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EVALUATION OF COGNITIVE PROCESSING THERAPY'S FIVE COGNITIVE
DISTORTION THEMES

A Thesis
presented in partial fulfillment of requirements
for the degree of Master of Arts
in the Department of Psychology
The University of Mississippi

by

JARED P. GRIGG

AUGUST 2015

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ABSTRACT

This study aimed to determine the relationship of PTSD symptoms to distortion of the five cognitive themes in Cognitive Processing Therapy (CPT; safety, power and control, intimacy, trust, and esteem), as well as whether patterns of cognitive distortions varied by trauma type. Participants ($N = 196$) were university students at a medium-sized, public, southern university enrolled in introductory psychology courses. They had indicated at least one traumatic experience on the Life Events Checklist (LEC). Two groups were established by using Posttraumatic Checklist-Civilian (PCL-C) scores: a PTSD group ($PCL-C \geq 44$) and a non-PTSD group ($PCL-C < 44$). Subjects completed the Trauma Attachment Beliefs Scale (TABS), Life Events Checklist, and Posttraumatic Checklist-Civilian Version on computers in experimenter-supervised small groups to reduce response biases inherent in this population. Results indicated that the PTSD group had higher TABS scores for the full score and all subscales than the non-PTSD group. Furthermore, PCL-C scores were significantly correlated with the total TABS, as well as with all five subscale scores. A series of stepwise regressions indicated that sexual trauma accounted for significant variance of TABS scores on four of the five TABS subscales. Other traumas accounting for significant subscale variance were physical assault and unwanted sexual contact. Overall, this study 1) strongly affirms the validity of the cognitive theme component of CPT (within the limitations of this selective sample), 2) suggests that only interpersonal violence traumas are related to cognitive distortions on the five cognitive themes of CPT, and 3) suggests that continued investigation of the five themes of CPT is warranted to

better understand both PTSD and CPT at a conceptual and applied level in order to ultimately enhance treatment effectiveness and, possibly, PTSD prevention.

DEDICATION

To my mother and father, Melinda McCutchan and David Grigg. Thank you both for a lifetime of support, an unconditional supply of belief, and never-ending encouragement.

Without each of you in my life, my goals would remain dreams and I would never have learned the value of leaving the world better than I found it. I pray this thesis is a step in that direction.

To my brother, Dustan Grigg. Your life serves as a regular example and reminder that happiness is found through living life fully and without limits. Without that fervor for being you exhibit, I would regularly forget that all I pursue should be explicitly fun and personally meaningful.

To my friends, I thank you for your support, camaraderie, and direction. As arduous as the process can become, it is a relief to know that I have people in my life with whom I can celebrate, challenge, commiserate, and complain. Your daily presence in my life provided the motivation, belief, and reminders that I am capable of great things.

LIST OF ABBREVIATIONS AND SYMBOLS

APA	American Psychological Association
BDI-II	Beck Depression Inventory- II
CAPS	Clinician-Administered PTSD Scale
CPT	Cognitive Processing Therapy
DSM	Diagnostic and Statistical Manual
DSM-III	Diagnostic and Statistical Manual, Third Edition
DSM-IV-TR	Diagnostic and Statistical Manual, Fourth Edition, Text Revision
IPV	Interpersonal Violence
IRB	Internal Review Board
ITT	Intent-to-Treat
LEC	Life Events Checklist
MA	Minimal Attention
MANOVA	Multiple Analysis of Variance
MVA	Motor Vehicle Accident
PBRS	Personal Beliefs and Reactions Scale
PCL	PTSD Checklist
PCL-C	PTSD Checklist – Civilian Version
PDS	Posttraumatic Diagnostic Scale
PE	Prolonged Exposure

PSS	PTSD Symptom Scale
PTE	Potentially Traumatic Event
PTSD	Post-Traumatic Stress Disorder
RCT	Randomized Clinical Trial
SC	Self Control
SE	Self Esteem
SI	Self Intimacy
SPSS	Statistical Package for the Social Sciences
SS	Self Safety
ST	Self Trust
TABS	Trauma Attachment Beliefs Scale
TAU	Treatment as Usual
TBI	Traumatic Brain Injury
TLEQ	Traumatic Life Events Questionnaire
VA	Veterans' Administration

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TABLE OF CONTENTS

ABSTRACT	ii
DEDICATION.....	iv
LIST OF ABBREVIATIONS AND SYMBOLS.....	v
ACKNOWLEDGMENTS.....	vii
INTRODUCTION.....	1
METHODS.....	16
RESULTS.....	24
DISCUSSION.....	27
REFERENCES.....	37
APPENDIX.....	55
VITA.....	77

I. INTRODUCTION

Posttraumatic Stress Disorder (PTSD) is an anxiety disorder characterized by maladaptive responses to a traumatic event. Introduced in the Diagnostic and Statistical Manual, Third Edition (DSM-III; American Psychiatric Association, 1980), the diagnosis is described in the DSM-IV-TR as being composed of seventeen symptoms grouped into three clusters: persistent re-experiencing, persistent avoidance and emotional numbing, and increased arousal (American Psychiatric Association, 2000). Approximately 69% of adults in the United States will experience some sort of traumatic event in their lifetime (Norris, 1992), with roughly 6.8% developing PTSD symptoms (Kessler et al., 2005). These prevalence rates vary, however, depending on the type of trauma experienced, with military combat exposure and sexual assault having the highest rates of symptom development (Kessler, Sonnega, Bromet, & Hughes, 1995).

With the codification of PTSD symptoms, researchers and clinicians began to develop disorder-specific treatments looking to ameliorate the severe anxiety experienced by clients, with varying rates of success. One of the earliest effective treatments for PTSD, prolonged exposure therapy (PE) is currently regarded as a gold standard treatment (Foa & Kozak, 1986; Foa, Rothbaum, Riggs, & Murdock, 1991; Keane, Fairbank, Caddell, & Zimering, 1989). Other treatments identified as empirically supported by Division 12 of the American Psychological Association (APA) include Present-Centered Therapy (Classen, Butler, & Spiegel, 2001), Seeking Safety (Najavits, 2009), and Stress Inoculation Therapy (Veronen & Kilpatrick, 1983).

Eye movement desensitization and reprocessing (Shapiro, 2001) also has empirical support, but is categorized as a controversial therapy for PTSD.

Cognitive Processing Therapy

Another therapy labeled as having "strong empirical support" by Division 12 of the APA is Cognitive Processing Therapy (CPT). CPT is a cognitive-behavioral treatment that is based on the information processing model of PTSD developed by Foa, Steketee, and Rothbaum (1989), which itself was derived from Lang's (1977) cognitive model of fear development and maintenance. In these theories, fear is maintained through avoidance behavior that is activated by a network of stimuli, their associated avoidant responses, and the meanings assigned to both. CPT uses this framework to address maladaptive thought processes and their behavioral responses through cognitive restructuring and written exposure to the trauma. As a result, CPT expands on the exposure framework of habituation to symptoms, via written statements, by focusing on increasing the accommodation of traumatic events into cognitive schemas rather than maladaptive strategies of assimilation or over-accommodation. Consequently, CPT is unique in that it attempts to change cognitive appraisals of threat with relatively little focus on desensitizing the client to threatening cues.

Cognitive processing therapy is an individual, manualized therapy originally developed for the treatment of PTSD in sexual assault victims (Resick & Schnicke, 1992; Resick & Schnicke, 1993), and more recently manualized for veterans (Resick, Monson, & Chard, 2008), that consists of 12 one-hour long sessions. The first session introduces the conceptual basis of the therapy, provides psychoeducation on trauma and PTSD, and reviews the traumatic experience briefly and factually. The session closes with a homework assignment to write an Impact Statement, a narrative that describes not the specific details of the trauma, but rather how

the traumatic experience has impacted the client's life and worldview. The second session reviews the Impact Statement by having the client read it aloud. The focus of this session is learning to identify how thoughts, events, and feelings are interconnected and lead to "stuck points" (inaccurate cognitive interpretations and behavioral patterns resulting from a traumatic experience) in the recovery process. Homework for this session is continued practice analyzing how events affect thoughts and feelings. Following this session is an optional one allowing time for bereavement, as needed by the client. The third session continues the analysis of the relationship between thoughts, emotions, and events while introducing the trauma account. Following an explanation of how to write one, the client is asked to write an emotionally and sensory-dense narrative of their worst trauma prior to the fourth session. At this next session, the trauma account is read and cognitive "stuck points" are identified and challenged during session using Socratic dialogue. Homework from this session involves rewriting the trauma account and reading it daily. Sessions five through seven continue this process of identifying maladaptive beliefs about the world and challenging them, both in and between sessions. Sessions eight through twelve individually assess and address the five themes of safety, power and control, intimacy, trust, and esteem, looking to restore these constructs to adaptive levels if the client struggles with them.

CPT Efficacy

This introduction section will detail the extensive empirical support for CPT efficacy, describe the five themes more fully, and make the case that the themes deserve further empirical study, which is the focus of the proposed research. Since CPT's introduction, a multitude of scientific studies have looked at its efficacy and effectiveness in addressing PTSD symptoms. In the original study, Resick and Schnicke (1992) used CPT to treat nineteen women who had been

raped. Following CPT treatment delivered in a group format, participants experienced a significant reduction in symptoms from pretreatment to post-treatment. Change in PTSD symptoms from post-treatment to three and six month follow-up was insignificant. In regards to PTSD diagnostic status, no participants met criteria at post-treatment, while two women (12%) met criteria at the three month follow-up. No women met diagnostic criteria at six month follow-up. Further research on rape-related trauma and CPT has demonstrated significant reductions in both symptom scores on the Clinician-Administered PTSD Scale (CAPS; Blake et al., 1995) and diagnostic status, suggesting clinical and statistical validity (Sobel, Resick, & Rabalais, 2009). The original study found that participants' impact statements contained fewer assimilated and overaccommodated statements while expressing more accommodated beliefs following a course of CPT.

Looking to further validate the clinical usefulness of CPT, Resick, Nishith, Weaver, Astin, and Feuer (2002) conducted a randomized clinical trial (RCT) comparing CPT to PE and minimal attention (MA) groups in a sample of 171 female rape survivors. Results, overall, indicated CPT was as effective as the "gold standard" PE therapy. The intent-to-treat (ITT) analysis showed significant decreases in CAPS scores for both CPT and PE when compared to MA at post-treatment, as well as the three and nine-month follow-up. Furthermore, CPT had a slightly greater impact on symptom count at two of the three follow-up measurements when compared to PE. Among the participants who completed treatment, the significant symptom decrease for CPT and PE relative to MA held at post-treatment, but was insignificant at the follow-up measurements. Finally, treatment completers in both experimental conditions, at post-treatment, had significant decreases in diagnostic status for PE (82.5%) and CPT (80.5%) and

84.6% and 82.8%, respectively, at the nine month assessment, representing an insignificant difference between the two successful treatment outcomes.

Further evidence supporting the use of CPT among the sexual assault population comes from a study by Nishith, Resick, and Griffin (2002) looking at the symptom change pattern for 171 female rape victims who received CPT. This study, using the PTSD Symptom Scale (PSS; Foa, Riggs, Dancu, & Rothbaum, 1993), demonstrated an initial increase in reexperiencing symptoms followed by a sharp, significant decrease. Avoidance symptoms evidenced a significant linear decline across therapy, while arousal symptoms exhibited a statistically significant quadratic decline. Overall, PSS scores significantly decreased in a quadratic fashion, with the sharp decline following the first exposure session.

In addition to being a scientifically validated therapy for rape victims, the effectiveness of CPT has also been investigated in other trauma populations, particularly veterans (Resick et al., 2008). In a study comparing CPT to a waitlist control using a sample of Veteran's Administration patients, Monson et al. (2006) found CPT significantly decreased CAPS total scores, reexperiencing scale scores, and emotional numbing scale scores, as well as the total PTSD Checklist (PCL; Weathers, Litz, Herman, Huska, & Keane, 1993) score when compared to the waitlist. Furthermore, among treatment completers, the effect size for change in total CAPS score for the CPT condition compared to the waitlist was large (Hedge's $g = 1.14$). Finally, looking at diagnostic status, at post-treatment, 40% of CPT participants did not meet criteria, while 50% had a reliable symptom change of twelve points or more on the CAPS. These changes held at a thirty day follow-up: 30% no longer met diagnostic criteria and 47% had a CAPS score decrease greater than twelve points. Similarly, Jeffreys et al. (2014) also found

support for CPT being effective in symptom reduction with veterans. This study, however, found that PE saw greater therapeutic change in addition to an effect for CPT format. Individual delivery provided greater symptom reduction than group therapy or individual and combined therapy. All methods of delivery, however, were statistically significant for PCL total score reduction.

Following the finding that CPT was effective in a veteran population (i.e. PCL changes exceeded waitlist control scores), Macdonald, Monson, Doron-Lamarca, Resick, and Palfai (2011) examined patterns of symptom change. There were significantly sharper declines in the earlier sessions with a lower rate of improvement in subsequent sessions for the CPT group. Symptom change was also investigated using general growth mixture modeling to look at patterns of symptom change for CPT. Schumm, Walter, and Chard (2013) found, in a sample of 207 veterans, that a three class model best predicted which variables (age, sex, race, marital status, combat as worst trauma, PTSD and depression symptoms) were associated with different levels of therapeutic change over the course of CPT. All three classes did exhibit significant therapeutic change on the CAPS, PCL, and BDI-II across the twelve sessions.

In conjunction with PTSD symptom change patterns, Gilman, Schumm, and Chard (2011) found levels of hope were negatively associated with symptom change as well, with higher pre-treatment hope associated with lower post-treatment CAPS scores. Another study comparing the effect of CPT and PE on hope and PTSD symptom improvement (Gallagher & Resick, 2012) supported the idea that significant reductions in participant hopelessness ratings and PTSD symptom improvement are positively related. While both therapies had significant reductions in PTSD symptoms, CPT exhibited significantly larger decreases in hopelessness scores compared to PE.

In a recent RCT on Australian veterans (Forbes et al., 2012), CPT produced significantly greater decreases in CAPS and PCL scores compared to treatment as usual (TAU). In the experimental group, 66.7% of participants had a clinically significant decrease in CAPS score (twelve or more points) than in the TAU control (34.5%). Additionally, the study found that participants who received CPT were significantly more likely to have a final CAPS score below twenty points (26.9%) than the control group (3.4%). Similar symptom improvements have been found in other studies looking at CPT with veteran populations (i.e. Chard, Schumm, Owens, & Cottingham, 2010; Gilman et al., 2011; Karlin et al., 2010; Surís, Link-Malcolm, Chard, Ahn, & North, 2013; Zappert & Westrup, 2008).

Interpersonal violence is another population of study for CPT efficacy. For example, Resick et al. (2008) found a significant decrease in Posttraumatic Diagnostic Scale (PDS; Foa, 1996; Foa, Cashman, Jaycox, & Perry, 1997) and CAPS scores from pre to post-treatment. This study dismantled the components of CPT into conditions of full therapy, writing only, and cognitive strategies only. All groups showed statistically significant improvement on the CAPS, with the cognitive group showing the most change (40.8 points) followed by the full therapy (36.1 points) and then writing group (31.9 points). Symptom improvement exceeded the accepted clinically significant change of twelve points. Additional research on this traumatized population has yielded similar results (i.e. Galovski, Blain, Mott, Elwood, & Houle, 2012; Iverson et al., 2011).

Researchers have also found significant PTSD symptom reduction in other populations receiving CPT, such as incarcerated adolescents (Ahrens & Rexford, 2002), motor vehicle accident survivors (Galovski & Resick, 2008), sexuality-based hate crimes (Kaysen, Lostutter, & Goines, 2005), military sexual assault victims, (Mullen, Holliday, Morris, Raja, & Surís, 2014;

Surís, Link-Malcolm, Chard, Ahn, & North, 2013), adolescent sexual assault victims (Matulis, Resick, Rosner, & Steil, 2014), a prelingually deaf participant with PTSD (König, 2013), and female adult childhood sexual abuse survivors (Chard, 2005; Chard, Weaver, & Resick, 1997; House, 2006; Resick, Nishith, & Griffin, 2003).

Studying the long-term efficacy of CPT in ameliorating PTSD symptoms, Resick, Williams, Suvak, Monson, and Gradus (2012) conducted follow-up CAPS and PSS with 126 rape victims five to ten years after CPT or PE treatment in a prior RCT (Resick et al., 2002). Women who had received CPT did not show an increase in symptoms since treatment termination, while the PE-treated women showed a further decrease in symptoms that approached significance. The difference in symptom change over time between the two groups was significant. From pretreatment to the long-term follow-up, 93.4% of CPT participants had a 10 point CAPS decrease and 88.5% had a 20 point decrease. Another long-term follow-up study (Wachen, Jimenez, Smith, & Resick, 2014) looking at follow-up data 5-10 years after CPT and PE treatment for 154 rape victims found that both treatment conditions maintained post-treatment improvement in CAPS scores.

Cognitive Processing Therapy has also been implemented successfully with in-patient veteran samples. In a sample of female veterans with PTSD, Zappert and Westrup (2008) used a modified form of CPT combining group and individual sessions and found that 83% of participants experienced clinically significant decreases on PCL scores. Alvarez et al. (2011) found similar results in a male veteran in-patient facility, with CPT producing significantly lower symptom levels than TAU at discharge. Furthermore, the authors report that 16% of participants were labeled "recovered," while 41% were designated "improved." These rates of clinical improvement were also significantly better than the TAU control group. Walter, Varkovitzky,

Owens, Lewis, and Chard (2014) compared CPT delivered to veterans in outpatient and residential treatments. While inpatient participants had more severe PTSD symptoms across the study, both groups had significant symptom reduction over time. Chard, Schumm, McIlvain, Bailey, and Parkinson (2011), as well as McIlvain, Walker, and Chard (2013), have found further support for using CPT with male veterans in studies of in-patient PTSD participants with TBI.

Beyond research scrutinizing the ability of CPT to reduce PTSD symptoms across trauma types and modalities, studies are also looking at the effect of CPT on common comorbid disorders and problems. For instance, many of the studies previously discussed also found significant decreases in depression symptoms (i.e. Forbes et al., 2012; House, 2006; Iverson et al., 2011; Kaysen et al., 2005; Mullen, Holliday, Morris, Raja, & Surís, 2014). One study (Liverant, Suvak, Pineles, & Resick, 2012) used multilevel regression analyses to further demonstrate that changes in PTSD and depression symptoms occur together. CPT has also shown to be more effective than PE and waitlist at achieving reductions of trauma-related guilt in a sample of ninety-eight female rape survivors (Nishith, Nixon, & Resick, 2005). Finally, research by McCarthy and Petrakis (2011) suggests that CPT can successfully address PTSD with comorbid alcohol dependence. Kaysen et al. (2014) found that alcohol use disorders did not affect attendance rates or therapeutic change for PTSD and depression in a VA outpatient clinic offering CPT.

Investigations have also examined the applicability of CPT to acute stress disorder to prevent the development of subsequent PTSD in a sample of assault victims. Both CPT and supportive counseling significantly reduced symptoms with no difference between the treatments. CPT, however, did have a larger effect on diagnostic status, with a greater proportion of participants not meeting criteria for PTSD at post-treatment and six month follow-

up (Nixon, 2012). Dickstein, Walter, Schumm, and Chard (2013) also applied CPT to veterans with subthreshold PTSD and full PTSD. In this comparison, both groups saw significant symptom reductions of sixteen and twenty-three points, respectively, over the course of the thirteen manualized sessions. In summary, the current research base suggests that CPT is effective at addressing maladaptive traumatic responses prior to the full development of PTSD.

Looking at physical health effects, Galovski, Monson, Bruce, and Resick (2009) found that CPT had a better outcome than PE in decreasing physical complaints on the Pennebaker Inventory of Limbic Languidness (Pennebaker, 1982) and increasing sleep quality in a sample of female sexual assault survivors. In a similar focus on physical health aspects of PTSD, Mitchell, Wells, Mendes, and Resick (2012) suggest that CPT effectively addresses symptoms of comorbid eating disorders and PTSD in a sample of rape survivors. The authors do, however, recommend that eating disorder diagnoses receive subsequent focused therapeutic attention. Disturbances in sleep, including insomnia, sleep quality, total sleep time, sleep efficiency, and nightmares, have also been demonstrated to respond to CPT both immediately following treatment and at approximately six years long-term follow-up (Gutner, Casement, Gilbert, & Resick, 2013). Furthermore, a modified course of CPT (Otis, Keane, Kerns, Monson, & Scioli, 2009) has been successfully adapted and applied to veterans suffering from combined PTSD and chronic pain.

Factors Affecting CPT Efficacy

With numerous studies supporting the high rate of efficacy in treating PTSD with CPT, research has begun to focus on other important aspects of the therapy. For instance, Rizvi, Vogt, and Resick (2009) attempted to identify predictors of treatment dropout and efficacy. Looking at 171 rape victims divided between CPT and PE, significant predictors of dropout in the CPT

condition include younger age, fewer years of education, and lower intelligence. Treatment efficacy was affected by a significant interaction of age and treatment type, with young women receiving CPT having the best outcomes followed by older women receiving PE. The worst outcomes were for the young women receiving PE. When looking at what factors were associated with veterans accepting evidence based psychotherapy (PE or CPT), Mott et al. (2014) found that recent military service (Iraq or Afghanistan) and in-service referral were associated with higher rates of service engagement. Previous inpatient hospitalization for psychiatric problems and service in Iraq or Afghanistan were associated with lower odds of treatment completion.

Other factors have also been investigated to determine the effect they have on the efficacy of CPT. Improvement has been shown to be moderated by dissociation (Resick, Suvak, Johnides, Mitchell, & Iverson, 2012), with lower pre-treatment levels of dissociation being associated with better treatment gains. Additionally, CPT gains were predicted by pretreatment anger levels in a sample of thirty Australian veterans (Lloyd et al., 2014). Walter, Bolte, Owens, and Chard (2012) found that treatment gains in CPT are unaffected by the presence of personality disorders in a group of 106 veterans. PTSD symptom improvement achieved in CPT has further been linked with secondary increases in social, economic, occupational, and family functioning (Monson et al., 2012; Wachen, Jimenez, Smith, & Resick, 2014).

Lester, Resick, Young-Xu, and Artz (2010) looked at the effect of race on treatment dropout, outcome, and completion with female Caucasian and African American victims of interpersonal violence (IPV). The researchers failed to find an effect on treatment outcome based on race. African American women, however, were less likely to complete treatment and attended fewer sessions when compared to the Caucasian women. Further research on treatment

engagement and outcome for victims of interpersonal violence (Iverson, Resick, Suvak, Walling, & Taft, 2011) suggests that exposure to IPV significantly affects treatment engagement. Women with no history of IPV were 4.5 to 5 times more likely to engage in CPT than those with a history of IPV. Recency of the violence did not affect treatment completion, but non-African American women were 3.27 times more likely to begin treatment than African American women. Finally, Davis, Walker, Chard, Parkinson, and Houston (2013) found a history of TBI in veterans with PTSD did not appear to have an effect on treatment completion, with dropout rates for the PTSD group reported at 38% and 38.6% for participants with TBI and PTSD.

Evidence supporting the effectiveness of CPT in multicultural traumatized groups has also begun to emerge. For instance, Schulz, Huber, and Resick (2006) successfully treated a twenty-four year old female Bosnian refugee with PTSD. Further work with Bosnian refugees in a group format has also produced significant changes in PTSD symptoms after appropriate cultural adaptations, with an Hedge's *g* effect size of 2.6 (Schulz, Resick, Huber, & Griffin, 2006). The therapy has also been successfully translated and culturally adapted for use with Kurdish torture victims in Iraq (Kaysen et al., 2011; Kaysen et al., 2013). Delivered by trained local nurses and physicians assistants, CPT treatment showed a 24% dropout rate compared to 30% of waitlist control, a difference interpreted by the authors as indicative of acceptance by the Kurdish population.

The strength of CPT in reducing PTSD symptoms is also validated by the different modalities in which the therapy has been demonstrated to be effective. Comparing CPT delivered by teletherapy to CPT delivered in person, Morland, Hynes, Mackintosh, Resick, and Chard (2011) found insignificant differences in treatment dropout, median sessions attended, or median number of homework assignments completed. Furthermore, the teletherapy was well

received on a researcher-developed acceptance scale, as well as the Group Therapy Alliance Scale (Pinsof & Catherall, 1986). Most importantly, however, is the finding that CAPS scores for the teletherapy group were significantly lower at post-treatment and six month follow-up when compared to pretreatment scores. A similar RCT (Morland et al., 2014) found that the cognitive components of CPT delivered by videoteleconferencing achieved significant reductions in PTSD symptoms following treatment, as well as at the three and six month follow-up. Therapeutic alliance, treatment compliance, and satisfaction were also highly rated compared to in-person treatment. Furthermore, a case study by Plouffe (2007) found that a paraprofessional in an Air Force mental health clinic could conduct CPT sessions and achieve successful symptom reduction, indicating that CPT is flexible enough to be delivered by trained, non-PhD level practitioners. The United States Veterans Administration has begun training and endorsing gold standard PTSD treatments in its clinics. Both CPT and PE have been widely accepted and implemented across the VA system, with 96% of clinics offering one or the other and 72% providing both (Karlin et al., 2010).

The Five Themes of CPT

To date, research thoroughly supports the applicability of CPT to a wide range of trauma types and comorbid disorders. Furthermore, investigators have focused on the active components of change in CPT and effective methods of treatment delivery. One aspect of the therapy that has been routinely overlooked, however, is CPT's final five sessions that cover the themes of safety, power and control, intimacy, trust, and esteem. While CPT has been reliably demonstrated to decrease self-reported and clinician rated PTSD symptoms, the effects of including this theme component have been largely uninvestigated with the exception of a few studies.

The hypothesis that these five themes are expressed as a cluster associated with trauma exposure was proposed by McCann, Sakheim, and Abrahamson (1988) in a model of psychological adaptation to traumatic experiences. The theoretical associations between these themes and traumas were then adopted in the original formulation of CPT (Resick & Schnicke, 1992). Since the original inclusion of these areas as treatment targets, only three studies have directly looked at whether the theme-focused treatment sessions of CPT affect positive therapeutic change, and one of the three provided only a single case-study as evidence of change.

Measuring each theme using the Personal Beliefs and Reactions Scale (PBRS; Mechanic & Resick, 1993; Resick, Schnicke, & Markway, 1991), Owens, Pike, and Chard (2001) found that, following a course of CPT, data from fifty-three female survivors of childhood sexual abuse showed a strong positive correlation between PTSD symptoms and cognitions related to the five themes. Following therapy, there was a significant positive change from the pre-treatment scores in each of these domains. Owens and Chard (2001) also found that, in a sample of childhood sexual abuse victims, functioning related to the five themes improved as total CAPS severity scores decreased. Finally, a single case-study (Kaysen et al., 2005) found that CPT was associated with positive and healthy changes in beliefs about power and control, as well as intimacy for a gay man who suffered from PTSD following a sexuality-based hate crime.

In summary, the considerable empirical evidence of CPT efficacy and widespread applicability stands in stark contrast to the dearth of information on whether and to what degree the last five CPT treatment sessions (i.e., the ‘themes’) apply to non-sexual assault PTSD traumatic experiences. With over one-third of the CPT treatment manual devoted to the five themes, which were developed from clinical experience with sexual assault victims, it is imperative to know how well the themes generalize to other traumatic experiences—for two

reasons. In terms of practicality, if the themes vary by trauma, with some themes likely relevant for certain traumas and no themes relevant for particular others, treatment delivery efficiency could increase accordingly. A second reason is that finding such variability (or not finding it) could contribute to understanding the psychopathology of PTSD. Furthermore, discovering universality of the themes could possibly expand the focus of PE treatment for combat veterans to include these themes, and potentially boost PE efficacy with that population.

In this study, three research questions were investigated. First, do participants with trauma exposure but no PTSD manifest the same deficits in the themes as those with PTSD? Second, do the deficits in the five themes vary by PTSD symptom severity? Finally, how do the five themes align with different trauma types?

In this study, it was expected that participants with PTSD symptoms would report significantly greater cognitive distortion related to the five themes of CPT than those who have had prior traumatic experiences but not PTSD. Furthermore, deficits in the areas of the five themes were predicted to be related to the severity of PTSD symptomatology. Finally, it was predicted that the five themes would be endorsed differentially by trauma type, challenging the universality of the themes in McCann et al's (1988) proposition and as defined by Resick and Schnicke (1992) in developing CPT. That is, each trauma type would have a unique profile of maladaptive scores on the five themes, thus suggesting heterogeneity of trauma type, theme presentation, and therapy focus.

II. METHODS

Participants

Participants in the present study were 214 undergraduate students at a medium-sized, public university in the southern United States. Six of the participants were not included in the final analyses due to incomplete data responses, while twelve additional participants were dropped for not endorsing a traumatic event on the Life Events Checklist (LEC; Blake, Weathers, Nagy, Charney, & Keane, 1995), resulting in 196 participants in the final experimental sample ($M_{age} = 18.87$, $SD_{age} = 2.44$), with 143 females (73%). The sample was predominantly Caucasian (65.8%, $N = 129$), with other participants identifying as African-American (21.9%), Hispanic (2.6%), Asian (5.1%), Multiracial (3.1%), and Other (1.5%). The majority of participants were classified as freshman (76.5%, $N = 150$), with a sampling from other academic years as well (Sophomore, 13.8%; Junior, 4.6%; Senior, 5.1%).

Participants were recruited from a pool of students enrolled in introductory psychology courses who had completed department-wide screening surveys. Participation in the study was not limited by factors such as medication, current therapy, comorbid disorders, or current substance use. Students received one hour of course credit for participating in this IRB-approved study.

Measures

PTSD Checklist- Civilian Version (PCL-C; Weathers et al, 1993). The PCL-C is a widely used, 17-item self-report checklist of the DSM-IV-TR (American Psychiatric Association, 2000) symptoms of PTSD (See Appendix 6). Participants indicate the presence of a symptom and the extent to which it has bothered them in the past month using a 5-point Likert-type scale ranging from 1 ("Not at all") to 5 ("Extremely"). Sample questions include "Feeling very upset when something reminded you of a stressful experience from the past?", "Suddenly acting or feeling as if a stressful experience were happening again (as if you were reliving it)?", and "Feeling jumpy or easily startled?".

The PCL-C is scored in one of two ways. The first approach is to sum all the client's scores for a total severity score (with scores ranging from 17 to 85), higher scores being indicative of more severe symptomatology. Using this method, a total score of forty-four or greater is accepted in civilian populations for screening purposes in research as indicative of PTSD with acceptable specificity and sensitivity (e.g. Blanchard, Jones-Alexander, Buckley, and Forneris, 1996; McDevitt-Murphy, Weathers, & Adkins, 2005). The other method applies DSM-IV-TR criteria to a symptom count of all items scored three or above (i.e. moderately or higher distress). PTSD is diagnosed when there is one reexperiencing symptom (questions 1-5), three avoidance symptoms (questions 6-12), and two hyperarousal symptoms (questions 13-17). These two methods can also be combined to render a provisional decision on PTSD diagnosis and to measure severity.

The PCL-C has high internal consistency in the standardization sample, with each subscale having Cronbach's alpha coefficients of 0.92 or above and an alpha coefficient of 0.97 for the total score. Test-retest reliability is also excellent with a correlation of 0.96 over a 2-3

days period in the original sample of Vietnam Veterans (Weathers et al, 1993). Additionally, Ruggiero, Del Ben, Scott, and Rabalais (2003) found the PCL-C had excellent test-retest correlation coefficients of 0.92 for immediate retesting, 0.88 for a one week interval, and 0.68 for a 2 week interval. Cronbach's alpha was 0.94 for the total score. The subscales also had "very good" coefficients of 0.85 (re-experiencing), 0.85 (avoidance), and 0.87 (hyperarousal), as defined by DeVellis (2003). Finally, the study found strong correlation with the Mississippi Scale for PTSD- Civilian version (0.82; Keane, Caddell, & Taylor, 1988; Vreven, Gudanowski, King, & King, 1995). The measure has also been well validated against the Clinician-Administered PTSD Scale (e.g. Bollinger, Cuevas, Vielhauer, Morgan, & Keane, 2008; Grubaugh et al., 2007; Yeager, Magruder, Knapp, Nicholas, & Prueh, 2007) and the Structured Clinical Interview for DSM Disorders (e.g. Andrykowski et al, 1998; Weathers et al, 1993; Widows, Jacobsen, & Fields, 2000). For instance, in a sample of female rape victims and MVA survivors, Blanchard et al. (1996) found a correlation of 0.92 between the CAPS and the PCL-C.

Life Events Checklist (LEC; Blake, Weathers, Nagy, Charney, & Keane, 1995). The LEC is a self-report survey that measures whether or not a person has been exposed to a wide range of traumatic experiences (See Appendix 7). Participants indicate, via checkmark, whether listed traumas have occurred in their life by endorsing a range of experience (i.e., "happened to me", "witnessed it", "learned about it", "not sure", "doesn't apply"). Some sample traumas include "fire or explosion", "sexual assault", "natural disaster", and "transportation accident". The survey does not offer a scale score, as the measure merely indicates whether or not an event has occurred. Total number of traumatic experiences may, however, be calculated.

Investigating the psychometrics of the LEC, Gray, Litz, Hsu, and Lombardo (2004) found that the test-retest reliability over an average of seven days was very high ($r = 0.82$). Using

Cohen's kappa to compare each item over this time period, coding the responses as firsthand trauma exposure or not, the lowest reliability coefficient was 0.37 ("Caused serious injury/death of another") compared to the highest coefficient of 0.84 ("Sexual assault"). When all the LEC response options were entered into the item analyses, the same items demonstrated high and low reliability, with "Combat" also showing the strongest reliability.

In addition to looking at the reliability of the measure over time, Gray et al. (2004) also compared the LEC to other screens for potentially traumatic events (PTEs), as well as measures of psychopathology associated with trauma. With higher Traumatic Life Events Questionnaire (TLEQ; Kubany et al., 2000) scores and lower LEC scores being indicative of greater direct trauma exposure, the correlation between the two scales' sum scores is -0.55. The TLEQ and LEC also have significant item correlations ranging from 0.68 (sudden, unexpected death of loved one) to 0.95 (assault or threatened with a weapon). Furthermore, the LEC significantly correlated, as expected, with measures of trauma-related psychopathology such as the Beck Depression Inventory (-0.32; Beck, Steer, & Brown, 1996), the Beck Anxiety Inventory (-0.27; Beck & Steer, 1993), the Mississippi Scale for Combat-Related PTSD (-0.33; Keane, Caddell, & Taylor, 1988), the PCL (-0.43), and the CAPS (-0.39).

Trauma and Attachment Belief Scale (TABS; Pearlman, 2003). The TABS is an 84-item self-report scale that measures cognitions in the areas of safety, trust, esteem, intimacy, and control as they are related to the "self" and "others" (See Appendix 8). The measure produces a subscale T-score for each of these areas as well as a total score, resulting in eleven scores being reported per administration. Participants mark the extent to which various statements (e.g. "When I am alone, I don't feel safe", "I don't feel like I deserve much", "I hate to be alone") apply to them on a 6-point scale ranging from 1 ("Disagree Strongly") to 6 ("Agree Strongly").

Higher scores indicate greater cognitive distortion related to that theme. The manual suggests that T-scores between fifty-six and fifty-nine are "high average", with T-scores between sixty and sixty-nine being "very high." Anything seventy and above is labeled "extremely high." (Pearlman, 2003).

Reliability and validity are reported in the scale's manual (Pearlman, 2003). The scale was developed using 810 clinical participants with a mean age of 35.5 (SD = 12.1). Norms were established with a sample of 1,743 nonclinical participants ranging in age from 17 to 78. The test-retest reliability (over a twelve day period) for the total TABS score is reported at 0.75, with a Cronbach's alpha of 0.96. More specifically, the subscales demonstrate acceptable test-retest reliability coefficients of 0.72 (self-safety), 0.73 (other-safety), 0.70 (self-trust), 0.79 (other-trust), 0.69 (self-esteem), 0.72 (other-esteem), 0.74 (self-intimacy), 0.60 (other-intimacy), and 0.76 (self-control), 0.66 (other-control). The internal consistency of these scales is also generally acceptable with coefficients of 0.83 (self-safety), 0.72 (other-safety), 0.74 (self-trust), 0.84 (other-trust), 0.83 (self-esteem), 0.82 (other-esteem), 0.67 (self-intimacy), 0.87 (other-intimacy), 0.73 (self-control), and 0.76 (other-control).

Content validity was established using expert opinions in selecting the items to be included in the measure. Construct validity is also reported in the manual, with an additional factor analysis demonstrating factors of self, other, and safety, providing an alternate explanation for participant scores (Varra, Pearlman, Brock, & Hodgson, 2008). Stalker, Palmer, Wright, and Gebotys (2005) found that scores on a previous version of the TABS, the Traumatic Stress Institute Belief scale (Pearlman, 1996), were sensitive to treatment effects for PTSD. In this study, using adult child-abuse victims, the authors found that, as PTSD symptoms improved over the course of treatment and follow-up, cognitive distortions related to the five themes also

improved. Furthermore, the manual reports that the TABS is sensitive to trauma history, with outpatients who have been traumatized having higher TABS scores than their non-traumatized counterparts.

Procedure

An announcement was posted to the university's Psychology Department Sona System, an Internet-based participant pool management website. After completing a departmental-wide screener that samples an array of symptoms, behaviors, and cognitions, students were invited, by email, to complete the TABS (See Appendix D). The TABS was administered in the Psychology Department computer lab to groups of three to five students to permit better data collection supervision relative to online participation. Participant selection consisted of all students who had indicated at least one traumatic experience on the LEC. Assignment to groups was based on the PCL-C sum score. Participants were assigned to the PTSD symptom group if they endorsed at least one event on the LEC as having happened to them or witnessed by them, coupled with a PCL-C total score of 44 or greater. Assignment into the non-PTSD symptom group was made when students endorsed an LEC event as having happened to them or been witnessed by them, paired with a PCL-C total score less than 44.

Data Analysis

Data were entered into SPSS 21 and basic descriptive statistics were computed. Univariate outliers were investigated for the dependent and independent variables using standardized scores. Using the threshold of 3.29 suggested by Tabachnick and Fidell (2012), five participants were determined to be univariate outliers. Further analysis of their scores found that their responses fell within the acceptable range of scores specified in the measures' manuals. As a result, these participants were kept in subsequent analyses (Kline, 2010). Two participants

were also found to be multivariate outliers, as judged by Mahalanobis distance ($\chi^2 > 22.46$, $p = 0.001$). Upon inspection of their scores, their responses were found to be within expected ranges for each measure. After running the experimental analyses without these participants and detecting no difference in the research outcomes, the participants were kept in the final results (Kline, 2010).

The first research question (whether the five themes are experienced more severely by people with PTSD over those who have experienced trauma but do not report clinically significant symptoms) was answered using a multivariate analysis of variance (MANOVA). In this analysis, the groups consisted of those who had been traumatized and developed PTSD symptoms and those participants who have been traumatized but do not meet the established cutoff score for PTSD symptoms. Dependent variables in this analysis were the total TABS score, as well as individual theme subscale scores. Significant MANOVA results indicated the need to further investigate the differences between the two groups on each theme. To answer this question, Bonferroni-corrected independent samples t-tests were computed (with the total analysis having a significance level of $p < 0.05$, with each comparison having a significance threshold of $p < 0.008$). Results were predicted to indicate a multivariate main effect, with each t-test comparison being significant for differences between groups.

To answer the second hypothesis (whether deficits in the five themes vary by PTSD symptom severity), Pearson product-moment correlation coefficients were computed between the PCL-C scores, total TABS score, and each subscale score for a total of six correlations. This approach was expected to reveal significant positive relationships between PTSD symptom severity and each dependent variable score.

In investigating the third question, whether cognitive distortions were differentially endorsed based on trauma type, the proposed cluster analysis was deemed unfeasible due to multiple traumas endorsed by participants on the LEC ($M = 4.77$). In order to attempt to gain initial insight into this question, data were entered into stepwise regressions with each subscale score as a dependent variable and trauma types (coded as 1 if they were endorsed as "happened to me" and 0 for any other response) as the predictor variables. This approach resulted in five regressions performed, one for each subscale. Trauma types that were endorsed by less than 16% of the sample were removed from the analysis, as these events fell outside one standard deviation of the mean trauma endorsement. An exception was made for sexual assault (8.7%), as this was the only population in which the five themes have been explored, to date. This trauma reduction left predictor variables of natural disaster, motor vehicle accident, serious accident, physical assault, sexual assault, and unwanted sexual experience and a reduced sample size ($N = 162$).

III. RESULTS

Descriptive statistics

The total sample of participants was 214 individuals. Six cases (2.8%) were removed due to incomplete responses on the measures, while twelve additional cases (5.6%) were removed because they did not endorse any of the events on the LEC as having occurred to them or witnessed by them. Thus, 196 participants were used in the final analyses (91.59%), with an average PCL-C score of 36.79 ($SD = 14.95$). Due to the TABS scores being standardized T-scores, the mean was 50, with a standard deviation of 10 for the total sample. This transformation is necessary because the subscales of the TABS have different numbers of items; scaled scores allow for comparisons between different subscales. For the participants who met the established cutoff score of forty-four ($N = 59$), the average PCL-C score was 56.02 ($SD = 10.06$) while the non-PTSD group participants ($N = 137$) had an average PCL-C score of 28.51 ($SD = 6.93$). Comparisons between the two groups on demographic information (age, gender, race, academic year) were all insignificant, indicating no differences. See Appendix 1 for the means and standard deviations of the total TABS score and each subscale score for the two groups.

Hypothesis Testing

A one-way multivariate analysis of variance (MANOVA) was conducted in order to test the first hypothesis, comparing the TABS total and subscale scores between the PTSD and non-PTSD group. Results from this MANOVA ($N = 196$) demonstrated a significant multivariate main effect between the two groups, $F(6, 189) = 4.245$, Pillai's Trace = 0.311, $p < 0.001$ (see Appendix 2 for full MANOVA table). In order to determine an effect size, partial eta-squared was calculated at 0.311. Using the conventions suggested by Cohen (1988), this result represents a large effect.

Subsequent Bonferroni-corrected, independent samples t-tests (with an aggregate p -value of 0.05, individual p -values for the six comparisons fixed at 0.008) were significant for all six scales, Total TABS, $t(194) = -9.198$, $p < 0.001$; Self Safety, $t(194) = -7.903$, $p < 0.001$; Self Trust, $t(88.5) = -5.690$, $p < 0.001$; Self Esteem, $t(194) = -7.861$, $p < 0.001$; Self Intimacy, $t(194) = -5.548$, $p < 0.001$; and Self Control, $t(194) = -8.519$, $p < 0.001$. (See Appendix 1 for means and standard deviations). The comparison for Self Trust had a non-significant Levene's Test of equal variances ($p = 0.069$), necessitating the use of Welch's t-test, which also proved significant. Using Cohen's d as an indication of effect size, all the group differences represent a large effect, with a range of 0.80 to 1.32 (See Appendix 3).

In order to determine the relationship between PTSD symptom severity and scores on the TABS and its subscales, Pearson product-moment correlations were calculated between the PCL-C, the TABS total score, and each subscale. The correlation matrix is provided in Appendix 4. As expected, the TABS total score analyses ($N = 196$) indicated a positive, significant correlation with the PCL-C, $r = 0.72$, $p < 0.001$, $R^2 = 0.511$. At the subscale level, significant correlations

were observed in the predicted direction, Self Safety, $r = 0.66$, $p < 0.001$, $R^2 = 0.438$; Self Trust, $r = 0.48$, $p < 0.001$, $R^2 = 0.229$; Self Esteem, $r = 0.62$, $p < 0.001$, $R^2 = 0.383$; Self Intimacy, $r = 0.52$, $p < 0.001$, $R^2 = 0.267$; and Self Control $r = 0.66$, $p < 0.001$, $R^2 = 0.437$. Using Cohen's conventions (Cohen, 1988) for interpreting correlation effect sizes, the correlation for Self Trust subscale represents a moderate effect, while correlations for the TABS total, Self Safety, Self Esteem, Self Intimacy, and Self Control represent a large effect.

To answer the third question, the five subscales of the TABS were entered as dependent variables in individual stepwise regression models using the six selected trauma types as predictor variables. Sexual assault trauma explained the greatest percentages of variance across four of the five themes (safety = 12.4%, power and control = 9.3%, intimacy = 11.6%, esteem = 10.7%). Other traumas that explained significant variance on theme scores included physical assault (safety = 5.9%, power and control = 3.6%, esteem = 3.7%) and unwanted sexual experiences (intimacy = 2.4%, trust = 9.8%). All of the variables included in the regression models were significant at the $p = 0.05$ level or better. See Appendix 5 for a complete depiction of variance explained and significance levels.

IV. DISCUSSION

As Cognitive Processing Therapy continues to be empirically validated as a leading treatment for the reduction of PTSD symptoms, it is imperative that researchers continue to develop a more complete understanding of the unique components this approach offers clinicians. To date, the five themes of safety, power and control, intimacy, trust, and esteem integral to the CPT protocol have seen little empirical investigation beyond their inclusion in treatment packages. Without a proper and thorough understanding of each theme's contributions to PTSD symptomatology and treatment outcome, CPT interventions will be incompletely applied and client needs have the potential to be inaccurately assessed and addressed.

The purpose of this study was to ask the first questions necessary to expand the theoretical rationale and clinical utility of the five themes and what they offer to the treatment of PTSD. In order to do this, 196 undergraduate participants were administered the Trauma Attachment Beliefs Scale (TABS), Posttraumatic Checklist (PCL), and Life Events Checklist (LEC). The first research question was to determine whether there was a difference in the five themes between those who had suffered a trauma and did not evidence symptoms of PTSD and those who experienced a trauma and reported symptoms consistent with PTSD. In this analysis, significant differences were expected; indicating that, independent of trauma experience, the development of PTSD is a major contributing factor to cognitive distortions (hypothesis 1). Secondly, we sought to demonstrate the relationship between the severity of PTSD symptoms and the severity of the cognitive distortions in each theme, anticipating a positive correlation

between each theme score and an overall PTSD symptom index (hypothesis 2). Finally, this study aimed to investigate whether trauma type was associated with a specific profile of cognitive distortions, which is to say whether certain traumas elicited specific theme distortions relative to other traumas (hypothesis 3).

As was hypothesized in the first research question, each of the five themes, as well as the total TABS score, were significantly higher in the PTSD group compared against the non-PTSD group. In fact, the averages for this research sample fell into two distinct ranges suggested by the TABS manual (Pearlman, 2003). All of the scale averages for the participants who did not evidence substantial PTSD symptomatology fell within the "average" range, while the PTSD group scale averages were in the "high average" range. These findings suggest that a traumatic experience alone does not lead to clinically significant cognitive distortions in the five theme areas. Rather, PTSD appears to derive from the maladaptive assimilation or over-accommodation of traumatic stimuli (Resick, Schnicke, & Markaway, 1993). In other words, cognitive distortion occurs when individuals either fail to adaptively incorporate the traumatic experience into their conceptualization of the world or over-generalize the traumatic experience and outcome to a broad range of stimuli.

The results of this first research question offer further support to the clinical usefulness of CPT as it is currently the only empirically supported therapy that addresses these cognitive distortions directly. This finding supports and expands the previous research demonstrating that CPT matches or exceeds the benefits of alternative treatments (Lenz, Brujin, Serman, & Bailey, 2014) by addressing both cognitive and behavioral responses. The attention to the five themes in any PTSD treatment package, therefore, offers therapists the ability to reconstruct the cognitive appraisal of traumatic stimuli and trauma consequences.

In support of the second hypothesis, significant, positive correlations were obtained between total PTSD symptom severity, the total TABS score, and each of the five TABS subscales included in the analysis. As would be expected from the outcome of the first hypothesis, as PTSD symptom severity increased, distortions related to the five themes of CPT became more maladaptive. Such a relationship replicates and builds on previous studies (Owens, Pike, & Chard, 2001; Owens & Chard, 2001; Wenninger & Ehlers, 1998) that used an earlier, unpublished draft of the TABS (called the Personal Beliefs Reaction Scale; Resick, Schnicke, & Markaway, 1991) to find various correlations between PTSD symptoms and cognitive distortions. The present study's finding is the first to establish that because the sample included an expanded range of trauma types, as opposed to the single-trauma populations investigated in prior studies. This relationship is generalizable across traumatic experiences.

The importance of this finding is significant, as PTSD is a dynamic, multifaceted disruption of functioning following a traumatic experience. Combined with the work of Resick et al. (2008) that demonstrated the efficacy of the cognitive component of CPT, the strong correlations supporting this second hypothesis signals to clinicians that the theme-centric sessions of CPT should have potential to further reduce PTSD self-report symptoms. Furthermore, these results are consistent with Owens, Pike, and Chard's (2001) report that as symptoms are reduced during CPT, cognitive appraisals shift towards a normal, adaptive range.

The final research question investigated in this study was whether there was an identifiable pattern of cognitive distortions based on the type of trauma experienced. Results from a series of stepwise regressions, using each subscale of the TABS, offer initial support of this hypothesis and insight into the scoring patterns of participants based on the trauma(s) they experienced. The results agree with and extend the work of Owens, Pike, and Chard (2001) and

Owens and Chard (2001) by demonstrating that traumatic sexual experiences distort cognitive beliefs held about the self in the five themes. Additionally, this investigation, despite its limitations, does suggest that other common trauma types have less distortive impact on the five themes proposed in the CPT treatment manual. These results represent the first attempt to explore and elucidate the relationship between different trauma types and their impact on the cognitive distortions treated in CPT.

An important application of this finding relates to the provision of services by mental health care workers. The results suggest that the final five sessions of CPT should not be applied in a one-size-fits-all approach, as some trauma types do not appear to significantly affect participants' reported maladaptive cognitions in all themes. Practitioners should exercise caution in assuming that all traumas affect clients similarly. This study provides initial evidence that most of the five themes of CPT are relevant for clients who have undergone a traumatic event related to interpersonal violence (sexual assault, physical assault, or other unwanted sexual experiences). Outside of these traumas, therapists should carefully assess the effects a traumatic experience has had on cognitions in order to ensure treatment covers only those cognitive themes that have undergone distortion.

Taken together, the results of this study add to the very limited empirical literature on the relationship between the five cognitive themes of safety, power and control, intimacy, trust, and esteem and PTSD and the CPT approach to PTSD treatment. Furthermore, this study provides very preliminary evidence that, when treating PTSD, therapeutic resources should be committed to rectifying distortions in these cognitive themes independent of treatment approach (prolonged exposure, for instance), as cognitive distortion appears to be associated with the expression of trauma symptoms. Essentially, the five themes of CPT appear adaptable and relevant to different

trauma treatment protocols. Finally, the promise of these results suggest that as CPT is further validated as a leading treatment for PTSD, developing a fuller understanding of how individual trauma types affect cognitions should be stressed.

Limitations and Research Directions

This cross-sectional, self-report study of the relationship of PTSD symptoms to the five cognitive distortions in CPT had several limitations worth addressing in future empirical investigations. First, the sample was a convenience sample of university students that provides very limited population representation in terms of many demographic and psychological variables. This criticism is particularly important to address in future studies. While results in this sample were significant, those results should be cautiously applied to general populations until further research is made available using broader sampling methods.

A second limitation concerns various aspects of the assessments used. For instance, the data gathered for the purposes of PTSD classification was self-reported. Multi-modal data collection strategies can help address reliability and response bias issues inherent to self-report measures. The limitations of self-report measures resulted in participants frequently endorsing multiple traumas on the LEC and not necessarily focusing on a single event when completing the symptom measures. As a result, diagnostic sensitivity and specificity may have suffered, a problem with the PCL that McDonald and Calhoun (2010) address thoroughly.

Connected to diagnostic limitations is the fact that there was no method for identifying participants who had genuine multiple-trauma experiences. This limitation is important to address in subsequent studies, as the effects of multiple traumas can have a cumulative effect on symptoms complexity relative to a single trauma (Cloitre et al., 2009). Subsequent research

should address this shortcoming by using more sensitive second tier diagnostic instruments, such as the CAPS structured clinical interview (McDonald & Calhoun, 2010).

An additional assessment limitation was that this study only focused on the five "self" subscales for each theme on the TABS. This decision was made in order to create a more parsimonious statistical analytic strategy given the sample available. Future research should look to address this shortcoming by expanding the number of participants sampled in order to determine if the "other" subscales of the TABS demonstrate similar findings between diagnostic groups.

Third, as with all correlational work, additional research is necessary to further connect the five themes to PTSD symptomatology. While the strong, positive correlations found in this study are encouraging, they do not establish causality between the variables. This study was necessary to reinforce the previous literature base using an outdated version of the TABS with a current version, but more in-depth research of the themes and symptomatology is clearly warranted to better elucidate that relationship. The findings of this project, however, can be used in conjunction with future studies to establish comparisons across different populations in the area of the five themes.

Finally, the results of the third research question should be cautiously interpreted and should not be applied without additional, confirming evidence – for several reasons. The sample size was modest. There is a high likelihood that traumatic experiences were over-reported due to the incomplete queries that are part of the LEC's limitations. The latter forced the decision to narrow traumas to be analyzed down to those experienced directly by the subjects, and most subjects' data in the subsequent analysis were contaminated by multiple trauma experiences.

The results of this study should be viewed as a first step in answering the question of whether the type of trauma experienced can have unique effects on the five types of cognitive distortions examined here.

Continued work in detailing the relationship between the five themes of CPT and PTSD symptoms is called for in order to fully understand the role of the five themes in the presentation and treatment of PTSD. Primarily, a follow-up study with more sensitive diagnostic criteria should be considered in order to more thoroughly address the relationship between PTSD and cognitive distortions. This vein of research may hold promise, as Owens and Chard (2001) found that in survivors of child sexual abuse, the act of penetration was correlated with the power and trust subscales of the PBRS, as well as accounting for 12% of the variance of trust subscale scores.

Another important question, which builds upon the work of Nixon (2012) and Dickstein, Walter, Schumm, and Chard (2013) applying CPT to acute stress disorder and subsyndromal PTSD, is whether the five distortions are present in acute stress reactions or acute stress disorder. Inherent in this question is the longitudinal development of distortions in the five themes following a traumatic experience. If these distortions are not immediately developed following a Criterion A event, then predictive or causative research into the factors associated with their development would be merited. Relatedly, a longitudinal study of the strength of the five themes following CPT would prove informative, as demonstrated by the work of Holliday, Link-Malcolm, Morris, and Surís (2014). These researchers tracked individual participants' negative cognitions related to self and the world before and after receiving CPT. CPT reduced those cognitions significantly post-treatment, with gains being maintained at four months post-treatment for negative world cognitions and six months post-treatment for negative self

cognitions. The next step would be to apply similar methodology to tracking the negative cognitions specifically addressed in the CPT treatment manual.

Investigating other components of PTSD presentation and conceptualization as related to the five cognitive distortions is also an area ripe for future research. For instance, researchers could explore the relationship of each of the five themes to PTSD symptom clusters. Similar to the purpose of this study, significant findings here would allow clinicians to offer CPT in a more focused manner based on client symptom presentation, rather than using a blanket application approach. Another therapy application question is whether thematic cognitive distortion severity varies with multiple traumas relative to single traumas in a manner similar to PTSD severity (Cloitre et al, 2009). Such an understanding would allow for clinicians to more effectively identify the appropriateness of thematic resolution in such clients on an individual trauma basis or by addressing the themes collectively. Furthermore, with PTSD being commonly comorbid with other disorders (Pietrzak, Goldstein, Southwick, & Grant, 2011), future research should compare the presence and response to treatment of the five themes in people with only PTSD, comorbid disorders (depression, anxiety, substance abuse, etc.), and with other psychological disorders alone.

Finally, the relationship between PTSD symptoms and the severity of cognitive distortions found in this study recommends the further dismantling of CPT. Similar to Mott, Galovski, Walsh, and Elwood's (2014) work looking at changes in written account details during treatment, researchers could explore whether treatment focusing solely on the five themes elicits therapeutic symptom reduction comparative to full CPT and the initial 7 sessions. A better understanding of the final five sessions of the CPT protocol and their contributions to improvement would allow CPT to be more effectively employed in clinical settings. The need

for efficient treatment delivery is clearly expressed in the work of Borah et al. (2013), who found that while 103 Air Force mental health workers found CPT valuable and were interested in offering it, lack of time in schedule structure and lack of supervision were identified as major barriers to implementation. This study highlights the need for every therapeutic component and individual session structure of CPT to be fully investigated and understood in order to streamline the therapy and develop strategies for more efficient implementation. The highly desirable result of easier access and implementation, as identified by Meyers et al. (2013), is reduced mental health service usage and associated costs, following a course of CPT for PTSD.

Conclusion

Overall, this study of PTSD symptoms and the five themes of CPT represents one small but important step in the continued validation of CPT – a PTSD treatment that is well-supported in the scientific literature. With public policy changes and growing emphasis on real-world therapy effectiveness, no treatment protocol should be promoted based on symptom-count change alone. All components of therapies, such as CPT, should be fully understood in order to validate their contribution to client improvement. This study sought to examine the theoretically valid, but widely untested, five themes of safety, power and control, intimacy, trust, and esteem that constitute the focus of nearly half of the CPT treatment regimen. The findings suggest that these themes are significantly distorted in individuals with PTSD, with distortion magnitude mirroring symptom severity. Additionally, the five themes appear to be particularly relevant in the treatment of PTSD resulting from interpersonal violence. Further investigation is important in order to continue developing support for a therapy that is viewed as a first-line treatment for PTSD. Continued empirical focus on CPT's five themes may lead to more efficient treatment

delivery and, thereby, enhance PTSD treatment availability to the large population of PTSD sufferers.

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APPENDIX

APPENDIX 1: MEANS AND STANDARD DEVIATIONS

Means and standard deviations of t-scores for each TABS scale by group (N = 196).

Scale	No PTSD*	PTSD*
Total TABS	46.76 (7.15)	58.78 (10.76)
Self Safety	47.14 (7.02)	57.97 (11.98)
Self Trust	47.65 (8.26)	56.61 (10.80)
Self Esteem	47.16 (7.31)	57.87 (11.42)
Self Intimacy	47.84 (8.52)	56.01 (11.35)
Self Control	46.96 (7.63)	58.32 (10.44)

Note: *Mean (SD); PTSD = Posttraumatic Stress Disorder; TABS = Trauma Attachment Belief Scale

APPENDIX 2: MANOVA TABLE

MANOVA table for the comparison of the PTSD and non-PTSD Groups

Effect	Value	F	Hypothesis <i>df</i>	Error <i>df</i>	<i>p</i> -value	Partial η^2
Pillai's Trace	0.311	14.245	6.0	189.0	0.001	0.311
Wilk's Lambda	0.689	14.245	6.0	189.0	0.001	0.311
Hotelling's Trace	0.452	14.245	6.0	189.0	0.001	0.311
Roy's Largest Root	0.452	14.245	6.0	189.0	0.001	0.311

APPENDIX 3: INDEPENDENT SAMPLES T-TEST EFFECT SIZES

Effect sizes for independent sample t-tests (N = 196).

Scale	t-statistic	Cohen's <i>d</i>
Total TABS	-9.198*	1.32
Self Safety	-7.903*	1.13
Self Trust	-5.690*	1.21
Self Esteem	-7.861*	1.13
Self Intimacy	-5.548*	0.80
Self Control	-8.519*	1.22

Note: * $p < 0.001$; TABS = Trauma Attachment Belief Scale

APPENDIX 4: CORRELATION MATRIX

Correlation matrix between TABS and PCL-C.

Measure	PCL	TABS	SS	ST	SE	SI	SC
PCL Total	1.00						
TABS Total	0.72*	1.00					
SS	0.66*	0.89*	1.00				
ST	0.48*	0.73*	0.67*	1.00			
SE	0.62*	0.85*	0.74*	0.64*	1.00		
SI	0.52*	0.67*	0.67*	0.53*	0.57*	1.00	
SC	0.66*	0.89*	0.75*	0.66*	0.76*	0.59*	1.00

Note: * $p < 0.001$; TABS = Trauma Attachment Belief Scale Total Score; PCL-C = Posttraumatic Checklist – Civilian Total; SS = Self Safety; ST = Self Trust; SE = Self Esteem; SI = Self Intimacy; SC = Self Control.

APPENDIX 5: STEPWISE REGRESSION TABLE

Stepwise Regressions: Unique variance of each TABS subscale explained by trauma type. (N = 162)

Trauma Type	SS	ST	SE	SI	SC
Natural Disaster	-----	-----	-----	-----	-----
MVA	-----	-----	-----	-----	-----
Serious Accident	-----	-----	-----	-----	-----
Physical Assault	5.9%***	-----	3.7%**	-----	3.6%*
Sexual Assault	12.4%***	-----	10.7%***	11.6%***	9.3%***
Unwanted Sexual Experience	-----	9.8%***	-----	2.4%*	-----

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; TABS = Trauma Attachment Belief Scale; SS = Self Safety; ST = Self Trust; SE = Self Esteem; SI = Self Intimacy; SC = Self Control.

APPENDIX 6: POSTTRAUMATIC STRESS DISORDER CHECKLIST- CIVILIAN
VERSION

Instruction to patient: Below is a list of problems and complaints that people sometimes have in response to stressful life experiences. Please read each once carefully, put an "X" in the box to indicate how much you have been bothered by that problem *in the last month*.

No.	Response	Not at all (1)	A little bit (2)	Moderately (3)	Quite a bit (4)	Extremely (5)
1.	Repeated, disturbing <i>memories, thoughts, or images</i> of a stressful experience from the past?					
2.	Repeated, disturbing <i>dreams</i> of a stressful experience from the past?					
3.	Suddenly <i>acting or feeling</i> as if a stressful experience <i>were happening</i> again (as if you were reliving it)?					
4.	Feeling <i>very upset</i> when <i>something reminded</i> you of a stressful experience from the past?					
5.	Having <i>physical reactions</i> (e.g. heart pounding, trouble breathing, or sweating) when <i>something reminded</i> you of a stressful experience from the past?					
6.	Avoid <i>thinking about</i> or <i>talking about</i> a stressful experience from the past or avoid <i>having feelings</i> related to it?					
7.	Avoid <i>activities or situations</i> because they <i>remind you</i> of a stressful experience from the past?					
8.	Trouble <i>remembering important parts</i> of a stressful experience from the past?					
9.	Loss of <i>interest in things that you</i>					

	<i>used to enjoy?</i>					
10.	Feeling <i>distant</i> or <i>cut off</i> from other people?					
11.	Feeling <i>emotionally numb</i> or being unable to have loving feelings for those close to you?					
12.	Feelings as if your <i>future</i> will somehow be <i>cut short</i> ?					
13.	Trouble <i>falling</i> or <i>staying asleep</i> ?					
14.	Feeling <i>irritable</i> or having <i>angry outbursts</i> ?					
15.	Having <i>difficulty concentrating</i> ?					
16.	Being " <i>super alert</i> " or watchful on guard?					
17.	Feeling <i>jumpy</i> or easily startled?					

APPENDIX 7: LIFE EVENTS CHECKLIST

Listed below are a number of difficult or stressful things that sometimes happen to people. For each event, check one or more of the boxes to the right to indicate that: (a) It *happened to you* personally, (b) you *witnessed it* happen to someone else, (c) you *learned about it* happening to someone close to you, (d) you're *not sure* if it applies to you, or (e) it *doesn't apply* to you.

Mark *only one* item for any single stressful event that you have experienced. For events that might fit more than one item description, choose the one that fits best.

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

Event	Happened to me	Witnessed it	Learned about it	Not Sure	Doesn't apply
1. Natural disaster (for example, flood, hurricane, tornado, earthquake)					
2. Fire or explosion					
3. Transportation accident (for example, car accident, boat accident, train wreck, plane crash)					
4. Serious accident at work, home, or during recreational activity					
5. Exposure to toxic substance (for example, dangerous chemicals, radiation)					
6. Physical assault (for example, being attacked, hit, slapped, kicked, beaten up)					
7. Assault with a weapon (for example, being shot, stabbed, threatened with a knife, gun, bomb)					
8. Sexual assault (rape, attempted rape, made to perform any type of sexual act through force or threat of harm)					
9. Other unwanted or uncomfortable sexual					

experience					
10. Combat or exposure to a war-zone (in the military or as a civilian)					
11. Captivity (for example, being kidnapped, abducted, held hostage, prisoner of war)					
12. Life-threatening illness or injury					
13. Severe human suffering					
14. Sudden, violent death (for example, homicide, suicide)					
15. Sudden, unexpected death of someone close to you					
16. Serious injury, harm, or death you caused to someone else					
17. Any other stressful event or experience					

APPENDIX 8: TRAUMA AND ATTACHMENT BELIEFS SCALE

This questionnaire is used to learn how individuals view themselves and others. As people differ from one another in many ways, there are no right or wrong answers. Please mark the box corresponding with each item which you feel most clearly matches your own beliefs about yourself and your world. Try to complete every item.

	1 Disagree Strongly	2 Disagree	3 Disagree Somewhat	4 Agree Somewhat	5 Agree	6 Agree Strongly
1. I believe I am safe.						
2. You can't trust anyone.						
3. I don't feel like I deserve much.						
4. Even when I am with friends and family, I don't feel like I belong.						
5. I can't be myself around people.						
6. I never think anyone is safe from danger.						
7. I can trust my own judgment.						
8. People are wonderful.						
9. When my feelings are hurt, I can make myself feel better.						
10. I am uncomfortable when someone else is the leader.						
11. I feel like people are hurting me all the time.						
12. If I need them, people will come through for me.						
13. I have bad feelings about myself.						
14. Some of my happiest times are with other people.						

15. I feel like I can't control myself.						
16. I could do serious damage to someone.						
17. When I am alone, I don't feel safe.						
18. Most people ruin what they care about.						
19. I don't trust my instincts.						
20. I feel close to lots of people.						
21. I feel good about myself most days.						
22. My friends don't listen to my opinion.						
23. I feel hollow inside when I am alone.						
24. I can't stop worrying about others' safety.						
25. I wish I didn't have feelings.						
26. Trusting people is not smart.						
27. I would never hurt myself.						
28. I often think the worst of others.						
29. I can control whether I harm others.						
30. I'm not worth much.						
31. I don't believe what people tell me.						
32. The world is dangerous.						
33. I am often in conflicts with other people.						
34. I have a hard time making a decision.						
35. I feel cut off from people.						
36. I feel jealous of people who are always in control.						

37. The important people in my life are in danger.						
38. I can keep myself safe.						
39. People are no good.						
40. I keep busy to avoid my feelings						
41. People shouldn't trust their friends.						
42. I deserve to have good things happen to me.						
43. I worry about what other people will do to me.						
44. I like people.						
45. I must be in control of myself.						
46. I feel helpless around adults.						
47. Even if I think about hurting myself, I won't do it.						
48. I don't feel much love from anyone.						
49. I have good judgment.						
50. Strong people don't need to ask for help.						
51. I am a good person.						
52. People don't keep their promises.						
53. I hate to be alone.						
54. I feel threatened by others.						
55. When I am with people, I feel alone.						
56. I have problems with self-control.						
57. The world is full of people with mental problems.						
58. I can make good decisions.						
59. I often feel people are trying to control me.						

60. I am afraid of what I might do to myself.						
61. People who trust others are stupid.						
62. I am my own best friend.						
63. When people I love aren't with me, I believe they are in danger.						
64. Bad things happen to me because I am a bad person.						
65. I feel safe when I am alone.						
66. To feel okay, I need to be in charge.						
67. I often doubt myself.						
68. Most people are good at heart.						
69. I feel bad about myself when I need help.						
70. My friends are there when I need them.						
71. I believe that someone is going to hurt me.						
72. I do things that put other people in danger.						
73. There is an evil force inside of me.						
74. No one really knows me.						
75. When I am alone, it's as if there's no one there, not even me.						
76. I don't respect the people I know best.						
77. I can usually figure out what's going on with people.						
78. I can't do good work unless I am the leader.						
79. I can't relax.						
80. I have physically hurt people.						
81. I am afraid I will harm myself.						

82. I feel left out everywhere.						
83. If people really knew me, they wouldn't like me.						
84. I look forward to time I spend alone.						

VITA

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A. Education

Master of Arts, 2015

The University of Mississippi, *Oxford, Mississippi*

Thesis: Evaluation of Cognitive Processing Therapy's Five Cognitive Distortion Themes

Thesis Advisor: Dr. Thomas W. Lombardo, Ph.D

Committee Members: Kelly G. Wilson, Ph.D, Todd A. Smitherman, Ph.D

Bachelor of Arts, 2008

Baylor University, *Waco, Texas*

Major: Psychology

Major: Spanish

B. Clinical Experience

Counseling Center, University of Mississippi

Supervisor: Marc Showalter, Ph.D (2012-2014), Josie Nicholson, Ph.D (2013-2014),
Quinton Edwards, Ph.D (2014-Present)

Graduate Therapist, 2012-Present

- Conducted intake interviews with students, athletes, and employees. Developed treatment plans for, as well as provided, individual and couples therapy services for students, employees, and athletes. Developed and implemented group therapy programs for stress and relaxation, test anxiety, sport psychology performance enhancement, and general psychological distress.
- Attended weekly supervision and consultation groups with other graduate and full-time therapists.

Psychological Services Center, University of Mississippi

Supervisor: Thomas W. Lombardo, Ph.D (2010-2011, 2014-2015), Karen A. Christoff, Ph.D (2011-2012), Stefan E. Schulenberg, Ph.D (2013-2014)

Graduate Therapist, 2009-Present

- Conducted intake interviews with clients. Developed treatment plans, as well as provided individual and group therapy services.
- Attended weekly supervision consultation groups with other graduate therapists and a faculty supervisor.

Psychological Assessment Clinic, University of Mississippi

Supervisor: Scott Gustafson, Ph.D

Graduate Assessor, 2012-2013

- Provided comprehensive psychological evaluations to assess for Learning Disabilities, Attention-Deficit/Hyperactivity Disorder, mood/anxiety disorders, and personality disorders. Met in weekly supervision and consultation meetings to discuss differential diagnoses and assessment strategies

Office of Student Disability Services, University of Mississippi

Supervisor: Scott Gustafson, Ph.D

Verification Specialist, 2012-2013

- Conducted interviews and reviewed documentation for students applying for academic accommodations.

Social Science Research Center, Mississippi State University, *Starkville, Mississippi*

Supervisor: Angela Robertson, Ph.D

Graduate Therapist, 2012

- Provided weekly, manualized HIV-prevention group therapy to male felony drug offenders as part of the drug court program. Also conducted assessments for eligibility, baseline, and outcome data.

Region IV Community Mental Health Center, Hernando, Mississippi

Supervisor: Scott Gustafson, Ph.D (2010-2011), Priscilla Roth-Wall, Ph.D (2010-2011)
Therapist, 2010-2011

- Conducted intake interviews with clients. Developed treatment plans, as well as provided individual and group therapy services.
- Participated in weekly supervision and consultation meetings with other staff members, including case managers, psychiatrists, and other therapists.
- Consulted with acute partial hospitalization and clubhouse programs for therapeutic and behavioral issues. Provided Spanish psychiatric evaluations in a hospital setting. Provided Spanish psychiatric evaluations in a hospital setting.

Case Manager, 2010

- Provided supportive counseling such as needs assessment, economic assistance applications, and connections with services in-house and in the community.
- Provided Spanish psychiatric evaluations in a hospital setting.
- Participated in weekly supervision and consultation meetings with other staff members, including case managers, psychiatrists, and other therapists.
- Consulted with acute partial hospitalization and clubhouse programs for therapeutic and behavioral issues. Provided Spanish psychiatric evaluations in a hospital setting.

C. Research Experience

Dr. Thomas W. Lombardo Laboratory, University of Mississippi

Supervisor: Thomas W. Lombardo, Ph.D

Graduate Research Assistant, 2009- Present

- Gathered, entered, analyzed, and interpreted data collected from assessments related to smoking cessation, smoker identity, PTSD, and neurocognitive abilities. Provided ad hoc reviews of journal articles in the field of PTSD research.

Social Science Research Center, Mississippi State University

Supervisor: Angela Robertson, Ph.D

Research Associate, 2012

- Provided weekly, manualized HIV-prevention group therapy to male felony drug offenders as part of the drug court program. Gathered pre-intervention and outcome data while recording therapy progress and interactions.

Dr. Wade C. Rowatt Laboratory, Baylor University

Supervisor: Wade C. Rowatt, Ph.D

Undergraduate Research Associate, 2004

- Gathered and entered data on experiments related to religiosity and altruism.

D. Professional Associations

Association for Behavioral and Cognitive Therapies (Student Member)

American Psychological Association (Student Affiliate)

E. Publications

Bourn, L., Lombardo, T., Hollis, S., Grigg, J., & Fulwiler, J. (in preparation). A randomized trial of written disclosure and post-writing processing instructions on PTSD.

F. Professional Presentations

Bentley, S., Grigg, J., Hollis, S., McIntire, L., Fulwiler, J., & Lombardo, T. (2013, November). *College students' smoker identity varies with physical activity levels*. Poster session presented at the 2013 American Public Health Association's Annual Meeting, Boston, MA.

Grigg, J.P., Lombardo, T., Fulwiler, J.C., & Hollis, S. (2014). Evaluation of Cognitive Processing Therapy's Five Cognitive Distortion Themes. Paper to be presented at 2nd Annual University of Mississippi Conference on Psychological Science, Oxford, MS.

Grigg, J.P., Lombardo, T., Fulwiler, J.C., & Hollis, S. (2014). Evaluation of Cognitive Processing Therapy's Five Cognitive Distortion Themes. Poster session submitted to the 2015 Association of Behavioral and Cognitive Therapies 49th Annual Convention, Chicago, IL.

Hollis, S., Lombardo, T., McIlveene, A., Grigg, J., & J. Fulwiler (2014). Cognitive effects and academic consequences of video game playing in college students. Poster presented at the 4th Annual University of Mississippi Graduate School Research Forum, Oxford, MS.

Hollis, S., Lombardo, T., McIlveene, A., Grigg, J., & J. Fulwiler (2014). Cognitive effects of video game playing. Poster presented at the 1st Annual University of Mississippi Conference on Psychological Science, Oxford, MS.

G. Courses Taught

Behavioral Aspects of Exercise, University of Mississippi

- Course description: Behavioral considerations related to establishing and maintaining personal, commercial, corporate, or clinical-based exercise programs. Emphasized strategies to increase adherence and reduce attrition.

General Psychology University of Mississippi

- Course description: Introduction to individual development, motivation, emotion, motor function, sensory and neural functions, intelligence, learning, perceiving, thinking, social behavior, and personality.

H. Campus Service and Involvement

National Search Committee for University of Mississippi Counseling Center Director
Committee Member, 2014

- Sole graduate student member. Helped identify candidates, conduct initial interviews, consult references, conduct campus visits and follow-up interviews, and provide ratings, insights, and guidance from a graduate therapist perspective.

University of Mississippi American Foundation for Suicide Prevention Out of the Darkness walk
Committee Member, 2014

- Assisted with planning, fundraising, and organization before and during the event.

Jean Jones Walk/Run for Cancer
Committee Member, 2012

- Assisted with planning, fundraising, and organization before the event. Helped oversee the race logistics, coordination, and execution the day of the event.