A COMPARISON OF TREATMENTS FOR POSTTRAUMATIC STRESS DISORDER SYMPTOMS: MEMORY SPECIFICITY TRAINING (MEST) AND COGNITIVE PROCESSING THERAPY (CPT)

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The effectiveness of memory specificity training (MeST) was compared with standard cognitive processing therapy (CPT) in treatment of individuals with posttraumatic stress disorder. Eighteen adults aged 18-36 were randomly assigned to the MeST intervention \(n = 9\) or to the active control group \(n = 9\) of CPT. Both treatments were administered in group format across 6 weeks. MeST consisted of 6 weekly sessions, while CPT consisted of 12 biweekly sessions. The trial was undertaken in the Psychology Clinic of the University of North Texas, with randomization to conditions accomplished via computer random number generator. The primary outcome measure was change in PTSD symptoms post-treatment from baseline. Sixteen individuals (13 women and 3 men; MeST \(n = 8\) and CPT \(n = 8\)) completed treatment and their data was analyzed. MeST significantly decreased PTSD symptomology at post-treatment and these results were maintained at 3 months post-treatment. MeST was found to be as effective as the established CPT intervention at reducing PTSD symptomology. Both MeST and CPT significantly increased participants’ ability to specify memories upon retrieval at post-treatment, with results maintained at follow-up. There were no significant effects of MeST or CPT in ability to increase overall controlled cognitive processing at post-treatment or follow-up. No individual in either group reported any adverse effects during treatment or at 3 months follow-up. MeST appears to hold promise as an efficacious treatment option for PTSD. MeST was as effective as CPT in reducing symptoms of PTSD, but required only half the number of treatment sessions to accomplish these gains. Replication of these findings in larger samples is encouraged.
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CHAPTER I

REVIEW OF LITERATURE

Trauma Exposure

Trauma exposure is a common occurrence with many individuals having been exposed to a qualifying event during their lifetime. A qualifying event (a.k.a. a criterion A event) is currently defined as a stressor that includes death or threatened death, actual or threatened serious injury, or actual or threatened sexual violation, in one or more of the following ways: experiencing the event themselves, witnessing in person the event occur to others, learning of the event occurring to a close relative or close friend in which the event was violent or accidental, or experiencing repeated exposure to aversive details of the event(s). These events cannot be experienced through media exposure such as television, movies, or pictures unless it is work related (i.e. police work involving graphic visual exposure; Diagnostic and Statistical Manual of Mental Disorders, DSM-5, 2013). The National Comorbidity Survey found that 60.7% of men and 51.2% of women experienced at least one traumatic event in their lifetime, with men reporting more exposure to combat, physical assault, and life-threatening accidents (Kessler, Sonnega, Bromet, Hughes, and Nelson, 1995). A study examining 1,000 adults from southeastern cities found that 69% of respondents had experienced one traumatic event in their lifetime and 21% had experienced a traumatic event within the past year (Norris, 1992). Lifetime trauma exposure prevalence rates were comparable in a sample of 4,000 US adult women (69%; Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993). Similar prevalence rates of trauma exposure have been found in other countries as well. In a study of 2,500 adults from 4 cities in Mexico, the rate of trauma exposure was 76% (Norris, Murphy, Baker, Perilla, Rodriguez, &
Rodriguez, 2003). The lifetime prevalence of trauma exposure among college students has been shown to be as high as 84% (Vrana & Lauterbach, 1994). Taken together, across these prevalence studies it appears that approximately 51-69% of women and 60-69% of men are exposed to trauma.

Experiencing the death of a loved one is the most prevalent form of trauma exposure, occurring at a rate of 40% (Norris, 1992). The 1989 U.S. Census identified non-crime disasters (33.31%), homicide of a family member (13.37%), and physical assault (10.28%), as the next most common traumatic experiences in women for lifetime prevalence (Resnick et al., 1993). Another study found the highest lifetime prevalence rates of trauma exposure in men to be witnessing someone killed or injured (45.6%), while in women it was the event of experiencing traumatic bereavement (36.1%; Norris et al., 2003). While there are some individuals who only experience one traumatic event in their lifetime, the majority of individuals experience one or more traumatic events over the course of their life (Norris et al., 2003). A study utilizing college students discovered that one third of undergraduate respondents had already experienced four or more traumatic events in their lifetime, and 9% of respondents had experienced seven or more events (Vrana & Lauterbach, 1994). In summary, trauma exposure occurs at a high frequency in US populations, and tends to occur more often for men than women. Men are usually exposed more to combat related traumatic events and women are more often exposed to a death of a loved one or physical/sexual assaults. Experiencing a traumatic event creates a memory that can be retrieved frequently shortly after the event. If retrieved at a high frequency with negative thoughts about the event, individuals may be diagnosed with posttraumatic stress disorder (PTSD) (in order to see recent changes to PTSD diagnostic criteria, please see Appendix A).
Understanding overall autobiographical memory retrieval and specific memory retrieval of traumatic events is a focal component of the experimental treatment group.

**Autobiographical Memory Retrieval**

According to Williams, Conway, and Cohen (2008), an autobiographical memory is a type of memory that consists of an individual’s representation of an event in their life that involves episodic memory (personal references to certain places, people, and events that occurred at a particular time) and semantic memory (broad knowledge about the culture in which the individual lived). These memories can be broken down into four differentiating categories: (1) personal vs. biographical: personal information contains memories that occurred in your life to you specifically, while biographical information describes who you are (e.g. where you live or where you were born), (2) reconstructions vs. copies: copies involve great visual detail and description whereas reconstructions incorporate hindsight and may be recreated with new information, (3) specific vs. generic: specific events give certain times and places, whereas generic do not describe in detail the time or place, and (4) field vs. observer: field memories are described from a personal viewpoint, whereas observer memories are described from another individual’s viewpoint (Williams, Conway, & Cohen, 2008).

In addition, within autobiographical memory there are events that have more negative connotations and events that have more positive connotations, which are subsequently labeled as a negative or positive hedonic tone (Clark & Teasdale, 1982). Other theories have posited that autobiographical memories are made of (a) lifetime periods, (b) general events, or (c) event-specific knowledge (Conway & Pleydell-Pierce, 2000). Lifetime periods are described as periods that include a multitude of common characters, places, activities, and goals related to one another that occur in a timeframe with a non-discrete beginning and end (i.e., while in college). General
events are more specific and heterogeneous and can be categorized as a small subset of the individual’s lifetime history. Event-specific memories present as more vivid than lifetime periods or general events and also include more details such as person, place, time, and even details related to the characters and location itself (Conway & Pleydell-Pierce, 2000).

The extent literature has long documented individuals who are suffering from depression as reporting negative hedonic autobiographical memories at higher rates than positive hedonic autobiographical memories (Clark & Teasdale 1982; Lloyd & Lishman, 1975; Williams & Broadbent, 1986; Williams & Dritschel, 1988). Within one study it was directly shown that individuals’ mood resulted in the extent of negativity or positivity exhibited in their autobiographical memory retrieval, regardless of overall depression rating (Clark & Teasdale, 1982). Although current mood may affect the ability to develop a negative or positive autobiographical memory, there have been studies that suggest certain “defense mechanisms,” such as avoidance and repression, may also preclude one from developing autobiographical memories of a negative nature (Davis, 1990; Hedberg, 1997; Myers & Brewin, 1994). Although the concept of defense mechanisms are not uniformly agreed upon within the psychological community, this study provides another understanding of possible ways of thinking that affect developing positive autobiographical memories. After discussing negative experiences, individuals who are typically avoidant of such experiences may engage in many behaviors to decrease their accessibility to negative affect and negative events in their life altogether (Baumeister & Cairns, 1992). High repressors who presently are experiencing a negative stimulus may engage in gaze avoidance (Olson & Zanna, 1979) to that stimulus and/or engage in thinking other thoughts unrelated to the negative stimulus in the hopes of keeping themselves distant from negative affect in general (Meyers, 1998). The consequences of not being able to
process negative stimuli in the moment and/or experience negative events in real life situations may have additional effects far beyond the inability to recall negative autobiographical memories in the past. For example, it can affect how well an individual can understand how memories of the past are connected to present life situations (Johnson & Sherman, 1990). Therefore, individuals who avoid discussing or recalling negative life events may believe the event will happen again at greater frequency than what would be expected. The opposite response could also occur where the individual avoids negative stimuli with such consistency that they begin to feel like nothing negative ever occurs and if it does occur they develop a distance between the facts of the event and the emotions that connect with that event (Johnson & Sherman, 1990).

Research revolving around current mood states and memory is characterized differently than research that looks to study “emotions.” Emotions are defined as cognitive and somatic reactions that are short in time and are reactions to a specific event that has occurred, whereas mood can be defined as a longer lasting cognitive and somatic reaction that can affect an individual from a period of several hours to several days or weeks (Scherer, 2000). Memories that are more emotional in content are accessed with more accuracy and in greater detail than emotionally neutral memories (Reisberg & Hertel, 2005). Although the idea of greater perceived accuracy of emotional memories seeming like they are more accurate to the individual if emotional material is attached to the encoding process is interesting, it has also been refuted in many studies (Buss, Wolf, Witt, & Hellhammer, 2004; de Quervan, Roozendaal, Nitsch, McGaugh, & Hock, 2000).

In summary, autobiographical memories consist of memories of personal events in one’s life and include episodic and semantic memories. Autobiographical memories can be broken into four categories (i.e. personal vs. biographical, reconstruction vs. copies, generic vs. specific,
and/or field vs. observer) and can be of positive or negative hedonic tones. Current mood states of a depressive nature can affect whether autobiographical memories are negative or positive, as well as emotions that are of short duration and are more related to current affective state. Although research to date has focused on clinical applications to depression, the conceptual underpinnings appear to be potentially salient to PTSD as well. In particular, traumatic events can qualify as not only an autobiographical memory for the individual, but can also qualify as a specific memory if the event occurs once or if it occurs over time, the memories may still feel specific each time they occur based on details related to each event. Understanding specific memories in comparison to overgeneral memories is vital to the current study and the theoretical framework of the experimental treatment group used in this study.

Overgeneral Memory vs. Specific Memory Retrieval

Beyond memory formation, cognitive psychology research on memory retrieval also appears to be salient to clinical applications. Much of this work has focused on understanding why certain psychological disorders are associated with overgeneralization of memories and difficulty retrieving specific memories. Overgeneralization of memories is a phenomenon that occurs when an individual is unable to produce specific memories related to a cue word such as “happy.” Overgeneral memories are also sometimes referred to as categorical memories, in which the person constructs a general category to encompass many similar life events, such as “going to a restaurant” (Williams, 1996). Another way individuals tend to overgeneralize is when they produce memories that occur over an extended period of time (i.e. “when I spent summers at my lake house”). In contrast, a specific memory encompasses a single event that occurs within one succinct period of time and involves specific people, places, etc. (i.e. “when I had an argument with my husband last Tuesday;” Williams, 1996). Being able to produce
specific memories has been connected with certain psychological disorders, as individuals have begun to realize that it functions like an overarching character trait that must be focused on to prevent relapse of symptoms (Gibbs & Rude, 2004).

Most research focusing on overgeneral memories discuss that the reasoning behind retrieving a general/categorical memory as opposed to a specific memory is based on top-down processing, in which the individual accesses general memories first and then may begin to focus on a specific memory thereafter (Burgess & Shallice, 1996). One model that was developed to understand why individuals who are suffering from certain psychological disorders seem to be unable to access specific memories upon recall focused on how self-representation can affect this process (Williams, Barnhofer, Crane, Herman, Raes, Watkins, & Dalgleish, 2007). The capture and rumination (CaR), functional avoidance (FA), and impaired executive control (X) (CaR-FA-X) model focuses on top-down processing and pertains to individuals who are suffering from affective disorders (i.e. major depressive disorder or bipolar disorder), hold negative feelings regarding their self-representation, and become overly focused on these representations. They hypothesize that the representations occur on the general level of memory retrieval and, therefore, specific memories are more difficult to access because they isolate certain aspects related to the self that go against their self-representation and/or force the individual to think about specific incidents that produced the negative self-representation (Conway & Pleydell-Pearce, 2000; Williams et al., 2007).

The CaR-FA-X model also incorporates mechanisms that underlie overgeneral memories and the inability to create specific memories upon retrieval. The first of which, functional avoidance, occurs when specific memories cause a negative emotional impact. The second mechanism is rumination, where upon hearing an affective state associated with a specific
memory causes pensive thinking thus making the individual incapable of specific retrieval. Lastly, there is the executive capacity and control impairment, which points to distraction as inhibiting the ability to access and focus on specific information (Williams et al., 2007). The model produced by Williams and colleagues (2007) is represented visually in Figure 1. Importantly, Williams (1996) stated that individuals become “locked” in overgeneralizing when they try to avoid memories that have a negative connotation and begin to remain in a categorical state where they continue to prime other general memories related to that primed cue. This overgeneralization and category expanse is thought to underlie increasing problems and distress.

![Figure 1. Williams et al. (2007) CaR-FA-X Model Detailing the Role of Rumination Processes on Problem Solving.](image-url)
To understand how rumination affects specific memory retrieval, Park, Goodyer, and Teasdale (2004) studied whether increasing rumination in adolescents suffering from major depression disorder (MDD) would (1) decrease the ability to develop specific memories, (2) increase the likelihood an individual would produce an overgeneral memory upon retrieval, and (3) increase the symptoms of depression. Participants in the rumination category were asked to think about topics related to the self (e.g. “think about your character and who you strive to be”) whereas participants in the distraction category were asked to think about topics unrelated to the self (e.g. “think about and imagine a boat slowly crossing the Atlantic”). Results found that (1) specific memory retrieval was decreased, and (2) depressive symptomology was increased when adolescents were asked to ruminate rather than distract their thinking. Results also implicated negative affective content as responsible for the inability to retrieve specific memories in the highly depressed participants.

Sutherland and Bryant (2007) replicated this study using a normative adult population and found similar results. Despite this study representing a normative population, levels of depression were investigated and individuals were placed into categories (e.g., highly depressed vs. not depressed) based on a median-split of the BDI-II (Sutherland & Bryant, 2007). As discussed using the CaR-FA-X model (Williams et al., 2007), not only does rumination decrease the ability to retrieve specific memories, functional avoidance also appears to cause individuals to overgeneralize during memory retrieval. As reported, overgeneral memories are associated with many psychological disorders, including posttraumatic stress disorder (McNally, Lasko, Macklin, & Pitman, 1995).

In summary, overgeneral memories occur over a longer period of time (i.e. a summer at the lake house) rather than specifying a single moment that caused a certain emotion (i.e. the 4th
of July at the lake house last summer). In the CaR-FA-X model, overgeneral memories are thought to occur from functional avoidance of memories based on the need to avoid negative tones altogether, which results in rumination.

The most widely used memory test in assessment of overgeneralization vs. specific memory retrieval is the Autobiographical Memory Test (AMT) produced by Williams and Broadbent (1986). The measure consists of ten emotional cue words that include five positive/pleasant words (happy, safe, interested, successful, and surprised) and five negative/unpleasant cue words (sorry, angry, clumsy, hurt, and lonely). Although initial development of the AMT included the cue word “surprised,” it has been removed in subsequent studies of individuals exposed to trauma (due to potential negative connotations for those individuals). Administration of the AMT involves presenting a cue word, alternating from positive to negative each time, for one minute and asking the individual to retrieve a specific memory. If they cannot think of a specific memory after 60 seconds, the assessor provides the next word and continues forward. Each response is coded as a specific or non-specific memory and the latency of recalling each memory is recorded.

Trauma Exposure and the Connection with Overgeneral Memories

As described by Williams (1996), the function of overgeneralizing memories following trauma exposure may be to distance the self from the negative affective experience. Over time, Williams speculated that the overgeneralization becomes expanded to include other kinds of memories (i.e. negative memories unrelated to the event, as well as positive memories and even memories that have neutral affect); thus, creating an overgeneralized memory system rather than just an overgeneralized memory for the traumatic event.
There have been a small number of studies that have investigated the link of experiencing trauma during childhood with overgeneralization in memory retrieval during adulthood. Kuyken and Brewin (1995) investigated women who had been exposed to childhood sexual abuse and were concurrently experiencing depression ($N = 58$). This study had participants complete the AMT, a clinical interview related to their abuse, and questionnaires related to the incident/incidents of childhood sexual abuse (CSA). This study found that participants who had experienced CSA were more likely to use overgeneral memory retrieval to both negative and positive cues when compared to a control group that consisted of females with just depressive symptomology (Kuyken & Brewin, 1995). However, a limitation of this study is that participants were not questioned on their current symptomology related to PTSD, so the findings can only be looked at in terms of trauma exposure.

Despite an indication that childhood sexual abuse history may be one form of a traumatic event linked to overgeneral memory retrieval, there is evidence to the contrary. A study comprised of patients diagnosed with an anxiety disorder or major depression investigated whether experiencing childhood emotional and/or physical neglect was linked to overgeneral memory (Outpatients, $N = 93$; Healthy controls, $N = 24$; Wessel, Meeren, Peeters, Arntz, & Merckelbach, 2001). This study found that negative childhood experiences were not significantly linked to overgeneral memory retrieval; however, the authors acknowledged that their results may have been swayed due to a small sample size (Wessel et al., 2001).

In contrast, another study focused on the assessment of trauma exposure during childhood in 27 adolescent inpatient participants, whose diagnoses at the time were unknown (de Decker, Hermans, Raes, & Eelen, 2003). Results indicated that trauma exposure during childhood was not only linked to overgeneral memory retrieval, but the severity of the traumatic
event also was linked to higher levels of overgeneral memory retrieval (de Decker, Hermans, Raes, & Eelen, 2003).

Veteran/Active Military Populations and Overgeneral Memory Retrieval

Despite the large amount of research devoted to how experiencing a childhood trauma may be connected with overgeneralization in memory retrieval, much of the research that focuses on posttraumatic stress disorder and overgeneral memory retrieval has focused on populations that have experienced war related traumatic events (McNally, 1994; McNally, 1995) and/or assault that occurs within adulthood (Schonfeld, Ehlers, Bollinghaus, & Rief, 2007). Research studies have examined the ability of veterans diagnosed with PTSD to produce specific memories. Specifically, studies have focused especially on Vietnam era veterans and Iranian military personnel. These studies are of particular importance to the current study, as several participants of the current study reported experiencing combat related trauma and were subsequently diagnosed with PTSD at the time of the study.

Overgeneralization in memory retrieval was investigated in a sample of Vietnam era veterans, comprised of 19 male Vietnam era veterans who had recently received a PTSD diagnosis and 13 male veterans who had not received a diagnosis of PTSD (control group; McNally, Lasko, Macklin, Pitman, 1995). Although this study included a paradigm such as the AMT, it focused on words that were more related to experiences in the Vietnam era such as negative cue words (guilty, hostile, cowardly, etc.). In total, the experiment included 10 negative words, 10 positive words, and 4 practice words that were of neutral formatting (McNally et al., 1995). In addition to examining overall differences in developing specific memories during retrieval, researchers were interested in if participants without PTSD would be able to produce more specific memories in regards to positive cue words when compared to the experimental
group. The results indicated that participants with PTSD did differ significantly in their ability to produce specific memories upon retrieval when compared to the non-PTSD sample; $M = 67\%$ vs. $M = 83\%$ (McNally et al., 1995). Further, participants with PTSD did not have a significant difference in ability to produce specific memories when words were positive rather than negative, whereas the non-PTSD sample were able to produce more specific memories when cue words were positive rather than negative.

Latency of ability to produce a specific memory was also investigated by McNally and colleagues (1995), who discovered a trend for a latency effect when retrieving positive specific memories. Specifically, non-PTSD participants retrieved positive memories at a faster rate [$t(30) = 2.00, p < 0.06$]. Despite being provided with specific instructions on how to produce a specific memory upon retrieval, individuals with PTSD still produced higher rates of overgeneral memories than individuals without PTSD. In general, these researchers hypothesized that individuals dealing with PTSD may have a higher level of difficulty in their ability to produce positive memories about the self, which may cause them to ruminate over negative memories in their life and/or avoid producing specific memories related to negative or positive experiences they may have had. Although the findings from this study support a significant association between PTSD and overgeneral memory retrieval, multiple confounding variables were not controlled for in the study (e.g., levels of combat exposure, trait anxiety, and depression; McNally et al., 1995).

In a subsequent study that speaks to cross-cultural applicability, 50 male Iranian military personnel (25 diagnosed with PTSD and 25 healthy controls), all of whom were exposed to combat stress, were given the AMT to assess the connection between posttraumatic stress symptomology and overgeneral memory retrieval (Moradi, Abdi, Fathi-Ashtiani, Dalgleish, &
Jobson, 2012). This study found that individuals who met criteria for PTSD showed reduced ability to specify when recalling both episodic memories and personal semantic information (Moradi et al., 2012).

In summary, studies have found that individuals who had been diagnosed with PTSD after experiencing a combat related trauma during the Vietnam era had significantly higher rates of overgeneralization upon memory retrieval when compared to a non-PTSD Vietnam era veteran group. Individuals with PTSD within this group also had difficulty regardless of positive or negative cue words, as opposed to the non-PTSD group who evidenced greater ability to specify memories if the cue word was positive during the AMT task. Findings of significantly less ability to produce specific memories have also been shown in a study that included Iranian military personnel who were diagnosed with PTSD when compared to non-PTSD military personnel.

Civilian Trauma and Overgeneral Memory Retrieval

In this section, a review of literature related to individuals who have experienced different forms of civilian trauma and their ability to specify memories upon retrieval will be discussed. One study will focus on female assault victims and overgeneral memory retrieval. Another study of focus included participants who had been diagnosed with PTSD and had experienced a motor vehicle accident, a form of assault, and/or other form of traumatic event. The current study included some individuals who had experienced any of these particular forms of trauma and had developed moderate to high levels of PTSD symptomology.

A study of 42 female assault survivors investigated the differences between individuals who had experienced physical or sexual assault and individuals who had experienced assault, in addition to developing PTSD symptomology (Schonfeld et al., 2007). The most severe incident
of assault was questioned in depth and was the main focus of the indicated trauma. Relationship to the assailant, use of deadly weapons, types of injuries, and location of the event were also assessed. Individuals were excluded from the study if they had remained unconscious for more than 15 minutes, had issues related to substance abuse, and/or exhibited psychotic symptomology (Schonfeld et al., 2007). This study used the AMT test to look for differences between groups (PTSD vs. non-PTSD) in ability to produce specific memories. In addition, a portion of each group was told to suppress their thoughts about their traumatic experience while performing the AMT task. Results from this study found that the PTSD group overall had a trend to produce more general memories than the non-PTSD group; \( F(1, 40) = 3.22, p = .08 \) (Schonfeld et al., 2007). In addition, these results remained significant when PTSD severity was broken into different subscales and was also significant among individuals who rated high on cognitive thought avoidance. Lastly, when individuals were instructed to suppress their thoughts about their traumatic experience while performing the AMT, the PTSD group again had significant difficulty producing specific memories when compared to individuals without PTSD; \( F(1, 40) = 6.38, p = .016 \) (Schonfeld et al., 2007). This study is informative in that it further reveals that avoidance of cognitive processes may be significantly associated with the ability to produce specific memories. In addition, it suggests that individuals who have developed PTSD from different forms of assault may have more difficulty producing specific memories than individuals who do not develop PTSD after an assault occurs.

Another study included 41 civilian trauma survivors, comprised of 20 PTSD positive participants (11 female, 9 male) and 21 non-PTSD trauma-exposed participants (13 female, 8 male). The majority of the trauma events participants were exposed to included motor vehicle accidents, non-sexual assaults, and other traumatic events (Sutherland & Bryant, 2008).
Participants were assessed with the AMT and ability to problem solve (using a means-end problem-solving task; MEPS; Platt & Spivack, 1975). The authors reported that participants with PTSD produced significantly fewer specific events during the AMT and performed significantly poorer in problem solving during the MEPS task (Sutherland & Bryant, 2008). Importantly, the findings of this study suggest there may be links among ability to problem solve, overgeneral memory retrieval, and PTSD symptomology after a traumatic event. Thus, if individuals have difficulty problem solving and creating specific memories, they may also struggle to adaptively overcome their traumatic exposure. While these studies informed the current study’s hypothesis that overgeneral memory retrieval is a risk factor for the development of PTSD after trauma exposure, none of the aforementioned studies have specifically examined this possibility prospectively. Only one study in the extant literature specifically considers the possibility of overgeneral memory retrieval as a PTSD risk factor: Bryant, Sutherland, and Guthrie (2007) tested a group of 60 male firefighters who were involved in the training process at a fire academy. In this prospective study, each participant took the AMT, PTSD scale, Beck Depression Inventory (BDI), and the Traumatic Events Questionnaire prior to their subsequent involvement in a work-related traumatic experience. Forty-six participants from the original group were reassessed 4 years later for PTSD and depression. Although overall memory specificity was not related to PTSD development, the ability to develop specific memories from a positive cue was related to PTSD (Bryant, Sutherland, & Guthrie, 2007). Each of these studies suggests a need for some form of research involving the development and application of possible treatment options that include a way to target overgeneral memory retrieval.

In summary, this section focused on findings related to different forms of civilian trauma that are associated with PTSD and the likelihood of individual with PTSD to overgeneralize
memories upon retrieval in comparison to individuals without PTSD. Findings from one study provide evidence that individuals who have experienced some form of assault and have been diagnosed with PTSD provide a significantly higher amount of overgeneral than specific memories on the AMT. This finding occurred even when PTSD subscales were looked at separately and when both groups (PTSD vs. non-PTSD) were asked to suppress their memories upon retrieval. Similarly, a study of individuals who had experienced a motor vehicle accident, assault, or other traumatic event and were either diagnosed with PTSD or not diagnosed with PTSD, found that individuals with PTSD had greater difficulty recalling memories with specificity when compared to the non-PTSD group.

The Relationship Between Controlled Cognitive Processing and PTSD

Although there seems to be an association between overgeneral memory retrieval and PTSD symptomology, there is a competing hypothesis that overall controlled processing may be affected by the development of PTSD symptomology, which in turn could affect ability to retrieve specific memories. This is represented in Figure 2.

Overgeneral memory hypothesis

Controlled processing hypothesis

*Figure 2. Hypotheses on PTSD Affecting Memory Retrieval*
In light of the competing hypotheses presented in the above figure, the current study included tasks related to controlled cognitive processing, as well as emotionally controlled cognitive processing, in order to determine whether the memory-training group would improve controlled cognitive processing skills, as well as skills related to specific memory retrieval. As it is a focal point of the current study, this section will focus on the controlled cognitive processing hypothesis and discuss salient findings in individuals diagnosed with PTSD.

Automatic cognitive processes refer to processes that occur without conscious effort and are involuntary acts. In contrast, controlled cognitive processes are defined as involving conscious-controlled effort and may require additional resources that would detract from performance on a concurrent task (Posner & Snyder, 1976). It has been previously hypothesized that individuals with PTSD may be using most of their cognitive attention on avoiding traumatic memories rather than attending to present tasks. Another hypothesis from this viewpoint is that an individual with PTSD may have increased anxiety and may be devoting attention and processing (hyperarousal) to threat assessment, so they are unable to focus on present tasks (Twamley, Allard, Thorp, Norman, Cissell, Berardi, Grimes, & et al., 2009). Controlled cognitive processing has been tested in past research by way of the Stroop Task (ST; Stroop, 1935). One study included participants \((N = 65)\) who were in a motor-vehicle accident (MVA) and had developed PTSD, as well as individuals who experienced an MVA, had no PTSD diagnosis, but were told to malinger PTSD symptomology. When these participants were given the ST, there were significant differences in interference times between these two groups \((m = 30.67, SD = 12.88); (m = 13.32, SD = 9.37), p = .039\) (Thomas & Fremouw, 2009). However, a study of adult immigrant/refugees \((N = 45)\) exposed to political violence found no significant differences on the ST Color/Word task between those with and without PTSD (Kanagaratnam &
Asbjørsen, 2006). These studies reveal the inconsistency of whether controlled cognitive processes are negatively affected for all individuals with PTSD and underscore the need for continued research in this area.

Another area of controlled cognitive processing involves emotional controlled cognitive processes. Past research has hypothesized that individuals with PTSD have difficulty paying attention to cognitive control tasks when presented with emotionally traumatic stimuli. Several studies have used a modified version of the Stroop paradigm that included traumatic words, positive words, and neutral words in order to time the vocal response latencies of individuals with PTSD. One such study included Vietnam combat veterans ($N = 24$) who had PTSD and tested if traumatic event cue words would result in slower latency times when compared to neutral or positive cue words. Evidence of a significant effect on latency times was found when participants were provided with a trauma cue word (McNally, English, & Lipke, 1993). Similarly, other studies that have included individuals with PTSD [i.e. motor vehicle accidents ($N = 40$); rape/sexual assault ($N = 36$)] and compared them to individuals without PTSD found evidence for slower latency response times among the PTSD group (Harvey, Bryant, & Rapee, 1996; Cassiday, McNally, & Zeitlin, 1992).

In summary, with respect to emotionally controlled cognitive processes, there appear to be significant differences between those with and without PTSD on Emotional Stroop tasks. However, further research is needed to include other controlled processing tasks that do not involve a Stroop-like paradigm. Additionally, investigating whether there is a connection between these controlled processing tasks and ability to specify memories upon retrieval is needed.
Limitations in Overgeneral Memory Research

Whether a treatment option is dedicated specifically toward PTSD symptomology or addressing specific memory development, the closest treatment available to address thought processes related to memory is cognitive processing therapy (CPT). Although CPT is a widely used treatment for PTSD, it does not specifically require treatment to target overgeneral memory retrieval. In light of recent evidence suggesting overgeneral memory retrieval is a predictor of PTSD development after trauma exposure (Bryant, Sutherland, & Guthrie, 2007), such treatment studies are needed. Thus far, there have been few studies involved with developing and testing group therapy treatments that specifically target overgeneral memory retrieval. However, none of these studies included participants diagnosed with PTSD. The current study compared a new form of memory training targeting memory specificity to cognitive processing therapy directed at reducing PTSD symptomology. These studies will be reviewed, with particular focus on the populations with which this therapy has been used.

Memory Specificity Training (MeST)

The following section will look at the different forms of Memory Specificity Training (MeST) and the populations with which it has been used. This overview will also briefly discuss the differences between forms of MeST that have been researched thus far, and whether it was successful at reducing overgeneral memories and reducing symptomology of the mental disorder the treatment was targeting. The current study used a six weekly MeST treatment group that is discussed within this section. Memory Specificity Training (MeST) was created by Raes, Williams, and Hermans (2009). Raes and colleagues developed MeST for use with individuals experiencing clinically significant depression and included 10 female inpatients (8 of which evidenced depression based on DSM-IV criteria for MDD) in their initial treatment study. Each
participant was tested with the AMT prior to being involved in the treatment program, along with multiple other assessments related to anxiety and depression. MeST consists of four 1 hour sessions with groups that have 3-8 participants and run for four consecutive weeks in a row. Each session is directed towards teaching participants/clients how to retrieve specific memories as opposed to overgeneral memories based on cue words of negative, positive, and neutral emotion levels. Session 1 consists mostly of psycho-education on overgeneral memory retrieval and memory functioning. In addition, examples are given of specific and overgeneral memories and participants are then asked to write down specific memories for a neutral word and a positive cue word. Participants are then asked to share their examples with the group and are given homework that requires them to develop a mixture of 10 specific memories for neutral cue words and positive cue words, in addition to writing down a “specific memory of the day” each day (Raes et al., 2009). Sessions 2 and 3 include reading the homework exercise to the group. Then they are given cue words, and are asked to develop 2 specific memories for each cue word. Finally, they are given additional and similar homework assignments for the next session. Negative cue words are discussed in session 3 and given as the homework exercise. Session 4 includes going over homework exercises as a group again, this time with more focus on when specific negative experiences can promote overgeneral statements to occur, which in turn leads to overgeneral memory retrieval. The treatment course is then summarized and participants provide feedback on their experience (Raes et al., 2009). Although this particular study has yet to provide results on the MeST treatment and its effectiveness to decrease depressive symptomatology, it did provide results related to overgeneralizing memory. Results found that memory specificity significantly increased after treatment occurred $F(1, 9) = 25.85, p < 0.001$. Both rumination and hopelessness decreased significantly post-treatment (Raes et al., 2009).
study opened the possibility of using MeST with individuals suffering from depression or possibly using MeST with individuals who are suffering from anxiety disorders that may include rumination or intrusive thought processes such as, posttraumatic stress disorder. In addition, researchers have found evidence of a five factor model that includes dysphoric arousal as a separate factor for PTSD (Armour, Elhai, Richardson, Racliffé, Wang, & Elklit, 2012). This study provides further evidence that, considering dysphoria is associated with depression and MeST has shown signs of effectiveness with lowering depressive symptomology, MeST in turn could impact PTSD symptomology that includes dysphoria arousal.

Another study used a similar form of MeST consisting of 6 weekly 1-hour group sessions, and was conducted to compare MeST against a 10 week course of weekly 1-hour group sessions of Cognitive Behavioral Treatment (CBT) among females experiencing depression (Ranjbarkohan, Neshatdoost, Molavi, & Maeroofi, 2012). The study included 30 participants (15 females in each group) randomly assigned to each one of the two possible treatments. Individuals were assessed for depression using the Beck Depression Inventory (BDI) and ability to retrieve specific memories was tested using the AMT. Ranjbarkohan and colleagues (2012) reported that both groups increased significantly in their ability to retrieve specific memories, but the MeST group had a more significant change. A limitation of both studies using the MeST method is that neither reported whether depressive symptomology was reduced, therefore making it difficult to draw conclusions on how effective this treatment would be if used alone rather than in addition to a cognitive behavioral treatment. Despite these limitations, the findings indicate that retrieval of specific memories may be increased with MeST.

There have been two studies that have directly looked at the ability of MeST to reduce depressive symptomology. One studied involved a sample of 53 patients, all of which had been
diagnosed with schizophrenia, as well as depression (Ricarte, Hernandez-Viadel, Latorre, & Ros, 2012). This study used a longer form of MeST that included 10 weekly 90 minute group sessions and compared this to an equivalent course of social skills and work training. Although there are similarities in what was included in the MeST treatment to the study conducted by Raes et al. (2009), it was significantly different. This study had participants discuss specific memories within the group session that were not specifically designated by cue words, but rather were specific instances that may have occurred in childhood, adolescence, or different parts of their life (i.e. a party attended in adolescence). They also were not told whether to provide negative, neutral, or positive experiences in any of the tasks given during the treatment. Despite the differences in the MeST training, this study found that symptoms of depression were significantly reduced for the MeST group as compared to the control group (Ricarte et al., 2012). Although this study only included individuals diagnosed with schizophrenia, and did not include a group of participants within a community sample or normative population, it is still informative that MeST may be an effective addition to treatment plans for individuals suffering from depression.

Finally, a particularly relevant study assessed adolescent Afghani refugees residing in Iran, following the death of their fathers. Seventy adolescents were chosen to participate in the initial selection process and their parental guardians completed the Mood and Feeling Questionnaire Parent Version (pMFQ) (Taher Neshat-Doost, Dalgleish, Yule, Kalantari, Ahmadi, Dyregrov, & et al., 2012). Although these participants were not assessed for PTSD, each participant was noted to have experienced a traumatic event. Twenty-three participants were selected for inclusion in the study (12 participants for the MeST group and 11 participants for the control group). This study used a similar MeST protocol as Raes et al. (2009), in that the
sessions included similar words used in the AMT and mirrored the procedures and process used in that study. However, Taher Neshat-Doost and colleagues (2012) had the MeST group participate in five weekly 80-minute group sessions rather than four. This study found that individuals who were included in the MeST group not only had a significantly greater ability to retrieve specific memories post-training compared to baseline, but they also differed from the control group in their ability to retrieve specific memories. When participants were tested for depression at post-training, there were no significant differences between groups, but when tested at a 2-month follow up, participants involved in the MeST training had significantly fewer symptoms of depression than the control group, \( t(10) = 2.42, p = .03, d = 0.47 \) (Taher Neshat-Doost et al., 2012). Despite insignificant immediate symptom reduction, this finding could reflect that MeST may help decrease symptomology over longer periods of time rather than creating a rapid change of improvement within the individual.

In summary, MeST group treatment programs have ranged from as little as four sessions to as many as ten weekly sessions. Details of what these sessions entailed vary, but the goal is relatively the same: to reduce overgeneral memory upon retrieval as a means of decreasing symptomatic distress. Some MeST studies have found significant effects for reducing depressive symptomatology, while all studies that have looked at the MeST have found significant effects at reducing overgeneral memory retrieval after training has taken place.

Cognitive Processing Therapy with Female Victims of Violence

Cognitive Processing Therapy (CPT) (Resick, 1992, 1993) and its effectiveness at reducing PTSD symptomatology, particularly among female victims of violence, will be reviewed in this section. Here, “female victims of violence” may, depending on the study, refer to either female victims of rape or females who had experienced interpersonal violence (physical or
sexual assault) during childhood and/or adulthood. A brief overview of what CPT entails will also be included and how symptoms of distress were investigated within the study. The current study tested the effectiveness of CPT with females who have experienced one of these traumatic events, in addition to males who had experienced a traumatic event. The current study also compared CPT (active control group) with MeST on effectiveness at reducing PTSD symptomology and reducing overgeneral memory upon retrieval.

In most studies, Cognitive Processing Therapy (CPT) (Resick, 1992, 1993) involves a total of 12 sessions (6 weeks of 60-90 minute group sessions, held biweekly). The first session involves psycho-education on CPT itself and teaching breathing techniques to deal with their anxiety. The second session involves discussing common reactions to trauma. In vivo exposure scenarios are discussed and rating scales such as the Subjective Units of Distress Scale, SUDS (Foa et al, 1994) are explained so homework can be assigned. Session 3 consists of imaginal exposure and clients are then prompted to listen to their audiotaped version of the session each day for homework, as well as participate in in-vivo exposure exercises related to their trauma. Sessions 4 and 5 clients are asked to write out their trauma and discuss emotions and feelings related to doing that activity. Sessions 6 and 7 are used to begin having clients look at faulty thinking patterns and describe what they are related to traumatic events. Sessions 8 through 12 are used to challenge faulty thinking patterns and continue to have clients engage in in-vivo exposure exercises (Resick, 1992, 1993).

Although CPT has not yet been looked at for utility in decreasing overgeneral memory retrieval, it has been assessed for effectiveness at decreasing PTSD symptomology in a variety of populations. Female victims of rape were the first the first population that Nishith, Resick, and Griffin (2002) investigated for effectiveness at reducing PTSD symptoms. Participants included
121 female rape victims (41 assigned CPT; 40 assigned prolonged exposure (PE) treatment; 40 assigned minimal-attention (MA) group that consisted of a 6-week wait period before beginning a treatment option. Participants were assessed using the Clinically-Administered PTSD Scale (CAPS) and the PTSD Symptom Scale (PSS) for PTSD symptomology at pretreatment, and the PSS was re-administered at sessions 2, 4, 6, 8, 10, and 12. Although results revealed both groups had a significant decrease in PTSD symptomology from severe or moderate to mild symptoms, the pattern of symptom decrease differed between groups. Both the CPT and PE groups initially had an increase in re-experiencing symptoms at sessions 4 and 5, which Nishith, Resick, and Griffin (2002) hypothesized occurred based on lack of using avoidance techniques. In addition Nishith, Resick, and Griffin (2002) discussed the necessity of telling clients that symptoms are likely to increase before decreasing to avoid dropout. Other findings suggested avoidance symptoms in the CPT group declined linearly, whereas these symptoms declined using a quadratic function in the PE group (Nishith, Resick, & Griffin, 2002).

Resick, Galovski, Uhlmansiek, Scher, Clum, and Young-Xu (2008), performed a dismantling study of CPT with a sample that included 150 women who had experienced interpersonal violence and were experiencing PTSD symptomology. Individuals were recruited from the St. Louis Metropolitan area and experienced sexual or physical assault in either childhood or adulthood, in addition to having a diagnosis of PTSD. Resick et al., (2008) compared CPT with another form of CPT called CPT-C, which consists of the elimination of the exposure sessions and replaces them with more Socratic questioning sessions. They also compared both treatments to a written accounts (WA) treatment that included sessions where participants wrote of the trauma and read it out loud to the therapist, in addition to including emotion-focused therapy that did not consist of cognitive processing. The CPT and CPT-C
groups met twice weekly for 6 weeks, a total of 12 sessions each. The WA group met for 2 sessions in the first week and had one session weekly for 5 weeks, a total of 7 sessions. Individuals were examined using the Posttraumatic Diagnostic Scale (PDS, Foa, 1995) and comparisons between each of the groups revealed that there was significant improvement in week 2 for the CPT-C group \( (p = .001) \), by week 3 in the CPT group \( (p = .02) \), and by week 5 in the WA group \( (p = .005) \) (Resick et al., 2008). In regards to the CAPS ratings, at post-treatment 29.6% of CPT, 20.7% of CPT-C, and 36.7% of WA still met criteria for PTSD. These results indicate that the CPT-C group had the highest significant difference from pre to post-treatment. CPT treatment did not differ from the CPT-C and WA groups in regards to decreases in PTSD symptomology, but this did not indicate that CPT was not effective at reducing PTSD symptoms. Limitations of both studies discussed in this section are that they only involved the inclusion of female participants therefore these results are not generalizable to males diagnosed with PTSD.

In summary, CPT consists of twelve biweekly 90-minute group sessions that focus on the traumatic event and cognitive distortions surrounding said event. One study of females victims of rape found that, when compared to PE or MA, CPT was just as significant at reducing PTSD symptomology. Another study that included female victims of interpersonal violence found that, when compared with CPT-C (another form of CPT) and WA, CPT was just as effective at reducing symptoms of PTSD, but CPT-C was the most effective at reducing PTSD symptomology. No studies have yet to look at the effectiveness of CPT at reducing overgeneral memory retrieval in any population.

Cognitive Processing Therapy with Veteran Populations

Cognitive Processing Therapy has not only been used for female victims of interpersonal violence and rape, but it has also been used within populations where the majority of the group is
male. This section will focus on findings related to the effectiveness of CPT at reducing PTSD symptomology within a veteran population. The current study not only included male participants, but also males within a veteran population.

Veteran populations continue to suffer from posttraumatic stress disorder and CPT has begun to be used more with this particular population. Monson, Schnurr, Resick, Friedman, Young-Xu, and Stevens (2006) studied the use of CPT on 64 veterans (54 men, 6 women). The study randomly assigned participants to the CPT group treatment or a 10-week waitlist for treatment. Treatment consisted of 12 twice weekly sessions for a total of 6 weeks and a one-month follow up. This study found that 40% of the intention to treat group did not meet criteria at post-treatment, as opposed to 1% of the wait list group \( \chi^2 (1, N = 60) = 11.88, p < .001 \). At the one-month follow-up, 30% of the CPT treatment group and 3% of the wait-list group condition did not meet diagnostic criteria for PTSD \( \chi^2 (1, N = 60), = 7.68, p = .01 \) (Monson et al., 2006). In addition to this study, there has also been a study that included veterans with traumatic brain injury and a diagnosis of PTSD (Davis, Water, Chard, Parkinson, & Houston, 2013). This study found significant pre to post-treatment results on the CAPS, \( t (132) = -2.19, p = .03, d = 40 \). The participants involved in this study included 160 participants with a diagnosis of PTSD, of which 44 were individuals who had traumatic brain injury (Davis, Water, Chard, Parkinson, & Houston, 2013).

In summary, both studies found that CPT was not only effective at reducing symptoms of military-related PTSD, but was more affective at short-term and long-term reduction of symptoms when compared to a wait-list control group. In addition, CPT has been shown to be effective at reducing PTSD symptomology within a veteran population diagnosed with both a traumatic brain injury and PTSD.
Cognitive Processing Therapy with Victims of Childhood Sexual Abuse

A last group that will be reviewed in the CPT literature will be victims of childhood sexual abuse who had been diagnosed with PTSD. This particular group is different than other groups diagnosed with PTSD, because their traumatic event may have occurred continuously throughout their childhood. This section will review if CPT has been effective at reducing PTSD symptomology within this population. The current study included individuals who had experienced this traumatic event and are now suffering from PTSD.

One study included 71 adult females who had experienced childhood sexual abuse with an average age of onset of abuse at 6.4 years old and a majority of the participants reported experiencing over 100 abuse incidents (Chard, 2005). Participants were randomly assigned to a CPT group focused on sexual abuse that met 17 weeks for group and individual therapy (90 minute group therapy weekly, and the first 9 weeks included 60 minute individual sessions) or a minimal attention group that were waitlisted for 17 weeks. Results from this study found the treatment group had significantly greater decreases in PTSD symptomology than the MA group on the CAPS, $F (1, 54) = 95.96, p < .001$. In addition, at a 3 month follow up participants continued to show improvements at a significant rate when compared to their post-treatment levels on the CAPS, $t = 2.43, p = .02$. Lastly, these reductions of PTSD symptomology were maintained at the 3-month and 1-year follow-up, suggesting PTSD improvement remained stable after treatment concluded (Chard, 2005).

This section looked at findings related to effectiveness of CPT within a PTSD population who had suffered from childhood sexual abuse. Findings from this study revealed that the CPT group when compared to the minimal attention group had significantly less PTSD symptomology at post-treatment and at a three month and one year follow-up. One limitation of this study was
CPT treatment was elongated to include 5 more sessions tailored to individuals who have been victims of childhood sexual abuse and therefore is not representative of the manualized treatment that was used in the current study and has been shown effective for the other populations discussed within this literature review.

Goals and Objectives of the Current Study

The current study was designed to examine whether MeST treatment (6 sessions) significantly reduced PTSD symptomology at posttreatment with maintenance of gains at three months posttreatment. In addition, it examined whether MeST was comparatively as effective at PTSD symptom reduction as a 12 session CPT treatment group (the active control group). There is a growing body of literature suggesting that overgeneral memory is linked to higher levels of PTSD symptomology (McNally 1994; McNally 1995; Schonfeld et al., 2007). In addition, overgeneral memory has been linked to relapse in other disorders such as depression, which is highly associated with PTSD (Raes et al., 2009). Furthermore, research has also found that controlled cognitive processing is linked with higher PTSD symptomology, which may affect an individual’s ability to produce specific memories upon retrieval related to cue words (Polak et al., 2012). A new form of treatment (MeST) has begun to be used in countries outside of the US for symptoms of depression, but it has yet to be used in relation to PTSD symptomology, despite the amount of literature that links overgeneral memory to PTSD symptomology. MeST treatment has also not been tested in its ability to increase controlled cognitive processes once treatment has ended. Therefore, the current study directly tested whether MeST treatment was capable of decreasing PTSD symptomology, increasing specificity in memory retrieval, and increasing controlled cognitive processes at post-treatment and at a three month follow-up.
Hypotheses

Listed below were the specific hypotheses regarding MeST treatment (6 sessions) when compared to CPT (12 sessions):

Hypothesis 1(a).

MeST treatment (6 sessions once weekly) is associated with a significant decrease in PTSD symptomology on the MPSS-SR and maintained at 3-month follow-up.

Hypothesis 1(b).

Six sessions of MeST treatment is equally effective at decreasing PTSD symptomology when compared to a 12 session (biweekly) CPT group.

Hypothesis 2.

MeST treatment is associated with a significant increase in controlled cognitive processing abilities (as assessed by the computerized ST, Emotional stroop task, and the Hayling’s Incomplete Sentences Task) that is maintained at follow-up and is as effective as CPT.

Hypothesis 3.

MeST significantly increases specific memory retrieval from baseline at post-treatment and at 3-month follow-up on the AMT, as measured by both total score and latency time, and is as effective as CPT.
CHAPTER II

METHOD

Participants

Exclusion Criteria, Sample Size, and Recruitment.

All individuals who requested information on the study itself via telephone to the number located on the recruitment flyer or through the SONA system were screened for inclusion in the current study. Participants were not admitted to the study if any of the following criteria were present: (1) younger than 18 years of age, (2) unstable health as indicated by presence of medical hospitalizations within the past 2 years, (3) individuals taking prescription medications if said medication usage was not stable for at least 3 months prior to treatment. In addition to gathering general information for recruitment, all participants were asked to answer questions regarding if they had experienced a traumatic event/s and possible current posttraumatic stress disorder symptomology using the Traumatic Events Questionnaire (Vrana & Lauterbach, 1994) and the Short Screening Scale for PTSD (Breslau, 1999). The following were additional reasons for ineligibility: (1) had not experienced a traumatic event as indicated on the TEQ that fit into the DSM-5 definition of a traumatic event, (2) did not meet a cutoff score of 4 out of 7 on the Short Screening Scale for PTSD, (3) met criteria for indications of hazardous and harmful alcohol use (scores of 8 or above) on the AUDIT, (4) were currently experiencing two or more symptoms related to psychosis, as described on the Modified Mini Screener (MMS), (5) had been psychiatrically hospitalized within the past 6 months prior to treatment groups beginning, and (6) were currently experiencing suicidal ideation and/or homicidal ideation. A total of 20
participants met criteria for study inclusion (exclusions: 1 = insufficient PTSD symptomology; 1 = symptoms of psychosis; 4 = harmful alcohol use).

A power analysis was performed prior to the study to estimate the necessary sample size to detect the hypothesized large effect size. For a 2x3 repeated measures ANOVA to produce an effect size higher than .30, a sample of $N = 12$ was indicated. However, ultimately both of the treatment groups began with eight members due to inclusion criteria not being met by recruited participants and conflicts for participants to attend the treatment sessions at their designated dates and times. The sample size for total participants actually recruited for study inclusion and assignment to treatment groups ($n = 16$) yielded an effect size of .40 with an alpha of .05.

Recruitment.

Recruitment consisted of two phases to help increase the number of participants. The first phase consisted of placing flyers throughout Denton, TX. In addition, mental health units and hospitals (including Veterans Affairs), such as: Denton County MHMR, Denton County Friends of the Family, Denton VA Primary Care Clinic, North Texas Hospital (Denton, TX), Texas Health Presbyterian Hospital Denton County, and Integrity Transitional Hospital also placed flyers for the study in visible areas. Furthermore, flyer postings within an electronic format were posted on Craigslist (Denton, TX) and within a local newspaper in the area. The second phase of recruitment consisted of using an online participant recruiting system (SONA) within the University of North Texas. Participants recruited through SONA were provided extra credit as compensation for participation following the study conclusion. All who expressed interest (Flyers $n = 8$; SONA $n = 18$) were screened to determine whether they met study inclusion criteria. All eligible participants were recruited from December 2013 to March of 2014. Participants attended the clinic at the time of randomization (baseline) and at the one-week or bi-
weekly intervals for six weeks from March of 2014 to April of 2014. Participants were contacted at a 3-month follow-up in July 2014 to August 2014.

Selection Process.

After the phone screening process, 19 of the 20 eligible participants were able to attend the baseline assessment session. All baseline assessments and treatment sessions were conducted at the University of North Texas Psychology Clinic in Denton, TX. These participants took part in the two hour assessment session that consisted of an explanation of the study itself, informed consent, the AMT task, the ST (computerized format), computerized Emotional Stroop Task, Hayling’s Incomplete Sentences Task, and self-questionnaires (i.e. a more thorough demographic questionnaire, Modified PTSD Symptom Scale Self Report (MPSS-SR), Beck Depression Inventory Second Edition (BDI-II), and the Traumatic Events Questionnaire (TEQ). In addition, each participant was interviewed using the Clinically Administered PTSD Scale (CAPS). Blind interviewers who were unaware of assigned treatment conditions administered the assessments. Interviewers were trained on administration of the CAPS, ST, Emotional Stroop, and the Hayling’s Incomplete Sentences task and each interview was videotaped, as well as assessed for inter-rater agreement of PTSD symptomology and diagnosis, by another graduate level clinical psychology student who sat in during the interview and silently co-scored for accuracy. Interviewers were also trained on administration of the AMT paradigm and ability to understand the difference between specific memories and overgeneral memory responses. Since inter-rater reliability for the AMT has been found to be between .83-.93, interviewers who were able to correctly classify memories with a minimum of 80% accuracy were allowed to conduct the paradigm for participants. The AMT paradigm was also assessed to check for inter-rater agreement of accuracy in classifying each memory as “specific” or “overgeneral.” Individuals
were placed at a computer to complete the ST and Emotional Stroop Task and the assigned clinician remained present during task completion. Prior to completing the above measures, informed consent was obtained from each participant. The institutional review board (IRB) approved the informed consent form prior to the recruitment phase; a copy of IRB approval and the informed consent document can be found in Appendix B. During the baseline assessment, one participant was found not to meet the inclusion criteria (i.e. did not meet the minimum moderate level of PTSD symptomology on the CAPS). Thus, a total of 18 participants were randomly assigned to the treatment group conditions (MeST or CPT).

Randomization Process and Interventions.

Of the participants who met criteria for participation and were randomly assigned to a treatment group ($n = 18$), only 16 were able to attend the first treatment session (due to participants scheduling conflicts) and continued forward with the treatment groups. These participants were randomized using a random number generator to participate in one of the two possible treatment groups (MeST, 6 weekly 90 minute sessions) or CPT, 12 bi-weekly 90 minute sessions for 6 weeks). Each group contained eight participants for the entirety of the study. Trained graduate level therapists currently in doctoral training for clinical psychology ran each of the randomized groups. Two individuals who had been trained specifically in Cognitive Processing Therapy (CPT) were assigned the CPT treatment group, with one therapist who served as a substitute for session 6 of the CPT treatment due to the other therapist having a schedule conflict. One individual was trained specifically using the MEST manual and assigned to the MEST treatment group.

A number of tactics were used to discourage study attrition. Contact information and emergency contact information were acquired from all participants during the recruitment
process. This information included email addresses, phone numbers, and current local addresses for each of the participants. Participants were asked for their availability in order to make sure they were available for a majority of the sessions that would take place and were told the importance of attending all sessions once treatment began. During the treatment process, therapists discussed the number of remaining sessions at the beginning of each session and stressed the importance of continuing treatment related to the study and related to the individual’s symptomology. Therapists did their best to create a respectful and friendly atmosphere among group members, while also encouraging group participation from all members to help increase rapport with the group. Reminder phone calls and emails were made the day before each session to help participants remember a session would be taking place the following day. In addition, participants were informed at each session that if they attended all treatment sessions they would be entered into a raffle to win a $50.00 gift card. Participants answered questionnaires related to their PTSD symptomology and possible symptomology related to depression to help keep track of any decreases in symptomology after each week of treatment. In regards to the 3-month follow-up, participants were asked at the end of treatment if they had any inclination that they would be moving from their current address on file and/or changing their phone number or email in the next three months. Participants were made aware prior to treatment beginning that they would be asked to participate in a 3-month follow-up phone call after treatment had concluded and the nature of the call was described. At follow-up, the participants were contacted by phone a maximum of three times to schedule and/or run the follow-up interview. Each participant that completed treatment (n = 16) also completed the 3-month follow-up interview. Figure 2 includes a full flow-chart of number of participants during each phase of the process of the study.
Figure 3. Participant Flow.

Recruitment Phase: \(N = 26\)

Screening Phase:
Screened \(N = 26\); Eligible \(n = 20\)

Baseline Assessment Phase:
Completed \(n = 19\); Enrolled \(n = 18\).

Treatment Phase:
Randomly assigned \(n = 18\);
Attended session 1 and completed treatment \(n = 16\)

Follow-up phase:
Completed \(n = 16\)
MeST treatment groups.

The group that participated in 6 weekly 90-minute sessions of MeST was based on the conceptualization by Neshat-Doost et al., 2012). For a full explanation of MeST, refer to the MeST treatment manual located in Appendix C. Session 1: The general outline and description of MeST. Participants were given the definition of what an autobiographical memory is and what recall/retrieval of memory means. Individuals were also provided definitions of specific memories, categoric memories, and extended (generalized memories). The group was then given examples of all definitions provided and were shown a list of five neutral cue words and provided a specific memory for each. Participants were then asked to share an example with the group during the session. Participants were provided 5 neutral cue words as homework and asked to write down a specific memory for each. They were also asked to provide a specific memory for each day until the next session. Homework assignments were not collected for data analyses, but were participants personally kept them to use for future reference. Participants filled out the therapy expectations questionnaire at the end of the session. Session 2: Consisted of going over the homework assignment and participants discussed at least two examples of specific memories from their homework and the group helped correct (when necessary) if the memory was not of specific format. Participants were provided with five positive cue words and asked to write down five specific memories related to these words. The group then discussed examples they came up with during the session. Participants were given ten positive cue words and asked to come up with specific memory examples for homework, in addition to still listing a specific memory each day until the next session. Participants filled out the MPSS-SR and BDI-II. Session 3: Consisted of going over the homework assignment and participants discussed at least two examples of specific memories from their homework and the group helped correct when the memory was not
of a specific format. The distinction between positive and neutral cue words was discussed. Participants again were asked to provide specific memories for each of the cue words chosen and were then given a list of a mixture of five positive and five neutral words to provide specific memories for their homework assignment, while again still being asked to provide specific memories for each day between sessions. Participants filled out the MPSS-SR and BDI-II at the end of the session. Session 4: Consisted of going over the homework assignment and participants discussed at least two examples of specific memories from their homework and the group helped correct when the memory was not of a specific format. A definition and example of a negative cue word was provided to the group. The group was then given five negative cue words and asked to come up with a specific memory related to each cue word. Each participant discussed with the group a specific negative memory and were corrected if the memory was overgeneral. Participants were then given a list of 10 negative cue words for their homework assignment, in addition to continuing to provide a daily specific memory. Participants filled out the MPSS-SR and BDI-II at the end of the session. Session 5: Consisted of going over the homework assignment and having participants correct one another if a specific memory was not given. In addition, participants were given a mixture of positive, negative, and neutral cue words and practiced providing specific memories during the session. For homework, participants were given a list of five positive, five neutral, and five negative cue words to practice providing specific memories, in addition to providing a daily specific memory. Participants filled out the MPSS-SR and BDI-II at the end of the session. Session 6: Homework was discussed with the group and individuals helped correct one another if a specific memory was not provided. The group then discussed the definitions of autobiographical memories, recall/retrieval of memories, extended memories, categorical memories, and specific memories. The group then came up with
examples of each for negative, positive, and neutral words. The session ended with an overall
discussion of their experience with the treatment group and any feedback they had regarding the
treatment. Participants filled out the MPSS-SR and the BDI-II and each participant completed
the computerized ST, Emotional Stroop task, Hayling’s Incomplete Sentences Task, and the
AMT prior to leaving the last session. A reminder about the 3-month follow-up phone call was
provided.

Cognitive Processing Therapy Treatment Group.

The second randomized treatment group participated in a 90-minute bi-weekly Cognitive
Processing Therapy that met for 12 sessions (Resick, Monson, & Chard, 2010). Each session
consisted of different activities associated with Cognitive Processing Therapy as described
below. A fully detailed description can be found in the CPT manual that can be accessed by way
of email to Dr. Patricia Resick, PhD. The original CPT manual was used for this study. Based on
the original manual including all homework assignments, in session assignments, powerpoints,
etc. the document is 270 pages in length, therefore it is not attached to this document in an
appendix. This manual is available in PDF form and can be provided upon request. However, the
fidelity measures associated with CPT are attached and included after the MeST fidelity
measures in Appendix C. Session 1: This session consisted of discussing PTSD symptomology,
educating the participants on CPT and the therapist assigned participants homework assignments
such as writing an impact statement (i.e. what the traumatic event meant to them and how it has
impacted them), as well as completing a “Stuck Point Log”. Session 2: Participants discussed
their impact statement with the group and stuck points were discussed in further detail, as well as
having participants notice where they occurred in one another’s impact statements. PTSD
symptomology was reviewed and an introduction to A-B-C worksheets occurred. The A-B-C
worksheets consisted of noticing how thoughts, feelings, and behaviors are interconnected. Participants were asked to complete an A-B-C worksheet once a day until the next session, including one A-B-C worksheet directly related to their traumatic event. Session 3: Reviewed participants A-B-C worksheets as a group and explained the process of assimilation and how it is connected with negative thought processes. Discussed stuck points that had been found on the A-B-C worksheet and reassigned A-B-C worksheets to be completed each day until the next session. The “traumatic account” assignment was assigned for homework. Discussed how to use Socratic questioning when using the A-B-C worksheets and the traumatic account. Session 4: Each participant was asked to read their traumatic account out loud with affective expression. Other participants and the therapist helped the participant who read aloud to find stuck points and began to question any self-blame or assimilation that was taking place. An explanation of the differences between responsibility and blame were provided. Participants were asked to rewrite their traumatic account and read it out loud daily, while also continuing to complete A-B-C worksheets daily. Session 5: Participants reread their new traumatic account and discussed differences between their first traumatic account assignment and their rewritten version. Stuck points were challenged by other group participants and the therapist. The Challenging Questions worksheet was given to the participants and they were asked to use this worksheet with one stuck point a day, while continuing to read their traumatic account out loud daily. Session 6: Reviewed the homework assignment and reviewed the challenging questions worksheet. The Patterns of Problematic Thinking worksheet was introduced and explained to the participants. For homework, participants were asked to use the Patterns of Problematic Thinking worksheet to address their stuck points and continue to read their traumatic account out loud daily. Session 7: The therapist reviewed the Patterns of Problematic Thinking worksheet and used a traumatic
event example to identify stuck points that could occur. An introduction of how participant’s thoughts about safety may have been altered by the traumatic event they experienced was provided. The Challenging Beliefs worksheet was used to challenge any negative beliefs about safety that had occurred for participants. Participants were asked to identify stuck points daily and include one on their beliefs about safety while challenging these beliefs. Participants were asked to read the “Safety Module” and continue to read their traumatic account out loud. Session 8: Participants reviewed any beliefs that they could not successfully challenge on their own with the group. The “Trust Module” was introduced and stuck points related to trusting the self and/or trusting others was discussed. Participants were asked to read the trust module and complete a Challenging Beliefs worksheet on trust, as well as continuing to identify daily stuck points and challenging them. Participants were asked to read their traumatic account out loud if necessary. Session 9: Participants reviewed their beliefs and how they challenged them about trust. The Power/Control module was introduced and a discussion on how their beliefs related to control after the traumatic event occurred was debated. Participants were asked to read the Power/Control module and identify stuck points related to control using the Challenging beliefs worksheet, while continuing to identify daily stuck points and reading their traumatic account out loud if necessary. Session 10: Reviewed beliefs and challenges related to power/control occurred. Participants were introduced to the Esteem Module and asked to identify stuck points related to self-esteem and regard for others. Participants were asked to read this module and complete the challenging beliefs worksheet related to esteem, as well as continue to identify daily stuck points/challenge them, and read their traumatic account out loud if necessary. They were also asked to complete worksheets related to giving/receiving compliments and doing nice things for the self. Session 11: A review on the stuck points related to esteem and how to
challenge them was discussed with the group. A discussion about the additional worksheets (i.e. giving/receiving compliments and doing nice things for the self) occurred. An introduction of the Intimacy module was provided. Participants were asked to continue working on the giving/receiving compliments worksheet, as well as using the Challenging beliefs worksheet related to thoughts about intimacy and reading the Intimacy module. They were also asked to write a final impact statement regarding their traumatic event. Session 12: A review of the challenging beliefs worksheet for intimacy was provided. Participants were asked to read out loud their final impact statement. The therapist then read the participants first impact statement and discussed differences that were found between the two. Any stuck points related to intimacy were pointed out. Any other issues that group members felt like they were still having were communicated and the therapist concluded the treatment by stating the participants are now their own therapist and encouraged the continuation of behavioral assignments in the future. At sessions 4, 6, 8, 10, and 12 all participants were asked to complete the MPSS-SR and the BDI-II. In addition, participants were asked to complete the computerized ST, the Emotional Stroop, Hayling’s Incomplete Sentences Task, and the AMT at the end of session 12. Participants were also informed of the 3-month follow-up phone call.

3-month Follow-up.

All participants were contacted by phone for a 3-month follow-up and interviewed using the following measures: AMT, MPSS-SR, BDI-II, and Hayling’s Incomplete Sentences Task. Participants were also asked at follow-up if they had participated in any other (individual or group) treatment following their participation in the study. All participants that completed treatment (n = 16) also completed the 3-month follow-up interview.
Adverse Events.

Some adverse events that occurred during the study could have negatively impacted the results. One of which involved the main CPT clinician not being available to lead session six of treatment, which caused another clinician (also trained in CPT) to run that session. This may have caused a rupture in the overall therapeutic relationship and could have negatively impacted how effective the CPT treatment group was at reducing PTSD symptomology. Despite this limitation, the replacement clinician did watch all videotape prior to the sixth session and sat in on three of the five previous sessions to establish a therapeutic alliance with the group prior to the session itself. A second adverse event involved a tornado warning that took place in session six for the CPT treatment group. For those in attendance, the session length was truncated to 50 minutes in order to accommodate an emergency directive to take shelter. Despite these setbacks, the fidelity of the affected session was still 100%. The last limitation that occurred during the study was that two of the six sessions of the MeST treatment group could not be assessed for fidelity due to a miscommunication in recording of these sessions. Despite this event having occurred, the clinician that administered the MeST sessions also had a copy of what was required for fidelity purposes during each session and physically marked when each portion of the session was completed. This fidelity check was used as a replacement measure.

Measures

Alcohol Abuse Screener. The Alcohol Use Disorders Identification Test (AUDIT; Babor & Grant, 1989) was used to assess for excessive drinking patterns. The AUDIT consists of 10 items and assesses for recent hazardous alcohol use (3 items), alcohol dependence symptoms (3 items), and harmful alcohol use (4 items). Specificity has been found to be .90 and sensitivity to be .80 when applying a cut-off point of 8 (Saunders, Aasland, Babor, de la Fuente, & Grant,
In regards to convergent validity, the AUDIT has strong correlation with the Michigan Alcohol Screening Test (MAST) \( (r = .88) \) (Bohn, Babor, & Kranzler, 1995), in addition to high correlations with the screening test (Cutdown, Annoyed, Guilty, and Eye-opener), CAGE \( (r = .78) \) (Hays, Merz, & Nicholas, 1995). The AUDIT has been shown to yield high internal consistency and has high test-retest reliability \( (r = .86) \) (Sinclair, McRee, & Babor, 1992). The AUDIT can be orally administered or used as a self-report, and in the current study it was administered orally over the phone. Eight items on the AUDIT use a 5-point Likert-type scale ranging from \( 0 = “Never” \) to \( 4 = “Daily or almost daily” \). Two items use a 3-point Likert-type scale, which consists of \( 0 = “No” \), \( 2 = “Yes, but not in the last year” \), or \( 4 = “Yes, during the last year” \). If participants in the current study met the recommended cut-off criteria of a total score of 8 or above, they were excluded from the study. The internal consistency of the AUDIT for the current study was found to be .46.

Psychopathology Screener. The Modified Mini Screen (MMS) (Office of Alcoholism and Substance Abuse Services OASAS, 2001) was used to assess for different forms of adult psychopathology during the screening process of the study. This scale is comprised of 22 items and was originally designed to look for individuals in need of further assessment in regards to three different domains: Mood disorders, Anxiety disorders, and Psychotic Disorders. The questions on the MMS are of a forced-choice format \( (1 = Yes, 0 = No) \), with a range totaling from 0-22. Question 4 on the MMS refers to suicidality, however, no participants indicated suicidality during the phone-interview and therefore the Suicide Hotline number was never provided. For this study, the MMS was also used to identify individuals with symptoms related to psychotic disorders in order to disqualify them for participation in the study. Questions on the MMS are based on threshold criteria used in the DSM-IV, the Structured Clinical Interview for
Diagnosis 2nd edition and the Mini International Neuropsychiatric Interview. The internal consistency for the MMS in the current study was .46.

PTSD Screener. The Short Screening Scale for PTSD (Breslau, 1999) was used to assess for PTSD symptomology during the screening process of the study. This scale is comprised of 7 items and includes 5 items related to avoidance and numbing. It also includes 2 items related to symptoms of hyperarousal. The questions on the Short Screening Scale for PTSD are of a forced-choice format (1 = Yes, 0 = No). Severity of items is not reported within this screener. This questionnaire was rigorously tested on a sample of 31, 650 respondents (2764 with PTSD and 28, 348 with no PTSD). The cutoff value of 4 or more indicating a positive PTSD diagnosis yielded a sensitivity of 78%, specificity of 97%, positive predictive value of 75%, and negative predictive value of 98% (Bohnert & Breslau, 2011). Internal consistency of the Short Screening Scale for PTSD in the current study was .80.

PTSD Symptomology. The Modified PTSD Symptom Scale Self Report (MPSS-SR; Falsetti, Resnick, Resick, & Kilpatrick, 1993) was used to assess PTSD symptomology. The MPSS-SR currently consists of 17 items that describe the symptoms involved in the DSM-III-R. Frequency items are of Likert-type format ranging from 0 = “Not at all” to 3 = “5 or more times per week”. Intensity of each item was rated on a Likert-type format ranging from A = “Not at all upsetting” to D = “Extremely Upsetting. The MPSS-SR can be used to assess for diagnosis of PTSD with a cutoff score or it can be used as a continuous variable for PTSD symptom severity. It has been found that individuals who scored above a cut-off of 59 on the MPSS-SR had an 81% hit-rate for correct identification of PTSD when confirmed with a diagnosis of PTSD on the CAPS (Falsetti, Resnick, Resick, & Kilpatrick, 1993). The MPSS-SR is made up of three subscales: Avoidance subscale (i.e. of thoughts or activities related to the traumatic event, Re-
experiencing subscale (i.e. having nightmares or flashbacks related to the traumatic event, and the Arousal subscale (i.e. feeling hypervigilant or experiencing physical symptoms of arousal related to the traumatic event). Symptoms were rated as present if they were of a value of 1 meaning they occurred once a week. Internal consistency of the MPSS-SR has been demonstrated to be between .92-.97. Validity has been shown to be consistent with SCID-I diagnosis criteria indicated by no false positives (Coffey, Dansky, Falsetti, Saladin, & Brady, 1998; Wohlfarth, Van den Brink, Winkel, & Ter Smitten, 2003). Internal consistency for the MPSS-SR in the current study was .92.

Posttraumatic Stress Symptomology. The Clinician-Administered PTSD Scale (CAPS; Blake, Weathers, Nagy, Kaloupek, Klauminzer, Charney, & Keane, 1990) was used to assess for PTSD symptomology, level of symptom severity, in addition to PTSD diagnosis at the stage of pretreatment assessment. The CAPS consists of thirty items and is a semi-structured diagnostic interview. Symptoms are scored using a likert-type scale (0-4) and the total score ranges from 0-136. The CAPS was originally conceptualized for use with individuals who experienced combat related trauma, but has been used with a wide variety of traumatic events since it was first produced. Despite the CAPS first being conceptualized based on the DSM-III version of PTSD diagnostic criteria, it has been revised since the DSM-IV-TR reformulated the diagnostic criteria and was revised to include only diagnostic criteria based on the DSM-5 in this study. The CAPS includes three PTSD symptom clusters (re-experiencing, avoidance and numbing, and hyperarousal). The CAPS can be used either as a dichotomous measure of PTSD diagnosis or as a continuous measure. The current study analyzed data using both options, but inclusionary criteria was based on the continuum. It also includes intensity of PTSD symptomology using a five-point rating scale (0-4), as well as a frequency scale using the same format. Both scales are
then summed to create a nine-point severity score (0-8). The CAPS also assesses for last week periods of symptoms, in addition to last month, and life-time symptomology. The CAPS-DX was used for the baseline assessment of PTSD symptomology, because it looks at symptoms over a longer period of time (one month time frame). The following scores were used to assess for PTSD symptomology on a continuum: 0-19 = asymptomatic/few symptoms, 20-39 = mild PTSD/subthreshold, 40-59 = moderate PTSD, 60-79 = severe PTSD symptomology and >80 = extreme PTSD symptomology. Individuals who met criteria for moderate, severe, or extreme PTSD were included in the study (Weathers et al., 1999). In addition, Weathers et al. (1999) proposed that a 15-point change in total severity is significant to mark a clinical change. Internal consistency has been investigated in a variety of populations, one of the most extensive including a large sample of 243 veterans (Weathers et al, 1999). The alphas for the three subscales in this sample ranged from .78-.87 for frequency, .82-.88 for intensity, and .82-.88 for severity. Alphas for total items were .93 for frequency, .94 for intensity, and .94 for severity (Weathers et al., 1999a). The CAPS-DX also has convergent validity shown with a variety of measures including, but not limited to the Mississippi scale (.91) and the PTSD Checklist (PCL) (.94) (Weathers et al., 1999a). Interrater reliability has been investigated and in one study was found to yield a kappa of .75 (Hyer et al., 1996). Interrater reliability for the current study was found to be .60, p < .001. Alpha for the overall total of the CAPS was found to be .69, but after analyzing possible item deletion, two items were deleted to increase the internal consistency to .71. These item deletions did not cause any participants to fall below the moderate level of PTSD symptomatology required for inclusion in the study.

Trauma Exposure. The Traumatic Events Questionnaire (TEQ; Vrana & Lauterbach, 1994) was used to assess and screen for exposure to potentially traumatic events and severity of
those events. The TEQ assesses exposure to nine types of traumatic events including: military combat, fire, serious accident, sexual assault/rape, natural disasters, violent crimes, adult abusive relationships, child abuse, witnessing the death of a loved one. For each event experienced, respondents are asked to indicate their age at the time of the event(s), number of times the event occurred, and how the traumatic the event was at the time, currently, and the severity of injuries and perception of threat. Individuals who experience more than one traumatic event indicate which event was the most traumatic. The traumatic events questionnaire consists of 11 items with some questions consisting of forced choice items (1 = Experienced event, 0 = Never experienced event). Severity items are rated on a 7-point Likert-type scale ranging from 1 = Not at all to 7 = Extremely. The one-week test-retest reliability for number of events experienced was $r = .91$. In a study investigating primary care patients, convergent validity between the TEQ and the PCL was $r = .50$. Within the same study divergent validity between the TEQ and the BSI-18 (a questionnaire used to assess severity of depression) correlated $r = .29$ (Crawford, Lang, & Laffaye, 2008).

Depression Symptomology. Beck Depression Inventory 2nd edition (BDI-II, Beck, Steer, & Brown, 1996) was used to assess for severity of overall depression symptomology. The BDI-II contains 21 items and is on a four point scale ranging from (0 = Not at all, 1 = Mildly, 2 = Moderately, and 3 = Severely). Higher scores indicate higher levels of depressive symptomology. Scores range from 0-63. Cut off scores are as follows: 0-13 = minimal depression, 14-19 = mild depression, 20-28 = moderate depression, 29-63 = severe depression. Convergent validity ($r = .72$ with the Patient Health Questionnaire-9) has been supported (Titov, Dear, McMillan, Anderson, Zou, & Sunderland, 2011) and internal consistency of the BDI-II has been found to be
.93 in a sample of 120 college students (Beck et al., 1996). Internal consistency for the current study using the BDI-II was .94.

Overgeneral Memory. Autobiographical Memory Task (AMT; Williams & Broadbent, 1986) was used to assess for ability to formulate specific memories as opposed to overgeneral memories when cued to do so by a set of words. Ten emotional cue words were used in all, five of which had a positive connotation and five of which had a negative connotation. These words were chosen from the Robinson (1976) study that researched a large set of describing words from the dictionary for positive and negative connotations. The positive/pleasant word set included: happy, safe, interested, successful, and surprised. Due to the current study only having included individuals who had moderate to severe levels of PTSD symptomology, the word “surprised” was not be used in this paradigm, since it can have a negative connotation associated with experiencing a traumatic event. A study conducted by Latorre, Ricarte, Serrano, Ros, Navarro, and Aguilar (2012) included “hopeful” as a positive cue word, which was found to have positive/pleasant emotional association and was therefore substituted in the current study paradigm. The study by Latorre et al. (2012) tested the use of the cue word “hopeful” as a substituted positive cue word and the current study also substituted the cue word “hopeful” in place of the cue word “surprised”. The negative/unpleasant word set included: sorry, angry, clumsy, hurt, and lonely. The experimenter presented the instructions to the participant, which included the distinction between an overgeneral memory and a specific memory (“specific memory refers to recall of a personally experienced event, that happened at a particular place and time, that lasted no longer than 1 day, and usually does not occur repeatedly”, as well as an example of each (extended e.g. “summers in the city” and specific e.g. “the day I got married”) (Latorre et al., 2012). The participant was then given one minute to provide a personal memory.
in response to each cue word using the following prompt, “Try to remember a day or situation in
the past when you felt…Can you describe it?” Words were alternated in the order shown from
positive to negative cue words and latency of response time was recorded. Specificity was
determined if the participant was able to provide specific details of the day of the week, time of
day, or specific date that the memory occurred. If the event described from memory did not last
longer than a day it was coded as specific. In addition, if events of categorical nature were
discussed together (e.g. times I walk to school) they were coded as overgeneral. Test-retest of the
AMT has been used for studies that have looked at changes in memory specificity after receiving
treatment and has been shown to be appropriate for test-retest situations, with one such study
having found the correlation between baseline and follow-up scores on the AMT to be at .68
(Raes et al., 2009). Inter-reliability of allocation of general/specific memories has been assessed
to be of .87-.93 in one study (Williams & Broadbent, 1986). Another study found inter-rater
reliability to be between .83-.86 (Latorre et al., 2012). The current study yielded a kappa of .47, p
< .001 and internal consistency was found to be .72. Due to the cue word “hopeful” being
substituted for the word “surprised” based on the population included in the study, internal
consistency was analyzed for item deletion and was found to be .70.

Controlled Cognitive Processing. A computerized version of the Stroop Task (ST;
Golden & Freshwater, 2002) was used to test differences in controlled processing abilities among
participants. The ST consists of three sections: the first section consists of having the individual
say the names of different colors that are displayed on the computer screen in black ink, the
second section consists of X’s printed in different colored ink and the participant says the color
the X is printed in, and the third section consists of having the individual say the color of ink that
a printed spelled out color (different from the ink color) is displayed as. The ST provides three
different scores after the task is completed: \( C \) = Reaction time for amount of correct responses for color, \( W \) = Reaction time for amount of correct responses for word, \( CW \) = Reaction time for amount of correct responses provided for color-word. Each sections reaction time is based on how many correct responses they provide within 45 seconds. The computerized reaction time of the ST allows for greater precision than the paper/pencil version of this task. On the computerized version, reaction time is recorded to the nearest millisecond. Furthermore, there is enhanced control of stimulus parameters. Higher scores indicated lower levels of executive functioning skills related to selective attention and response inhibition (Goldberg & Bougakov, 2005). The computerized ST has been shown to be moderately correlated with the written version of the ST \((r = .51)\) (Gualtien & Johnson, 2006). Furthermore, the computerized ST has been shown to be able to find significant differences between Mild Cognitive Impairment (MCI) vs. controls, severe brain injury vs. controls, and individuals diagnosed with ADHD vs. controls. Furthermore, test-retest reliability has been found to be .87 with an average of 62 days in-between (Gualtien & Johnson, 2006). Internal consistency for the Stroop Task in the current study was .70.

Additional Controlled Cognitive Processing. The Hayling’s Incomplete Sentences Test (Burgess & Shallice, 1997) has two sections with the first one measuring automatic cognitive processing and the second section measuring controlled cognitive processing. Both sections consist of 15 sentences, each missing the last word. For example, “the old house will be torn….” The examiner reads out loud each sentence to the participant who is then required to provide a verbal response. The first section consists of having the subject complete the sentence in a logical fashion that makes sense as quickly as possible. For example, the participant could say the word, “soon” to end the above example. In section two the participant is asked to give a word
unconnected to the sentence in every way, for example they could say, “light bulb” to end the sentence. The test then yields three scores related to executive functioning. The first score is the latency in Section 1, which represents initiation to the task itself. The second score is the ability to suppress so it is an error score, in addition to the third score, which is the latency to respond in section two. Each of the three scores has a scaled score equivalent and ultimately an overall efficiency score for all three measures is created by adding the scaled scores of all three sections and locating the scaled score for overall efficiency. A copy of the Hayling’s Incomplete Sentences can be provided upon request. Scaled scores range from 1 “Impaired” to 10 “Very superior.” Within a normal population the split-half reliability for each of the different sections were; Hayling 1 time, .35\( (p < .001) \), Hayling 2 time, .83\( (p < .001) \), and Hayling error score, .41\( (p < .001) \). Internal consistency in the current study was .42 overall for the Hayling’s tasks. Test-retest reliability of the Hayling’s test was assessed using a group of 31 healthy volunteers who were retested between two days to four weeks after first assessment. These reliabilities are as follows: Hayling 1 time: .62 \( (p < .001) \); Hayling 2 time: .78 \( (p < .001) \); Hayling errors: .52 \( (p < .01) \). The Hayling’s Incomplete Sentences test shows moderate correlations with measures of executive functioning such as the Six Elements Test (Clark, Prior, & Kinsella, 2000; Marczewski, Van der Linden, & Laroi, 2001).

Emotionally Controlled Cognitive Processing. The Emotional Stroop task is a computerized task that records the reaction time (in milliseconds) for participants to press the correct color of the word displayed on the screen after having read the actual word displayed out loud to the presenter. Participants were asked to participate in a practice version of the task itself first prior to the actual task for each of the three paradigms (i.e. positive, neutral, and trauma words). The Emotional Stroop task was created by a faculty member involved in the study (i.e.
Parsons), who developed the software and implemented the final list of words for each category. In this version of the Emotional Stroop, 20 positive valence words were selected (i.e. laugh, trust, calming, proud, hopeful, warmth, glad, joke, gentle, success, happiness, smile, comfort, secure, pass, relax, soothe, vacation, comedy, and cozy), 20 neutral words were selected (i.e. gate, star, milk, fan, bench, chair, flower, county, bear, curl, winter, broccoli, tiger, wall, cup, mouse, cab, vitamin, garden, and toast), and 20 trauma related words were selected (aggression, assault, choke, helpless, attack, criminal, punishment, terror, violent, ambush, brutal, felony, threat, horror, emergency, trapped, death, smash, scream, and blood). Each word list was shown in the same order as described above and positive and neutral words were selected to match the amount of frequency each of the trauma-related words are used within the English language. Trauma related words were selected based off of a combination of reviewing past research that involved similar paradigms, in combination with suggestions from individuals who had expertise in PTSD, as well as making sure the words themselves were relevant to the traumatic experiences listed on the TEQ. Slower response times on the Emotional Stroop Task have been shown to be correlated with individuals experiencing lower levels of emotional functioning (Gotlib & McCann, 1984). Convergent validity has been represented as a positive relationship between the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) and response times on the Emotional Stroop Task (Roberts, Schulze, O’Brien, MacCann, Reid, & Maul, 2006). The Emotional Stroop task has been shown to have a high test-retest reliability ($r > .84$) when response latencies were used (Kindt, Bierman, & Brosschot, 1996). Internal consistency for the Emotional Stroop Task in the current study was .84.

Therapy Expectancy Measure. The Credibility Expectancy Questionnaire (Devilly & Borkovec, 2000) was used to assess participants’ expectations of the therapeutic experience in
both groups. The CEQ contains six questions in total. The CEQ consists of two sections: the first section consists of four questions that ask about what the participant thinks will happen once they complete the therapeutic experience. The first three questions are on a three-point scale with different wordings for each (i.e. question 1: 0 = Not at all logical, 1 = Somewhat logical, 2 = Very logical; question 2: 0 = Not at all useful, 1 = Somewhat Useful, 2 = Very Useful; question 3: 0 = Not at all confident, 1 = Somewhat confident, 2 = Very confident). The last question in section one is on an 11-point scale ranging from 0% - 100% in 10% intervals. The second section consists of only two questions. The first question in section two is on a three-point scale (0 = Not at all, 1 = Somewhat, 2 = Very Much). The last question in section two is on an 11-point scale ranging from 0% - 100% in 10% intervals. Higher scores indicate higher levels of expectancy and credibility in the treatment being used. Scores range from 0 - 30 and the total score is created by changing the percentages for each of the percentage questions to numbers 0-11 and adding those totals to the totals of the other questions. Internal consistency of the Credibility Expectancy Questionnaire has been demonstrated to be .85 (Devilly & Borkovec, 2000).

Predictive outcome was assessed within one study to predict change from pre to post-treatment on the Global Distress Scale of the Symptom Checklist-90-R (SCL-G) \( (r = .74) \) and at follow-up \( (r = .77) \) in both a Cognitive Behavioral Therapy (CBT) group and a Eye Movement Desensitization and Reprocessing (EMDR) group (Devilly & Spence, 1999). Internal consistency for the current study using the CEQ was .63. Internal consistency was not positively affected when possible item deletion was analyzed.
CHAPTER III

RESULTS

Of the 18 qualifying participants prior to the assessment session, 16 presented to the baseline assessment session and participated in treatment (N = 16). There were no subsequent study “dropouts,” resulting in 0% attrition for each treatment group and no missing data on assessment measures. Outliers were investigated to determine if any participants scored higher than a z-score of 3 on each of the dependent variables included in the analyses. There were no participants who scored higher than 3 and therefore, outliers were not of concern for data analysis. Of all assessment measures, data was skewed and kurtosis was an issue only on the overall scaled score for Hayling’s Sentence Completion at baseline (Skewness $z = 3.35$; Kurtosis $z = 4.84$). This variable was transformed using the square root and found to be within conventionally acceptable limits (Skewness, $z = 1.83$; Kurtosis, $z = 2.52$).

Despite each participant completing all assessment processes during the study, participants within the CPT treatment group attended a mean of 10.37 (75%) sessions out of 12, whereas the MeST treatment group attended a mean of 5.38 (75%) sessions out of 6. There were no significant group differences found on demographic variables (age, gender, ethnicity, or number of years of completed education) when comparing participants who attended all sessions to those who attended fewer sessions regardless of which treatment they were assigned to. When comparing baseline totals on both the MPSS-SR and the CAPS, there were no statistically significant differences between the two treatment groups or within the treatment groups themselves in regards to total sessions completed.

Participants in the treatment groups consisted of, 81% ($n = 13$) females and 19% ($n = 3$) males. The following races were identified by participants within the study: 56% White, non-
Hispanic (n = 9); 19% African-American or Black (n = 3); 13% Hispanic (n = 2); 12% other (n = 2). The highest current education level at the time of the study was 4th year of college, 25% (n = 4). The following are the percentages of the other levels of noted educational attainment: 3rd year of college, 44% (n = 7), and 2nd year of college, 25% (N = 4). All participants noted they were single when asked for their marital status. 94% (n = 15) of the participants answered “yes” to having received treatment or counseling in the past. Lastly, the type of most threatening experience included: sexual assault/rape (n = 4), physical abuse as an adult (n = 2), physical or sexual abuse in childhood (n = 3), experiencing a violent death of a loved one (n = 2), or any of the following traumas: military, violent crime, witnessing someone brutally killed or injured, motor vehicle accident, or other (n = 5). Exact amount of time lapse since these events occurred for the participants was not collected, but 6 participants (37.5%) met criteria for delayed onset of PTSD symptomology (i.e. symptoms began more than 6 months after traumatic event occurred) and 10 participants (62.5%) reported symptoms began shortly after they experienced the traumatic event. Table 1 includes a comparison of baseline demographic characteristics between the MeST treatment group and the CPT treatment group.
Table 1

**Baseline Demographic Group Comparisons**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>MeST Group</th>
<th>CPT Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>((n = 8))</td>
<td>((n = 8))</td>
</tr>
<tr>
<td>Mean age ± SD</td>
<td>23.88 ± 5.52</td>
<td>20.88 ± 1.36</td>
</tr>
<tr>
<td>Mean education ± SD</td>
<td>15 ± .93</td>
<td>14.63 ± 1.19</td>
</tr>
<tr>
<td>Mean months since event ± SD</td>
<td>60.5 ± 61.78</td>
<td>34.5 ± 24.37</td>
</tr>
<tr>
<td>Mean months symptom onset ± SD</td>
<td>13.25 ± 24.26</td>
<td>4.25 ± 6.24</td>
</tr>
<tr>
<td>Delayed onset of symptoms, (n) (%)</td>
<td>4 (50)</td>
<td>2 (25)</td>
</tr>
<tr>
<td>Currently prescribed medication, (n) (%)</td>
<td>4 (50)</td>
<td>3 (38)</td>
</tr>
<tr>
<td>Previously psychologically treated, (n) (%)</td>
<td>7 (88)</td>
<td>8 (100)</td>
</tr>
<tr>
<td>Previously psychiatrically hospitalized, (n) (%)</td>
<td>2 (25)</td>
<td>1 (12.5)</td>
</tr>
</tbody>
</table>

Treatment adherence.

Following each session, a fidelity measure was completed by an independently trained graduate level therapist in clinical psychology who was trained in both MeST and CPT using the protocols attached within Appendix C or via contacting the author of this study. This therapist observed 100% of the treatment session videotapes for the CPT treatment group and 66.66% of the videotapes for the MeST treatment group. All sessions measured for fidelity received 100% accuracy of following the designated protocol. Lastly, session six (the same session the sub-therapist was involved in treatment) had environmental factors that occurred. A tornado warning within the area prevented three participants from attending.

Baseline and Post-Treatment Comparisons.
Group differences prior to treatment were assessed using one-way analyses of variance (ANOVA) and are presented in Table 2. All assessment means did not significantly differ between groups at pretreatment, which indicates participants, regardless of the condition they were randomly assigned to, reported comparable levels of posttraumatic stress disorder symptomology and depressive symptomology. In addition, the treatment groups did not differ significantly on performance regarding the Emotional Stroop, the computerized ST, Hayling’s Sentence Completion Task, or the AMT. Group differences at the end of treatment were also assessed and presented in Table 3. All assessment means for PTSD and depressive symptomology did not differ significantly between groups at post-treatment, which indicates regardless of the condition assigned participants had comparable levels on the MPSS-SR and BDI-II at the end of receiving treatment. However, there was a trend towards the AMT total score at post-treatment differing between groups.
Table 2

Baseline Group Comparisons

<table>
<thead>
<tr>
<th>Measures</th>
<th>MeST (n = 8)</th>
<th>CPT (n = 8)</th>
<th>F (1, 14)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPSS-SR</td>
<td>63.50</td>
<td>54.13</td>
<td>.86</td>
<td>.37</td>
</tr>
<tr>
<td>CAPS</td>
<td>61.25</td>
<td>64.50</td>
<td>.29</td>
<td>.60</td>
</tr>
<tr>
<td>BDI-II</td>
<td>26.13</td>
<td>23.63</td>
<td>.13</td>
<td>.73</td>
</tr>
<tr>
<td>AMT</td>
<td>7.75</td>
<td>8.25</td>
<td>.26</td>
<td>.62</td>
</tr>
<tr>
<td>AMT LAT</td>
<td>94.25</td>
<td>98.38</td>
<td>.02</td>
<td>.89</td>
</tr>
<tr>
<td>EMOS</td>
<td>23.84</td>
<td>22.76</td>
<td>.16</td>
<td>.70</td>
</tr>
<tr>
<td>STROOP</td>
<td>1014.19</td>
<td>855.48</td>
<td>1.21</td>
<td>.29</td>
</tr>
<tr>
<td>HAYLINGS</td>
<td>1.73</td>
<td>1.59</td>
<td>.55</td>
<td>.47</td>
</tr>
</tbody>
</table>

Note. MPSS-SR: Modified PTSD Symptom Scale-Self-report; CAPS: Clinically Administered PTSD Scale; BDI-II: Beck Depression Inventory 2nd edition; AMT: Autobiographical Memory Test Total Score; AMT LAT: Autobiographical Memory Test Total Latency time; EMOS: Emotional Stroop Task Trauma Stimuli Response Time; STROOP: Stroop Task; HAYLINGS: Hayling’s Incomplete Sentences Task Total Score.
Table 3

Post-Treatment Group Comparisons

| Measures | MeST (n = 8) | | | | CPT (n = 8) | | | |
|----------|-------------|---|---|---|---|---|---|
|          | M           | SD | M  | SD | F (1, 14) | p  |
| MPSS-SR  | 49.00       | 26.60 | 38.13 | 15.06 | 1.01 | .33 |
| BDI-II   | 20.25       | 16.03 | 14.75 | 10.99 | .64 | .44 |
| AMT      | 9.13        | .99 | 9.88 | .35 | 4.07 | .06 |
| AMT LAT  | 82.00       | 73.97 | 58.50 | 37.98 | .64 | .44 |
| EMOS     | 21.89       | 3.88 | 19.14 | 2.81 | 2.64 | .13 |
| STROOP   | 967.64      | 243.10 | 817.43 | 177.50 | 1.99 | .18 |
| HAYLINGS | 1.43        | .72 | 1.32 | .36 | .13 | .72 |

Note. MPSS-SR: Modified PTSD Symptom Scale-Self-report; CAPS: Clinically Administered PTSD Scale; BDI-II: Beck Depression Inventory 2nd edition; AMT: Autobiographical Memory Test Total Score; AMT LAT: Autobiographical Memory Test Total Latency time; EMOS: Emotional Stroop Task Trauma Stimuli Response Time; STROOP: Stroop Task; HAYLINGS: Hayling’s Incomplete Sentences Task Total Score.

Hypothesis Testing.

Hypothesis 1(a) and (b): 1(a) It was hypothesized that a significant decrease in PTSD symptomology on the MPSS-SR post-treatment would be observed among those assigned to MeST treatment (6 sessions once weekly). Maintenance of these gains at 3-month follow-up was also predicted. 1(b) It was further anticipated that 6 sessions of MeST treatment would be comparatively effective to 12 sessions of CPT and that these results would remain stable at the 3-month follow-up.

Mean and standard deviations were calculated for baseline, post-treatment, and follow-up for the MPSS-SR and the BDI-II. A 2 group (MeST and CPT) X 3 time (baseline, post-treatment, and follow-up) repeated measures ANOVA was performed with results from the MPSS-SR and the BDI-II used as the dependent variables separately. These results are shown in
Table 4. This analysis demonstrated a significant difference in PTSD symptom total (MPSS-SR total score) between time points, $F(2, 28) = 8.86, p = .001, \eta^2 = .63$, but no statistically significant time x treatment interaction on the MPSS-SR total score (see Figure 4). Posthoc tests (Bonferroni correction) revealed that both interventions were associated with a reduction in PTSD total score from baseline to post-treatment, ($p = .016$). No significant differences were observed from post-treatment to follow-up ($p = .09$), which indicates that treatment gains were maintained from post-treatment to the follow-up. In addition to these analyses, the percentage of participants who were no longer above the recommended cut-off (i.e. 59) for a diagnosis of PTSD on the MPSS-SR was 88% compared to the CPT group, which was also 88%. Also, 75% of participants within the MeST group maintained their gains of PTSD symptom reduction at the three-month follow-up, which was equivalent to the percentage that maintained their gains of PTSD symptom reduction in the CPT group. Furthermore, depressive symptoms when used as a covariate did not significantly impact the results regarding the MPSS-SR. However, there was a statistically significant improvement in depressive symptoms when analyzed independently of the MPSS-SR using the BDI-II for both treatment groups, $F(2, 28) = 6.53, p = .005, \eta^2 = .47$, but not a statistically significant time x treatment interaction on the BDI-II (see Figure 5). The percentage of participants who no longer had above a mild level of depressive symptomology on the BDI-II (i.e. total score of 18 or below) was 63% for the MeST group compared to 75% for the CPT group.
Figure 4. MPSS-SR Total Score at Baseline, Post-Treatment, and Follow-up.
Figure 5. BDI-II Total Score at Baseline, Post-treatment, and Follow-up
Table 4

Treatment Outcome as a Function of Time and Type of Treatment

<table>
<thead>
<tr>
<th>Measures</th>
<th>TX</th>
<th>Pre-Treatment</th>
<th>Post-Treatment</th>
<th>3-mth</th>
<th>Time</th>
<th>Time x Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>MPSS-SR</td>
<td>MeST</td>
<td>63.50</td>
<td>49.00</td>
<td>26.60</td>
<td>33.50</td>
<td>25.39</td>
</tr>
<tr>
<td></td>
<td>CPT</td>
<td>54.13</td>
<td>38.13</td>
<td>15.06</td>
<td>25.13</td>
<td>23.31</td>
</tr>
<tr>
<td>BDI-II</td>
<td>MeST</td>
<td>26.13</td>
<td>20.25</td>
<td>16.03</td>
<td>18.13</td>
<td>13.27</td>
</tr>
<tr>
<td></td>
<td>CPT</td>
<td>54.13</td>
<td>14.75</td>
<td>10.99</td>
<td>11.38</td>
<td>11.08</td>
</tr>
</tbody>
</table>

Note. p<.05 *, p<.01**

Note. MPSS-SR: Modified PTSD Symptom Scale; BDI-II: Beck Depression Inventory 2nd edition
Hypothesis 2: It was hypothesized that 6 sessions of MeST treatment (weekly) would be associated with a significant decrease in response time on a task that tested controlled thinking (i.e. the computerized ST) and would be associated with a significant increase in the total scaled score on the Hayling’s Incomplete Sentences task, as well as a reduction in response time on emotionally controlled thinking on the computerized Emotional Stroop task. Additionally, it was predicted that an increase in total scaled score on the Hayling’s Incomplete Sentences task would remain stable at follow-up. Furthermore, it was expected that MeST treatment would be equally as effective at reducing response time on these three tasks when compared to the CPT treatment group. Mean and standard deviations were calculated for baseline and post-treatment, for the computerized ST, the computerized Emotional Stroop, and the Hayling’s Incomplete Sentences task total scaled score. In addition, the mean and standard deviation for the 3-month follow-up on the Hayling’s Incomplete Sentences task was also calculated. A 2 (treatment group: MeST and CPT) X 2 (time: baseline and post-treatment) repeated measures ANOVA was performed with results for the computerized ST and the Emotional Stroop task, while a 2 (treatment group: MeST and CPT) X 3 (time: (baseline, post-treatment, and follow-up) repeated measures ANOVA was performed for the Hayling’s Incomplete Sentences Task total scaled score. These results are located in Table 5. Results from this analysis revealed there was not a statistically significant effect for both groups in reducing response time on the computerized ST in regards to interference, $F(1, 14) = 0.75, p = .40$, in addition, there was not a statistically significant time x treatment interaction effect. Furthermore, there was no statistically significant difference even after using the Stroop response time for the Word portion of the task as a covariable. These results are presented in Figure 6.
Table 5

*Outcome of Controlled Processing Tasks as a Function of Time and Type of Treatment*

<table>
<thead>
<tr>
<th>Measures</th>
<th>TX</th>
<th>Pre-Tx</th>
<th>Post-Tx</th>
<th>3-mth</th>
<th>Time</th>
<th>Time x Tx</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
<td>$SD$</td>
<td>$F$</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$(1,14)$</td>
</tr>
<tr>
<td>Stroop</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MeST</td>
<td>TX</td>
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<td>265.49</td>
<td>967.64</td>
<td>243.10</td>
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</tr>
<tr>
<td>CPT</td>
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<td>817.43</td>
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<tr>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
<td>.75</td>
</tr>
<tr>
<td>Emotional Stroop Trauma</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MeST</td>
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<td>5.85</td>
<td>21.89</td>
<td>3.88</td>
<td>N/A</td>
</tr>
<tr>
<td>CPT</td>
<td></td>
<td>22.76</td>
<td>4.92</td>
<td>19.14</td>
<td>2.81</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.11</td>
<td></td>
<td></td>
<td></td>
<td>.37</td>
</tr>
<tr>
<td>Emotional Stroop Positive</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MeST</td>
<td>TX</td>
<td>21.56</td>
<td>4.63</td>
<td>22.06</td>
<td>3.86</td>
<td>N/A</td>
</tr>
<tr>
<td>CPT</td>
<td></td>
<td>19.70</td>
<td>3.81</td>
<td>18.45</td>
<td>3.19</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.37</td>
<td></td>
<td></td>
<td></td>
<td>2.20</td>
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<td>Hayling’s Total</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>MeST</td>
<td>TX</td>
<td>1.73</td>
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<td>1.43</td>
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<td>1.67</td>
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<tr>
<td>CPT</td>
<td></td>
<td>1.59</td>
<td>.34</td>
<td>1.32</td>
<td>.36</td>
<td>1.34</td>
</tr>
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<td></td>
<td>2.57</td>
<td></td>
<td></td>
<td></td>
<td>1.40</td>
</tr>
</tbody>
</table>

Note. $p<.05$ *, $p<.01$**

Note. Stroop: Stroop Task interference response time; Emotional Stroop Trauma: Emotional Stroop Trauma cue words response time; Emotional Stroop Positive: Emotional Stroop Positive cue words response time; Hayling’s Total: Hayling’s Incomplete Sentences Total Score.
Figure 6. Stroop Interference Reaction Time at Baseline and Post-Treatment
Results from the analysis regarding the Emotional Stroop task revealed there was not a statistically significant effect for either group in reducing response time on the Emotional Stroop task when provided with traumatic cue words; however, there was a trend towards significance, $F (1,14), = 4.11 \ p = .06$. Furthermore, there was not a significant time x treatment interaction effect (see Figure 7). In addition, there was not a statistically significant effect for both groups in reducing response time on the Emotional Stroop task when provided with positive cue words.

\[\text{Figure 7. Emotional Stroop Task Trauma Reaction Time from Baseline to Post-Treatment}\]
Lastly, results from the analysis regarding the Hayling’s Incomplete Sentences Task revealed there was not a statistically significant effect for either group in increasing their total scaled score on this task, $F(2, 28) = 2.57, p = .12$ (see Figure 8).

*Figure 8. Hayling’s Incomplete Sentences Task at Baseline, Post-Treatment, and Follow-up.*
Hypothesis 3: It was hypothesized that MeST training would significantly increase the ability to retrieve specific memories and decrease latency response times to do so when pretreatment memory retrieval was compared to post-treatment and follow-up. This was looked at by using changes on the AMT total score and AMT total latency response times. In addition, it was hypothesized that when compared to CPT, the MeST group would perform equally as well as the CPT group at increasing memory retrieval and decreasing latency response times. A 2 (treatment group: MeST and CPT) X 3 (time: (baseline, post-treatment, and follow-up) repeated measures ANOVA was performed for the AMT total score and the AMT total Latency response time. These results are located in Table 6. There was a statistically significant increase in ability to retrieve specific memories for time points, $F(2, 28) = 4.86, p = .02, \eta^2 = .35$, but there was not an interaction effect for time X treatment (see Figure 9). Posthoc tests (Bonferroni correction) revealed that both interventions were associated with an increase in ability to specify memories from baseline to post-treatment, ($p = .003$). No significant differences were observed from post-treatment to follow-up ($p = .09$), which indicates that treatment gains were maintained. In regards to the latency for total AMT response time, there was a statistically significant increase in response time on the AMT task for time points, $F(2, 28) = 10.49, p = .001, \eta^2 = .75$; however, this was seen as an increase in response time, rather than the hypothesized decrease in response time (see Figure 10).
Table 6

*Outcome of Retrieval of Autobiographical Memories in MeST Group*

<table>
<thead>
<tr>
<th>Measures</th>
<th>Treatment</th>
<th>Pre-Treatment</th>
<th>Post-Treatment</th>
<th>3-mth</th>
<th>Time F (2,28)</th>
<th>Time X Treatment F (1, 14)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>AMT Total</td>
<td>MeST</td>
<td>7.75</td>
<td>2.32</td>
<td>9.13</td>
<td>.99</td>
<td>8.63</td>
</tr>
<tr>
<td></td>
<td>CPT</td>
<td>8.25</td>
<td>1.49</td>
<td>9.88</td>
<td>.35</td>
<td>9.13</td>
</tr>
<tr>
<td>AMT Latency Total</td>
<td>MeST</td>
<td>94.25</td>
<td>59.05</td>
<td>82</td>
<td>73.97</td>
<td>155.13</td>
</tr>
<tr>
<td></td>
<td>CPT</td>
<td>98.38</td>
<td>62.91</td>
<td>58.50</td>
<td>37.98</td>
<td>121.25</td>
</tr>
</tbody>
</table>

*Note. AMT = Autobiographical Memory Task; p<.05 *, p<.01**
Figure 9. AMT Total Scores at Baseline, Post-Treatment, and Follow-up.
Figure 10. AMT Total Latency Score at Baseline, Post-Treatment, and Follow-up
CHAPTER IV
DISCUSSION

With the lifetime prevalence rate for experiencing a traumatic event having been found to be around 69% (Norris, 1992) and the lifetime prevalence of receiving a diagnosis of PTSD being between 6-8% (Kessler et al., 2005), exploration of different treatment options for individuals diagnosed with PTSD continues to be needed. Furthermore, treatment options have yet to include interventions that directly target how an individual retrieves memories of the traumatic event and other autobiographical memories that have been experienced. The extant literature reports that individuals who develop PTSD symptomology have greater difficulty retrieving specific memories upon recall and tend to overgeneralize during memory retrieval for multiple purposes. These purposes include avoiding retrieving the specific memory of the traumatic event because it will negatively impact the individual (i.e. cause negative emotions, physical reactions, etc.), ruminating upon hearing words associated with the traumatic event which in turn cause the individual to engage in pensive thinking making it incapable for them to retrieve a specific memory, and/or being distracted by physical reactions or emotions upon hearing a trauma-related cue word that causes the individual to not be able to focus on specific information to retrieve it (i.e. executive capacity and control impairment; Williams et al., 2007).

With that being said, multiple studies of individuals diagnosed with PTSD have found a significant decrease in their ability to retrieve specific memories upon being provided with a cue word, more specifically a trauma related cue word.

In recent years, Raes, Williams, and Hermans (2009) decided to create a therapeutic group treatment that targeted specific memory retrieval, focusing on individuals who had developed significant depressive symptomology rather than individuals with a diagnosis of
PTSD. This particular treatment was called Memory Specificity Training (MeST) and was shown to be effective at not only increasing memory specificity, but also at significantly reducing depressive symptomology at post-treatment and follow-up. Growing research has highlighted a possible connection between overgeneralization of memories and PTSD symptomology, as well as overlap of some symptomology for depression and PTSD (i.e. dysphoria, ruminative thinking, avoidance of others). Therefore, the author of the current study believed that a reasonable next step was to create a format of MeST that could be tested for effectiveness at significantly reducing PTSD symptomology for individuals diagnosed with PTSD. The study detailed herein used a randomized control trial design with an active control group to primarily examine whether individuals who received a diagnosis of PTSD using the CAPS and completed a six-week, once-weekly MeST group treatment would display a significant reduction in PTSD symptomology that is comparable to an established treatment requiring twice as many sessions (six week, twice-weekly CPT group treatment for PTSD). Secondly, the current study also examined whether participants within the MeST group treatment would significantly increase their ability to retrieve specific memories and be equally effective at doing so when compared to individuals in the active control group (CPT). The MeST group was also expected to demonstrate a significant increase in both emotional and overall controlled cognitive processing, commensurate with the active control group.

The current study found that participants within the MeST group treatment had significant PTSD symptom reduction, comparable to the CPT group, at post-treatment using scores on the MPSS-SR despite MeST necessitating half as many treatment sessions as CPT. Furthermore, PTSD symptom reduction was maintained at 3 months for both the MeST group treatment and the CPT active control group, with no significant differences. The effect size of the
current study in decreasing PTSD symptomology for both treatment groups was .63, which is comparative to the effect sizes that have been found for studies that used CPT vs. alternative treatment methods (Resick et al., 2002; Resick et al., 2008). This demonstrates that CPT within the current study was as effective at reducing PTSD as it has been shown to be effective in other studies that have used similar participants. In addition, the MeST group treatment exhibited significant depressive symptomology reduction at post-treatment and follow-up and was equally effective at reducing depressive symptomology when compared to the CPT active control group.

MeST treatment has yet to be used for individuals with a diagnosis of PTSD; therefore we could not directly compare these findings to past studies for comparative effectiveness. However, one form of MeST treatment has been shown to significantly decrease depressive symptomology in a group of individuals who had experienced a traumatic event (Taher Neshat-Doost et al., 2012), which likely included individuals who also had developed PTSD symptomology. A hypothesis as to why both groups were equally effective at reducing PTSD symptomology may be that both forms of treatment, whether directly (MeST group) or indirectly (CPT active control group), function to decrease avoidance of memories associated with negative experiences and the traumatic events they had undergone. Furthermore, both groups involved discussing in detail the participants’ negative experiences which may have reduced symptoms of hyperarousal over the course of treatment due to being provided time to decrease their arousal while still in a safe environment. Lastly, symptom reduction for both groups may have occurred due to participants having an outlet to discuss their traumatic events, which may have decreased the likelihood that they would re-experience the event outside of the group itself (i.e. having flashbacks, repetitive thoughts, or nightmares related to the traumatic event).
In regards to controlled cognitive processing, both the MeST treatment group and the CPT treatment group did not display significant increases in overall controlled cognitive processing on the Stroop Task (using the Stroop interference score) or on Hayling’s Incomplete Sentences task (using the overall score) when post-treatment and follow-up performances were analyzed. Furthermore, there was a significant increase in latency response on Hayling’s Incomplete Sentences task represented by performance on Task 1 for both treatment groups at follow-up. However, this increase may have been due to the change in formatting of the task itself (i.e. phone interview rather than in-person) rather than a true change in automatic cognitive processing. As for emotionally controlled processing, represented by performance on the Emotional Stroop Task, the current study did not find a significant increase over time for emotionally controlled processing (represented by response time for trauma related cue words) for either the MeST treatment group or the CPT treatment group. However, there was a trend towards overall significance ($p = .06$), which may indicate that the sample size was not large enough to detect this significance. Past researchers have hypothesized that individuals with PTSD may use cognitive attention to avoid memories related to the trauma, in addition to devoting attention and processing (hyperarousal) to threat assessment rather than present tasks and therefore controlled cognitive processing would be negatively impacted (Twamley et al., 2009). Research has found mixed results demonstrating the relationship between PTSD and reduction in overall controlled cognitive processing via the Stroop Task (Thomas & Fremouw, 2009; Kanagaratnam & Asbjornsen, 2006), which may suggest that this connection is not as strong as once hypothesized and may explain why there were no significant changes in overall controlled cognitive processing for either the MeST group or the CPT active control group. Despite the non-significant findings of an increase in overall controlled cognitive functioning,
the current study did find a trend towards significance for both the MeST treatment group and the CPT active control group from baseline to post-treatment for an increase in emotionally controlled cognitive processing (represented by a decrease in response time for trauma-related words on the Emotional Stroop Task). Past research has hypothesized that individuals with PTSD have difficulty paying attention to cognitive control tasks when presented with emotionally traumatic stimuli. Studies have shown this correlational relationship between PTSD symptom severity and significantly slower response times when compared to control groups without PTSD (McNally, English, & Lipke, 1993; Harvey, Bryant, & Rapee, 1996; Cassiday, McNally, & Zeitlin, 1992). The current study findings represent that treatment directed at reducing PTSD symptomology, whether it be MeST or CPT, may be effective at increasing emotionally controlled cognitive processing, but future studies would need to include a larger sample size to be able to achieve statistically significant results in order to draw this conclusion.

The last finding from the current study illustrated that participants in the MeST group significantly improved in ability to specify their memories upon retrieval via the AMT total score after treatment concluded and were equally effective at doing so when compared to the CPT treatment group. Furthermore, this improvement was maintained for both groups from post-treatment to the 3-month follow-up interview. However, both groups did not increase in response time (i.e. AMT total latency) from baseline to post-treatment assessment. Past research has shown a connection between PTSD diagnosis and overgeneral memory retrieval (McNally, 1994; McNally, 1995). The current study findings regarding the increase in memory specificity post MeST treatment mirrors findings that have thus far been presented in the research regarding MeST treatment and specific memory retrieval (Raes et al., 2009; Ranjbarkohan et al., 2012; Taher Neshat-Doost et al., 2012). It is hypothesized that this increase in memory retrieval
specificity occurred for both the MeST treatment group and the CPT treatment group due to both groups directly (MeST) or indirectly (CPT) incorporating the need for participants to provide specific details regarding negative events they had experienced. This likely positively influenced the participants to retrieve more specific memories when given the AMT task at both post-treatment and follow-up. Furthermore, the ability to specify autobiographical memories may have led to a decrease in PTSD symptomology as well, or vice versa.

Implications.

The current study has multiple implications for the field of psychology in general and specifically in regards to treatment options for individuals diagnosed with Posttraumatic Stress Disorder. The first implication is the ability to specify memories upon retrieval may have a connection with PTSD symptomology and increasing this ability may decrease the frequency and severity of PTSD symptoms for someone diagnosed with PTSD. This suggests that clinicians may want to include a format like MeST training, or at least include sessions designated at directly or indirectly helping individuals learn how to specify memories upon retrieval in future treatment plans for individuals with PTSD.

The form of MeST treatment used within the current study was six sessions that met once each week for 90 minutes, whereas the active CPT control group was twelve sessions that met twice weekly for 90 minutes. Therefore, what can essentially be said is that the MeST treatment group was equally effective at reducing PTSD symptomology in half the time of CPT. If this finding were to be replicated with CPT and also compared to other forms of lengthier treatments used for PTSD (i.e. Cognitive Behavioral Therapy, Acceptance and Commitment Therapy, etc.) it could essentially decrease the time needed for significant PTSD symptom reduction. This is beneficial for both the client and clinician in regards to a reduction in time and monetary costs of
treatment itself. Another implication from the findings of this study is that MeST treatment does not directly ask participants to discuss their traumatic event and thus presents as a less threatening option of treatment for individuals who may not feel ready to talk over their traumatic events in great length. The format of MeST treatment for individuals diagnosed with PTSD could give these individuals another option of treatment that appears to be comparatively effective at reducing PTSD symptomology if they do not wish to participate in CPT. In addition, the current study did not specify what traumatic events would be included in the study itself (i.e., we did not only have individuals who experienced war related combat vs. sexual assault). Therefore, it appears that regardless of the traumatic event the participants had been exposed to, MeST was just as successful at reducing PTSD symptomology when compared to CPT. This finding indicates that MeST treatment may be effective at reducing PTSD symptomology regardless of which traumatized population future studies choose to include. Lastly, the current study used graduate level clinicians who had yet to be licensed and were practicing under the supervision of a licensed psychologist. Since PTSD symptomology was significantly reduced in both groups, it appears that despite lack of vast clinical experience, these graduate level clinicians were able to effectively learn how to provide and administer MeST treatment. This may suggest that MeST treatment can be easily learned by less-advanced clinicians and used in a variety of training settings.

Generalizability, Limitations, and Future Directions.

Despite trying to include participants who had experienced a variety of traumatic events, variety of traumatic events experienced by participants was limited; therefore not every traumatized population was investigated (i.e. experiencing natural disasters, etc). This limits the generalizability as to whether MeST treatment would help decrease PTSD symptomology given
what type of traumatic event an individual has experienced. Furthermore, due to the small sample size, the amount of individuals per traumatic event experienced was small and may not generalize upon using MeST with just one specific population (i.e., a study that may only include sexual assault victims). Future studies should include more variety for traumatic events experienced, as well as also looking at specific traumatized populations separately in order to conclude whether MeST treatment helps reduce PTSD symptomology for each traumatized population investigated. Despite the small sample size used, MeST treatment was originally created to be used with groups that ranged from 3 to 8 members; therefore, the size of the treatment groups in the current study was comparable to that of the suggested treatment group size. However, this study included participants that were mostly all undergraduates at a university, some of which were being provided with the additional incentive of receiving extra credit for psychology courses on campus. In addition, all of the participants were under the age of 40 and above the age of 18; therefore, the results of this study may not generalize to populations outside of these age ranges and outside of the college population. In addition, some of the participants may have had additional gains that influenced their symptom reduction. Despite this limitation for generalizability, each participant was assessed by the CAPS and met the DSM-IV criteria for PTSD prior to the commencement of treatment; therefore, all participants had a moderate to severe level of PTSD symptomology, which represents that these findings can generalize to individuals experiencing those levels of PTSD symptomology. One limitation for the CAPS was that it yielded a low internal consistency and low interrater reliability; however, the CAPS was only used to diagnose PTSD in this study and was not used as a dependent variable. In addition, there was low internal consistency for the Hayling’s
Incomplete Sentences Task and the Credibility Expectancy Questionnaire, both of which may have negatively impacted results.

The findings for the current study suggest that MeST treatment increases memory specificity, as well as concurrently decreasing PTSD symptomology. Since we have suggested that targeting memory specificity may indirectly also target PTSD symptom reduction, a future direction would be testing a mediation model to see if improvements of memory specificity in fact are a driving cause for the reduction in PTSD symptomology. Furthermore, a dismantling study is also suggested to target whether in fact the memory specificity training within a treatment model is significantly decreasing PTSD symptomology. Also, the results from the current study suggest that emotionally controlled cognitive processing may be positively effected by MeST treatment if a larger sample size is used to detect a significant change from pre-treatment to post-treatment. Therefore, future studies should include a larger sample size in order to help further research regarding whether positive changes in emotionally controlled cognitive processing may occur when individuals with PTSD engage in treatment modalities that directly or indirectly target memory specificity.

Another limitation of this study is that doctoral trainee clinicians administered all treatments. These clinicians were specifically chosen based on having more advanced clinical experience, having previously been exposed to clients diagnosed with PTSD, and having had previous experience with CPT if they were used to run that particular group. Future studies examining trainee experience and expertise are merited.

The current study did not use a waitlist control group or a comparative control group that was only receiving supportive therapy; however, active control groups are becoming more of a commonly used comparative for studies investigating treatment effectiveness due to ethical
concerns about the use of wait list controls for treatment-seeking individuals in known distress (Devilly & McFarlane, 2009). Also, one study that included a waitlist control group (i.e. minimal attention) vs. CPT found the mean of the variable representing PTSD symptomology to only reduce by one point for the waitlist control (which represents how much of a decrease in symptomology takes place over the passage of time without treatment), whereas the mean for the CPT group for PTSD symptomology reduced by 16 points at post-treatment (Resick, Nishith, Weaver, Astin, & Feuer, 2002). Therefore, although symptoms can reduce over the passage of time for PTSD and cannot be ruled out for either of the groups, the natural recovery for PTSD appears to take longer than the treatment phase for the current study and the mean reduction in symptoms for both groups from pre-treatment to post-treatment was between 14-16 points on the MPSS-SR. In addition, CPT has been found to be effective at reducing PTSD symptomology using multiple traumatized populations, with a variety of different levels of experienced clinicians and graduate level clinicians (Monson et al., 2006; Chard, Schumm, Owens, & Cottingham, 2010), and has been used across the United States, as well as in other areas of the world. Therefore, despite not having a waitlist control group, using CPT as a comparative for effectiveness was seen as a viable option for the current study. However, future studies should include a waitlist control group, in addition to comparing MeST treatment to other treatment options that are used for individuals who are diagnosed with PTSD. Also, the kappa for the AMT was .46 in the study, which is relatively small. Despite this, there was still significant change in the AMT scores from baseline to follow-up; however, future studies may want to include longer training periods in order for raters to understand how to correctly code overgeneral vs. specific memories.
An additional limitation was both formats of treatment involved in this study were of a group format; therefore the generalizability of MeST treatment for individual therapy treatment effectiveness cannot be determined by the results of the current study. Future studies should include providing individualized treatment of MeST to examine the effectiveness of the MeST group format in reducing PTSD symptomology. Additionally, the current study did not reassess whether participants still met criteria for PTSD diagnosis using the CAPS; however, 88% of participants in both the MeST and CPT groups no longer were above the cut-off for PTSD diagnosis provided by the MPSS-SR. Future studies should reassess for PTSD diagnosis using the CAPS at the post-treatment and 3-month follow-up interview.

One last note on limitations of the current study involved the format of the 3-month follow-up interview. The follow-up interview was conducted via phone interview; thus, the format of administration for the AMT and the Hayling’s Incomplete Sentences Task were not face-to-face as they had previously been administered to participants. The study results suggest that this change in format may have negatively impacted the results for the latency times on both of these tasks due to bad phone connections and participants being unable to hear what the clinician was saying when they were given the tasks to complete for these assessment measures. Future studies should stay as consistent as possible on the format of their assessment tools so this will not impact future study results.
APPENDIX A

HISTORY OF POSTTRAUMATIC STRESS DISORDER
Posttraumatic Stress Disorder (PTSD) is an anxiety disorder that can emerge following exposure to a traumatic event. Symptoms of the disorder include reexperiencing of the traumatic event, avoidance of reminders of the event, psychological numbing, and hyperarousal. Symptoms must be present for a minimum of 1 month. The DSM-IV-TR (1994) states that, for an individual to be diagnosed with PTSD they must be experiencing some form of distress that has occurred either directly or indirectly from dealing with a traumatic event and avoid experiences that may replicate the traumatic event experienced (APA 2000). The first mention of PTSD came about during World War I, but it was called “combat fatigue” or “shell shock” (Monson, Friedman, & La Bash, 2007). Many soldiers returning to America started exhibiting anxiety-related issues such as nightmares and flashbacks that were specifically related to their experience during the war. However, it was not until the Vietnam War that PTSD and was finally recognized as a true mental disorder (Fontana & Rosenheck, 1994). In addition to the Vietnam War, the women’s movement during this period of time also provided the impact necessary to have PTSD recognized as a mental health disorder, because of situations such as rape and domestic abuse being examined in depth for their psychological impact on women (Monson, Friedman, & La Bash, 2007). Before PTSD was included in the DSM, it was referred to as different names that included: traumatic neurosis, war neurosis, gross stress reaction, rape trauma syndrome, and battered women’s syndrome (Monson, Friedman, & La Bash, 2007).

Prevalence of Posttraumatic Stress Disorder.

Earlier studies examining the prevalence of PTSD suggested that the disorder occurred infrequently. When looking at the Epidemiologic Catchment Area Survey (ECA), a study that consisted of 2,493 US adults, the prevalence of a history of PTSD was only found to be 1% (Helzer, Robins, & McEvoy, 1987). However, beginning in the early 1990s with the National
Vietnam Veterans Readjustment Survey (NVVRS: Kulka, et al 1990) a number of well-designed, nationally representative studies have been conducted to examine the prevalence of PTSD. These studies are consistent in finding that PTSD is much more prevalent than reported in the early ECA studies. Lifetime prevalence of PTSD when looking at the NCS-R is estimated to be between 6-8% (Kessler, Berglund Demler, Jin, Merikangus, & Walters, 2005). This prevalence rate is similar to the findings that were estimated in the first National Comorbidity Study which yielded a lifetime prevalence of PTSD at 7.8% (Kessler et al., 1994). A study of 2181 participants in Detroit yielded a lifetime prevalence of PTSD of 9.2% with women at elevated risk (9.7% for women, 3.6% for men) (Kessler et al., 2005). Within a study of 2,500 adults from Mexico the lifetime prevalence rate was 11.2% (Norris et al., 2003). The current past year prevalence of PTSD is estimated to be 3.5% (Kessler, Chiu, Demler, Merikangas, & Walters, 2005). Another study of 4,000 US adult females yielded a lifetime prevalence rate of PTSD of 12.3% and 4.6% within the past six months (Resnick et al., 1993). As described earlier, one study found that within a college sample, one third of respondents had experienced more than one traumatic event in their lifetime. Within one sample of Israeli college students, the lifetime prevalence of developing PTSD was 6% (Amir & Oren, 1999). This percentage supports the idea that although these participants have only lived one third of their life thus far, they are still experiencing traumatic events and already developing symptoms of PTSD. There are many traumatic events that the college population, as well as the US population as a whole may experience in their lifetime, but the events that increase the symptomology of PTSD are of utmost importance. When looking at the National Comorbidity Survey (NCS), individuals who experienced events that were more personally directed such as assault, combat, physical or sexual abuse, were more likely to develop PTSD over individuals who experienced impersonal
events such as natural disasters (Kessler et al., 1995). A study that examined differences in PTSD severity between non-crime and crime victims found that PTSD symptomatology was significantly higher among crime victims versus non-crime victims, 26% vs. 9.5% (Resnick et al., 1993). Although many crime victims develop symptoms of PTSD, studies have shown that sexual assault yields the highest risk of PTSD diagnosis (Norris, 1992; Vrana & Lauterbach, 1994; Breslau, Kessler, Chilcoat, et al., 1998). Another study investigating women who had experienced rape that resulted in physical injury found that 80% of these individuals developed PTSD (Kilpatrick, Saunders, Best, & Von, 1987). Since experiencing traumatic events occurs at such a high rate and developing PTSD can develop from such events, overgeneralization and it’s connection with PTSD must be explored.
APPENDIX B

IRB APPROVAL AND INFORMED CONSENT
Supervising Investigator: Dr. Jennifer Callahan  
Student Investigator: Kendal Maxwell  
Department of Psychology  
University of North Texas  

Re: Human Subjects Application No. 13387  

Dear Dr. Callahan:  

As permitted by federal law and regulations governing the use of human subjects in research projects (45 CFR 46), the UNT Institutional Review Board has reviewed your proposed project titled "A Comparison of Treatments for Posttraumatic Stress Disorder Symptomology." The risks inherent in this research are minimal, and the potential benefits to the subject outweigh those risks. The submitted protocol is hereby approved for the use of human subjects in this study. Federal Policy 45 CFR 46.109(e) stipulates that IRB approval is for one year only, August 19, 2013 to August 18, 2014.  

Enclosed is the consent document with stamped IRB approval. Please copy and use this form only for your study subjects.  

It is your responsibility according to U.S. Department of Health and Human Services regulations to submit annual and terminal progress reports to the IRB for this project. The IRB must also review this project prior to any modifications. If continuing review is not granted before August 18, 2014, IRB approval of this research expires on that date.  

Please contact Shelia Bourne, Research Compliance Analyst at extension 3940 if you wish to make changes or need additional information.  

Sincerely,  

[Signature]  

Patricia L. Kamiński, Ph.D.  
Associate Professor  
Department of Psychology  
Chair, Institutional Review Board  

PK/sb
University of North Texas Institutional Review Board

Informed Consent Form

Before agreeing to participate in this research study, it is important that you read and understand the following explanation of the purpose, benefits and risks of the study and how it will be conducted.

Title of Study:

A Comparison of Treatments for Posttraumatic Stress Disorder Symptoms

Student Investigator: Kendall Maxwell, M.S., University of North Texas (UNT) Department of Psychology. Supervising Investigator: Dr. Jennifer Callahan, PhD.

Purpose of the Study: You are being asked to participate in a research study comparing different forms of talk therapy to reduce symptoms of Posttraumatic Stress Disorder (PTSD).

Study Procedures: This study will require you to complete several surveys in a phone screening session that will require 30 minutes of your time. In addition to providing basic information about yourself and your current situation (gender, race/ethnicity, living arrangements, etc.), the survey will ask you about symptoms people sometimes experience after a stressful event. The study also involves a 2 hour interview with a trained professional, who will ask you about your own experiences with different kinds of traumatic events and symptoms you may have developed after experiencing these events. At the end of the interview, the examiner will do some basic cognitive testing of your memory and how you process information.

After these assessments are done, you may be asked to participate in a group treatment (no more than 12 people will be in a group). Treatment will last 6 weeks and last 90 minutes for each session. You may be asked to participate in a biweekly group treatment for 6 weeks, which would require 3 hours of your time a week or you may be randomly placed in the 6 weeks, once weekly sessions, which would only require 90 minutes of your time each week. 3 months after you finish treatment, you will complete a 1 hour interview to assess whether your treatment was effective at reducing your symptoms. Total time if eligible for all portions of the study will vary between 12.5-21.5 hours depending on random selection into the different treatment groups.

Foreseeable Risks: You may experience some distress in talking about traumatic events that you have experienced in the past. Because treatment will be in a group setting, you may find hearing about the traumatic experiences of others upsetting as well. If you experience a strong emotional reaction and desire to speak to a professional about it personally prior to placement in the group treatment within the study or would like individual therapy, you can receive low-cost therapy at the UNT Psychology Clinic: (940) 565-2631. Furthermore if you are currently experiencing a...
strong reaction or do so at any time during this research study you can call the Denton MHMR crisis line: (800) 762-0157 or the Suicide hotline: (800) 784-2433. An additional risk involves confidentiality. All members of the treatment group will be asked to maintain complete confidence, but this cannot be guaranteed.

Benefits to the Subjects or Others: There is some evidence that the treatments being provided are effective at reducing PTSD symptoms. However, these studies are still in very early stages and there is much we do not yet know about the treatments. You may not benefit at all from participating in treatment. You may continue to struggle with symptoms of PTSD. However, learning about the strengths and weaknesses of these treatment options could help us to further develop more effective treatments.

Compensation for Participants: There will be no compensation for participating in this study if you are within the community sample. However, if you attending classes at the University of North Texas and are participating in a course that offers extra credit for participation in psychological research studies, you may be compensated by a class instructor for research participation with extra credit. The researchers are not responsible for and cannot guarantee this compensation, but will provide documentation to instructors which will indicate your participation.

Procedures for Maintaining Confidentiality of Research Records: Your responses are private and will remain confidential. All study materials associated with you will be coded by a number. Your name will not appear on any study materials. All data collected will be entered into a password protected, secure computer. Any paper materials will be scanned electronically and stored on computer before being shredded. This consent form will be kept separate from all study materials and will not be linked to your code number. The results of this research may be published in psychological journals and presented at conferences. However, your name or identity will never be associated with these published results. You may request a summary of the results of this study after it is completed. If you would like a summary of this study’s results, please contact one of the study investigators below.

Questions about the Study: If you have any questions about the study, you may contact Kendal Maxwell at KendalMaxwell@my.unt.edu or Jennifer Callahan at Jennifer.Callahan@unt.edu

Review for the Protection of Participants: This research study has been reviewed and approved by the UNT Institutional Review Board (IRB). The UNT IRB can be contacted at (940) 565-3940 with any questions regarding the rights of research subjects.

Research Participants’ Rights:

Your signature below indicates that you have read or have had read to you all of the above and that you confirm all of the following:

Office of Research Services
University of North Texas
Last Updated: July 11, 2011

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• Kendal Maxwell or other key personnel have explained the study to you and answered all of your questions. You have been told the possible benefits and the potential risks and/or discomforts of the study.
• You understand that you do not have to take part in this study, and your refusal to participate or your decision to withdraw will involve no penalty or loss of rights or benefits. The study personnel may choose to stop your participation at any time.
• If you are a student at the University of North Texas, your decision whether to participate or to withdraw from the study will have no effect on your grade or standing in any course.
• You understand why the study is being conducted and how it will be performed.
• You understand your rights as a research participant and you voluntarily consent to participate in this study.
• You have been told you will receive a copy of this form.

Printed Name of Participant

Signature of Participant                      Date

For the Student Investigator or Designee:

I certify that I have reviewed the contents of this form with the subject signing above. I have explained the possible benefits and the potential risks and/or discomforts of the study. It is my opinion that the participant understood the explanation.

Signature of Student Investigator                      Date

Office of Research Services
University of North Texas
Last Updated: July 11, 2011

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APPENDIX C

MEMORY SPECIFICITY TRAINING MANUAL (MEST) AND FIDELITY MEASURES
Memory Specificity Training (MeST) Manual

Therapist’s Manual

Kendal Maxwell, M. S. & Jennifer Callahan, Ph. D.

August 2013

Correspondence should be addressed to:

Kendal Maxwell: kmaxwell1987@gmail.com
How to use this manual

This manual has been created for ease of applying Memory Specificity Training (MeST) within a group therapy setting (maximum 12 members per group). This manual should only be used by individuals who are either practicing psychologists and/or are currently under the supervision of a practicing psychologist. Portions of this manual were taken from the definitions of PTSD and trauma provided by the Cognitive Processing Therapy Manual produced by Resick, Monson, Monson, and Chard (2010). In addition, portions of the conceptualization of the outlines for each session were provided by Raes, Williams, and Hermans (2009).

Part 1: The theory and research behind overgeneral memory retrieval and MeST

Part 2: Session outlines for 6 session model and 12 session model

**PART I:**

The first development of Memory Specificity Training (MeST) was created by Raes, Williams, and Hermans (2009) and was created for use with individuals who suffer from symptoms of depression. MeST can be performed using a 6 session (weekly) model or a 12 session biweekly model. If the 12 session biweekly model is used, each additional session each week is used to provide further examples of the particular specific memories that are of focus (i.e. positive, negative, and/or neutral). Sessions are each 90 minutes in length. This manual was created for use with samples of individuals currently suffering from a moderate to high level of PTSD symptomology. Individuals within this sample will not be exclusionary based on type of trauma experienced. Therapy will focus on the worst traumatic event, although other traumatic events may also be discussed within the group therapy sessions based on different memory retrieval words that could be used. The client will be expected to attend all sessions and complete all assignments assigned during the sessions. The therapist will agree to adhere to the MeST protocol and also explain her role in the group therapy setting.

MeST is based on the theory of overgeneralization with regards to retrieval of memories. Overgeneral memories are also sometimes referred to as categorical memories, in which the person categorizing a memory on the basis of an overarching experience that occurs many times in one’s life such as “going to a restaurant” (Williams, 1996). Another way individuals tend to overgeneralize is when they produce memories that occur over an extended period of time rather than an event that occurs in one day (i.e. when I spent summers at my lake house vs. when I went scuba diving in Aruba on my honeymoon last year). A specific event is described as an event that occurs within one succinct period of time and involves specific people, places, etc. (i.e. when I had an argument with my husband last Tuesday about buying a television) (Williams, 1996). Being able to produce specific memories has been connected with certain psychological disorders over the past few years, as individuals have begun to realize that it is most likely an
overarching character trait that also must be focused on in order to prevent relapse of symptoms (Gibbs & Rude, 2004). Most research focusing on overgeneral memories discuss that the reasoning behind retrieving a general/categorical memory as opposed to a specific memory is based on top-down processing, in which the individual accesses general memories first and then may begin to focus on a specific memory thereafter (Burgess & Shallice, 1996). One model that was developed to understand why individuals who are suffering from certain psychological disorders seem to not be able to access specific memories upon recall focused on how self-representation can affect this process (Williams, Barnhofer, Crane, Herman, Raes, Watkins, & Dalgleish, 2007). The Capture and Rumination (CaR), Functional Avoidance (FA), and Impaired Executive Control (X) (CaR-FA-X) model focuses on the top-down processing and describes individuals who are suffering from affective disorders (i.e. major depressive disorder or bipolar disorder) that make them feel negative about their self-representation and become overly focused on these representations. They hypothesize that the representations occur on the general level of memory retrieval and therefore, specific memories are more difficult to access because they may isolate certain aspects related to the self that go against their self-representation and/or force the individual to think about specific incidents that produced the negative self-representation (Conway & Pleydell-Pearce, 2000; Williams et al., 2007).

In addition, experiencing a traumatic event has been associated with the production of overgeneral memory retrieval. The function of overgeneralizing for an individual who has experienced a traumatic event may be to distance the self from the negative affective experience that comes from dealing with the emotions tied to that incident (Williams, 1996). Williams (1996) also proposed that children who have experienced traumatic events in their childhood begin to overgeneralize with the retrieval of the traumatic event itself, but eventually this process spreads to include not only memories related to the traumatic event, but other kinds of memories (i.e. negative memories unrelated to the event, as well as positive memories and even memories that have neutral affect); thus, creating an overgeneralized memory system rather than just an overgeneralized memory for the traumatic event itself. Kuyken & Brewin (1995) found that individuals who had experienced childhood sexual abuse with/without also rating as highly depressed produced overgeneral memories more frequently than specific memories if they reported engaging in a high level of avoidance tactics related to their history of abuse. As reported, overgeneral memories are associated with many psychological disorders. One of which is posttraumatic stress disorder (PTSD) (McNally, Lasko, Macklin, & Pitman, 1995). One study that looked at overgeneralization in memory retrieval focused on a sample that included Vietnam War veterans (McNally, Lasko, Macklin, Pitman, 1995). The study included only males and the groups included 19 male veterans who had recently received a PTSD diagnosis from a doctoral level clinical psychologist and 13 male veterans who had not received a diagnosis of PTSD and were considered the control group. One study that looked at overgeneralization in memory retrieval focused on a sample that included Vietnam War veterans (McNally, Lasko, Macklin, Pitman, 1995). The study included only males and the groups included 19 male veterans who had recently received a PTSD diagnosis from a doctoral level clinical psychologist and 13 male veterans who had not received a diagnosis of PTSD and were considered the control group. One study that included 42 assault survivors investigated the differences between individuals who had experienced assault of some form and individuals who had experienced assault, in addition to developing PTSD symptomology at a clinically significant level (Schonfeld et al., 2007). This study included all female participants who had experienced either physical or sexual assault. The results from this study found that the PTSD group overall had a trend to produce more general
memories than the non-PTSD group; $F(1, 40) = 3.22, p = .08$. The results were significant with the group trend when memories related to their specific traumatic event were excluded from the analysis; $F(1, 40) = 7.81, p = .049$ (Schonfeld et al., 2007). In addition, these results also continued to be found when the PTSD severity was broken into different subscales and was also significant with individuals who rated high on cognitive thought avoidance.

There have been a few studies that have included different forms of MeST treatment, but none of these manuals could be located and therefore this manual was created for the ease of conducting MeST in the future. Results from past studies using different forms of MeST treatment have found positive results for use with samples of individuals who were diagnosed with depression or have experienced traumatic events that could be have included individuals suffering from PTSD symptomology. One study found that memory specificity significantly increased after treatment occurred $F(1, 9) = 25.85, p < 0.001$ and both rumination and hopelessness decreased significantly post-treatment (Raes et al., 2009). There have been two studies that have directly looked at the ability of MeST in reducing depressive symptomology. One studied involved a sample of 53 patients, all of which had been diagnosed with schizophrenia, in addition to suffering from depression at the Regional Mental Health Service of Castillo-La Mancha (Ricarte, Hernandez-Viadel, Latorre, & Ros, 2012). This study found that symptoms of depression were significantly reduced for the MeST group as compared to the control group (Ricarte et al., 2012). Another study that included adolescent participants who were currently refugees and had recently moved to Qhom, Iran from Afghanistan after their fathers had been killed. 70 adolescents were chosen to participate in the initial selection process and their parental guardians completed the Mood and Feeling Questionnaire Parent Version (pMFQ) (Taher Neshat-Doost, Dalgleish, Yule, Kalantari, Ahmadi, Dyregrov, & Jobson, 2012). Although these participants were not assessed for PTSD, each participant was noted to have experienced a traumatic event. When participants were tested for depression at post-training, there were not significant differences between groups, but when tested at a 2-month-follow up, participants involved in the MeST training had significantly fewer symptoms of depression than the participants in the control group, $t(10) = 2.42, p = .03, d = 0.47$ (Taher Neshat-Doost et al., 2012).

Who is appropriate for MeST?

MeST has thus far been created and used for individuals who are currently suffering from depression and have a history of experiencing trauma. This manual was created for use with individuals who have experienced trauma and are suffering from a moderate to high level of PTSD symptomology. Based on the number of different adjectives that will be used to discuss different kinds of moods related to specific memories (i.e. happy, sad, terrifying, etc) it is advised to use MeST with individuals who have at least a 6th grade reading level. In addition, dictionary definitions of all words used to have group members practice retrieving specific memories should be provided prior to beginning the activity. This manual was created for use with individuals who may be suffering from moderate to high levels of PTSD and have met the diagnosis of PTSD based on the criteria used by the Clinician-Administered PTSD Scale (CAPS; Blake, Weathers, Nagy, Kaloupek, Klauminzer, Charney, & Keane, 1990). Exclusionary criteria may include individuals who are currently suffering from psychotic symptoms. In addition, if someone is a danger to self or others, treatment of PTSD is not the most immediate treatment goal and MeST should not be used. Likewise, if someone is in imminent danger, such as those
who are being stalked or are in an actively abusive relationship, then a safety plan should be the first thing addressed. Furthermore, if an individual is currently using illicit drugs at a high rate and/or are drug dependent, MeST should not be used.

PART II:

Week 1: Session 1 (6 session model), Session 1/2 (12 session model):

The goals of Week 1 are:
1. To build rapport with the patient.
2. To educate the patient about symptoms of PTSD and depression.
3. To provide a rationale for treatment
4. To lay out the course of treatment.
5. To elicit treatment compliance.

It is necessary to address treatment compliance early in the course of therapy because avoidance behavior (half the symptoms of PTSD) can interfere with successful outcomes. We are concerned with two forms of compliance: attendance and completion of out-of-session practice assignments. It is strongly recommended that patients attend all sessions and complete all assignments in order to benefit fully from therapy. We set the expectation that therapy benefit is dependent on the amount of effort patients invest through practice assignment compliance and practice with new skills. It may be helpful to remind the patient that what he has been doing has not been working and that it will be important to tackle issues head-on rather than continue to avoid. Avoidance of affective experience and expression should also be addressed.

In this session, patients are also given the opportunity to ask any questions they may have about the therapy. And finally, as with all therapies, rapport building is crucial for effective therapy. The patient needs to feel understood and listened to, otherwise she may not return. Patients sometimes arrive with a pressing need to speak about their trauma. However, the therapist should prevent the patient from engaging in an extended exposure session at the first session. Intense affect and graphic details of an event, disclosed before any type of rapport or trust has been established, may well lead to premature termination from therapy.

Other patients will be very reluctant to discuss the traumatic event and will be quite relieved that they do not have to describe it in detail during the first session. In these cases, the therapist may have to draw out even a brief description of the event. Dissociation when attempting to think about or talk about the event is common. An initial assessment session grants the patient and therapist the opportunity to get acquainted before the therapy begins and allows the therapist to provide the patient with a description of what the therapy will entail.
Therapist Explanations to Patient

1. PTSD Symptoms

—In going over the results of your testing, we found that you are suffering from posttraumatic stress disorder. The symptoms of PTSD fall into three clusters. The first cluster is the reexperiencing of the event in some way. This includes nightmares about the event or other scary dreams; flashbacks, when you act or feel as if the incident is recurring; intrusive memories that suddenly pop into your mind. You might have the intrusive memories when there is something in the environment to remind you of the event (including anniversaries of the event) or even when there is nothing there to remind you of it. Common times to have these memories are when you are falling asleep, when you relax, or when you are bored. These symptoms are all normal following such a traumatic event. You are not going crazy. Can you give me examples of these experiences in your own life since the event? —A second set of symptoms concern arousal. As might be expected, when reminded of the event, you are likely to experience very strong emotions. Along with these feelings are physical reactions. Indicators of arousal symptoms include problems falling or staying asleep, irritability or outbursts of anger, difficulty concentrating, startle reactions like jumping at noises or if someone walks up behind you, always feeling on guard or looking over your shoulder even when there is no reason to. Which of these do you experience?

—The third cluster of symptoms is avoidance of reminders of the event. A natural reaction to intrusive memories and strong emotional reactions is the urge to push these thoughts and feelings away. You might avoid places or people who remind you of the event. Some people avoid watching certain television programs or turn off the TV. Some people avoid reading the newspaper or watching the news. You might avoid thinking about the event and letting yourself feel your feelings about the event. There might be certain sights, sounds, or smells that you find yourself avoiding or escaping from because they remind you of the event. Sometimes people have trouble remembering all or part of the event. Sometimes people feel numb and cut-off from the world around them. This feeling of detachment or numbness is another form of avoidance. Sometimes it is described as feeling as though you are watching life from behind glass. Which things or thoughts do you avoid or run away from? Have you felt numb or shut off from your emotions? Have you found yourself feeling disconnected from other people?

2. Trauma Recovery and Fight-Flight-Freeze Response

—Many people are exposed to traumatic events. In the time immediately following a trauma, most people will have the symptoms of PTSD that we just talked about. However, over time, for many people, those symptoms naturally decrease, and they are not diagnosed with PTSD. In other words, they naturally recover from the traumatic event. There are some people who do not recover and are later diagnosed with PTSD. Based on that, it is helpful to think of PTSD as a problem in recovery. Something got in the way of you having that natural process of recovery, and our work together is to determine what got in the way. There are some different reasons why you may be having trouble recovering. First, there is an automatic component during the event that you should consider as you evaluate how you responded during the time. When people face serious, possibly life-threatening events, they are likely to experience a very strong physical reaction called the fight-flight reaction. More recently we have learned that there is a third possibility, the freeze response. In the fight-flight reaction, your body is trying to get you ready to fight or flee danger. The goal here is to get all the blood and oxygen out to your hands, feet, and big muscle groups like your thighs and forearms so that you can run or fight. In order to do
that quickly, the blood leaves your stomach or your head. You might feel like you have been
kicked in the gut or are going to faint. Your body stops fighting off diseases and digesting food.
You are not thinking about your philosophy of life and may have trouble thinking at all. The
same thing happens with the freeze response, but in this case your body is trying to reduce both
physical and emotional pain. You may have stopped feeling pain or had the sense that the event
was happening to someone else as if it were a movie. You might have been completely shut down
emotionally or even had shifts in perception like you are out of your body or that time has slowed
down so that you can recover from what happened. We will be working to get you ‘unstuck.’ —If
you have been thinking now of other things that you could have done then, you might need to
consider what your state of mind was during the event. Did you have all possible options
available to you? Did you know then what you know now? Do you have different skills now than
you did then?
—Second, the fight-flight response that you were experiencing during the traumatic event can
get quickly paired with cues, or things in the environment, that didn’t have any particular
meaning before. Then later, when you encounter those cues, you are likely to have another fight-
flight reaction. Your nervous system senses the cue, which could be a sight, a sound, smell, or
even a time, and then your body reacts as though you are in danger again. These reactions will
fade over time if you don’t avoid those cues. However, if you avoid reminder cues, your body
won’t learn that these are not, in fact, good danger cues. They don’t tell you very accurately
whether you are actually in danger so you may have false alarms going off frequently. After a
while you won’t trust your own senses or judgment about what is and isn’t dangerous, and too
many situations seem dangerous that are not.
—You may start to have thoughts about the dangerousness of the world, particular places, or
situations that are based on your reactions rather than the actual realistic danger of those
situations. This leads us to examine how your thoughts may affect your reactions. Besides
thoughts about dangerousness, many different types of beliefs about ourselves and the world can
be affected by traumatic events.

3. Overgeneralization vs. Specificity in memory.

When individuals experience a traumatic event they begin to think of their memories in a more
general way. They may believe that negative things will happen at higher frequency and even
look back at things that have happened in their past in a more general way (i.e. My entire
childhood was scary rather than certain specific times were scary). When individuals begin to
think of memories in an overgeneral way, it becomes difficult to differentiate memories from one
another on an everyday basis and then you may begin to forget that positive events do occur. In
addition when individuals begin to overgeneralize they increase the likelihood of expanding a
negative memory such as having a bad experience on a holiday to having a bad experience the
entire month of December. This can cause misjudgments in the memory retrieval process that
have been connected to an increase in PTSD symptoms. The function of overgeneralizing for an
individual who has experienced a traumatic event may be to distance the self from the negative
affective experience that comes from dealing with the emotions tied to that incident. Also, it has
been found that children who have experienced traumatic events in their childhood begin to
overgeneralize with the retrieval of the traumatic event itself, but eventually this process spreads
to include not only memories related to the traumatic event, but other kinds of memories (i.e. negative memories unrelated to the event, as well as positive memories and even memories that have neutral affect); thus, creating an overgeneralized memory system rather than just an overgeneralized memory for the traumatic event itself. Therefore, in order to decrease the symptoms of PTSD, it is necessary to decrease the use of overgeneral memory retrieval and practice how to retrieve specific memories. It has been found that reduced specificity does not tend to improve when people recover from PTSD, and that it represents a latent vulnerability factor for PTSD.

Examples of specific vs. overgeneral memories are provided from the trainer. The following is explained to provide the difference between the two types of memories and a few examples are provided. Other examples should be given, but the trainer can choose which ones to provide to the group.

Overgeneral memories are also sometimes referred to as categorical memories, in which the person categorizing a memory on the basis of an overarching experience that occurs many times in one’s life such as “going to a restaurant”. Another way individuals tend to overgeneralize is when they produce memories that occur over an extended period of time rather than an event that occurs in one day (i.e. when I spent summers at my lake house vs. when I went scuba diving in Aruba on my honeymoon last year). A specific event is described as an event that occurs within one succinct period of time and involves specific people, places, etc. (i.e. when I had an argument with my husband last Tuesday about buying a television).

Participants are then asked to recall a specific memory for two neutral words (‘bike’) and (‘swings’) and write these down in their personal workbook. They are prompted to recall as much details as possible (to further promote specificity). Participants’ responses are then discussed in group. At the end of the session, homework exercises for the next week are explained. For 10 cues (neutral) participants need to generate a specific memory. They are also instructed to write down a ‘specific memory of the day’ every evening of the coming week.

Week 2: Session 2 (6 session model), Session 3/4 (12 session model):

Session starts with a brief summary of week 1. Next, the homework exercises are discussed in group. Positive cue words are introduced and discussed with the group. For the remaining of this session or sessions, participants recall two specific memories for each of four cues (two positive and two neutral). Again, participants are motivated to recall as much details as possible. By asking participants to recall two different specific memories for the same cue, we aim to further promote the reduction of overgeneralization. Furthermore, participants are prompted to recall two memories that are quite different from one another, and they are asked to focus on, and pay close attention to those memory aspects or elements that made each memory specific and unique (as compared to the other memory for the same cue). At the end of the session or sessions for week 2, the homework exercises for the coming week are explained. For 10 cues (positive and neutral ones) participants need to generate two different specific memories. They are also
instructed to write down two different ‘specific memories of the day’ every evening of the coming week.

Week 3: Session 3 (6 session model), Sessions 5/6 (12 session model):

Homework from the previous week will be reviewed and discussed. These sessions are very similar to Week 2 sessions in terms of the sort of exercises that participants need to do (i.e. two different and unique specific memories for one and the same cue). Participants continue to practice with just positive cue words. The homework assignment is similar to the homework exercises following week 2 sessions, with the exception that all cue words are positive.

Week 4: Session 4 (6 session model), Sessions 7/8 (12 session model):

These sessions are very similar to Week 3 sessions in terms of reviewing homework assignments and positive cues associated with positive memories. However, participants also need to work with more negative cues. As such, they are instructed to recall two specific memories for negative cues (clumsy, stressed, and sad). Following each negative cue, they are requested to do the same for the positive ‘counterpart’ cues (skillful, relaxed, and happy). Besides promoting specificity of memory retrieval, by using positive and negative cues of a similar theme (clumsy and skillful, stressed and relaxed, sad and happy), we aim to reduce participants’ tendency to overgeneralize (e.g. “I’m a clumsy person”, “I’m always stressed”, and “I cannot relax”, etc.). The homework assignment is similar to the homework exercises following Week 3 sessions, with the exception that now negative and positive cues are provided.

Week 5: Session 5 (6 session model), Sessions 9/10 (12 session model):

The past weeks homework assignment is discussed and reviewed with the group. Participants are provided with more negative and counterparted positive cue words to practice within session. For homework, participants are offered some further exercises using negative and (‘counterpart’) positive cues.

Week 6: Session 6 (6 session model), Sessions 11/12 (12 session model):

Further practice within session is done with positive, negative, and neutral cue words. Any difficulties members are having are discussed. It is also explained that overgeneral thinking can be brought ‘on line’ by a single experience (e.g., “Last Wednesday when my family came over, I ruined dinner”, “Whenever I cook, things go wrong”, “Whatever I do, things go wrong”, “I’m a complete failure”). Several of such examples are discussed in order to promote participants’ metacognitive awareness to know and notice when they are starting to shift to more general retrieval or unspecific thinking. Finally, a brief summary of the whole program is offered, and participants are invited to evaluate the course and to share their personal experiences with the training with the other group members and the trainer.
References


MeST Fidelity Checklist Session 1

The items listed on this checklist are considered necessary elements for MeST practice. It is expected that all sessions will meet the Fidelity Checklist criteria. If any of the criteria are not met, please explain why in the box at the bottom of this page. Please include a Fidelity Checklist for each session.

For the MeST elements below, please initial on the line next to each one that the clinician delivered each element to the group as evidence of that the necessary components of MeST were provided.

1. Set the agenda of the session itself (i.e. what they will be doing together)
   
2. Discussed PTSD symptom clusters (3) and fight/flight/freeze response to trauma.
   
3. Discussed overgeneral vs. specific memory and relation to trauma and provided BRIEF overview of the treatment itself. Provided two examples of each OG and SP.
   
4. Provided Session 1 Worksheet to clients and had clients write down specific memories for cue words “Bike” and “Swings.” Each client’s examples were discussed out loud with group.
   
5. Assigned the rest of session 1 worksheet as HW (10 neutral cue words).
   
6. Assigned group to write down 1 additional “specific memory of the day” each day (neutral in tone).
   
7. Reviewed groups’ thoughts on first session.
MeST Fidelity Checklist Session 2

The items listed on this checklist are considered necessary elements for MeST practice. It is expected that all sessions will meet the Fidelity Checklist criteria. If any of the criteria are not met, please explain why in the box at the bottom of this page. Please include a Fidelity Checklist for each session.

For the MeST elements below, please initial on the line next to each one that the clinician delivered each element to the group as evidence of that the necessary components of MeST were provided.

1. Brief summary of session 1 and set agenda (i.e. what they will be doing together)
   
2. Discussed and reviewed neutral cue words HW assignment. Have each client provide one example, have client add one more detail if they can and have group correct if it is an OG vs. SP memory.
   
3. Provided clients with Session 2 Worksheet. Introduced positive cue words. Had clients provide two DIFFERENT specific memories for the first four words on the worksheet (two neutral and two positive cues). Had clients (3-4) discuss differences between two of their memories.
   
4. Assigned the rest of session 2 worksheet as HW (5 neutral cue words and 5 positive cue words, but TWO DIFFERENT specific memories for each).
   
5. Assigned group to write down 2 additional “specific memory of the day” each day (neutral or positive in tone).
   
6. Reviewed groups’ thoughts on second session.

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MeST Fidelity Checklist Session 3

The items listed on this checklist are considered necessary elements for MeST practice. It is expected that all sessions will meet the Fidelity Checklist criteria. If any of the criteria are not met, please explain why in the box at the bottom of this page. Please include a Fidelity Checklist for each session.

For the MeST elements below, please initial on the line next to each one that the clinician delivered each element to the group as evidence of that the necessary components of MeST were provided.

1. Brief summary of session 2 and set agenda (i.e. what they will be doing together)
   ____

2. Discussed and reviewed positive/neutral cue words HW assignment. Have each client provide one example, have client add one more detail if they can and have group correct if it is an OG vs. SP memory.
   ____

3. Provided clients with Session 3 Worksheet. Re-discussed positive cue words. Had clients provide two DIFFERENT specific memories for the first four words on the worksheet (four positive cues). Had clients (3-4) discuss differences between two of their memories.
   ____

4. Assigned the rest of session 3 worksheet as HW (10 positive cue words, but TWO DIFFERENT specific memories for each).
   ____

5. Assigned group to write down 2 additional “specific memory of the day” each day (positive in tone).
   ____

6. Reviewed groups’ thoughts on third session.
   ____

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MeST Fidelity Checklist Session 4

The items listed on this checklist are considered necessary elements for MeST practice. It is expected that all sessions will meet the Fidelity Checklist criteria. If any of the criteria are not met, please explain why in the box at the bottom of this page. Please include a Fidelity Checklist for each session.

For the MeST elements below, please initial on the line next to each one that the clinician delivered each element to the group as evidence of that the necessary components of MeST were provided.

1. Brief summary of session 3 and set agenda (i.e. what they will be doing together)
   ______

2. Discussed and reviewed positive cue words HW assignment. Have each client provide one example, have client add one more detail if they can and have group correct if it is an OG vs. SP memory.
   ______

3. Provided clients with Session 4 Worksheet. Discussed negative cue words and need for flexibility in thinking of one-self (i.e. I’m NOT always clumsy). Had clients provide two DIFFERENT specific memories for the six cue words that are opposite in nature on the worksheet (three negative and three positive cue words). Had clients (3-4) discuss differences between two of their memories.
   ______

4. Assigned and provided session 4 HW sheet (5 positive cue words and 5 negative cue words, but TWO DIFFERENT specific memories for each). Emphasis on using memories related to traumatic events is discussed.
   ______

5. Assigned group to write down 2 additional “specific memory of the day” each day (one positive and one negative in tone).
   ______

6. Reviewed groups’ thoughts on fourth session.
   ______
MeST Fidelity Checklist Session 5

The items listed on this checklist are considered necessary elements for MeST practice. It is expected that all sessions will meet the Fidelity Checklist criteria. If any of the criteria are not met, please explain why in the box at the bottom of this page. Please include a Fidelity Checklist for each session.

For the MeST elements below, please initial on the line next to each one that the clinician delivered each element to the group as evidence of that the necessary components of MeST were provided.

1. Brief summary of session 4 and set agenda (i.e. what they will be doing together)

2. Discussed and reviewed HW 4 assignment. Have each client provide one counter balanced example, have client add one more detail if they can and have group correct if it is an OG vs. SP memory. Discuss feelings related to expressing these examples.

3. Provided clients with Session 4 Worksheet. Discussed negative cue words and need for flexibility in thinking of one-self (i.e. I’m NOT always clumsy). Had clients provide two DIFFERENT specific memories for the six cue words that are opposite in nature on the worksheet (three negative and three positive cue words). Had clients (3-4) discuss differences between two of their memories.

4. Assigned and provided session 4 HW sheet (5 positive cue words and 5 negative cue words, but TWO DIFFERENT specific memories for each). Emphasis on using memories related to traumatic events is discussed.

5. Assigned group to write down 2 additional “specific memory of the day” each day (one positive and one negative in tone).

6. Reviewed groups’ thoughts on fifth session.
MeST Fidelity Checklist Session 6

The items listed on this checklist are considered necessary elements for MeST practice. It is expected that all sessions will meet the Fidelity Checklist criteria. If any of the criteria are not met, please explain why in the box at the bottom of this page. Please include a Fidelity Checklist for each session.

For the MeST elements below, please initial on the line next to each one that the clinician delivered each element to the group as evidence of that the necessary components of MeST were provided.

1. Brief summary of session 5 and set agenda (i.e. what they will be doing together)

2. Discussed and reviewed HW 5 assignment. Have each client provide one counter balanced example, have client add one more detail if they can and have group correct if it is an OG vs. SP memory. Discuss feelings related to expressing these examples.

3. Provided clients with Session 6 Worksheet. Had clients provide two DIFFERENT specific memories for the three cue words (one negative and one positive, and one neutral cue word). Had clients (3-4) discuss differences between their memories.

4. Discussed how overgeneral memories can be “brought online” by an event. Provided two examples of this occurring (i.e. cooking dinner and one related to trauma such as driving a car).

5. Reviewed overall concept of treatment and reviewed groups’ thoughts on treatment experience.
CPT Fidelity Checklist Session 1

The items listed on this checklist are considered necessary elements for CPT practice. It is expected that all sessions will meet the Fidelity Checklist criteria. If any of the criteria are not met, please explain why in the box at the bottom of this page. Please include a Fidelity Checklist for each session.

For the CPT elements below, please initial on the line next to each one that the clinician delivered each element to the group as evidence of that the necessary components of CPT were provided.

1. Set the agenda of the session itself (i.e. what they will be doing together)
   ____

2. Provided PTSD symptoms handout and explained 3 clusters, fight/flight response, cognitive theory of PTSD, and two types of emotions (natural/manufactured)
   ____

3. Had each client BRIEFLY discuss their traumatic event (avoid re-experience)
   ____

4. Discussed goals of treatment ALL MUST BE SAID (i.e. recognize old feelings/thoughts that are unhelpful, accept the reality of the event, change beliefs enough to accept them, feel the emotions from that event)
   ____

5. Provided Stuck points handout and reviewed it.
   ____

6. Discussed avoidance and need to not avoid during treatment.
   ____

7. Provided BRIEF overview of the treatment itself.
   ____

8. Assigned initial Impact Statement (explained to write about why the event happened to them and how their views of others/self/world have changed) SAID TO WRITE 1 PAGE HANDWRITTEN.
   ____

9. Assigned stuck point log for homework in addition to impact statement.
   ____

10. Reviewed groups’ thoughts on first session.
    ____
CPT Fidelity Checklist Session 2

The items listed on this checklist are considered necessary elements for CPT practice. It is expected that all sessions will meet the Fidelity Checklist criteria. If any of the criteria are not met, please explain why in the box at the bottom of this page. Please include a Fidelity Checklist for each session.

For the CPT elements below, please initial on the line next to each one that the clinician delivered each element to the group as evidence of that the necessary components of CPT were provided.

1. Had each client read impact statement out loud and looked for stuck points to add to log. If client didn’t write one had them say it orally and reassigned it.

2. Discussed with each client assimilation noted in their impact statements and things to work on during treatment based on statement.

3. Reviewed CPT theory and rationale for treatment

4. Discussed 6 basic emotions, combined emotions, varying intensity, secondary emotions, and had some group members discuss their own feelings during the event that match these.

5. Provided A-B-C handouts (15 for each client) and did one example together.

6. Assigned A-B-C worksheet for homework (i.e. one example a day and at least one about the traumatic event).

7. Reviewed groups’ thoughts on second session.
CPT Fidelity Checklist Session 3

The items listed on this checklist are considered necessary elements for CPT practice. It is expected that all sessions will meet the Fidelity Checklist criteria. If any of the criteria are not met, please explain why in the box at the bottom of this page. Please include a Fidelity Checklist for each session.

For the CPT elements below, please initial on the line next to each one that the clinician delivered each element to the group as evidence of that the necessary components of CPT were provided.

1. Reviewed A-B-C worksheet assignment. Had at least 3-4 clients describe a non-related trauma example they had and discussed with everyone any stuck points, etc.

2. Had each client review their A-B-C worksheet related to their traumatic event. If a client did not complete one have them do one orally and reassign. Discussed stuckpoints, specifically self-blame.

3. Introduced Trauma account assignment and assigned clients to write it MANUALLY and READ IT OUT LOUD DAILY TILL NEXT SESSION.

4. Assigned A-B-C worksheets for homework (i.e. one example a day).

5. Reviewed groups’ thoughts on third session.
CPT Fidelity Checklist Session 4

The items listed on this checklist are considered necessary elements for CPT practice. It is expected that all sessions will meet the Fidelity Checklist criteria. If any of the criteria are not met, please explain why in the box at the bottom of this page. Please include a Fidelity Checklist for each session.

For the CPT elements below, please initial on the line next to each one that the clinician delivered each element to the group as evidence of that the necessary components of CPT were provided.

1. Had each client read their trauma account out loud and discussed it with group. If client did not write it had them recount it orally. Looked for stuck points (specifically self-blame) to add to log and had them re-read if affective expression was not fully engaged.
   
   _____

2. Engaged members of group to challenge clients stuck points, etc.
   
   _____

3. Explained difference between responsibility and blame.
   
   _____

4. Assigned re-writing of trauma account (told clients to write more sensory details, current thoughts in parentheses, and things that happened after and before event. Told to re-read each day out loud to self.
   
   _____

5. Assigned A-B-C worksheets for homework (i.e. one example a day).
   
   _____

6. Reviewed groups’ thoughts on fourth session.
   
   _____
CPT Fidelity Checklist Session 5

The items listed on this checklist are considered necessary elements for CPT practice. It is expected that all sessions will meet the Fidelity Checklist criteria. If any of the criteria are not met, please explain why in the box at the bottom of this page. Please include a Fidelity Checklist for each session.

For the CPT elements below, please initial on the line next to each one that the clinician delivered each element to the group as evidence of that the necessary components of CPT were provided.

1. Had each client read their SECOND trauma account out loud and discussed it with group. If client did not write it had them recount it orally. FOCUSED ON DIFFERENCES BETWEEN THE TWO ACCOUNTS (i.e. feelings, areas deleted/added, etc)

2. Challenged client’s assumptions and blame when they read their accounts by using some of the challenging questions from the worksheet prior to handing it out.

3. Provided and introduced Challenging Questions worksheet. Discussed example worksheet and had 2-3 clients use a personal example from their accounts.

4. Assigned clients to use CQ worksheet once a day with a stuck point and continue working on 2nd trauma account if not completed/continue reading once a day out loud to self.

5. Reviewed groups’ thoughts on fifth session.

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For the CPT elements below, please initial on the line next to each one that the clinician delivered each element to the group as evidence of that the necessary components of CPT were provided.

1. Had 3-4 clients read through the Challenging question worksheet out loud and discuss it.
   
   2. Had any clients who did not write second account the first time read it out-loud this session and discuss it.
   
   3. Continued to focus on stuck points with clients.
   
   4. Introduced and provided Problematic Thinking Worksheets (3 per client) and reviewed examples. Also had at least 3-4 clients use personal examples (trauma or non-trauma related).
   
   5. Assigned Problematic thinking worksheets (find one example of problematic thinking each day). ALSO told clients with strong emotions to their traumatic accounts to continue reading out loud these accounts each day.
   
   6. Reviewed groups’ thoughts on sixth session.
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For the CPT elements below, please initial on the line next to each one that the clinician delivered each element to the group as evidence of that the necessary components of CPT were provided.

1. Review Problematic thinking worksheet with clients. Have 3-4 clients share examples to discuss them. Discussed any patterns clients had and how those are related to their traumatic event. Replaced with more adaptive cognitions either by providing them or having group members think of them.

2. Provided and introduced Challenging Beliefs worksheet (18 per client) with examples (MUST MENTION RATE OF BELIEF AND RATE OF EMOTION)

3. Introduced and provided reading on the first of five problem areas: Safety issues related to self and others. Discussed the 5 themes, how it affected them, discussed more moderate self-statements, and introduced one safety-related stuck point.

4. Assigned clients to complete one Challenging Beliefs worksheet each day. If client has a stuck point related to safety told them one worksheet should address this belief, if not told them to challenge other beliefs they have when distressed. Assigned them to read Safety module on their own one time prior to next session. If any clients still struggling with emotions related to trauma account have them continue reading it out loud each day.

5. Reviewed groups’ thoughts on seventh session.
CPT Fidelity Checklist Session 8

The items listed on this checklist are considered necessary elements for CPT practice. It is expected that all sessions will meet the Fidelity Checklist criteria. If any of the criteria are not met, please explain why in the box at the bottom of this page. Please include a Fidelity Checklist for each session.

For the CPT elements below, please initial on the line next to each one that the clinician delivered each element to the group as evidence of that the necessary components of CPT were provided.

1. Review Challenging Beliefs worksheet specifically addressing SAFETY. Helped clients modify beliefs they got stuck on. Had 3-4 clients provide examples.

2. Reviewed Safety module (i.e. addressed probability low vs. high and percentages).

3. Provided and introduced Trust Module (i.e. discussed self-trust, issues related to self-trust and trauma, trust in others, and differences between the two).

4. Assigned clients to complete one Challenging Beliefs worksheet each day. If client has a stuck point related to TRUST told them one worksheet should address this belief if not more, if not told them to challenge other beliefs they have when distressed. Assigned them to read Trust module on their own one time prior to next session. If any clients still struggling with emotions related to trauma account have them continue reading it out loud each day.

5. Reviewed groups’ thoughts on eighth session.
CPT Fidelity Checklist Session 9

The items listed on this checklist are considered necessary elements for CPT practice. It is expected that all sessions will meet the Fidelity Checklist criteria. If any of the criteria are not met, please explain why in the box at the bottom of this page. Please include a Fidelity Checklist for each session.

For the CPT elements below, please initial on the line next to each one that the clinician delivered each element to the group as evidence of that the necessary components of CPT were provided.

1. Review Challenging Beliefs worksheet specifically addressing TRUST. Helped clients modify beliefs they got stuck on. Had 3-4 clients provide examples.  
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2. Discussed judgments related to trust (i.e. continuum of trust, different kinds of trust, “star diagram”, and social support systems.  
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3. Provided and introduced Power Module (i.e. self-power, natural beliefs about it, trauma and control, total control/no control, power over others).  
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4. Assigned clients to complete one Challenging Beliefs worksheet each day. If client has a stuck point related to POWER/CONTROL told them one worksheet should address this belief if not more, if not told them to challenge other beliefs they have when distressed. Assigned them to read Power module on their own one time prior to next session. If any clients still struggling with emotions related to trauma account have them continue reading it out loud each day.  
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5. Reviewed groups’ thoughts on ninth session.  
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CPT Fidelity Checklist Session 10

The items listed on this checklist are considered necessary elements for CPT practice. It is expected that all sessions will meet the Fidelity Checklist criteria. If any of the criteria are not met, please explain why in the box at the bottom of this page. Please include a Fidelity Checklist for each session.

For the CPT elements below, please initial on the line next to each one that the clinician delivered each element to the group as evidence of that the necessary components of CPT were provided.

1. Review Challenging Beliefs worksheet specifically addressing POWER/CONTROL. Helped clients modify beliefs they got stuck on. Had 3-4 clients provide examples.
   
2. Discussed connections between power/control and self-blame. Discussed need for balance.
   
3. Introduced issues related to anger (i.e. over-arousal, “stuffed anger”, anger vs. aggression, “should of dones”, innocence/responsibility/intentionality.
   
4. Reviewed and provided handout on Ways to give and take power.
   
5. Provided and introduced Esteem Module (i.e. self and others, explored 1-2 clients self-esteem prior to the event/after)
   
6. Assigned clients to complete one Challenging Beliefs worksheet each day. If client has a stuck point related to ESTEEM told them one worksheet should address this belief if not more, if not told them to challenge other beliefs they have when distressed. Assigned them to read ESTEEM module on their own one time prior to next session. If any clients still struggling with emotions related to trauma account have them continue reading it out loud each day. IN ADDITION, ASSIGNED: practice giving/receiving compliments daily AND do one nice thing for self each day.
   
5. Reviewed groups’ thoughts on tenth session.
CPT Fidelity Checklist Session 11

The items listed on this checklist are considered necessary elements for CPT practice. It is expected that all sessions will meet the Fidelity Checklist criteria. If any of the criteria are not met, please explain why in the box at the bottom of this page. Please include a Fidelity Checklist for each session.

For the CPT elements below, please initial on the line next to each one that the clinician delivered each element to the group as evidence of that the necessary components of CPT were provided.

1. Review how clients (3-4) felt after receiving/giving compliments and engaging in pleasant activity. REINFORCED THIS AND ASKED QUESTIONS.

2. Discussed and reviewed esteem beliefs and challenged them with the beliefs worksheet (3-4 clients).

3. Provided and introduced Intimacy Module (i.e. how relationships are affected by trauma, self-intimacy, had clients discuss how both were affected before and after event, any problems i.e. food, alcohol, etc).

4. Assigned clients to complete one Challenging Beliefs worksheet each day. If client has a stuck point related to INTIMACY told them one worksheet should address this belief if not more, if not told them to challenge other beliefs they have when distressed. Assigned them to read INTIMACY module on their own one time prior to next session. If any clients still struggling with emotions related to trauma account have them continue reading it out loud each day.

   IN ADDITION, ASSIGNED and DISCUSSED: WRITE NEW IMPACT STATEMENT, continue to practice giving/receiving compliments daily AND do one nice thing for self each day.

5. Reviewed groups thoughts on eleventh session.
CPT Fidelity Checklist Session 12

The items listed on this checklist are considered necessary elements for CPT practice. It is expected that all sessions will meet the Fidelity Checklist criteria. If any of the criteria are not met, please explain why in the box at the bottom of this page. Please include a Fidelity Checklist for each session.

For the CPT elements below, please initial on the line next to each one that the clinician delivered each element to the group as evidence of that the necessary components of CPT were provided.

1. Discussed and reviewed intimacy beliefs and challenged them with the beliefs worksheet (3-4 clients). Focused on developing and maintaining relationships, being watching of deficits (i.e. food/alcohol), and interpersonal intimacy and sexual intimacy.
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2. Had each client read their FINAL impact statement and discussed its meaning. Therapist read the first impact statement and discussed differences. Reinforced progress of client and any remaining distortions discussed.
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3. Reviewed treatment concepts and skills, had group discuss progress, experience, and had them take credit for their accomplishments. Emphasized success depends on continuing to practice the skills learned.
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5. Reminded clients they are taking over as the therapist. Identified future goals clients have for themselves and strategies to achieve these goals.
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