-kindness meditation (which directly targets self-compassion) was effective for reducing symptoms of both PTSD and depression and that these reductions were maintained at three-month follow-up. Additionally, Hiraoka and colleagues (2015) used a longitudinal design in a study with combat veterans, finding that self-compassion was associated with PTSD symptoms at baseline after accounting for combat exposure. Veterans were then assessed again after 12 months. Self-compassion also
predicted PTSD symptom severity at the 12-month follow-up, after controlling for combat exposure and baseline PTSD (Hiraoka et al., 2015). Further, a recent study by Meyer and colleagues (2018) examined associations among mindfulness, self-compassion, psychological flexibility, and PTSD, which were proposed to predict quality of life and disability in combat veterans. Results demonstrated that greater levels of the latent factor of mindful awareness (comprised of mindfulness, self-compassion, and psychological flexibility) influenced quality of life and disability distinctly from symptoms of posttraumatic stress, leading to healthy adaptation following exposure to trauma. Additionally, this factor was found to be modifiable via clinical intervention, enhancing the clinical utility of mindfulness and self-compassion-based therapy.

Despite the research supporting a relationship between higher self-compassion and fewer symptoms of PTSD, there are limitations. Many of the previous studies are cross-sectional and/or retrospective in nature, limiting the ability to draw conclusions about causation and direction of this relationship. Additionally, several studies did not assess for other indicators of mental health, such as depression and anxiety or general negative affect. This would be important as PTSD has been linked to these factors and they may influence symptoms of PTSD as well as self-compassion.

Self-Compassion as a Strategy for Emotion Regulation

Self-compassion is an important construct for exploration in research with emotion regulation, as self-compassion is consistent with the promotion of acceptance of negative emotions and may foster flexibility with adaptive emotion regulation strategies. A recent review by Inwood and Ferrari (2018) examined associations among self-compassion, emotion regulation, and mental health across a variety of psychological disorders. Syntheses of results
suggested that self-compassion was consistently associated with adaptive emotion regulation, likely through the processing and integration of negative emotions, and with subsequent attenuation of stress and depressive symptoms. As such, strategies for regulating emotion through the reduction of avoidance and an increase in the ability to tolerate negative emotions appear to be an important mechanism for promoting mental health (Inwood & Ferrari, 2018). For example, increases in mindfulness via self-compassion would involve being able to tolerate and accept painful emotions while also recognizing their momentary nature (Neff, 2003).

Self-compassion has also been proposed to effectively modulate physiological symptoms of stress (Svendsen et al., 2016). Research by Luo, Qiao, and Che (2018) examined self-compassion as a mediator in the relationship between an experimentally induced stress response and negative affect. Participants in the study were subjected to the Trier Social Stress Test and provided physiological data related to vagally mediated heart rate variability (vmHRV), as well as self-reports of negative affect. Those with higher levels of self-compassion reported less negative affect in response to the task as well as greater vmHRV. The authors concluded that individuals higher in self-compassion likely exhibit greater flexibility when faced with physiological and psychological stress.

Several studies have investigated relationships among posttraumatic stress, self-compassion, and emotion regulation with emotion regulation as a mediator. Barlow and colleagues (2017) examined associations among these constructs in a cross-sectional study of 466 undergraduate students. Consistent with previous studies, results demonstrated that childhood abuse was significantly associated with emotion regulation difficulties, lower levels of self-compassion, and negative trauma appraisals. Additionally, multiple mediation analyses found that the link between trauma exposure and later symptoms of PTSD was explained by
these interconnected constructs. The authors proposed that study findings contribute to our understanding by suggesting that low self-compassion may be particularly detrimental as it impairs emotion regulation broadly, rather than leads to more specific PTSD reactions (Barlow et al., 2017).

Similarly, research by Finlay-Jones et al. (2015) examined associations among these same constructs in a sample of 198 psychological trainees. Participants completed measures of self-compassion, emotion regulation, depression and anxiety, and neuroticism. Structural equation modeling found that self-compassion negatively predicted difficulties with emotion regulation and symptoms of stress. Additionally, a mediation model found evidence that the indirect effect of self-compassion on stress was fully mediated by difficulties in emotion regulation. Results from this study provide evidence for self-compassion as a reliable predictor of emotional distress.

Additionally, a study by Scoglio and colleagues (2018) modeled relationships among these same constructs. Participants included 176 women with severe PTSD and interpersonal trauma who were enrolled in an outpatient PTSD treatment program. Study participants completed structured interviews as well as self-report measures of self-compassion, PTSD, difficulties with emotion regulation, and resilience. Data were analyzed using a cross-sectional design, including multiple regression analyses and mediation analyses. This study found evidence for emotion regulation as a mediator in the relationship between PTSD symptom severity and self-compassion, as well as emotion dysregulation as a mediator between resilience and self-compassion. These results suggest increasing support for the incompatibility of avoidance and self-compassion in the context of symptoms of PTSD.
Research by Vettese, Dyer, Li, and Wekerle (2011) examined associations among self-compassion, emotion regulation, and trauma symptoms in a sample of adolescents who had experienced abuse. The sample included 81 inpatients in an addiction and mental health treatment program, ranging in age from 16-24 years, who had a history of substance abuse and childhood maltreatment. Step-wise multiple regression analyses found that self-compassion uniquely predicted 14% of the variance in emotion regulation difficulties, above and beyond current levels of distress, trauma severity, and addiction severity. Additionally, self-compassion mediated the relationship between childhood abuse and emotion dysregulation, consistent with previous studies with young adults and mental health (Vettese et al., 2011). As with the other studies, this research was limited by use of a cross-sectional design, precluding the ability to make predictions about causality among these relationships.

Results from studies of self-compassion and emotion regulation with individuals with trauma point to the importance of adaptive strategies in coping with distress. For example, greater acceptance of negative emotions may lead to fewer negative trauma appraisals, considered an indicator of positive recovery from trauma. Despite the handful of studies documenting preliminary significant and consistent associations among these constructs, there are a number of limitations in the current research. Additionally, current research includes a lack of studies with experimental designs. Further research is needed to clarify the role of self-compassion as a potential strategy for regulating distressing emotions, as well as in predicting changes in emotion regulation outcomes for those with trauma exposure. Results suggest that self-compassion is associated with improvements in symptoms of posttraumatic stress, likely via increases in adaptive emotion regulation strategies; however, little is known about how these constructs may operate when manipulated over time.
Additional research is also needed to replicate and extend previous results, as sample sizes and populations remain quite limited. Current literature is also often limited by the use of self-report measures. This method of data collection may lead to errors in reporting due to an inability to accurately describe previous emotional states, as well as social desirability. The Self-Compassion Scale (SCS; Neff, 2003) is by far the most commonly used measure of self-compassion. However, consistent use of this measure may interfere with further clarification and development of how self-compassion is conceptualized. For example, it is important to also consider complementary work by Gilbert (2005). Much of the work by Gilbert (2005) has included a neuroscientific background that focuses on threat protection and self-soothing. This model proposes that a compassionate stance toward oneself is related to better ability to regulate difficult or threat-based emotions through activation of a self-soothing system, which one should acquire through healthy and stable development (Gilbert, 2014). Thus, exposure to trauma may result in an underdeveloped ability to self-soothe and heightened response to threat, leading to activation of defensive emotions (Gilbert & Proctor, 2006). This model is not incompatible with the previously discussed studies of self-compassion, emotion regulation, and trauma, as it focuses on self-compassion as concern for one’s well-being and the ability to tolerate and accept distress.

Self-Compassion Clinical Interventions

The positive outcomes associated with self-compassion have led to increasing interest in this construct as a target for clinical intervention (see Kirby, 2016, for review). Growing evidence suggests that self-compassion can be improved through skills training and practice (Neff & Germer, 2013; Smeets, Neff, Alberts, & Peters, 2014). Researchers have begun to
develop interventions that specifically aim to enhance self-compassion as well as integrate self-compassion skills training into existing mindfulness-based treatments (Au et al., 2017; Germer & Neff, 2013; Klimecki, Leiberg, Lamm, & Singer, 2013; Smeets et al., 2014).

Neff and Germer (2013) developed Mindful Self-Compassion (MSC), an eight-week program aimed at increasing self-compassion via weekly skills training sessions. MSC includes eight 2-hour sessions that teach tools for self-compassion, including rationale for self-compassion, formal and informal meditation, and a half-day retreat. Neff and Germer (2013) examined whether this program increased self-compassion by conducting a randomized-control trial of MSC versus a waitlist-control condition. Participants in the MSC condition demonstrated significantly greater self-compassion at the completion of the program, as well as increased mindfulness and life satisfaction, compared to the control condition, with a large effect size, Cohen’s $d = 1.67$ (Neff & Germer, 2013). Perhaps most relevant to the present study, participants who completed the program also demonstrated significantly greater reduction in avoidance of thoughts and emotions (Cohen’s $d = .50$), a skill associated with emotion regulation, than those in the waitlist condition. Additionally, self-compassion increased from pretest to Week 3 and then again from Week 3 to Week 6, but not significantly from Week 6 to posttest. Increases in self-compassion were maintained at six months and one-year post-intervention. These results suggest that self-compassion skills are learned gradually and then remain relatively stable.

Relatedly, Smeets and colleagues (2014) utilized a three-week self-compassion intervention to examine resilience and well-being among college women. Participants included 52 women who were assigned to either a self-compassion intervention condition or control condition and met for three 1.5-hour sessions over a three-week period. Participants in the self-
compassion intervention were taught to treat themselves kindly during times of distress, given psychoeducation about self-compassion, practiced journaling and meditation exercises, and provided with support and discussion among group members, whereas individuals in the control group were taught time management skills. At the conclusion of the intervention, repeated-measures analysis of variance (ANOVA) found that participants in the self-compassion condition demonstrated greater self-compassion (Cohen’s $d = 1.19$), mindfulness (e.g., observation and acceptance of thoughts; Cohen’s $d = .70$), optimism (Cohen’s $d = .66$), and self-efficacy (Cohen’s $d = .52$). Individuals in the self-compassion intervention also showed decreased rumination and worry. Additionally, changes in self-compassion (calculated via change scores from pre- to post-intervention) predicted changes in mindfulness and rumination, but not worry and negative affect. Results from this study demonstrate that practicing self-compassion can lead to positive changes in some of the aspects related to emotion regulation processes, such as mindfulness and rumination, but potentially not others.

Additional studies have utilized interventions based on the MSC program as well as developed new modalities for administering self-compassion interventions. Bluth, Gaylord, Campo, Mullarkey, and Hobbs (2016) piloted a six-week abbreviated format of the MSC program for adolescents. Similar to other interventions, participants in the self-compassion condition demonstrated significant increases in self-compassion, along with decreases in depression, anxiety, perceived stress, and negative affect (Bluth et al., 2016).

A six-week online intervention was also developed to increase self-compassion through self-guided exercises (Finlay-Jones, Kane, & Rees, 2017). This intervention was piloted with a sample of 37 psychology trainees and included six modules delivered over six weeks. Results demonstrated increased self-compassion from pre- to post-intervention, with a large effect size
(Cohen’s $d = .86$). Additionally, participants demonstrated decreased difficulties with emotion regulation, with moderate to large effect sizes (Cohen’s $d = .62$), measured via the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004). Though lack of a control condition for the study limits the ability to conclude that changes were due to participation in the intervention, this study does show promise for the potential of self-compassion as a target for intervention.

Although research on self-compassion interventions is promising, there are a number of barriers to implementing existing programs. For example, the time commitment needed to complete an intervention (i.e., weekly sessions for three to eight weeks) may be prohibitive for some individuals, especially those experiencing distress over family and/or work responsibilities. Additionally, research demonstrates that the greatest gains in self-compassion occur during the first three sessions, suggesting that programs that extend beyond that time may not be necessary (Neff & Germer, 2013). Further, many studies are conducted with clinical samples, leaving open the question as to how these interventions are received in (and generalized to) the non-clinical population (Kirby, 2016; Smeets et al., 2014).

**Brief Self-Compassion Inductions**

In a similar vein, and in response to limitations in the research, brief self-compassion inductions have been studied as a means to increase skills, including improved emotion regulation, and decrease symptoms of psychopathology (Arch & Craske, 2006; Dickenson, Berkman, Arch, & Lieberman, 2013; Erisman & Roemer, 2010). Development of an intervention that is brief (i.e., one session) yet potent would increase the utility of targeting self-compassion and improve dissemination.
Some of the earliest research to examine a brief self-compassion induction was conducted with samples of college students through a series of five studies by Leary and colleagues (2007). The first four studies served to document significant relationships between self-compassion and emotional processes, such that greater self-compassion buffered against negative self-feelings and predicted emotional reactions to negative events. The fifth study utilized a brief self-compassion intervention where participants were instructed to write about a negative event that involved failure, humiliation, or rejection. After describing the event in detail, participants responded to three separate writing prompts that were designed to elicit reactions about common humanity, concern for self, and mindful acceptance. The first prompt asked participants to write about how others may experience a similar event (common humanity), the second prompt involved writing about kindness and concern for themselves in a manner similar to how they would respond to a friend (self-kindness), and the third prompt asked participants to describe feelings about the event in an unemotional and objective manner. Participants who completed the self-compassion induction reported lower negative affect than those in the other three conditions (self-esteem, writing control, control). It also increased self-compassion for individuals who were low in this construct, particularly in the domain of common humanity. Additionally, the self-compassion induction appeared to allow participants to decouple the association between experiencing negative affect and being responsible for a negative event. These results are particularly important when considering how this intervention may be used with individuals with symptoms of posttraumatic stress. Given that symptoms of PTSD are often accompanied by feelings of guilt and shame, inducing a self-compassionate perspective may be beneficial for accepting negative events while understanding that it is part of the common human experience, thus reducing any accompanying negative affect.
Odou and Brinker (2014) conducted a study examining self-compassion and rumination using a design based on Leary et al. (2007). Participants included 186 undergraduate students who first spent 3-4 minutes writing about a negative or shameful event. Next, similar to Leary and colleagues (2007), participants again wrote about the event using a self-compassionate perspective or in an emotionally expressive way for 8-10 minutes. Consistent with other studies, those who completed the self-compassion writing reported decreased negative mood, with rumination as a significant moderator of negative mood. Importantly, changes in mood were seen in as little as 10 minutes. The authors proposed inducing a self-compassionate perspective as a potential intervention for facilitating emotional processing and inhibiting rumination following a negative event (Odou & Brinker, 2014).

Additional research by Arch et al. (2014) examined the utility of a brief self-compassion training session on physiological indicators of stress. The study included 105 undergraduate women who completed the Trier Social Stress Test (TSST; Kirschbaum et al., 1993) during an initial laboratory session and were then randomized into one of three conditions: 1) self-compassion condition (10-minute self-compassion recordings for three days), 2) attention condition (recordings from a cognitive psychology book), or 3) no intervention. Data were collected via cortisol samples and respiratory sinus arrhythmia (RSA), as well as subjective measures of trait and state self-compassion. Results found that those in the self-compassion condition demonstrated more adaptive parasympathetic cardiac responding (RSA), though not salivary cortisol response, following the experimentally induced threat. These results provide objective support for the use of a brief self-compassion intervention as a means to diminish negative psychological and biological responses.
A study by Diedrich, Grant, Hofmann, Hiller, and Berking (2014) examined a self-compassion intervention in a sample of 48 clinically depressed participants. In this study, participants first underwent a negative mood induction, which was facilitated by listening to slow, somber music and reading negative self-statements (i.e., I think I am a loser). Participants were then assigned to one of three experimental conditions designed to improve emotion regulation: 1) self-compassion (warm stance toward self), 2) reappraisal (think differently), or 3) acceptance (observe and accept emotions) or a control condition. Participants in the experimental conditions listened to recordings of their respective strategies and told to attempt to regulate their emotions using the presented strategy. Increases in self-compassion were seen from pre- to post-intervention (Cohen’s $d = .45$). Additionally, results demonstrated that self-compassion was superior to the other conditions only for those with greater depressed mood at baseline. The authors suggested self-compassion may represent an additional emotion regulation strategy for those with symptoms that are more difficult to remit.

Last, Reis and colleagues (2015) utilized a similar protocol to Leary et al. (2007) for a brief self-compassion induction with a sample of 59 female college athletes. The goal of this study was to examine self-compassion as a healthy way to cope with emotionally difficult experiences in sports. Participants in this study completed exercises based on Leary and colleagues’ (2007) protocol (i.e., writing exercises designed to elicit reactions related to common humanity, concern for self, and mindful acceptance) and were instructed to complete the prompts based on a hypothetical experience where they were responsible for a team loss. The same comparison conditions were included (self-esteem, writing control, control) and the intervention was completed in one session. Contrary to the study by Leary and colleagues (2007), the brief self-compassion induction was not successful in increasing self-compassion for participants. The
authors hypothesized that this may have been due to the use of a hypothetical situation rather than a recalled event. This may not have allowed the participants to truly connect with the scenario and thus not accurately predict how they would respond emotionally.

Taken together, the extant literature on brief self-compassion inductions provides guidance on potential best practices for designing interventions. For example, it is recommended that real-life scenarios be utilized as content for experimental sessions, as it appears this allows for greater emotional processing. Additionally, changes in self-compassion may be evidenced over rather short periods of time, while also demonstrating simultaneous improvements in mood. This is an important consideration when developing a therapeutic “dose” of self-compassion training, as the potential to reduce the burden on the individual may lead to better outcomes via lower dropout. Further, self-compassion represents a potential target for intervention across different levels of severity of psychological disorders. Whereas many treatments focus solely on symptom reduction, self-compassion skills training may have benefits as a broad intervention approach. Despite these recommendations, much of the research on brief self-compassion inductions is limited by the use of a general undergraduate sample and lack of clinical samples, particularly those with trauma exposure. More research is needed to empirically establish that increases in self-compassion are related to reduced difficulties with emotion regulation for those with exposure to trauma.

Summary

The majority of adults will experience a traumatic event in their lifetime, though not all will develop PTSD. Trauma exposure and PTSD have been associated with several negative consequences, underscoring the need to better understand the development and maintenance of
posttrauma symptoms. Research suggests that abilities to moderate and process trauma-related emotions may predict symptoms of posttraumatic stress, with recent studies beginning to focus on deficits in emotion regulation as a potential vulnerability to experiencing difficulties following trauma exposure. Emotion regulation has been defined as the awareness, understanding, and acceptance of emotions as well as the ability to control avoidance behaviors in response to strong emotion. Difficulties in emotion regulation appear to result from overuse of maladaptive emotion regulation strategies, such as avoidance and suppression of distressing emotions. However, research on emotion regulation difficulties in mood and anxiety disorders, as well as a limited number of experimental studies with individuals with trauma, suggests that skills can be improved, with subsequent reductions in the experience of negative and distressing emotions.

In recent years, research has turned to investigating self-compassion as a mechanism for fostering adaptive emotion regulation. Preliminary evidence provides support that increasing self-compassion improves emotion regulation, though there are currently only a handful of experimental studies that examine these processes. Additionally, given inverse relationships between self-compassion and trauma-related symptoms, this represents an area for further investigation. Self-compassion has been conceptualized and studied as a skill that can be learned, with numerous studies finding support for improved abilities for participants of these targeted interventions. However, more research is needed to establish the effectiveness of interventions that can be delivered in a brief format, and to determine whether improvements in self-compassion lead to improvements in emotion regulation in individuals with exposure to trauma. Symptoms of posttraumatic stress occur on a continuum and research supports examining pathology in accordance with a dimensional symptom structure, rather than
dichotomous diagnostic status (Badour & Feldner, 2013; Broman-Fulks et al., 2009; Ruscio, Ruscio, & Keane, 2002). Additionally, many studies find support for a link between trauma and subsequent impairment in individuals who do not meet the diagnostic threshold of PTSD (Cukor, Wyka, Jayasinghe, & Difede, 2010; McLaughlin et al., 2015). Therefore, this study focused on trauma-exposed individuals rather than those meeting current PTSD diagnosis. To that end, the aim of this study was to determine whether a brief self-compassion intervention led to significantly greater changes in emotion regulation following a mood induction than a relaxation training condition for those with history of trauma.

Relaxation training is a frequently used treatment for managing negative and distressing emotions and thus is considered a suitable comparison condition (Koole, 2009; Libby, Pilver, & Desai, 2012). However, the goal of relaxation training is to simply down-regulate emotions, which can be considered an experiential avoidance strategy and a less adaptive means for regulating emotion. Conversely, self-compassion is not intended to avoid emotions, but rather to approach and accept negative emotions, even in the face of distress.

Based on the literature reviewed above, study hypotheses were as follows:

Hypothesis 1: Replication of Extant Literature

It was predicted that this study will replicate previous findings in the literature regarding associations among self-compassion, posttraumatic stress, and emotion regulation.

H1a: At baseline, across both the brief self-compassion intervention condition and the muscle-relaxation training condition, higher levels of self-compassion will be associated with fewer symptoms of posttraumatic stress.
H1b: At baseline, across both the brief self-compassion intervention condition and the muscle-relaxation training condition, higher levels of self-compassion will be associated with fewer difficulties with emotion regulation.

Hypothesis 2: Self-Compassion

H2: Participants in the self-compassion intervention will show significant improvements in self-compassion as compared to those in the muscle-relaxation training condition from baseline to post-intervention.

Hypothesis 3: Emotion Regulation

H3: Participants in the self-compassion intervention will report a greater decrease in emotion regulation difficulties as compared to those in the muscle-relaxation training condition from baseline to post-intervention.

Hypothesis 4: Self-Compassion and Emotion Regulation as Mediators of Negative Affect

H4: Examining simultaneous associations among conditions, increases in self-compassion, decreases in emotion regulation difficulties, and decreases in negative affect from baseline to post-intervention, it is hypothesized that participation in the self-compassion condition will be associated with increased self-compassion, decreased emotion regulation difficulties, and decreased negative affect. Further, it is expected that increases in self-compassion will predict decreased difficulty with emotion regulation and decreased negative affect across both the self-compassion and muscle-relaxation training conditions. Specifically, participation in the self-compassion condition will have an indirect effect on decreases in negative affect through increases in self-compassion and decreases in difficulty with emotion regulation. See Figure 1.
Figure 1. Serial mediation hypothesis.
CHAPTER 2

METHODOLOGY

Sample Size Estimation

The software G*Power 3.1 (Faul, Erdfelder, Buchner, & Lang, 2009) was used to estimate sample size, determined by the analytic approach and the effect size for a DERS change score. Given the limited experimental research using the DERS-16 (Bjureberg et al., 2016; described below), as well as evidence for similar psychometric performance with the full-length DERS, an effect size of $d = 0.62$ was suggested based on research with the full-length DERS. This number was estimated based on research by Finlay-Jones and colleagues (2017), which included 37 participants who were trainees in psychology. However, this study included a lengthier intervention and it is estimated this study will achieve an effect size of a lower magnitude. Therefore, power analysis for a medium effect size ($d = 0.5$) was selected. Based on the effect size estimate, 80% power and an alpha level of .05, a sample size of 43 participants was suggested. This would include approximately 21 participants in each condition. However, to ensure that this study was not underpowered and to account for missing data and attrition, as well as requests for participation from the study recruitment pool, a total of 94 participants were recruited.
Measures

Screening Measures and Potential Covariates

Demographics

In order to characterize the sample, participants completed a demographic questionnaire (Appendix A) that included items about age, gender, race/ethnicity, level of education, and history of suicidal thoughts. Race and ethnicity were categorized according to standards defined by the National Institute of Health for race (White, Black or African American, Asian, American Indian or Alaskan Native, Native Hawaiian or Pacific Islander, or “Not Listed”) and ethnicity (Hispanic or Latino/a). Additionally, participants were asked whether or not they currently meditate and, if so, how long they have been practicing. Meditation experience was included as a potential covariate in analyses given previous research suggesting that meditation experience may be associated with higher self-compassion and well-being (Baer, Lykins, & Peters, 2012). If participants endorsed a history of meditation experience, they were scored 1 (Yes). Those without history of meditation were scored 0 (No).

Life Events Checklist for DSM-5 (LEC-5; Weathers, Blake et al., 2013)

The LEC-5 was used as a screening measure in order to determine eligibility (Appendix B). This measure assesses for lifetime exposure to 16 potentially traumatic Criterion A events which have been found to lead to symptoms of posttraumatic stress and PTSD. Additionally, it includes an option for specifying any other, unlisted stressful experiences. Participants rate each item according to their level of exposure (happened to me, witnessed it, learned about it, part of
my job, not sure, doesn’t apply), with the option to endorse as many responses as apply. At the time of participation in the study, participants were asked to select the most distressing event that had happened to them and this served as the index event/trauma throughout the study.

The LEC-5 was updated in conjunction with changes to DSM-5 criteria and includes two modifications from the original Life Events Checklist (LEC; Gray, Litz, Hsu, & Lombardo, 2004): 1) wording of item 15 was changed from “unexpected death of someone close to you” to “sudden accidental death” and 2) response category “Part of my job” was added. There are not currently psychometrics available for the LEC-5; however, they are expected to remain consistent with the previous version given the minor changes. The previous version of the LEC-5 demonstrated good psychometric properties in samples of veterans and college students (Gray et al., 2004), as well as adequate test-retest reliability over a seven-day period (mean kappas across items = .61). The LEC has also demonstrated good convergent validity with other measures of trauma exposure such as the Traumatic Events Questionnaire (TLEQ; Kubany et al., 2000). For example, convergence of similar items on the LEC and TLEQ included kappas of .59 for physical assault, .79 for natural disaster, and .76 for sexual assault (Gray et al., 2004).

Primary Measures

Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). The PANAS is a 20-item self-report measure which includes mood adjectives to assess both positive and negative affect (Appendix C). Mood adjectives were chosen based on a principal component analysis of Zevon and Tellegen’s (1982) mood checklist and included items measuring negative affect (distressed, upset, guilty, scared, hostile, irritable, ashamed, nervous, jittery, and afraid) and positive affect (interested, excited, strong, enthusiastic, proud, alert, inspired, determined,
attentive, and active). Rather than opposite ends of the same spectrum, positive and negative affect are considered distinct dimensions from each other, with unique presentations for each at both low and high characterizations. Participants rated each item on a 5-point Likert-type scale from 1 (very slightly or not at all) to 5 (extremely). When subscales are scored independently, items from their respective categories can be summed for a total score, with higher scores indicating greater negative or positive affect.

The PANAS is one of the most widely used measures of affect and has demonstrated excellent internal consistency, convergent validity, and discriminant validity (Watson & Clark, 1997; Watson et al., 1988). Additionally, research suggests the PANAS can be used as a state measure as part of an experimental study. Rizvi (2016) used the negative affect items from the PANAS with a sample of Veterans administered immediately before \((M = 19.55)\) and after \((M = 21.10)\) a negative mood induction. Similar to this study, participants were asked to write about a prior shameful life event for approximately 10 minutes. Slight modifications to the wording of the items can elicit state (i.e., “How do you feel right now?”) versus trait (i.e., “How do you generally feel?”) measures of affect. Test-retest reliability was adequate \((r = .54\) for PA and \(r = .45\) for NA) when using present-moment instruction (Watson et al., 1988). Present-moment instruction was used throughout the present study. Items on the positive scale demonstrated excellent internal consistency at Time 1 \((\alpha = .90)\), Time 2 \((\alpha = .90)\), and Time 3 \((\alpha = .91)\). Items on the negative scale demonstrated good internal consistency at Time 1 \((\alpha = .87)\) and excellent internal consistency at Time 2 \((\alpha = .90)\), and Time 3 \((\alpha = .91)\).

**Difficulties in Emotion Regulation Scale-16 (Bjureberg et al., 2016).** The DERS-16 is a 16-item self-report measure of emotion regulation based on the full-length Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004). Items for the DERS-16 were
selected on the basis of item-total correlations and content validity. Importantly, the Awareness subscale was eliminated in the DERS-16 due to low item-total correlations. Previous research has suggested this subscale is least relevant to the overarching conceptualization of emotion regulation difficulties, as measured by the full-length DERS (Bardeen, Fergus, & Orcutt, 2012; Neumann, van Lier, Gratz, & Koot, 2010). Indeed, in one study with individuals exposed to a mass shooting, the Awareness subscale from the DERS was eliminated altogether (Bardeen et al., 2013). The DERS-16 thus includes items representing the subscales of Clarity, Impulse, Goals, Strategies, and Nonacceptance. Participants responded to each item on a 5-point scale from 1 (Almost never, 0-10%) to 5 (Almost always, 91-100%; Appendix D).

The DERS-16 has demonstrated excellent internal consistency ($\alpha = .92$) in both treatment-seeking and community samples (Bjureberg et al., 2016; Hallion, Steinman, Tolin, & Diefenbach, 2018). Test-retest reliability in a sample of treatment-seeking women was $r = .81$ (Bjureberg et al., 2016). Additionally, the DERS-16 was highly correlated with the 36-item DERS ($r = .80, p < .001$), as well as other similar measures, in large community samples, providing evidence of construct validity (Bjureberg et al., 2016). Support for discriminant validity of the DERS-16 was evidenced with low correlation with the Affect Intensity Measure (AIM; Larsen & Diener, 1987), a measure of positive affect intensity/reactivity, $r = .19$ (Bjureberg et al., 2016). In this study, the DERS-16 demonstrated excellent internal consistency at Time 1 ($\alpha = .94$), Time 2 ($\alpha = .93$), and Time 3 ($\alpha = .94$).

PTSD Checklist for DSM-5 (PCL-5; Weathers, Litz, et al., 2013). Participants also completed the PCL-5, which is a widely used self-report measure to quantify PTSD symptoms (Appendix E). It consists of 20 items corresponding to the PTSD diagnostic criteria in the DSM-
Participants were asked to rate how much they are bothered by specific symptoms on a 5-point scale ranging from 0 (not at all) to 4 (extremely).

The PCL-5 has demonstrated good internal consistency ($\alpha = .94$) and test-retest reliability ($r = .82$) in a sample of trauma-exposed college students (Blevins, Weathers, Davis, Witte, & Domino, 2015). Similarly, strong psychometrics were found with PCL-5 in a sample of veterans (Bovin et al., 2015). The PCL-5 has demonstrated good convergent validity with other measures of PTSD, including the Posttraumatic Stress Diagnostic Scale (PDS; Foa, 1995; $r = .84$) and Detailed Assessment of Posttraumatic Stress (DAPS; Briere, 2001; $r = .85$) as well as relative discriminant validity with measures of depression ($r = .60$) and antisocial personality features ($r = .39$; Blevins et al., 2015). Items demonstrated excellent internal consistency for this measure ($\alpha = .95$) in the current sample.

**Self-Compassion Scale (SCS; Neff, 2003).** The SCS was used to measure levels of self-compassion in participants (Appendix F). This scale includes 26 items and measures six dimensions of self-compassion: self-kindness, self-judgment, common humanity, isolation, mindfulness, and over-identification. The items are rated on a 5-point Likert-style scale, with responses ranging from 1 (almost never) to 5 (almost always).

Through a series of studies, this measure has demonstrated multiple forms of reliability and validity. Confirmatory factor analysis was used and determined that the six intercorrelated factors of the scale fit the data adequately well (NNFI = .90; CFI = .91; Neff, 2003). The scale has demonstrated high internal reliability ($\alpha = .90$) and test-retest reliability after a three-week delay ($r = .93$; Neff, 2003). Construct validity was established through correlations of the SCS with other scales measuring similar constructs, including the Social Connectedness Scale, $r = .41$, $p < .01$, and subscales of the Trait-Meta Mood Scale: Clarity, $r = .43$, $p < .01$, and Repair, $r$
= .55, p < .01 (Neff, 2003). The SCS also showed evidence of discriminant validity with a low correlation with the Narcissistic Personality Inventory (r = .11; Neff, 2003). Social desirability of the scale was measured by calculating a Pearson’s correlation coefficient between the SCS and the Marlowe-Crowne Social Desirability Scale, revealing a non-significant correlation: r = .05, p = .34 (Strahan & Gerbasi, 1972). The items on the SCS demonstrated good internal consistency at Time 1 (α = .87) and Time 2 (α = .89) and excellent internal consistency at Time 3 (α = .91).

**Subjective Units of Distress Scale (SUDS).** SUDS was used throughout the study as self-report measures of subjective distress, ranging from 0 (*none*) to 10 (*extreme*). Measuring distress at multiple time points will help pinpoint a participant’s level of distress throughout the experiment to ensure they do not become too distressed. Additionally, SUDS was used as a manipulation check following the negative mood induction to ensure that participants demonstrated an increase in self-reported levels.

**Procedure**

Procedures were reviewed and approved by the NIU Institutional Review Board prior to data collection. Potential participants were screened via NIU’s mass testing pool (for all Introduction to Psychology courses) at the beginning of the Fall 2018 semester. All students who endorsed at least one item on the LEC-5 were contacted via email and invited to participate in the study. The recruitment email contained a detailed description of the study as well as the invitation code for signing up via SONA. Students indicated that they agreed to participate in the study by registering for an individual time slot in SONA.

Participants reported to the lab and were informed of the study purpose, risk and benefits of participating, and rights as a voluntary participant. All participants indicated that they
understood and agreed to provide written informed consent for participation in the study (Appendix G). Next, all participants completed the full battery of study measures (PANAS, DERS-16, SCS, PCL-5, demographics, SUDS) administered via the online platform Qualtrics. Following completion of the questionnaires, participants began the experimental portion of the study. All sessions were conducted individually by trained undergraduate students, graduate research assistants, and the principal investigator.

At the outset of the session, all participants were told that they would be guided through a mood induction and that following the induction they would be randomly assigned to one of two experimental conditions. Random assignment was completed by randomly pre-assigning each participant number to an experimental condition. Participants were then assigned to their condition according to their order of participation, resulting in 41 participants in the muscle relaxation condition and 44 participants in the self-compassion condition. They were informed that these experimental conditions would teach them a strategy for coping with the difficult emotions that were induced; however, they were not informed about the nature of the interventions in either of the experimental conditions.

The negative mood induction proceeded with all participants being asked to spend 10 minutes writing about the most traumatic or distressing experiences they had had (as referenced by the LEC-5 they completed during mass testing at the beginning of the semester), adapted from Leary and colleagues (2007). They were asked to try to fill at least the full front page of the paper and were given additional paper, if needed. Inspection of materials at the end of the first writing session found that the majority of participants wrote with enough detail to fill the front and back sides of the first page. If a participant did not, the study proctor reminded the participant to write as many details as possible. Evidence suggests writing about distressing
experiences in longhand elicits a stronger emotional response than typing (Brewin & Lennard, 1999). Participants were informed when they had 1 minute remaining in order to finish the writing task. All participants then completed the PANAS, DERS-16, and SUDS. Instructions for the DERS-16 were modified to ask participants to rate how they were regulating emotions in the present moment, consistent with a previous research study which examined emotion regulation following a mood induction (Helm, 2016; Appendix H). The completion of the post-mood induction assessments were considered Time 2 of the study.

Next, participants were randomly assigned to either the self-compassion condition or the muscle-relaxation training condition. Participants listened to a recording via a computer in the room that gave verbal instructions for coping with distressing and self-critical emotions, based on their assigned condition. The self-compassion condition included instructions for responding to three prompts that promoted thinking about the event in a self-compassionate way, lasting 10 minutes (Appendix I). The muscle-relaxation training condition included instructions to practice full-body progressive muscle relaxation, also lasting 10 minutes (Appendix J). Progressive muscle relaxation was chosen due to evidence suggesting it is associated with emotion regulation abilities and is used widely in PTSD treatment programs (Koole, 2009; Libby et al., 2012).

Last, participants again wrote about the traumatic event (15 minutes) based on how they currently felt after practicing the coping skill from their assigned experimental condition. Participants then completed a final version of the DERS-16, with the instructions modified to assess for how participants were regulating emotion in the present moment (adapted from Helm, 2016), as well as the PANAS and SUDS. This assessment time point was considered Time 3 of the study. See Table 1 for a description of measures and timeframe for administration throughout the study.
Table 1

Study Measures and Administration

<table>
<thead>
<tr>
<th>Measure</th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline</td>
<td>Post-Mood Induction</td>
<td>Post-Intervention</td>
</tr>
<tr>
<td>PANAS</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>SCS</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>DERS-16</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>SUDS</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>PCL-5</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Demographics</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Note. PANAS = Positive and Negative Affect Schedule; SCS = Self-Compassion Scale; DERS-16 = Difficulties in Emotion Regulation Scale-16; SUDS= Subjective Units of Distress; PCL-5 = PTSD Checklist for DSM-5.

Following the experiment, participants were asked to select the correct answer regarding the purpose of the coping skill they were instructed to use (e.g., After the procedure, I was supposed to: a) be gentle and accepting of myself, b) try to distract myself from negative emotions, c) relax in order to feel better). This was answered correctly by 92% of participants. For those who answered incorrectly, it may be that they were not listening when the intervention was delivered, misunderstood study instructions, or did not properly read item responses. A debriefing was also provided (Appendix K).
CHAPTER 3
RESULTS

Participants

The participants in this study included 93 undergraduate men and women enrolled in the Introduction to Psychology course at Northern Illinois University (NIU) over the course of the Fall 2018 semester. Participants were at least 18 years of age and English-speaking. The Life Events Checklist for DSM-5 (LEC-5: Weathers, Blake, et al., 2013, described above) was used as a screening measure for those who completed mass testing. Participants who endorsed at least one potentially traumatic event on the LEC-5 were eligible for participation in the study. Participants were not required to meet the diagnostic threshold for PTSD in order to participate in the study. Additionally, seven participants who endorsed a history of suicidal thoughts were excluded from completing the study.

The final sample of 85 participants ranged in age from 18-41 years old, with 90.7% of participants reporting an age of 18-22 years old. The majority of the sample identified as female (63.1%), with 34.9% identifying as male and 1.2% identifying as non-binary. Additionally, 80.2% of the sample identified as non-Hispanic or Latino and racial breakdown included 59.8% identifying as White, 20.7% identifying as Black or African American, 9.8% as Asian or South-Asian, 4.7% as Mexican or Mexican American, 1.2% as American Indian or Alaskan Native, 1.2% as Middle Eastern, and 2.3% as mixed race. The majority of the sample (51.2%) reported being in their first year of college. Last, approximately 12% of the sample reported that they practiced meditation on a regular basis.
Data Preparation and Screening

Prior to testing study hypotheses, data from the self-report questionnaires at all time points was inspected for quality. Descriptive statistics and boxplots were generated in IBM SPSS v25.0 statistical software in order to assess for univariate outliers (i.e., data points ±3.0 standard deviations from the mean; Tabachnik & Fidell, 2007). Four cases were deemed outliers and were winsorized to the next closest value that was not an outlier. In order to assess for multivariate outliers, Mahalanobis’s distance was calculated. One case was identified as a multivariate outlier and removed from the data set. Multiple imputation was utilized for missing data for each of the variables (Tabachnik & Fidell, 2013). Kolmogorov-Smirnov and Shapiro-Wilk test statistics, as well as visual inspection, evidenced non-normality via positive skew among all three time points of the DERS-16 data and all three time points for the PANAS-NA data, as well as negative kurtosis for the three PANAS-NA time points (Tabachnik & Fidell, 2007). These data underwent a log transformation, which resulted in non-significant skew and kurtosis levels.

For the serial mediation analyses, change scores were calculated for SCS, DERS-16, and PANAS-NA. Data screening revealed significant kurtosis for residuals in both the SCS and PANAS change scores. However, due to the presence of both negative and positive change scores, data could not be transformed and normalized. Non-normality will bias the standard errors and thus the p-values of the analyses (Jaccard & Wan, 1995). Therefore, interpretation of results from the serial mediation analysis was limited to the bootstrapped confidence intervals. See Table 2 for bivariate correlations among study variables.
### Table 2

Bivariate Correlations Among Self-Report Measures at All Time Points (N = 85)

<table>
<thead>
<tr>
<th></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>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. PCL Total</strong></td>
<td>-</td>
<td>-.410**</td>
<td>-.343**</td>
<td>-.250**</td>
<td>.693**</td>
<td>.656**</td>
<td>.585**</td>
<td>.642**</td>
<td>.538**</td>
<td>.415**</td>
<td>-.012</td>
</tr>
<tr>
<td><strong>2. T1 SCS Total</strong></td>
<td>-</td>
<td>-</td>
<td>.762**</td>
<td>.728**</td>
<td>-.567**</td>
<td>-.362**</td>
<td>-.370**</td>
<td>-.308**</td>
<td>-.291**</td>
<td>-.297**</td>
<td>.062</td>
</tr>
<tr>
<td><strong>3. T2 SCS Total</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-.711**</td>
<td>-.462**</td>
<td>-.375**</td>
<td>-.299**</td>
<td>-.252*</td>
<td>-.260*</td>
<td>-.249*</td>
<td>-.042</td>
</tr>
<tr>
<td><strong>4. T3 SCS Total</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-.442**</td>
<td>-.350**</td>
<td>-.475**</td>
<td>-.236*</td>
<td>-.198</td>
<td>-.359**</td>
<td>-.004</td>
</tr>
<tr>
<td><strong>5. T1 DERS Total</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.723**</td>
<td>.665**</td>
<td>.570**</td>
<td>.474**</td>
<td>.451**</td>
<td>-.041</td>
</tr>
<tr>
<td><strong>6. T2 DERS Total</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.772**</td>
<td>.525**</td>
<td>.620**</td>
<td>.561**</td>
<td>.024</td>
</tr>
<tr>
<td><strong>7. T3 DERS Total</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.555**</td>
<td>.448**</td>
<td>.592**</td>
<td>-.044</td>
</tr>
<tr>
<td><strong>8. T1 PANAS-NA</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.703**</td>
<td>.705**</td>
<td>-.029</td>
</tr>
<tr>
<td><strong>9. T2 PANAS-NA</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.700**</td>
<td>-.001</td>
</tr>
<tr>
<td><strong>10. T3 PANAS-NA</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-.063</td>
</tr>
<tr>
<td><strong>11. Meditation exp.</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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**Note.** PCL Total = total score on PTSD-Checklist for DSM-5 at baseline; T1 SCS Total = total score on Self-Compassion Scale at baseline; T2 SCS Total = total score on Self-Compassion Scale at Time 2; T3 SCS Total = total score on Self-Compassion Scale at Time 3; T1 DERS Total = total score on Difficulties in Emotion Regulation Scale-16 at baseline; T2 DERS Total = total score on Difficulties in Emotion Regulation Scale-16 at Time 2; T3 DERS Total = total score on Difficulties in Emotion Regulation Scale-16 at Time 3; T1 PANAS-NA = score on negatively valenced items for Positive and Negative Affect Scale at baseline; T2 PANAS-NA = score on negatively valenced items for Positive and Negative Affect Scale at T2; T3 PANAS-NA = score on negatively valenced items for Positive and Negative Affect Scale at Time 3.

* *p < .05, **p < .01*
Randomization Check

Potential differences at baseline on self-report measures (SCS, DERS-16, PANAS) between the self-compassion and progressive muscle relaxation condition were explored using one-way analysis of variance (ANOVA) models. Results indicated that participants did not differ in baseline self-compassion scores, $F(1, 84) = .64, p = .43$. Additionally, participants did not differ in baseline emotion regulation scores, $F(1, 84) = 3.93, p = .051$, nor on baseline PANAS-NA scores, $F(1, 84) = .79, p = .38$, and baseline PANAS-PA scores, $F(1, 84) = .65, p = .42$. See Table 3 for descriptive statistics.

Table 3
Randomization Check: Means and Standard Deviation of Baseline Self-Report Measures by Condition

<table>
<thead>
<tr>
<th></th>
<th>Self-Compassion Condition (N = 44)</th>
<th>Muscle Relaxation Condition (N = 41)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>SCS</td>
<td>78.44</td>
<td>16.08</td>
</tr>
<tr>
<td>DERS-16</td>
<td>32.81</td>
<td>13.24</td>
</tr>
<tr>
<td>PANAS-NA</td>
<td>15.17</td>
<td>5.42</td>
</tr>
<tr>
<td>PANAS-PA</td>
<td>26.46</td>
<td>7.97</td>
</tr>
</tbody>
</table>

*Note: No statistically significant differences were detected when $p > .05$; SCS = Self-Compassion Score; DERS-16 = Difficulties in Emotion Regulation Score-16; PANAS-NA = Positive and Negative Affect Scale- negative items; PANAS-PA = Positive and Negative Affect Scale- positive items.*

Baseline scores on the variables of SCS, DERS-16, and PCL-5 were further examined in order to characterize the sample. Utilizing a suggested cut-off score of 31 (Bovin et al., 2015),
approximately 57.6% of the sample would likely meet a diagnosable threshold for PTSD. Visual inspection of the writing responses demonstrated that the majority of participants completed at least one-side of one page of writing at both time points. Events chosen for the writing exercise varied greatly. Some examples of events chosen include motor vehicle accidents, childhood abuse, witnessed interpersonal violence, assault, and combat.

Individuals in this study demonstrated baseline self-compassion scores ($M = 2.97$) consistent with previously published scores from the same measure given to undergraduates ($M = 3.01$; Neff & Pommier, 2013). Given the novelty of the DERS-16, it is more difficult to determine whether baseline levels of difficulties in emotion regulation were consistent with other undergraduate samples. To this writer’s knowledge, there have been no published studies that specifically examine the DERS-16 with a sample of undergraduates. Bjureburg and colleagues (2016) provided mean DERS-16 scores for samples of individuals with clinical diagnoses ($M = 57$), a sample of 102 adults recruited for a study on mood and behavior dysregulation ($M = 42.90$), and a large ($N = 482$) sample of women participating in a study on emotion dysregulation and sexual revictimization ($M = 33.57$). The average baseline DERS-16 score of 34.71 falls closest to the sample of women participating in the research study and suggests that undergraduates are likely experiencing fewer difficulties with emotion regulation than those who meet diagnostic criteria for psychiatric disorders.

**Manipulation Check**

In order to ensure that the negative mood induction increased distress from baseline to post-induction, a paired-samples $t$ test was performed examining SUDS scores at the two time points. Participants were asked to rate their SUDS on a scale of 0-10, based on their current
levels of distress. Results demonstrated a statistically significant increase in self-reported SUDS scores from baseline ($M = 3.50, SD = 1.77$) to post-induction ($M = 4.26, SD = 2.02$), $t(81) = -5.30, p < .001$, suggesting a successful manipulation. See Figure 2 for SUDS scores across time.

![Figure 2. Self-reported subjective units of distress (SUDS) across time.](image)

*Note.* Participants reported their subjective units of distress (SUDS) at baseline (Time 1), immediately following the negative mood induction (Time 2), and immediately after receiving the intervention (Time 3); PMR = Progressive Muscle Relaxation; SCS = Self-Compassion Skills intervention.
Hypotheses 1a and 1b

Hypothesis 1a stated that at baseline, across both the brief self-compassion intervention condition and the muscle-relaxation training condition, higher levels of self-compassion would be associated with fewer symptoms of posttraumatic stress. To test this hypothesis, Pearson correlations were used to assess bivariate associations between measures of self-compassion (SCS scores) and posttraumatic stress (PCL-5 scores) at baseline. Results indicated that self-compassion was significantly negatively associated with posttraumatic stress ($r = -.410, p < .001$) at baseline. Thus, results demonstrated support for this hypothesis.

Hypothesis 1b stated that at baseline, across both the brief self-compassion intervention condition and the muscle-relaxation training condition, higher levels of self-compassion would be associated with fewer difficulties with emotion regulation. To test this hypothesis, Pearson correlations were used to assess bivariate association between measures of self-compassion (SCS scores) and difficulties with emotion regulation (DERS-16 scores) at baseline. Results indicated that self-compassion was significantly negatively associated with difficulties with emotion regulation ($r = -.567, p < .001$) at baseline. Results also demonstrated support for this hypothesis.

Hypothesis 2

The second hypothesis stated that participants in the self-compassion intervention would show significant improvement in self-compassion as compared to those in the muscle-relaxation training condition from baseline to post-intervention. A mixed-model ANCOVA with Time (baseline, Time 2, Time 3) x Condition (self-compassion, relaxation training) on self-compassion
scores (SCS), controlling for meditation experience, was conducted in order to test the second hypothesis. Despite non-significance of bivariate correlations between meditation experience and the dependent variable (see Table 2), the covariate was included in the analysis given proposed theoretical relevance (Baer et al., 2012). Mauchly’s sphericity test was not violated, $W = .99, \chi^2(2) = .97, p = .62$, thus there was no correction for sphericity. This hypothesis was not supported, as the interaction of time and condition was not significant, $F(2, 162) = .21, p = .81, \eta^2 p = .003$. Further, the main effect of time was not significant, $F(2, 162) = .70, p = .50, \eta^2 p = .01$, nor was the main effect of condition, $F(1, 81) = 1.10, p = .30, \eta^2 p = .01$. See Figure 3 for results.

![Figure 3: Depiction of the Condition X Time interaction results for self-compassion scores.](image)

*Note.* PMR = Progressive Muscle Relaxation; SCS = Self-Compassion Skills condition
Hypothesis 3

The third hypothesis stated that participants in the self-compassion intervention would report a greater decrease in emotion regulation difficulties as compared to those in the muscle-relaxation training condition from baseline to post-intervention. A mixed-model ANCOVA with Time (baseline, Time 2, Time 3) x Condition (self-compassion, relaxation training) on emotion regulation (DERS-16) scores, controlling for meditation experience, was conducted in order to test the third hypothesis. As with Hypothesis 2, despite non-significance of bivariate correlations between meditation experience and the dependent variable (see Table 2), the covariate was included in the analysis given proposed theoretical relevance (Baer et al., 2012). Mauchly’s sphericity test was not violated, $W = .96, \chi^2 (2) = 3.51, p = .17$, thus there was no correction for sphericity. Though the interaction of time and condition was significant, $F(2, 162) = 5.77, p = .004, \eta^2 p = .07$, the hypothesis was not supported, as the results were in the opposite direction expected. See Figure 4 for results.

Figure 4. Depiction of the Condition X Time interaction results for difficulties with emotion regulation scores.

*Note.* PMR = Progressive Muscle Relaxation; SCS = Self-Compassion Skills condition
Hypothesis 4

The fourth hypothesis stated that participation in the self-compassion condition would be associated with increased self-compassion, decreased emotion regulation difficulties, and decreased negative affect, compared to the muscle relaxation condition. Further, it was expected that increases in self-compassion would predict decreased difficulty with emotion regulation and decreased negative affect across both the self-compassion and muscle-relaxation training conditions. Specifically, participation in the self-compassion condition would have an indirect effect on decreases in negative affect through increases in self-compassion and decreases in difficulty with emotion regulation.

In order to assess whether increases in self-compassion and decreases in difficulty with emotion regulation were serial mediators of the effect of condition on decreases in negative affect, a mediation analysis was conducted using the PROCESS macro (Hayes, 2013). A grouping variable was created (0 = muscle-relaxation training condition, 1 = self-compassion induction condition), which was modeled predicting change in the dependent variable (DV). The DV was a change score in negative affect, created by subtracting baseline scores on the PANAS-NA from post-intervention scores on the PANAS-NA. Model 6 from the PROCESS macro was utilized, which regresses PANAS-NA change score on condition and change score for total SCS (calculated by subtracting baseline SCS scores from post-intervention SCS scores) and change score for total DERS-16 (calculated by subtracting baseline DERS-16 scores from post-intervention DERS-16 scores). Results demonstrated that the serial mediation was not significant, BCa 95% CI [-.06, .31]. Further, neither the indirect effect of self-compassion, BCa
95% CI [-.24, .60], nor the indirect effect of emotion regulation, BCa 95% CI [-1.47, .13], was significant. Thus, this hypothesis was not supported.
CHAPTER 4
DISCUSSION

This study had two primary aims. First, the aim was to replicate previous findings in regard to associations among self-compassion, emotion regulation, and symptoms of posttraumatic stress. Second, the aim was to examine whether engaging in a brief self-compassion intervention led to significantly greater changes in the ability to regulate negative emotions following a negative mood induction than a muscle-relaxation training condition among participants with a history of trauma exposure. Research suggests that difficulties with emotion regulation may pose a potential vulnerability to greater severity of symptoms of posttraumatic stress following trauma exposure. Specifically, the overuse of maladaptive emotion regulation strategies, such as avoidance and suppression of distressing emotions, may negatively impact posttrauma processing (Gross & Levenson, 1997; Pineles et al., 2011). Recently, research has demonstrated that targeting self-compassion may be a mechanism for fostering adaptive emotion regulation, such that increases in self-compassion may improve emotion regulation abilities through approaching and accepting negative emotions, even in the face of distress (Neff et al., 2007; O’Bryan et al., 2015). Additionally, current research suggests that self-compassion interventions delivered in a brief, one-session format may result in improvements in self-compassion skills. This study sought to explore the potential benefits of a single session of self-compassion skills training on emotion regulation abilities as compared to a muscle-relaxation training condition. Specifically, this study examined whether being kind to
oneself and accepting negative emotions led to greater decreases in emotion regulation difficulties compared to muscle-relaxation training for those with exposure to trauma.

Primary Hypotheses

With regard to the first two hypotheses (Hypotheses 1a and 1b), relations among self-report measures at baseline were consistent and in the expected directions with existing literature, thus supporting the present hypotheses. For Hypothesis 1a, across conditions (self-compassion and muscle-relaxation training), at baseline, individuals with greater self-compassion demonstrated fewer symptoms of posttraumatic stress. This conclusion was in line with previous literature and provides additional support for these relationships (Barlow, Goldsmith Turow, & Gerhart, 2017; Leary et al., 2007; Maheux & Price, 2016; Neff, 2003; Thompson & Waltz, 2008). Additionally, for Hypothesis 1b, across conditions (self-compassion and muscle-relaxation training), at baseline, higher levels of self-compassion were associated with fewer difficulties with emotion regulation. This replicates the extant literature and suggests the link between self-compassion and emotion regulation may be important for understanding symptomatology for those exposed to trauma.

For Hypothesis 2, this study did not find evidence of a significant improvement in self-compassion for the self-compassion condition compared to those in the muscle-relaxation training condition from baseline to post-intervention. Visual inspection of the mean SCS scores for the self-compassion intervention condition suggests an increase in scores from baseline to Time 3; however, analyses did not find statistical significance. This was surprising, though perhaps not entirely unexpected, given that preliminary literature on brief self-compassion interventions has demonstrated mixed results with regard to the effectiveness of a single session
of self-compassion training and the measurement of self-compassion (e.g., Leary et al., 2007; Reis et al., 2015). For example, Odou and Brinker (2014) utilized a similar intervention with a sample of undergraduates and found positive results. Participants underwent a negative mood induction (though not trauma related) and then completed a writing task based on Leary et al. (2007). However, in this study, constructs were measured at time points one week apart, rather than during a single session. Similarly, Leary and colleagues (2007), who found significant increases in self-compassion, measured self-compassion at more distal time points. Contrary to this, as mentioned previously, non-significant results were found for a study with women examining emotional responses to difficult situations in sports. The authors similarly utilized a single writing exercise based on Leary et al. (2007). Taken together, results from previous literature, as well as this study, underscore the role that temporal relationships play when developing and implementing skills related to self-compassion, as well as challenges with the measurement of this construct.

Further, though the SCS is a widely used instrument for measuring self-compassion, the high test-retest reliability may have hindered the measurement of this construct for this study. Neff (2003) found fairly high test-retest reliability ($r = .93$) with this measure after a three-week delay. Though changes in self-compassion appear to be measurable at time points shorter than this (i.e., Leary et al., 2007; Odou & Brinker, 2014), results of this study suggest a need for an instrument that may better assess for state levels of self-compassion. Arch and colleagues (2014) created a State Self-Compassion Scale for use in their study of responses to social threat which used present-moment language to evaluate changes in self-compassion over a period of four days. I was able to obtain this scale and my review suggests it may be suitable for future research on changes in self-compassion over short periods of time. Specifically, this measure
modifies the stem of each question on the SCS to reference the present time (e.g., “Right now, I disapprove of and judge my own flaws and inadequacies”) and directly relates the specific study task (e.g., “In response to my performance, I am being tough on myself). The delay in receiving the scale from the authors precluded the use of this scale for this study.

Additionally, this study did not find evidence that the brief self-compassion intervention condition demonstrated greater reductions in emotion regulation difficulties than the muscle-relaxation training condition. Results demonstrated a significant Condition x Time interaction; however, this was opposite of the hypothesized direction, such that those in the muscle-relaxation training condition demonstrated significantly greater decreases in emotion regulation difficulties. Based on previous research it was expected that self-compassion skills training would lead to greater reductions in emotion regulation difficulties due to more adaptive emotion regulation strategies, such as the processing and decreased avoidance of negative emotions related to the trauma experience. Interestingly, post hoc analyses found significant reductions in emotion regulation difficulties for the self-compassion condition as well, suggesting that this strategy was also effective for reducing negative emotions. However, the absence of an interaction effect in the expected direction tempers the interpretation of these findings.

Reasons for the greater decrease in difficulties in emotion regulation for the muscle relaxation condition remain speculative, but may be explained by a few factors. For example, muscle relaxation has been found to be an effective stress management technique and is often incorporated into clinical practice (Bernstein & Borkovec, 1973). Though the goal of muscle relaxation differs from that of self-compassion exercises, especially in regard to mechanisms for reducing negative emotions, it may be that this particular intervention led to greater success in a brief intervention due to the sample including undergraduates. For example, research by
Feldman, Greeson, and Senville (2010) compared the effectiveness of three interventions (mindful breathing, progressive muscle relaxation, and loving-kindness meditation) on decentering and reducing negative affect in a sample of undergraduate women. Results demonstrated that mindful breathing was the most effective for reducing negative affect; however, both of the other two conditions also led to reductions in negative mood. Additionally, Koole (2009) provides a review of literature related to emotion regulation that provides support for progressive muscle relaxation as an evidence-based treatment for down-regulating emotions and reducing distress. Thus, the selection of a comparison condition that has research evidence for reducing negative emotions may have been misguided. Further, it may have been beneficial to assess participants for their previous experiences and preferred strategies related to regulating difficult emotions. Though the DERS-16 captures how participants respond to difficult emotional experiences, it does not assess for strategies that may be used to cope with these emotions. It may be that participants in this study were more accustomed to regulating their physical response to negative emotions (i.e., heart racing, tension in the body) through physical gestures, rather than through more cognitive techniques such as self-compassion skills.

Finally, results of this study failed to support predictions that changes in self-compassion and emotion regulation would serve as serial mediators in the relationship between intervention and changes in negative affect. Given that self-compassion has been linked to adaptive emotion regulation strategies and decreases in negative emotion, as well as associations between decreased difficulties with emotion regulation and negative affect, it was expected that participation in the self-compassion intervention would indirectly influence negative affect through these variables. Interestingly, results did not support that participation in the interventions had either a direct or indirect effect on decreases in emotion regulation difficulties.
It is possible the “dosing” of the self-compassion intervention was not sufficient to see reductions in emotion regulation difficulties. Though greater self-compassion was significantly associated with fewer difficulties with emotion regulation (Hypothesis 1b), it may be that the negative mood induced by the writing exercise was manageable by all participants in the study.

Presentation of Null Results

Given the overall lack of support for the main study hypotheses, it is useful to conceptualize findings according to guidelines developed by Cronbach and Meehl (1955). The authors offer three main points in their framework: 1) the test may not measure the construct variable, 2) the theoretical frame from which hypotheses are generated is incorrect, or 3) the experimental design failed to test the hypothesis properly. Each of these will be discussed below in regard to this study.

The test may not measure the construct variable. In examining the null findings, it is beneficial to examine which tools were used to measure study variables. As mentioned previously, issues with using the SCS to measure self-compassion over a brief period of time (i.e., as a state measure) may have hindered the ability to assess changes in this construct. This is likely true not only for the second hypothesis but potentially the fourth hypothesis as well. The fourth hypothesis utilized change scores in order to examine differences in constructs from baseline to Time 3. The use of the SCS, which currently has limited evidence for use in measuring changes in self-compassion over very brief periods, is a significant limitation of this study. Additionally, the SCS is most frequently utilized to measure self-compassion as a trait, suggesting further research is needed to examine whether this measure has utility as a state measure or whether there is a need for the development of a new assessment tool. Further, the
instructions and items for the SCS do not link each response to a specific time point; rather, they ask participants to respond based on their general tendencies. In considering future use, it may be beneficial to modify instructions in order to have participants consider either a specific time period in the past or the present moment.

In regard to the construct of emotion regulation difficulties, issues with this measure can be conceptualized in a similar way. Though the full-length DERS has demonstrated strong psychometric properties, the DERS-16 was developed more recently and has more limited psychometric information. It may not be reasonable to expect that changes in emotion regulation difficulties would be seen over a single, brief session and that the assessment tool would be sensitive to subtle changes. The instructions for the DERS-16 were modified at Times 2 and 3 in order to assess how participants were regulating emotions “in the present moment;” however, this may not have been sufficient. Additionally, this may be challenging for participants to report, particularly in regard to distinguishing among multiple strategies. Though research suggests emotion regulation abilities may be malleable over time, the brief nature of the current intervention remains exploratory and warrants further investigation.

Last, the null findings related to the serial mediation model may be better conceptualized in the two sections that follow. The serial mediation used changes in negative affect as a dependent variable, as measured by the PANAS. Unlike the previous two measures, the PANAS has been tested with brief interventions and demonstrated evidence for use as a measure of state negative affect. For example, research by Rizvi (2016) found utility with the PANAS as a measure of negative affect, both before and after a similar, single writing exercise. It is possible that items on the PANAS may have been confounded by factors such as the participants’ mood that day, nature of the traumatic event for the writing exercise, or natural decreases in negative
mood as the experiment was near conclusion. These issues may not have allowed for enough variability in regard to changes in affect. In the future, it may be beneficial to include additional measures of mood in order to assess for both current mood state as well as mood over the past few weeks or months.

The theoretical frame from which hypotheses were generated is incorrect. Cronbach and Meehl (1955) suggest that a second way to interpret null findings is to consider that the theoretical framework which generated the hypothesis is incorrect. This may include specifying additional conditions that may help the theory hold, as well as splitting certain constructs. Examining the theoretical frame for this study seems particularly relevant, as many of the constructs examined include subdomains that have been experimentally tested.

As this study was exploratory in nature, the theoretical framework was rooted in findings from previous studies that suggest that increases in self-compassion are associated with decreased avoidance of negative emotions, and thus fewer difficulties with emotion regulation, for those with a history of trauma (e.g., Barlow et al., 2017, Finlay-Jones et al., 2015). However, as Cronbach and Meehl (1955) suggest, splitting of certain study constructs (e.g., into subdomains) such as self-compassion and emotion regulation may be important to consider when designing future research.

It may be that the overarching concept of self-compassion is overly broad when considering the impact of changes in self-compassion on how individuals relate their own negative trauma-related emotions. For example, the mindfulness component of self-compassion may be a more suitable construct for measuring acceptance of negative emotions. In the context of self-compassion, mindfulness involves observing thoughts and feelings, as well as accepting painful emotions, in order to have compassion toward them without overidentifying with them.
(Neff, 2003). This component, rather than self-kindness and common humanity, may be particularly important for regulating difficult trauma-related emotions, as greater acceptance of these emotions may indicate a shift to a more adaptive emotion regulation strategy. Additionally, as conceptualized by Gilbert (2005), increased tolerance and acceptance of distressing emotions may enhance the ability to self-soothe and decrease the activation of the threat response. In accordance with this conceptualization, a brief self-compassion intervention that focuses more heavily on aspects of the mindfulness domain, rather than self-kindness and common humanity, may be more effective for regulating distressing trauma-related emotions.

Emotion regulation is another construct that warrants further examination. This construct has been split into subdomains and studied with various experimental designs. Research has found support for at least six emotion regulation strategies: acceptance, avoidance, problem solving, reappraisal, rumination, and suppression (Gratz & Roemer, 2004; Gross, 1998; Linehan, 1993). For distressing symptoms of trauma, in particular, previous research suggests emphasis on the domains related to emotional clarity, impulse control, and acceptance/avoidance (Bardeen et al., 2012; Ehring & Quack, 2010). These constructs may be more amenable to change, particularly in relation to increases in self-compassion, as the self-compassion intervention used wording that targeted the acceptance of the distressing event and associated emotions. For example, research by Hopfinger, Berking, Bockting, and Ebert (2016) found that certain emotion regulation skills related to being able to mindfully observe, accept, and tolerate distressing emotions, as well as the ability to move toward those emotions in the service of achieving a specific goal, mediated associations between childhood trauma and depression. Additionally, it may be beneficial for future research to include a measure of avoidance in order to assess for changes in this domain specifically. Measures such as the Acceptance and Avoidance
Questionnaire-II (AAQ; Bond et al., 2011) and the Measure of Experiential Avoidance Questionnaire (MEAQ; Gámez, Chmielewski, Kotov, Ruggero, & Watson, 2011) may be considered for inclusion.

Though this study was based on findings from previous research, it is worth acknowledging again the limitations of this literature base and thus the exploratory nature of this study. Much of the previous research examining self-compassion and emotion regulation was not conducted using an experimental design, therefore, conclusions were often based on analyses of cross-sectional data. Additionally, those studies that did attempt to experimentally manipulate self-compassion frequently did so using a more intensive intervention. Though there was sufficient evidence from the literature base to suggest associations among self-compassion and emotion regulation for those with a history of trauma, this study was the first to examine these relationships in the context of an experimental intervention conducted within one session. Future research may benefit from continued examination of these constructs, particularly as they relate to mechanisms of change within the subdomains of self-compassion and emotion regulation.

The experimental design failed to test the hypothesis properly. Last, when considering null findings, it is beneficial to examine whether the experiment was designed in a manner appropriate for answering the proposed hypotheses. Two aspects to consider are potential threats to internal and external validity, as both are important for establishing causal relationships.

Internal validity is generally defined as the degree to which inferences can be made regarding whether one variable causes another, specifically, whether the independent variable and any manipulations make a difference in the dependent variable. One way to increase internal validity is to utilize random assignment for participants. Random assignment ensures that each participant has an equal chance of being placed in either experimental condition. This helps to
reduce the impact of specific threats to internal validity, such as selection bias, testing (impact of completing one test upon later tests), and maturation (processes within the participants that may influence the outcome; Cook & Campbell, 1979). This study utilized random assignment to either of the two experimental conditions for all participants; however, it did lack a third control condition. A control condition is important to help understand what factors may be having an impact on the results of a study. For this study, the use of a control condition would have allowed for conclusions regarding the effectiveness of both experimental training conditions (self-compassion and muscle relaxation) on reducing difficulties in emotion regulation, as compared to no training. Without a no-treatment control condition it is not possible to say whether the training received in either of the intervention conditions led to significant reductions in emotion regulation difficulties that could not be attributed to naturalistic reductions in negative emotions due to the passage of time. Additionally, given that participants wrote about the traumatic event two times, there is the potential that multiple exposures to details of the event led to reductions in negative affect (Sloan, Marx, & Epstein, 2005). The lack of an experimental control in this study represents a limitation of the study design and a potential threat to the internal validity.

Further examination of other threats to internal validity can help to illustrate whether the experimental design failed to test the hypotheses correctly. An additional issue to consider is whether there are differences in the participants in the experimental conditions that occurred either prior to the study or while the study was in process. For example, if participants in either condition differed significantly on one or more of the main study variables prior to beginning the study, this would limit the degree to which causal inferences could be made. In this study, statistical analyses were conducted on baseline data for both conditions, with results demonstrating that there were no significant differences between the conditions on self-reports of
self-compassion, difficulties in emotion regulation, and negative affect. Additionally, it has been suggested that mortality, defined as the loss of participants or unequal loss of participants from conditions, may impact internal validity. For this study, there was no loss of participants and the number of participants in each condition was nearly equal, which does not support a threat of mortality.

The experimental design for this study was developed in order to examine changes in difficulties in emotion regulation due to the effects of either a self-compassion skills training or a muscle-relaxation training. Participants completed self-report measures for the constructs of interest both before and after each intervention, as well as following a negative mood induction. Overall, it appears that the experimental design was appropriate for testing the proposed hypotheses, however, lack of a control condition presents a potential concern. Future research that utilizes an experimental manipulation could be strengthened by the inclusion of a condition that receives no experimental manipulation.

In addition to internal validity, another factor for consideration in whether the experimental design failed to test the hypotheses correctly is external validity. External validity refers to the capacity of a study’s finding to be generalized beyond the conditions of the study to other populations and settings. When considering threats to external validity, it is helpful to examine the sample from which conclusions from the study were made.

Selection bias can impact results of an experiment if the sample does not represent the population to which it is being generalized. For this study, random assignment was utilized in order to ensure that similar groups of participants were being compared across experimental conditions. However, the use of an undergraduate, volunteer sample does reduce generalizability of results to the wider population. This does represent a likely case of selection bias and
researchers should take caution when interpreting results in order to address this bias and acknowledge the limits of generalizability.

A second potential consideration with regard to external validity is the interaction of history and treatment (Cook & Campbell, 1979). This suggests that while the study was conducted, there may have been special conditions present for some participants that were not present for others. This can take a number of forms, such as timing of the study (whether beginning of the semester or near finals) or interest in study material. For this study, one of the most significant of these factors may be variations in the amount of exposure each person had to previous trauma events. For example, some participants may have been exposed to a single, isolated traumatic event, whereas others may have experienced significant, lifelong trauma. This would likely influence the external validity of the study because it would impact whether results could be generalized to a more “typical” population versus a population with significant trauma history. However, given that there was likely a range in the number of trauma exposures, and that participants were asked to write about their single most significant experience, these effects would likely balance out over time. Additionally, some participants may have had some familiarity with either self-compassion or progressive muscle relaxation, whereas others may not. Participants may have self-selected into this study due to an interest in learning how to cope with emotions (as self-compassion and muscle relaxation were not mentioned at the time of recruitment), which may influence the generalizability of results.

As mentioned previously, the SCS has high test-retest reliability after a three-week delay \( r = .93; \) Neff, 2003). The stability of this measure also contributes to the failure of the experimental design, as results suggest the self-compassion intervention would have to be significantly more intensive in order to see changes in this measure. Interestingly, the majority
of previous research using single-session self-compassion inductions did not utilize the SCS; rather, the study authors created their own lists of questions which assessed for changes in a self-compassionate perspective (i.e., Diedrich et al., 2014). Thus, in order to see improvements in self-compassion on the SCS, it is likely the experimental manipulation would have had to include more than one session, as well as independent practice sessions in between lab visits.

Limitations

The lack of support for several hypotheses may be a result of limitations in this study. As mentioned previously, it may be that the self-compassion intervention administered during the laboratory visit was not potent enough to lead to clinically meaningful improvements in emotion regulation and self-compassion. Participants completed the exercise independently (after having it briefly introduced by a research assistant) and it is possible they did not fully engage with the exercise. Additionally, given that self-compassion can be a novel construct for many individuals, it may have been beneficial to provide participants with some brief psychoeducation about how self-compassion is conceptualized within psychology and its common associations. Self-compassion may represent an advanced skill that requires background with mindfulness or other meditation to fully embrace. For example, the protocol for Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, 1982), a well-established mindfulness intervention, calls for several weeks of mindfulness practice before participants engage in self-compassion exercises, such as the Loving-Kindness Meditation. This suggests that it may be important for individuals to have experience with basic mindfulness skills, such as observing emotions, before practicing self-compassion. While this would have increased the length of experimental session, it may have helped to increase “buy-in” for participants who were engaging with this condition. A
similar argument could likely be made for the muscle relaxation condition. Participants may not have fully engaged with the exercise during the audio recording, as they were not supervised during this time. Additionally, participants may not have been familiar with progressive muscle relaxation and a brief background and introduction to the material may have improved engagement with this condition.

There are also other potential confounds that may help explain the non-supported findings, particularly in regard to differences between the two experimental conditions in reducing difficulties with emotion regulation. Though the study was designed in a way to reduce these confounds (i.e., randomization of participants, no baseline differences detected on statistical tests of between group variables, experimenters following scripted procedures), it is possible undetected confounds played a role. For example, participants in the study may have had other psychiatric disorders that influenced emotion regulation and their responses on self-report measures, such as depression and/or generalized anxiety disorder. This study did not assess for psychiatric diagnoses or co-morbid conditions. As such, exclusion criteria did not include a diagnosis of a psychiatric disorder, representing a limitation of this study. Future studies may avoid this limitation by assessing for co-morbid conditions and psychiatric disorders in order to verify that both experimental conditions have comparable rates of psychiatric disorders.

Another possible limitation may be the issue of gender. Both men and women were included in this study, though some research suggests specific differences in self-compassion for men and women. For example, a meta-analysis conducted by Yarnell and colleagues (2015) found that women, in North America in particular, report lower self-compassion than men. Additionally, the research suggested that samples with higher percentages of ethnic minority
participants demonstrated even greater differences, as cultural norms related to “masculinity” and “femininity” likely play a role (Yarnell et al., 2015). It may be that women who conform more strongly to traditionally feminine gender roles of self-sacrifice and a decreased inability to bounce back from adverse events may demonstrate lower levels of self-compassion, whereas men who adhere to traditional masculine roles related to confidence in one’s abilities may show higher levels of self-compassion. Further research suggests the degree to which an individual conforms to one’s traditional gender role also plays a role in expected levels of self-compassion, which may result in the inverse being true (Yarnell, Neff, Davison, & Mullarkey, 2018). This is an interesting area of research and would likely be important to consider when utilizing manipulations which attempt to increase self-compassion. Future research may be improved through measurement of the strength of an individual’s adherence to gender roles and consideration given to how this may impact one’s ability to quickly learn self-compassion skills.

Another of these possible limitations may be the severity of PTSD symptoms reported in the sample. Using a recommended cut-off score of 31 on the PCL-5 (Bovin et al., 2015), approximately 57.6% of the sample were expected to meet diagnosable threshold for PTSD. However, the average total score for the sample was relatively low at 37.4, with the median score being 34. This may have impacted the writing sample and negative mood induction, as SUDS may not have increased as significantly as they would have in a more symptomatic sample. Follow-up analyses did not find significant differences in total PCL-5 scores between conditions, suggesting PTS symptomatology was consistent across both conditions. In a similar vein, it is not possible to confirm that the event participants chose to write about was indeed their most distressing event. Research assistants instructed all participants to bring to mind their most distressing event, however, some participants may have been avoiding this during the writing
exercise and instead focusing on a less distressing or more recent event, leading to potentially decreased negative emotions. In the future, it may be beneficial to spend time anchoring scores on the PCL-5 to events on the LEC-5, as well as confirming that the most distressing event endorsed on the LEC-5 is recalled during the intervention. The research assistant could likely have access to these measures and spend time discussing the importance of this with the study participant at the beginning of the experimental session.

Conclusions and Future Directions

This study had two primary aims: 1) examine relationships among symptoms of PTS, self-compassion, and emotion regulation and 2) investigate whether a brief self-compassion intervention led to significantly greater reductions in difficulties with emotion regulation following a negative mood induction than a relaxation training condition for those with history of trauma. Findings from this study replicate previous research among these three constructs (PTS, self-compassion, and difficulties with emotion regulation), with relationships among variables found in the expected directions. However, there was not conclusive evidence to suggest that participating in a brief self-compassion intervention was more effective for reducing difficulties with emotion regulation than participating in a muscle-relaxation training intervention. Additionally, there was not support for self-compassion and emotion regulation as mediating the association between participating in the self-compassion condition and decreased negative affect. Results of the study suggest a need for further investigation into how self-compassion skills training can be best utilized to produce clinically significant and long-lasting changes in emotion regulation. This includes examining the sufficient “dosing” for a self-compassion intervention while remaining cognizant of the potential burden on study participants. Additionally,
participants with trauma exposure may be reluctant to fully engage with trauma-related memories during a brief intervention. Additional research should consider the setting and context for conducting research with participants with trauma as well as the possibility of providing psychoeducation about all conditions in experimental interventions and trauma education.
REFERENCES


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APPENDIX A

DEMOGRAPHICS QUESTIONNAIRE
Demographics Questionnaire

Please respond to the following items:

1. What is your age (in years)?
   a. 18-22
   b. 23-30
   c. 31-40
   d. 41 or older
   e. Prefer not to respond

2. What is your gender?
   a. Male
   b. Female
   c. Transgender
   d. Pangender
   e. Prefer not to respond

3. Do you identify as Latino, Hispanic, or being of Spanish origin (please select one)?
   a. Yes
   b. No
   c. Prefer not to respond

4. What is your race (please select one)?
   a. American Indian or Alaskan Native
   b. Asian or South-Asian
   c. Black or African American
   d. Native Hawaiian or Pacific Islander
   e. White
   f. Not listed (please specify) ________________________________
   g. Prefer not to respond

5. How many years of education have you completed?
   a. ______ Years of education
   b. Prefer not to respond

6. In the past few weeks, have you wished you were dead?
   a. Yes
   b. No
   c. Prefer not to respond

7. Have you ever practiced meditation on a regular basis?
   a. No
   b. Yes
APPENDIX B

LIFE EVENTS CHECKLIST
Life Events Checklist

Listed below are a number of difficult or stressful things that sometimes happen to people. For each one select one or more responses to indicate that: (a) it happened to you personally, (b) you witnessed it happen to someone else, (c) you learned about it happening to someone close to you, (d) you're not sure if it fits, or (e) 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.

a. Event Happened to me
b. Witnessed it
c. Learned about it
d. Not Sure
e. Doesn't apply

1. Natural disaster (for example, flood, hurricane, tornado, earthquake)
2. Fire or explosion
3. Transportation accident (for example, car accident, boat accident, train wreck, plane crash)
4. Serious accident at work, home, or during recreational activity
5. Exposure to toxic substance (for example, dangerous chemicals, radiation)
6. Physical assault (for example, being attacked, hit, slapped, kicked, beaten up)
7. Assault with a weapon (for example, being shot, stabbed, threatened with a knife, gun, bomb)
8. Sexual assault (rape, attempted rape, made to perform any type of sexual act through force or threat of harm)
9. Other unwanted or uncomfortable sexual experience
10. Combat or exposure to a war-zone (in the military or as a civilian)
11. Captivity (for example, being kidnapped, abducted, held hostage, prisoner of war)
12. Life-threatening illness or injury
13. Severe human suffering
14. Sudden, violent death (for example, homicide, suicide)
15. Sudden, unexpected death of someone close to you
16. Serious injury, harm, or death you caused to someone else
17. Any other very stressful event or experience
APPENDIX C

POSITIVE AND NEGATIVE AFFECT SCHEDULE
Positive and Negative Affect Schedule

This scale consists of a number of words that describe different feelings and emotions. Read each item and then list the number from the scale below next to each word. Indicate to what extent you feel this way right now, that is, at the present moment.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Slightly or Not at All</td>
<td>A Little</td>
<td>Moderately</td>
<td>Quite a Bit</td>
<td>Extremely</td>
</tr>
</tbody>
</table>

_______ 1. Interested  _________ 11. Irritable
_______ 2. Distressed  _________ 12. Alert
_______ 3. Excited  _________ 13. Ashamed
_______ 5. Strong  _________ 15. Nervous
_______ 7. Scared  _________ 17. Attentive
_______ 8. Hostile  _________ 18. Jittery
_______ 9. Enthusiastic  _________ 19. Active
_______ 10. Proud  _________ 20. Afraid

**Scoring Instructions:**

**Positive Affect Score:** Add the scores on items 1, 3, 5, 9, 10, 12, 14, 16, 17, and 19. Scores can range from 10 – 50, with higher scores representing higher levels of positive affect.

**Negative Affect Score:** Add the scores on items 2, 4, 6, 7, 8, 11, 13, 15, 18, and 20. Scores can range from 10 – 50, with lower scores representing lower levels of negative affect.
Please indicate how often the following statements apply to you by writing the appropriate number from the scale above (1 – 5) in the box alongside each item.

1. I have difficulty making sense out of my feelings. [CLARITY*]
2. I am confused about how I feel. [CLARITY]
3. When I'm upset, I have difficulty getting work done. [GOALS]
4. When I'm upset, I become out of control. [IMPULSE]
5. When I'm upset, I believe that I will remain that way for a long time. [STRATEGIES]
6. When I'm upset, I believe that I'll end up feeling very depressed. [STRATEGIES]
7. When I'm upset, I have difficulty focusing on other things. [GOALS]
8. When I'm upset, I feel out of control. [IMPULSE]
9. When I'm upset, I feel ashamed with myself for feeling that way. [NONACCEPTANCE]
10. When I'm upset, I feel like I am weak. [NONACCEPTANCE]
11. When I'm upset, I have difficulty controlling my behaviors. [IMPULSE]
12. When I'm upset, I believe that there is nothing I can do to make myself feel better. [STRATEGIES]
13. When I'm upset, I become irritated with myself for feeling that way. [NONACCEPTANCE]
14. When I'm upset, I start to feel very bad about myself. [STRATEGIES]
15. When I'm upset, I have difficulty thinking about anything else. [GOALS]
16. When I'm upset, my emotions feel overwhelming. [STRATEGIES]
APPENDIX E

PCL-5
For the following 20 questions, please use the following scale:

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not at all</td>
<td>A little bit</td>
<td>Moderately</td>
<td>Quite a bit</td>
<td>Extremely</td>
</tr>
</tbody>
</table>

**Instructions:** Below is a list of problems and complaints that people sometimes have in response to stressful life experiences. Keeping your worst event in mind, please read each problem carefully, and indicate how much you’ve been bothered by that problem in the **past month.**

_____ 1.) Repeated, disturbing, and unwanted memories of the stressful experience?

_____ 2.) Repeated, disturbing dreams of the stressful experience?

_____ 3.) Suddenly feeling or acting as if the stressful experience were actually happening again *(as if you were actually back there reliving it)?*

_____ 4.) Feeling very upset when something reminded you of a stressful experience from the past?

_____ 5.) Having strong physical reactions when something reminded you of the stressful experience *(for example, heart pounding, trouble breathing, sweating)*?

_____ 6.) Avoiding memories, thoughts, or feelings related to the stressful experience?

_____ 7.) Avoiding external reminders of the stressful experience *(for example, people, places, conversations, activities, objects, or situations)*?

_____ 8.) Trouble remembering important parts of the stressful experience?

_____ 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)*?

_____ 10.) Blaming yourself or someone else for the stressful experience or what happened after it?
_____ 11.) Having strong negative feelings such as fear, horror, anger, guilt, or shame?
_____ 12.) Loss of interest in activities that you used to enjoy?
_____ 13.) Feeling distant or cut off from other people?
_____ 14.) Trouble experiencing positive feelings (for example, being unable to feel happiness or have loving feelings for people close to you)?
_____ 15.) Irritable behavior, angry outbursts, or acting aggressively?
_____ 16.) Taking too many risks or doing things that could cause you harm?
_____ 17.) Being “superalert” or watchful or on guard?
_____ 18.) Feeling jumpy or easily startled?
_____ 19.) Having difficulty concentrating?
_____ 20.) Trouble falling or staying asleep?
APPENDIX F

SELF-COMPASSION SCALE
**Self-Compassion Scale**

Please read each statement carefully before answering. Indicate to the left the response that indicates how often you behave in the stated manner, using the scale provided:

<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 and out, 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.
Consent Form

I agree to participate in the research project titled *Evaluating the Utility of a Brief Self-Compassion Induction for Emotion Regulation in Individuals with Trauma Exposure* being conducted by Sara Himmerich, M.A., Department of Psychology at Northern Illinois University. I have been informed that the purpose of the study is to understand how my experience with a traumatic event influences emotions and how I relate to myself during difficult times. I understand that the study involves an in-person laboratory session. I understand that I will be asked to write about my experience related to a traumatic event and then I will either complete a brief self-compassion induction or a relaxation training session. In addition, I will be asked to complete a few questionnaires. The questionnaires contain questions concerning: symptoms related to trauma (for example, *Repeated, disturbing, and unwanted memories of the stressful experience*); my emotions (for example, *I have difficulty making sense of my feelings*) and how I treat myself in difficult situations (for example, *I try to be loving towards myself when I’m feeling emotional pain*).

I understand that it is possible that when answering some of the questions I may experience some discomfort. I am aware that my participation is voluntary and may be withdrawn at any time without penalty or prejudice, and that if I have any additional questions concerning this study, I may contact the faculty advisor on this project, Dr. Holly Orcutt, Department of Psychology, Northern Illinois University, at (815) 753-0372. I understand that if I wish further information regarding my rights as a research subject, I may contact the Office of Research Compliance at Northern Illinois University at (815) 753-8588.

I have been informed that potential risks and/or discomforts I could experience during this study include upsetting or distressing thoughts or feelings when answering questions related to traumatic life events and my emotions. I am aware that if I feel upset during or after the study, I can contact the Crisis Line at (815) 758-6655. The Crisis Line is available 24-hours-a-day. In addition, I will be provided with contact information for Holly Orcutt; she can be reached during standard business hours.

The study should last approximately 60 minutes. I understand that all of the information provided in the questionnaires will be kept in the strictest of confidence and will not be available to anyone other than the experimenters conducting the study. However, your confidentiality will be maintained to the degree permitted by the technology used. Specifically, no guarantees can be made regarding the interception of data sent via the Internet by any third parties and to the degree permitted by law. Additional resources for support services will be provided at the end of the study following the interviews and questionnaires.

I understand that there may be no direct benefit to me by participating in this research study. By completing this first part of the experiment, I will earn 2 points toward the partial course credit option in my Psychology 102 course.
Any further information about the experiment may be obtained by contacting Holly Orcutt, Department of Psychology, Northern Illinois University, at (815) 753-0372. By clicking on the appropriate buttons below, I am stating that I have read the consent form in its entirety and understand the purpose and conditions of the study.
APPENDIX H

DERS-16 MODIFIED
Please indicate how often the following statements apply to you in the present moment by writing the appropriate number from the scale above (1 – 5) in the box alongside each item.

1. In the present moment, I have difficulty making sense out of my feelings. [CLARITY]
2. In the present moment, I am confused about how I feel. [CLARITY]
3. In the present moment, I feel I have difficulty getting work done. [GOALS]
4. In the present moment, I became out of control. [IMPULSE]
5. In the present moment, I believe that I will remain this way for a long time. [STRATEGIES]
6. In the present moment, I believe that I'll end up feeling very depressed. [STRATEGIES]
7. In the present moment, I have difficulty focusing on other things. [GOALS]
8. In the present moment, I feel out of control. [IMPULSE]
9. In the present moment, I feel ashamed with myself for feeling this way. [NONACCEPTANCE]
10. In the present moment, I feel like I am weak. [NONACCEPTANCE]
11. In the present moment, I have difficulty controlling my behaviors. [IMPULSE]
12. In the present moment, I believe that there is nothing I can do to make myself feel better. [STRATEGIES]
13. In the present moment, I am irritated with myself for feeling this way. [NONACCEPTANCE]
14. In the present moment, I feel very bad about myself. [STRATEGIES]
15. In the present moment, I have difficulty thinking about anything else. [GOALS]
16. In the present moment, my emotions feel overwhelming. [STRATEGIES]
APPENDIX I

SELF-COMPASSION SCRIPT
Self-Compassion Script

“Now think about an imaginary friend who is unconditionally loving, accepting, kind and compassionate. (PAUSE). Imagine that this friend can see all your strengths and all your weaknesses, including what you have just been writing about. (PAUSE). Reflect upon what this friend feels towards you, and how you are loved and accepted exactly as you are, with all your very human imperfections. (PAUSE). This friend recognizes the limits of human nature, and is kind and forgiving towards you. (PAUSE). In his/her great wisdom this friend understands your life history and the millions of things that have happened in your life to create you as you are in this moment. (PAUSE). Your particular experience is connected to so many things you didn’t necessarily choose: your genes, your family history, life circumstances – things that were outside of your control. (PAUSE). We will now ask you to imagine from the perspective of this imaginary friend – focusing on the perceived inadequacy you tend to judge yourself for. (PAUSE). Imagine what this friend would say to you about your “flaw” from the perspective of unlimited compassion. (PAUSE). Imagine how this friend conveys the deep compassion he/she feels for you, especially for the pain you feel when you judge yourself so harshly. (PAUSE). Imagine what would this friend write in order to remind you that you are only human, that all people have both positive and negative experiences. (PAUSE). If you think this friend would suggest possible changes you should make, imagine that these suggestions embody feelings of unconditional understanding and compassion. (PAUSE). Think of the story that you had written before and write it again based on how you feel right now. You will have 15 minutes to write about the event, and I will let you know when you have a minute left to finish up.”
APPENDIX J

RELAXATION TRAINING SCRIPT
Relaxation Training Script

“During this exercise, it’s important that you concentrate on what you’re experiencing and feeling in your body. Get into a comfortable position and close your eyes. We’re going to start at the top and work our way down. I’ll ask you to tightly tense and release different muscle groups and hold the tension for several seconds. (PAUSE). Wrinkle your forehead. Wrinkle it as tight as you can. Now relax. Imagine that your entire forehead and scalp are becoming smooth and relaxed. Let yourself rest those muscles. Once again, wrinkle your forehead as tight as you can. Tighter and tighter. Now relax. Smooth out your forehead and scalp, and feel the relaxation spread. (PAUSE). Now frown. Notice that there is tension and strain spreading throughout your forehead. Now relax, and let your brow become smooth again. Notice the difference. One more time, frown, and feel that tension in contrast to the relaxation you just experienced. Keep frowning. Now relax. Let your brow smooth out and feel the difference. (PAUSE) Now, squint your eyes. Squint a little harder. Feel that tension. Allow your eyes to relax, let them stay closed, comfortably. Squint your eyes one more time. Squint a little tighter…now relax. (PAUSE). Now, clench your jaw. Tighten your jaw, and feel the tension in your jaw. Relax your jaw. When you relax your jaw fully, your lips will be slightly parted. Feel that last bit of tension slip away. One more time, clench your jaw. Bite down hard…now relax. (PAUSE). Now, slowly bring your head forward, and press your chin against your chest. Feel how the tension moves, to your throat and the back of your neck. Slowly roll your head to your right. Feel how the point of tension changes as you roll your head. Now slowly roll your head to your left. Back across your neck, over to your left. Feel the tension change. Now slowly bring your head back to where we started. Slowly bring your head back to an upright
position. Now, slowly move your head to a comfortable position, and relax. Take a minute and feel that relaxation spread throughout your neck. One more time. Bring your head forward, and press your chin against your chest. Slowly roll your head to your right. Notice the change in the point of tension as you roll your head. (PAUSE). Now slowly roll your head to your left. Back across your neck, over to your left. Feel the tension change. Now move your head to a comfortable position, and relax. (PAUSE). Now shrug your shoulders. Raise your shoulders, and hunch your head down between them. Maintain that tension for a moment…now drop your shoulders and relax. Feel that relaxation as it spreads through your neck…your throat…and your shoulders. Feel yourself sinking into relaxation …deeper and deeper. One more time, shrug your shoulders and maintain that tension for a moment…now drop your shoulders and relax. Feel that relaxation as it again spreads through your neck…your throat…and your shoulders. (PAUSE). Take your right fist, and clench it. Tighter and tighter. Keep it clenched and pay attention to the tension that you feel in your fist…in your hand…in your forearm. Now relax. Can you feel the difference? Feel the looseness in your hand, your forearm…notice the contrast. Now, clench your fist again…tighter and tighter. Now relax and notice the difference. (PAUSE). Now take your left fist, and clench it. Tighter and tighter. Keep it clenched and pay attention to the tension that you feel in your fist…in your hand…in your forearm. Now relax. Feel the looseness in your hand, your forearm…notice the contrast. Now, clench your fist again…tighter and tighter. Now relax and notice the difference. (PAUSE). Now take both your fists, and clench them. Tighter and tighter. Keep them clenched and pay attention to the tension that you feel in your fists…in your hands…in your forearms. Now relax. Can you feel the difference? Feel the looseness in your hands, your forearms…notice the contrast. Now, clench your fists again…tighter and tighter. Now take a minute and relax,
noticing the contrast between tenseness and relaxation. (PAUSE). Now bend your elbows and
tense your biceps. Tense them as tight as you can. Feel the tension in your biceps and forearms.
Tighter and tighter. Relax, and straighten out your arms. Notice the difference. Now, once
again, bend your elbows and tense your biceps. Tighter and tighter. Relax, and straighten out
your arms. Notice the difference between tension and relaxation. (PAUSE). Now, tighten your
stomach and hold it tight. Notice the tension. Now relax, and notice how different it feels.
Feel your body getting heavier as you relax. One more time, tighten your stomach and hold it
tight. Relax… (PAUSE). Now, tighten your buttocks and thighs. Tighten your thighs by
pressing down on your heels as hard as you can. Press down a little harder…a little harder…now
relax. Note the difference. One more time. Tighten your buttocks and thighs. Press down on
your heels a little bit harder…little bit more…now relax. (PAUSE). Now, arch your back as far
as it is comfortable, keeping the rest of your body as relaxed as possible. Feel the tension in your
lower back? Now, relax. Note your body feeling heavier and heavier as you release the tension
and relax. Once more, arch your back without straining. Feel that tension in your lower back.
Now relax. (PAUSE). Now curl your toes downward…do you feel the tension in your calves?
Curl them a little more…a little more…pay attention to how this feels…now relax. One more
time, curl your toes downward and feel the tension in your calves…curl them a little more…now
relax. (PAUSE). Now curl your toes up toward your face…do you feel the tension in your shins?
Curl them a little more…a little more…pay attention to how this feels…now relax. One more
time, curl your toes up and feel the tension in your calves…curl them a little more…now relax.
(PAUSE). Feel that your whole body is relaxed and a little heavy. Breathe now, and fill your
lungs with air. Hold that breath. Notice the tension you are feeling throughout your body.
Exhale, letting the air hiss out, and feel that your chest is becoming loose and your muscles are
relaxing. Take another deep breath and hold it. Exhale and notice that as you exhale, the tension drains from your body and the relaxation spreads. One more time. Inhale deeply and hold it. Now exhale…(PAUSE). Spend a few moments just breathing and scanning your body from head to toe in your mind’s eye. Notice feelings of warmth, heaviness, and relaxation. With practice, you will be able to recall these feelings at times when you are tense.
APPENDIX K

DEBRIEFING FOR EXPERIMENTAL SESSION
Debriefing for Experimental Session

Thank you for your participating in the study: *Evaluating the Utility of a Brief Self-Compassion Induction for Emotion Regulation in Individuals with Trauma Exposure*. The purpose of this study is to examine how understanding how experiencing a traumatic event influence how you feel and how we treat ourselves during difficult times. This information may be helpful for designing better treatments for survivors of trauma.

If you have any questions or comments about this study or the results obtained, please contact the Principal Investigator, Sara Himmerich, shimmerich@niu.edu. Though you may feel some stress or discomfort related to completing this survey, the distress is typically fleeting. However, if you find that you are distressed following your participation in this study, please contact either the PI or Dr. Holly Orcutt (the faculty advisor of this project, horcutt@niu.edu) or one of the local or national resources found below. You may also seek out therapy services at a local facility (see the attached list of local resources).

Thank you again for your participation. Please click the button below to indicate that you have read and understand this form, and that you will contact Sara Himmerich or Dr. Holly Orcutt if you have any questions or concerns about the study, and Northern Illinois University’s Office of Research Compliance at (815) 753-8588 if you have any questions about your rights as a research participant.

DeKalb County Resources

**Campus Services**

**Counseling & Consultation Services, NIU (STUDENTS ONLY) (formerly The Counseling and Student Development Center - CSDC)**

Phone: 815/753-1206  
Address: Campus Life Building-200  
Fees: None for counseling. Modest testing fees.  
Hours: 8:00 a.m. – 4:30 p.m. Monday-Friday  
After Hours: Assistance after hours available by calling—815/753-1212

*Description of Services:* This service provides students with short-term, individual and group counseling for a broad range of personal concerns. Career counseling services include interest assessment, workshops, and use of computerized career counseling programs. Educational counseling services include assistance with test anxiety and study skills. Assessments of drug and alcohol abuse are also provided. First appointment scheduled with 3-7 days. (Handicapped Accessible).

**Community Counseling Training Center, NIU (formerly The Counseling Laboratory)**

Phone: 815/753-9312  
Address: 416 Graham Hall  
Fees: None for students, faculty, or staff.  
Hours: Call for available counseling hours.
Description of Services: A wide range of services are offered by the counselors including both personal and vocational counseling. In general, the approach used is one that promotes growth and focuses on increasing emotional well-being and self-awareness. All counselors are doctoral or masters level students who are being supervised by members of the counseling faculty. First appointments scheduled within 3-5 days.

The Couple and Family Therapy Clinic of NIU, NIU (formerly The Family Therapy Clinic)
Phone: 815-753-1684
Address: Wirtz Hall 146
Fees: The cost of services are determined by a sliding fee scale. No client is turned away due to the inability to pay. This gives clients of all income levels access to our high-quality care.
Hours: Monday, Tuesday – 12 noon – 9:00 pm; Wednesday, Thursday - 9:00 am - 9:00pm; Friday - 9:00 am - 5:00 pm
Website: http://www.chhs.niu.edu/familytherapyclinic/contact/index.shtml

Description of Services: The Couple and Family Therapy Clinic at NIU is a training and research facility that is an integral component of the specialization in Marriage and Family Therapy Program (SMFT). They provide clinical services to individuals, couples, and families with a unique perspective of addressing the issues in a larger systemic context. They follow rigorous training standards as set forth by our accrediting organization, being accredited by the Commission on Accreditation for Marriage and Family Therapy Education (COAMFTE).

Psychological Services Center, NIU
Phone: 815/753-0591
Address: Normal Rd and Lincoln Hwy.
Fees: No fee for therapy for students; fee for assessments for students. Faculty, staff, and community members charged on a sliding scale.
Hours: Monday – 11:00 a.m. – 7:00 p.m.
Tuesday – 12:00 noon – 8:00 p.m.
Wednesday-Friday-9:00 a.m. to 5:00 p.m. Open whenever NIU is open, including breaks.

Description of Services: Individual, couples, family, and group psychotherapy, Intellectual, personality, and academic assessments. Clients are generally seen by advanced level graduate student staff under faculty supervision. Services tailored to meet a client’s specific needs. First appointment scheduled with 7 days. (Handicapped accessible.)

Community Resources

KishHealth System Behavioral Health Services (formerly Ben Gordon Center)
Phone: 815/756-4875
Address: 12 Health Services Dr., DeKalb, IL 60115
Fees: Sliding fee scales based on income. Insurance accepted.
Hours: Monday-Thursday- 8:00 a.m. – 8:30 p.m.
Friday-8:00 a.m.-5:00 p.m.
After Hours: 815/758-6655 Crisis Line

Description of Services: Comprehensive counseling services to all residents of DeKalb County. Services to all persons affected by mental health problems, substance abuse, and family/child welfare concerns. 24-hour sexual
assault/abuse services can be accessed through the Crisis Line. First appointment scheduled within 30 days. (Handicapped accessible and on Campus Bus Route).

**Braden Counseling Center**
Phone: 815/787-9000  
Address: 2580 DeKalb Ave., Suite C., Sycamore, IL 60178  
951 S. 7th St., Suite G., Rochelle, IL 60168  
Fees: Sliding fee scales based on income. Insurance accepted.

Description of Services: Free initial consultation. Specializes in counseling individuals, couples and families in various stages of life. Has flexible scheduling with Sycamore and Rochelle locations. Also offers a variety of evaluations, including same-day DUI evaluations, and legal and forensic work for attorneys.

**Village Counseling**
Phone: 815/756-9907  
Address: 1211 Sycamore Rd., DeKalb, IL 60115  
Fees: Sliding fee scales based on income. Insurance accepted.  
Hours: Monday-9:00 a.m.-10:00 p.m.  
Wednesday/Thursday-9:00 a.m.-9:00 p.m.  
Friday-10:00 a.m.-10:00 p.m.

Description of Services: Provides relationship-centered counseling, including life counseling for individuals, couples, families, adolescents, and children, as well as marriage and family counseling.

**Family Service Agency, Center for Counseling**
Phone: 815/758-8616  
Address: 14 Health Services Dr.-DeKalb  
Fees: $75.00 per visit. Insurance accepted, including NIU Student Insurance. Payment plans and scholarship funds available.  
Hours: Monday-Wednesday-9:00 a.m. – 8:00 p.m.  
Thursday – Friday – 8:00 a.m. – 4:00 p.m. Additional hours available by appointment.

Description of Services: Individual, couple, group counseling for children, adults, senior citizens, and families. First appointment scheduled within 1-7 days. (Handicapped accessible and on Campus Bus Route).

**Living Rite, The Center for Behavioral Medicine.**
Phone: 815-758-8400  
Address: 1958 Aberdeen Court, Suite 2, Sycamore, IL 60178  
Fees: Based on insurance. Self-pay options are available.

Description of Services: Individual and Group Therapy. Therapy to deal with chronic pain.

**Safe Passage, Inc.**
Phone: 815-756-7930  
Hotline/Crisis: 815-756-5228  
Address: P.O. Box 621, DeKalb, IL 60115
Description of Services: A wide variety of services are offered to victims and perpetrators of domestic and sexual violence including crisis intervention and medical advocacy for victims of domestic and sexual violence, short- and long-term housing for victims and their children, counseling, legal advocacy, children's services, community education, a batterer's intervention program, and a Latina outreach program.

**National Resources**

Suicide Prevention Hotline (1-800-273-8255, [http://www.suicidepreventionlifeline.org/](http://www.suicidepreventionlifeline.org/))
National Alliance on Mental Illness (NAMI; 1-800-950-6264; [http://www.nami.org/](http://www.nami.org/))
National Center for PTSD (NCPTSD; [http://www.ptsd.va.gov/](http://www.ptsd.va.gov/))