

DIFFERENCES IN COPING STRATEGIES AND MULTIFACETED PSYCHOLOGICAL
OUTCOMES AMONG TRAUMA SURVIVORS

Amanda S. Flachs, MA

Thesis Prepared for the Degree of
MASTER OF SCIENCE

UNIVERSITY OF NORTH TEXAS

August 2019

APPROVED:

Shelley Riggs, Committee Chair
Patricia Kaminski, Committee Member
Vicki Campbell, Committee Member and Chair
of the Department of Psychology
David Holdeman, Dean of College of Liberal
Arts and Social Sciences
Victor Prybutok, Dean of the Toulouse
Graduate School

Flachs, Amanda S. *Differences in Coping Strategies and Multifaceted Psychological Outcomes among Trauma Survivors*. Master of Science (Psychology), August 2019, 54 pp., 2 tables, 2 appendices, references, 81 titles.

The World Health Organization has proposed for the ICD-11 a differentiation of symptoms to distinguish separate disorders of PTSD and complex PTSD (CPTSD), rather than one disorder of PTSD as in the current DSM-5. In addition, the accuracy and usefulness of the borderline personality disorder (BPD) diagnosis has been debated for years due to this history of trauma often associated with the diagnosis. New instruments have been developed to assess CPTSD, allowing needed research to expand our understanding of CPTSD and how it may differ from PTSD. The present study explored the relationships between the three different patterns of symptom expression associated with these disorders and various coping strategies in a sample of trauma survivors. A canonical correlation analysis (CCA) showed a significant relationship between trauma symptoms and coping strategies and suggested that individuals with higher borderline personality disorder symptoms, and subsequently complex PTSD and PTSD symptoms, were more likely to cope using avoidant coping strategies- behavioral disengagement, denial, and substance use. This finding was similar to previous research findings that suggested high rates of negative psychological outcomes for adults cognitive and behavioral avoidant coping strategies. Contributions from other coping techniques, such as restraint and venting, also showed significant, but not as strong relationships to higher psychological symptoms.

Copyright 2019

by

Amanda S. Flachs

ACKNOWLEDGEMENTS

I would like to thank my advisor and mentor, Dr. Shelley Riggs, for all of the support, guidance, and encouragement she continues to invest in my academic endeavors and personal growth. I would also like to thank my wonderful committee members, Dr. Vicki Campbell and Dr. Patricia Kaminski.

Thank you to my parents, siblings, and husband for all of the unfailing support and love throughout the years of my education. I would not be where I am today without them.

TABLE OF CONTENTS

| | Page |
|--|------|
| ACKNOWLEDGEMENTS | iii |
| LIST OF TABLES | v |
| DIFFERENCES IN COPING STRATEGIES AND MULTIFACETED PSYCHOLOGICAL OUTCOMES AMONG TRAUMA SURVIVORS | 1 |
| Introduction..... | 1 |
| CPTSD Diagnostic History..... | 2 |
| Coping and Trauma..... | 5 |
| Current Study | 7 |
| Method | 7 |
| Participants..... | 7 |
| Instruments..... | 8 |
| Procedures | 10 |
| Analyses | 11 |
| Results..... | 12 |
| Primary Analyses | 12 |
| Cross-Validation | 15 |
| Post-Hoc Analyses | 19 |
| Discussion..... | 21 |
| Clinical Implications..... | 24 |
| Limitations | 26 |
| Future Research | 27 |
| References..... | 27 |
| APPENDIX A. ADDITIONAL TABLES AND FIGURES..... | 31 |
| APPENDIX B. EXTENDED LITERATURE REVIEW..... | 39 |
| COMPREHENSIVE REFERENCE LIST..... | 51 |

LIST OF TABLES

| | Page |
|--|------|
| Table 1. Canonical Solution for Coping Strategies Predicting Psychological Outcomes for Total Sample and Sub-Samples A and B | 15 |
| Table 2. Post Hoc Comparison between Male and Female Participants | 21 |

DIFFERENCES IN COPING STRATEGIES AND MULTIFACETED PSYCHOLOGICAL OUTCOMES AMONG TRAUMA SURVIVORS

Introduction

In their 2017 study, the World Health Organization found that 70.4% of respondents across 24 countries endorsed some type of traumatic event in their life (Kessler et al., 2017). In the United States alone, as many as two-thirds of children experience trauma, with 8% meeting criteria for a Post-traumatic Stress Disorder (PTSD) diagnosis by the time they enter into adulthood (McLaughlin et al., 2013). While all forms of childhood trauma are associated with increased risk of PTSD, psychological consequences are stronger for survivors of childhood emotional and sexual abuse, along with cumulative forms of abuse (Messman-Moore & Bhuptani, 2017). The psychological impact of trauma is often more severe among individuals who have lived through repeated or prolonged traumatic incidents, such as chronic childhood abuse, domestic violence, human trafficking, on-going war, or war imprisonment (Herman, 1992). Furthermore, emotion regulation, communication skills, and coping responses are compromised in young children who experience childhood abuse or adversities and can influence psychological outcomes as they age into adulthood (Cloitre et al., 2009).

The World Health Organization's (WHO) tenth edition of the International Classification of Mental and Behavioral Disorders: Clinical Descriptions and Diagnostic Guidelines (ICD-10), includes a description of PTSD similar to the DSM-IV-TR (2000) criteria for PTSD. Most recently, the latest edition of the DSM-V (APA, 2013), expanded the symptom criteria of PTSD to include negative cognitions or moods, as well as reckless and self-destructive behavioral symptoms. The current version of the DSM-V has also re-classified PTSD into the new category

of Trauma-and Stressor-Related Disorders, rather than keeping it in the Anxiety Disorder category of earlier DSMs (National Center for PTSD, 2013).

CPTSD Diagnostic History

Judith Herman (1992) was the first to suggest that the traditional view of PTSD was not sufficient to characterize individuals who may be more severely impaired due to exposure to repeated traumatic events. Herman proposed that Complex PTSD (CPTSD) resulted from prolonged and repeated exposure to trauma and consists of classic PTSD symptoms, as well as lasting personality changes in affect, self-concept, and relationships with others (Herman, 1992). The theoretical basis behind the CPTSD diagnosis suggests that when individuals experience multiple, repeated trauma, their self-concept is more dramatically affected, potentially leading to feelings of shame or guilt related to the inability to prevent their suffering or the suffering of others (Cloitre, Garverts, Brewin, Bryan & Maercker, 2013).

Whereas PTSD symptoms most commonly manifest in the context of reminders to the traumatic event, additional CPTSD symptoms are often prevalent in multiple aspects of survivors' lives, regardless of reminders or triggers related to their traumatic experiences (Cloitre et al., 2013). For example, disturbances in affect, self, and relational domains are more common among individuals with early-life chronic trauma relative to those with other types of trauma histories (Van der Kolk et al., 2005). To account for these differences in symptom expression, the DSM-IV-TR (2000) included *Disorders of Extreme Stress Not Otherwise Specified* (DESNOS). Unfortunately, the DESNOS diagnostic criteria seemed to lump together all individuals who showed differential PTSD symptom expression from enduring traumatic experiences, rather than offering greater specificity. Additionally, empirically supported measures were not developed in response to this informal criterion, leading to a lack of research

evidence demonstrating differential consistency to support a distinctly different set of psychological symptom expression for these individuals (Bottche et al., 2018).

Due to the lack of consistent evidence supporting a more specific disorder beyond DEPNOS, the final DSM-V did not include the CPTSD diagnosis due to 92% diagnostic overlap between individuals with CPTSD/DEPNOS and PTSD (National Center for PTSD, 2016). In contrast, the ICD-11 is slated to include a CPTSD diagnosis, the first formal diagnosis to account for the specific symptom expression that is over-and-above symptom criteria for PTSD. Specifically diagnostic features of PTSD will include two re-experiencing symptoms (i.e. flashbacks and nightmares), two avoidance symptoms (i.e. avoiding thoughts and avoiding behaviors), and two hyperarousal symptoms (i.e. increased startle response and hypervigilance). The CPTSD diagnosis would include these features plus at least one symptom in each of the three CPTSD symptom clusters: affect dysregulation (i.e. emotional reactivity, dissociation, anger, aggression, and emotional numbing), negative self-concept (i.e. negative beliefs about the self, including feelings of guilt/shame), and interpersonal disturbances (i.e. avoidance in relationships, estrangement, and lack of emotional intimacy in relationship), which may not overtly or intuitively seem related to an individual's trauma experiences (Wolf et al., 2015). Maercker and Perkonigg (2013) argued that this substantially different approach to the diagnostic criteria for PTSD and CPTSD will simplify the diagnoses by creating two separate and unique disorders. Others expected that the clarification of symptom clusters proposed for CPTSD will reduce comorbid diagnoses, such as Borderline Personality Disorder (BPD), Dysthymia, Major Depressive Disorder (MDD), and/or Social Phobia, which are currently being used to account for the affective dysregulation, negative self-concept, and interpersonal difficulties, that are integral to the traumatic disorder (Brewin et al., 2017).

Since the proposal of the CPTSD diagnosis, considerable debate has emerged among clinicians and researchers, questioning whether CPTSD categorizes a distinct set of individuals exhibiting a unique set of symptoms that are clinically significantly different from PTSD and Borderline Personality Disorder (BPD) (Wolf et al., 2015). Amad, Ramoz, Thomas, and Gorwood (2016) argued that BPD and PTSD are “two sides of the same coin” in that the disorders differ based on the ages in which the traumas occurred (pp. 374). They suggested that brain neuroplasticity alterations in response to childhood trauma, may have a more profound impact on personality throughout an individual’s life and contribute to the development of BPD, whereas trauma experienced in adulthood contributes to PTSD, not BPD.

With the impending release of the ICD-11, new research is emerging that empirically examines evidence for a differential diagnosis between PTSD and CPTSD, and the potential overlap with BPD. For example, in a sample of 302 trauma survivors, Cloitre and colleagues (2013) identified three distinct classes of symptom presentation representing a PTSD symptom class, CPTSD symptom class, and a low symptom expression class. These results remained significant when an additional 86 participants with BPD were included in the analyses, providing further evidence for CPTSD as a separate and distinct disorder not otherwise accounted for by BPD diagnostic criteria.

A recent review of the PTSD literature concluded there was significant symptom overlap between CPTSD, PTSD, BPD, and MDD (Resick et al., 2012). After finding parallel patterns in symptom expression for their participants, Wolf et al. (2015) speculated that the CPTSD symptoms merely represent a higher degree of PTSD symptom severity. In a diverse sample of trauma individuals, four distinct profiles for symptoms expression also emerged (low symptom expression, moderate PTSD symptoms and low CPTSD symptoms, moderate PTSD symptoms

and moderate to high CPTSD symptoms, and high symptoms in PTSD and CPTSD) (Bottche et al., 2018). In contrast to other studies, findings did not identify a subset of individuals who only experienced CPTSD symptomology, which the researchers attributed to a limited number of participants who experienced childhood trauma in their sample.

In another study with a sample of 280 women with histories of childhood abuse, Cloitre, Garvert, Weiss, Carlson, & Bryant (2014) identified four distinct sets of symptom expression (low symptoms; high PTSD and low BPD and CPTSD symptoms; high CPTSD symptoms and low BPD symptoms; high BPD symptoms with PTSD and CPTSD symptoms). Cloitre et al. also outlined key distinguishing features between PTSD and BPD, namely that PTSD symptoms are believed to be the result of traumatic memories whereas BPD symptoms are characterized by unstable relationships, impulsivity, and self-injury. Extending these findings internationally, In a recent review of the empirical evidence for and against the CPTSD diagnosis, Brewin and colleagues (2017) found that ICD-11's proposed symptom clusters were supported by four studies utilizing factor analysis and nine studies that employed latent profile or class analysis techniques. Ultimately, through more precise diagnostic criteria based on common symptom expression, treatment can be more easily studied and specifically tailored to each disorder, resulting in positive patient outcomes for trauma survivors.

Coping and Trauma

The current literature shows supportive and divergent evidence in regards to the DSM-5 and proposed ICD-11 diagnostic criteria of PTSD and CPTSD. The majority of these studies focus on symptom expression and diagnostic category. Less attention has been given to other psychological factors that may influence symptom expression, such as how individuals have sought to cope, seek meaning, or potentially grow from their traumatic exposure.

How individuals cope with traumatic events highly influences the degree and psychological impact of outcomes that may follow. For children who grow up in aversive environments, fewer resources are available to assist children in developing effective coping strategies (Abaibi & Wilson, 2005). Childhood abuse and other childhood hardships can result in other impairments as well, such as the limited development or lack of emotion regulation strategies and effective interpersonal behaviors (Cloitre et al., 2009). Prolonged and repeated stress and adversity may overwhelm and tax psychological resources so heavily, for both adults and children, that complex psychological responses manifest in a distinctly different way from acute stress responses (Abaibi & Wilson, 2005).

Stovall-McClough and Cloitre (2006) suggested that maladaptive childhood environments are also associated with avoidant coping, which in turn, serves as a precipitant for the development of adult PTSD-related outcomes. These learned psychological processes may serve children in an adaptive capacity throughout childhood, but may turn into less adaptive strategies if not altered when additional stressors or traumatic experiences are encountered in adulthood (Lee, Possemato, & Ouimette, 2017). For example, Elzy, Clark, Dollard, and Hummer (2013) found that adolescent girls who experienced high levels of trauma exposure and utilized avoidant coping strategies reported lower levels of trauma symptoms. However, for adults, avoidant coping strategies, both cognitive and behavioral, have been associated with more prominent negative outcomes such as higher rates of PTSD following traumatic experiences (Tiet et al, 2006). Conversely, social support seeking and emotion-focused coping directly impacted an individual's self-rated quality of life years after trauma exposure but were not specifically related to PTSD symptomology (Huijts et al., 2012).

As researchers aim to differentiate between PTSD, CPTSD, and BPD, Cloitre and colleagues (2014) acknowledged that emotion regulation difficulty is an overlapping symptom in CPTSD and BPD, but argued that the expression of symptoms is quite different. They further highlighted the poor coping responses seen in PTSD and CPTSD, such as anger responses and the use of alcohol or substances, whereas maladaptive coping responses associated with BPD include self-injury and suicidality. While coping has been studied in depth in relation to PTSD, research is needed to examine coping in relation to the CPTSD diagnosis.

Current Study

Research examining differential diagnoses based on symptom expression of trauma survivors has produced mixed findings, indicating the need for additional studies that utilize empirically validated measures of CPTSD (Cloitre et al., 2014). Resick and colleagues (2012) explained that if CPTSD is a distinct disorder, different patterns of psychosocial correlates (e.g., coping styles) should emerge between CPTSD, PTSD, and BPD. The current study explores the relationships between the three different patterns of symptom expression and various coping strategies in a sample of trauma survivors.

Method

Participants

This study was part of a larger research project examining psychological symptom expression in a college sample of adult trauma survivors. A total of 485 participants were recruited through undergraduate courses at the University of North Texas (UNT). Participants who denied exposure to a traumatic event were excluded ($n = 52$). In addition, 48 (9.9%) participants did not complete the survey and 24 participants (4.9%) responded that they had previously taken the survey or responded too quickly to warrant accurate responses and were

removed from the dataset. The final sample included a total of 361 (67.3% female; 32.4% male) participants, ages 18 to 48 ($M = 20.9$, $SD = 3.5$), with 177 identifying as White non-Hispanic (49.0%), 66 as Hispanic/Mexican American (18.3%), 50 as African American (13.9%), 31 as Asian/Asian American (8.6%) and 49 as “biracial/other” (8.0%).

Instruments

Demographics

A general demographic survey gathered information about gender, age, ethnicity, education level, income, sexual orientation, relationship status, classification in school, religious affiliation, and veteran status.

Life Events Checklist 5- Measure of Traumatic Experiences (LEC-5)

The Life Events Checklist (Weathers et al., 2013a) is a self-report that asks participants to indicate if they have experienced a traumatic event directly or indirectly, and if so, the type and number of events they experienced. The LEC-5 includes 17 traumatic experiences including natural disasters, fires/explosions, transportation accidents, occupational accidents, exposure to toxins, physical assault, assault with a weapon, sexual assault and unwanted sexual experiences, combat or war-zone exposure, captivity, life-threatening illness or injury, severe human suffering, sudden violent death, sudden accidental death, and/or witnessing serious injury/harm/death to someone else. Participants indicated the number of traumatic events they experienced throughout their lifetime and level of proximity to the event through endorsing if it happened to them, if they witnessed it, if they learned about it, or if it was part of their job. Gray, Litz, Hsu, and Lombardo (2004) reported adequate test-retest reliability ($k = .61$) and convergent and discriminant validity.

Complex Trauma Inventory (CTI)

The Complex Trauma Inventory (Litvin, Kaminski, & Riggs, 2017) assesses PTSD and CPTSD symptomology based on the proposed ICD-11 diagnostic criteria. This 20-item, self-assessment measure includes PTSD and CPTSD subscales, the latter of which can also be separated into a Complex Factors subscale including only CPTSD items that do not overlap with the PTSD subscale. Items asked participants to rate the level in which they are bothered by their symptoms (i.e. “When you experience the symptoms, how much do they bother you?”) on a 5-point Likert-type scale ranging from 0 (Not at all) to 4 (Extremely) and the frequency of their symptoms (i.e. “How often do the symptoms bother you?”) on a 5-point Likert-type scale ranging from 0 (Never) to 4 (Daily or almost daily) in nine different life domains. The PTSD subscale includes questions regarding PTSD symptoms such as re-experiencing (e.g., “Avoiding memories, thoughts, or feelings related to the event”), avoidance (e.g., “Trying to forget about a bad time in your life”), and sense of threat (e.g., “Feeling ‘super alert’ or on guard/watchful”). The Complex Factors subscale included questions regarding disturbances in self (DSO) through questions regarding affect dysregulation (e.g., “Being sensitive or having feelings easily hurt”), negative self-concept (e.g., “Feeling defeated or worthless”), and disrupted relationships (e.g., “Feeling distant from other people”). Litvin et al. reported good concurrent and predictive validity, good test-retest reliability (Cronbach’s α s = .89 to .92). In the current sample, high internal consistency was demonstrated for the PTSD subscale (Cronbach’s α s = .94), the Complex Factors subscale (Cronbach’s α s = .96), and the full CPTSD scale (Cronbach’s α = .97).

The COPE Inventory (COPE)

The COPE Inventory (Carver, Scheier, & Weintraub, 1989) is a 60-item self-assessment

inventory designed to measure various coping strategies. This measure includes fifteen subscales: positive reinterpretation and growth, active coping, planning, suppression of competing activities, restraint coping, seeking social support for instrumental reasons, seeking social support for emotional reasons, acceptance, turning to religion, focus on and venting of emotions, denial, behavioral disengagement, mental disengagement, humor, and substance use. Previous research has demonstrated good concurrent and predictive validity, good test-retest reliability for most subscales (Cronbach's α s = .45 to .92) (Carver, Scheier, & Weintraub, 1989). In the current study, internal consistency ranged from moderate to high for each of the subscales (Cronbach's α s = .60 to .95).

Borderline Symptom List 23 (BSL-23)

The Borderline Symptom List 23 (Bohus, et al., 2009), is a 23-item self-assessment inventory designed to measure symptoms associated with Borderline Personality Disorder. Sample items include "I thought of hurting myself," "I didn't trust other people," "I experienced stressful inner tension". Previous research has reported high internal consistency (Cronbach's α s = .94 to .97), strong convergent validity, and high test-retest reliability (Bohus et al., 2009). In the current study, internal consistency for this scale was high (Cronbach's α = .95).

Procedures

Following approval from the UNT Institutional Review Board for the larger research project (PI: Patricia Kaminski), undergraduate college students were recruited through a brief in-class presentation in which students were offered extra credit for participation in the study and supplied the link to the associated Qualtrics survey. All individuals consented to participation in the study prior to beginning the online survey. Participants were then directed to complete the

online, self-report survey containing a brief demographic survey, the LEC-5, CTI, BSL, and COPE, as well as other measures not used in this study.

Analyses

Canonical correlation analysis (CCA) allows for multiple predictor variables to be correlated with multiple criterion variables and is preferred over other statistical procedures due to the reduction of committing stepwise errors through simultaneous comparisons among many observed variables (Sherry & Henson, 2005). Although no directionality is assumed in the current study, the CTI-PTSD, CTI-CPTSD, and BSL scores are used as observed predictors of fifteen COPE subscales as observed outcomes to evaluate the multivariate shared relationships between two variable sets (i.e., psychological symptoms and coping style).

This study aimed to identify the relationships between psychological outcomes and coping style employed following a traumatic event and specifically explore the styles of coping associated with the distinct clusters of symptoms that define PTSD, CPTSD, and BPD. Although primarily exploratory in nature, theory and previous research guided our tentative hypotheses: The overall CCA would show a significant association between the latent variable of the trauma-related symptoms and the latent variable of coping. We did not predict hierarchical order of emerging functions, but theory suggests that certain coping strategies may group together along the same function. For example, adaptive coping strategies (positive reinterpretation and growth, active coping, instrumental social support, religious coping, emotional social support, and acceptance) would logically be associated with lower psychological symptoms of PTSD, CPTSD, and BPD. We also anticipated that PTSD and CPTSD symptomatology would be related to a set of avoidant coping strategies (suppression, denial, restraint, behavioral disengagement, and substance use). Coping through mental disengagement was also believed to

be included in this set, but thought to be more highly related to CPTSD due to its dissociative features. It was also hypothesized that a third pattern could emerge that would separate the social support variables from other adaptive coping strategies. Individuals with BPD often actively seek relationships with others but may employ maladaptive coping strategies within the relationships in their efforts to avoid real or imagined abandonment (APA, 2013), so it is possible that BPD would be associated with higher levels of help seeking and social support.

Results

Primary Analyses

Prior to conducting the CCA, assumptions of normality, linearity, and homoscedasticity were tested through normal descriptive screening procedures available in SPSS. No missing data was identified among the 361 sets of participants. Prior to running the analyses, a correlation matrix was constructed to identify significant relationships between all variables. Variables not found to have a significant relationship to other variables in the data set were removed from further analyses. The variables removed included the coping variables of religious coping, instrumental social support, and emotional social support.

A CCA was then performed using the SPSS CANCELL function to examine the relationships between two sets of variables, one that measured psychological outcomes following trauma (Set 1) and a second which measured coping strategies (Set 2). Set 1 items included PTSD Symptoms (PTSD) measured through the CTI PTSD subscale, Complex PTSD Symptoms (CPTSD) measured through the CTI Complex Factors subscale, and BPD Symptoms (BPD) measured through the BSL total score. Set 2 items included the 15 coping strategies found to have significant correlations with Set 1 variables: positive reinterpretation and growth (PRG), mental disengagement (MEN), venting of emotions (VEN), instrumental social support (ISS),

active coping (ACT), denial (DEN), religious coping (REL), humor (HUM), behavioral disengagement (BEH), restraint (RES), emotional social support (ESS), substance use (SUB), acceptance (ACC), suppression (SUP), and planning (PLN).

The analysis yielded three functions of canonical correlates. The canonical correlates resulting from this analysis are as follows: .72 for canonical function 1, .22 for canonical function 2, and .13 for canonical function 3. The first pair of canonical variates accounted for 52.0% of the variance, the second pair accounted for an additional 4.8%, and the third for an additional 1.7% of the variance between Set 1 and Set 2 variables.

The dimension reduction analysis included in the CCA resulted in three models. The first model including all three functions was the only model that accounted for a significant amount of variance, $X^2(36) = 280.33, p < .001, \lambda = .45, R_c^2 = .55$, indicating a large effect size for this model. The second and third models did not account for a significant proportion of variance (Model 2: $X^2(22) = 22.15, p = .451, \lambda = .95, R_c^2 = .05$; Model 3: $X^2(10) = 5.56, p = .851, \lambda = .95, R_c^2 = .05$). Due to limited practical and statistical significance, these models were not included for further interpretation. Only the first function was considered noteworthy in the context of this study, indicating a significant relationship between our variable sets and a large effect size explained by the variance in model 1.

With a canonical loading cutoff correlation of .45, the standardized canonical coefficients (*Coef*) in the first canonical function indicated BPD, PTSD, and CPTSD were all significantly related to overall psychological outcomes as measured by Set 1. All three variables showed an inverse relationship, meaning higher scores predicted worse psychological outcomes. BPD symptoms most heavily loaded (*Coef* = -.60), followed by PTSD (*Coef* = -.29) and CPTSD (*Coef* = -.22), all with high canonical loadings (BPD $r_s = -.68$; CPTSD $r_s = -.65$; PTSD $r_s = -.61$),

indicating that individuals with BPD symptoms reported the highest prevalence of psychological symptoms, compared to those with CPTSD and PTSD symptomology. In the set 2 variables, behavioral disengagement ($Coef = -.46$), denial ($Coef = -.35$), and substance use ($Coef = -.30$) loaded highest on the variate and had high canonical loadings (BEH $r_s = -.87$; DEN $r_s = -.77$; SUB $r_s = -.73$), with mental disengagement ($Coef = -.04$) demonstrating a moderate canonical loading (MEN $r_s = -.56$) and restraint ($Coef = -.12$) and venting ($Coef = -.11$) also significantly contributing to a strong positive relationship between the set 1 variables (RES $r_s = -.47$; VEN $r_s = -.44$). All of these variables' coefficients had similar inverse directionality as the Set 1 variables, indicating that higher use of these coping strategies related to a higher prevalence of psychological symptoms. Behavioral disengagement, denial, and substance use also had larger canonical function coefficients. Positive reinterpretation and growth, action, humor, acceptance, suppression, and planning did not significantly contribute to the set 2 latent variable. Table 1 presents the standardized canonical function coefficients and structure coefficients for Model 1.

A cross-loading analysis was then conducted based on the output to determine if variables were measuring their own scores better than they are measuring other variables in the same latent variable set. Table 4 demonstrates this requirement was met. A redundancy analysis was also conducted to ensure the contribution of variance in the assigned variate function was not better explained by the other variables in the variate functions. For our significant variate function, Function 1, the psychological outcomes variables explained 80.8% of the variance compared to the 42.0% of the variance explained by the coping variables. Similarly, the coping variables explained 24.7% of the variance in the coping strategies, compared to 12.9% of the variance that the psychological outcome variables contributed to the coping strategies.

Table 1

Canonical Solution for Coping Strategies Predicting Psychological Outcomes for Total Sample and Sub-Samples A and B

| Variable | Total Sample Model 1 | | | Sub-Sample A Model 1 | | | Sub-Sample B Model 1 | | |
|------------------------------|-------------------------|-------------|-------------|-------------------------|-------------|-------------|-------------------------|-------------|-------------|
| | Coef | r_s | r_s^2 (%) | Coef | r_s | r_s^2 (%) | Coef | r_s | r_s^2 (%) |
| <u>Psychological Outcome</u> | | | | | | | | | |
| PTSD | -.29 | <u>-.61</u> | 37.21 | -.39 | <u>-.85</u> | 72.25 | -.21 | <u>-.85</u> | 72.25 |
| CPTSD | -.22 | <u>-.65</u> | 42.25 | -.11 | <u>-.87</u> | 75.59 | -.30 | <u>-.93</u> | 86.49 |
| BPD | -.60 | <u>-.68</u> | 46.24 | -.62 | <u>-.93</u> | 86.49 | -.58 | <u>-.96</u> | 92.16 |
| <u>Coping Strategy</u> | | | | | | | | | |
| PRG | .16 | -.13 | 1.69 | .12 | -.15 | 2.25 | .20 | -.12 | 1.44 |
| MEN | -.04 | <u>-.56</u> | 31.36 | .07 | -.44 | 19.36 | -.13 | <u>-.67</u> | 44.89 |
| VEN | -.11 | -.44 | 19.36 | -.001 | -.40 | 16.00 | -.22 | <u>-.46</u> | 21.16 |
| ACT | .05 | -.20 | 4.00 | -.17 | -.23 | 5.29 | -.01 | -.16 | 2.56 |
| DEN | -.35 | <u>-.77</u> | 59.29 | -.69 | <u>-.77</u> | 59.29 | -.38 | <u>-.76</u> | 57.76 |
| HUM | -.02 | -.34 | 11.56 | -.08 | -.37 | 13.69 | .01 | -.29 | 8.41 |
| BEH | -.46 | <u>-.87</u> | 75.69 | -.43 | <u>-.88</u> | 77.44 | -.42 | <u>-.84</u> | 70.56 |
| RES | -.12 | <u>-.47</u> | 22.09 | -.21 | <u>-.54</u> | 29.16 | -.11 | -.37 | 13.69 |
| SUB | -.30 | <u>-.73</u> | 53.29 | -.35 | <u>-.75</u> | 56.25 | -.25 | <u>-.70</u> | 49.00 |
| ACC | -.82 | -.25 | 6.25 | -.17 | -.30 | 9.00 | -.01 | -.19 | 3.61 |
| SUP | .02 | -.30 | 9.00 | -.002 | -.34 | 11.56 | .05 | -.24 | 5.76 |
| PLN | .07 | -.16 | 2.56 | -.08 | -.21 | 4.41 | .07 | -.08 | .64 |

Note. Structure coefficients (r_s) greater than .45 are underlined. *Coef* = standardized canonical function coefficient; r_s = structure coefficient; r_s^2 = squared structure coefficient. PRG = Positive Reinterpretation and Growth; MEN = Mental Disengagement; VEN = Venting of Emotions; ACT = Action; DEN = Denial; HUM = Humor; BEH = Behavioral Disengagement; RES = Restraint; SUB = Substance Use; ACC = Acceptance; SUP = Suppression; PLN = Planning

Cross-Validation

Canonical correlation analysis has been criticized for capitalizing on chance through the process of maximizing canonical correlation coefficients for all variables in each variable set. To address this criticism, Gittins (1980) recommended that a cross-validation procedure be conducted, in which the sample is divided into two sub-samples, using the second subsample to assess the constancy of the findings. So, the current sample was randomly divided using the random selection of cases function through SPSS, resulting in two separate subsamples: Sample A containing 190 participants and Sample B, containing 171 participants. Multiple independent

sample t-tests were conducted and found no significant differences between Sample A and Sample B on the basis of gender, ethnicity, religion, or trauma type.

Sub-Sample A

The canonical correlates resulting from this analysis are as follows: .74 for canonical function 1, .27 for canonical function 2, and .22 for canonical function 3. The first pair of canonical variates accounted for 54.7% of the variance, the second pair accounted for an additional 7.2%, and the third for an additional 5.0% of the variance between set 1 and set 2 variables. In this sub-sample, the first model across all three functions was again, the only function that contributed to a significant proportion of the variance, $X^2(36) = 280.33, p < .001, \lambda = .40, R_c^2 = .60$. The second and third models did not indicate statistical or practical significance and were not included for further interpretation (Model 2: $X^2(22) = 22.92, p = .406, \lambda = .88, R_c^2 = .22$; Model 3: $X^2(10) = 9.34, p = .500, \lambda = .95, R_c^2 = .05$).

The standardized canonical coefficients in the first model for set 1 variables again indicated BPD, PTSD, and CPTSD were all significantly related to overall psychological outcomes as measured by Set 1, with a high canonical loading on each variable (BPD $r_s = -.93$; CPTSD $r_s = -.87$; PTSD $r_s = -.85$). All three variables showed an inverse relationship, meaning higher scores predicted worse psychological outcomes. BPD symptoms most heavily loaded ($Coef = -.62$), compared with PTSD ($Coef = -.39$) and CPTSD ($Coef = -.11$). In the set 2 variables, behavioral disengagement ($Coef = -.43; r_s = -.88$), denial ($Coef = -.69; r_s = -.77$), substance use ($Coef = -.35; r_s = -.75$), and restraint ($Coef = -.21; r_s = -.54$), loaded highest on the variate and significantly contributing to a strong relationship between the set 1 variables. Venting ($Coef = -.001; r_s = -.40$) and mental disengagement ($Coef = .07; r_s = -.44$) approached a significant relationship between the set 1 variables. All of these variables' coefficients had similar inverse

directionality as the set 1 variables, indicating that higher use of using these coping strategies related to a higher prevalence of psychological symptoms.

A cross-loading and redundancy analysis again was conducted to ensure the contribution of variance in the assigned variate function was not better explained by the other variables in the variate functions. For our significant variate function, the psychological outcomes variables explained 80.8% of the variance compared to the 44.3% of the variance explained by the coping variables. Similarly, the coping variables explained 25.3% of the variance in the coping strategies, compared to 13.9% of the variance that the psychological outcome variables contributed to the coping strategies.

Sub-Sample B

The canonical correlates resulting from this analysis are as follows: .72 for canonical function 1, .33 for canonical function 2, and .13 for canonical function 3. The first pair of canonical variates accounted for 52.0% of the variance, the second pair accounted for an additional 10.9%, and the third for an additional 1.8% of the variance between set 1 and set 2 variables. The first model in the dimension reduction analysis was again, the only statistically significant function, $X^2(36) = 140.50, p < .001, \lambda = .42, R_c^2 = .58$. The second and third models did not indicate statistical or practical significance and were not included for further interpretation (Model 1: $X^2(22) = 21.60, p = .484, \lambda = .88, R_c^2 = .12$; Model 3: $X^2(10) = 2.96, p = .982, \lambda = .98, R_c^2 = .02$).

The standardized canonical coefficients in the first canonical function for set 1 variables continued to indicate BPD, PTSD, and CPTSD were all significantly related to overall psychological outcomes as measured by Set 1. All three variables showed an inverse relationship. BPD symptoms most heavily loaded ($Coef = -.58; r_s = -.96$), followed by CPTSD

(*Coef* = -.30; *r_s* = -.93) and PTSD (*Coef* = -.21; *r_s* = -.85). In the Set 2 variables, behavioral disengagement (*Coef* = -.42; *r_s* = -.84), denial (*Coef* = -.38; *r_s* = -.76), and substance use (*Coef* = -.25; *r_s* = -.70) loaded highest on the variate, with venting (*Coef* = -.22; *r_s* = -.46), and mental disengagement (*Coef* = -.13; *r_s* = -.67) also significantly contributing to a strong relationship between the set 1 variables. All of these variables' coefficients had similar inverse directionality as the Set 1 variables, indicating that higher use of these coping strategies related to a higher prevalence of psychological symptoms. The coping variable restraint (*Coef* = -.11; *r_s* = -.37) no longer showed a significant contribution to the latent coping variable in this sub-sample, compared with sub-sample A and overall sample results.

A cross-loading and redundancy analysis was also ensured the contribution of variance in the assigned variate function was not better explained by the other variables in the variate functions. For our significant variate function, the psychological outcomes variables explained 83.5% of the variance compared to the 43.4% of the variance explained by the coping variables. Similarly, the coping variables explained 23.2% of the variance in the coping strategies, compared to 12.1% of the variance that the psychological outcome variables contributed to the coping strategies.

Cross-Validation Comparison

Based on the comparison of variables contributing to each variate function between the overall sample, sub-sample A and sub-sample B, BPD, CPTSD, and PTSD all remained consistent contributors to the function and will be included in the results interpretation. In comparison, coping variables behavioral disengagement, substance use, and denial also remained consistent contributors to the variate function 1 with a negative relationship with psychological outcome symptoms. Mental disengagement and venting coping variables were significant or

approached significance in the results comparing the overall sample and subsamples. Table 1 presents the standardized canonical function coefficients and structure coefficients for Model 1 across the total sample, sub-sample A, and sub-sample B.

Post-Hoc Analyses

A series of post-hoc analyses were conducted to explore unforeseen within group differences. A separate CCA analysis was run on the sub-sample of male participants and subsequently the sub-sample of female participants. For the male participants, again the first canonical function was the only significant function, resulting in a .74 canonical correlate and accounting for 55% of the variance. The first model across all three functions was again the only statistically significant function, $X^2(36) = 109.04, p < .001, \lambda = .36, R_c^2 = .64$. The standardized canonical coefficients in the first canonical function for set 1 indicated CPTSD, BPD, and PTSD were all significantly related to overall psychological outcomes as measured by set 1. However, a considerably different pattern emerged in which CPTSD symptoms were most prevalent among male participants, followed by PTSD and BPD symptoms. All three variables showed an inverse relationship, meaning higher scores predicted worse psychological outcomes. Complex PTSD symptoms most heavily loaded ($Coef = -.42, R_s = -.95$), followed by PTSD ($Coef = -.37, R_s = -.90$) and BPD ($Coef = -.31, R_s = -.86$). In the set 2 variables, behavioral disengagement ($Coef = -.70, R_s = -.92$), substance use ($Coef = -.28, R_s = -.64$), venting ($Coef = -.14, R_s = -.62$), and denial ($Coef = -.13, R_s = -.59$) loaded highest on the variate, with mental disengagement ($Coef = -.08, R_s = -.54$) and restraint ($Coef = .01, R_s = -.50$) also significantly contributing to a strong relationship between the set 1 variables. All of these variables' coefficients had similar inverse directionality as the Set 1 variables other than restraint, which led to lower psychological outcomes indicated by variate 1.

For the female participants, the first canonical function was the only significant function, resulting in a .73 canonical correlate and accounting for 53% of the variance. The first model across all three functions was the only statistically significant function, $X^2(36) = 195.89$, $p < .001$, $\lambda = .43$, $R_c = .57$. The standardized canonical coefficients in the first canonical function indicated BPD, CPTSD, and PTSD were all significantly related to overall psychological outcomes as measured by Set 1. All three variables showed an inverse relationship, meaning higher scores predicted worse psychological outcomes. A noteworthy difference also emerged with female participants indicating higher prevalence rates of BPD symptoms most heavily loaded on the variate ($Coef = -.69$, $R_s = -.97$), compared with PTSD ($Coef = -.21$, $R_s = -.81$) and CPTSD ($Coef = -.18$, $R_s = -.89$). In the Set 2 variables, denial ($Coef = -.44$, $R_s = -.82$), behavioral disengagement ($Coef = -.39$, $R_s = -.84$), and substance use ($Coef = -.30$, $R_s = -.76$) loaded highest on the variate, with mental disengagement ($Coef = .01$, $R_s = -.54$) also significantly contributing to a strong relationship between the set 1 variables. Coping variables restraint ($Coef = -.11$, $R_s = -.44$) and humor ($Coef = -.03$, $R_s = -.42$) also were approaching a significant contribution toward the overall model. Of these variables, all had similar inverse directionality as the set 1 variables, other than mental disengagement, which led to lower psychological symptoms indicated in variable set 1. Male participants more often reported coping strategies such as venting and restraint, whereas female participants often reported coping through denial. Table 2 provides a side-by-side comparison between male and female participants through the CCA analysis.

Table 2

Post Hoc Comparison between Male and Female Participants

| Variable | Total Sample Males | | | Total Sample Females | | |
|------------------------------|-----------------------|-------------|----------------|-------------------------|-------------|-------------|
| | Model 1 | | | Model 1 | | |
| | Coef | r_s | r_s^2 (%) | Coef | r_s | r_s^2 (%) |
| <u>Psychological Outcome</u> | | | | | | |
| PTSD | -.37 | <u>-.90</u> | 81.00 | -.21 | <u>-.81</u> | 65.61 |
| CPTSD | -.42 | <u>-.95</u> | 90.25 | -.18 | <u>-.89</u> | 79.21 |
| BPD | -.31 | <u>-.86</u> | 73.96 | -.69 | <u>-.97</u> | 94.09 |
| <u>Coping Strategy</u> | | | | | | |
| PRG | -.01 | -.21 | 4.41 | .26 | -.10 | 1.00 |
| MEN | -.08 | <u>-.54</u> | 29.16 | .01 | <u>-.54</u> | 29.16 |
| VEN | -.14 | <u>-.62</u> | 38.44 | -.06 | -.34 | 11.56 |
| ACT | -.04 | -.30 | 9.00 | .003 | -.18 | 3.24 |
| DEN | -.13 | <u>-.59</u> | 34.81 | -.44 | <u>-.82</u> | 67.24 |
| HUM | -.04 | -.27 | 7.29 | -.03 | -.42 | 17.64 |
| BEH | -.70 | <u>-.92</u> | 84.64 | -.39 | <u>-.84</u> | 70.56 |
| RES | .01 | <u>-.50</u> | 25.00 | -.11 | -.44 | 19.36 |
| SUB | -.28 | <u>-.64</u> | 40.96 | -.30 | <u>-.76</u> | 57.76 |
| ACC | -.06 | -.28 | 7.84 | -.14 | -.27 | 7.29 |
| SUP | .02 | -.33 | 10.89 | -.03 | -.30 | 9.00 |
| PLN | .23 | -.26 | 6.76 | .06 | -.12 | 1.44 |

Note. Structure coefficients (r_s) greater than .45 are underlined. *Coef* = standardized canonical function coefficient; r_s = structure coefficient; r_s^2 = squared structure coefficient. PRG = Positive Reinterpretation and Growth; MEN = Mental Disengagement; VEN = Venting of Emotions; ACT = Action; DEN = Denial; HUM = Humor; BEH = Behavioral Disengagement; RES = Restraint; SUB = Substance Use; ACC = Acceptance; SUP = Suppression; PLN = Planning

Discussion

The goal of this study was to determine if coping strategies differ based on possible psychological outcomes following trauma exposure. Given the debate on whether PTSD and Complex PTSD are separate, distinct disorders from borderline personality disorder, this study aimed to clarify possible patterns of coping strategies associated with these disorders following psychological trauma.

Results supported the first hypothesis, demonstrating that the latent variable of trauma-related symptoms was significantly related to the latent variable of coping. However, contrary to tentative predictions, adaptive coping strategies (positive reinterpretation and growth, active coping, instrumental social support, religious coping, emotional social support, and acceptance) did not group together along the models and were not found to be significantly related to lower psychological symptoms of BPD, PTSD, and CPTSD. These results may suggest inconsistent use of these coping strategies that may or may not be effective, this lacking strength and directionality of the relationship with symptom expression. It may be possible that negative coping strategies are more important in contributing to symptoms compared to the presence or absence of more adaptive coping strategies which may not affect symptom expression.

Consistent with previous theory and research, Littleton, Horsley, John, and Nelson (2007) results supported a consistent association between reliance on avoidance strategies and psychological distress. Examination of the first canonical root for the overall sample and cross-validation sub-samples revealed that individuals who reported higher psychological symptoms, most notably BPD symptoms, followed by Complex PTSD and PTSD symptoms, were more likely to cope using avoidant coping strategies, specifically behavioral disengagement, denial, and substance use. This finding was similar to previous research that suggested high rates of negative psychological outcomes for adults who utilize cognitive and behavioral avoidant coping strategies (Tiet et al., 2016). Previous research has also shown that avoidance strategies are focused on evading emotions related to stressors or reminders of the stressor, likely contributing to an increase in symptomatology. The results from this study are consistent with this finding and may suggest that reliance upon avoidant coping strategies in the short-term may help reduce

distress but may be contributing to higher psychological symptoms due to persistent reliance upon these strategies (Pineles, Mostoufi, Ready, Street, Griffin, & Resick, 2011).

Post-hoc analyses separately examining male and female participants found similar maladaptive coping strategies employed by both groups, including high prevalence of coping through behavioral disengagement, substance use, denial, and mental disengagement that contributed to higher levels of psychological distress. Male and female participants differed most notably through their use of psychological symptom expression, with male participants having the highest loading on Complex PTSD symptoms, followed by PTSD and BPD symptoms compared to female participants having the highest loading on Borderline Personality Disorder symptoms, followed by Complex PTSD and PTSD symptoms. Although these analyses are limited in their capacity to determine causality or directionality among symptom expression, it can be hypothesized for future research that trauma exposure may be more likely to manifest in Complex PTSD symptom expression for males compared to Borderline Personality Disorder symptoms in females.

While these analyses may not provide information as to which coping strategies are specific to each set of symptom expression that other confirmatory statistical techniques may offer, these results offer supportive evidence for coping strategies that align with the proposed ICD-11 CPTSD diagnostic criteria. When examining male participants who indicated higher levels of CPTSD symptom expression, behavioral disengagement was the strongest predictor and contributed to most of the variance explained by CPTSD symptoms. While mental disengagement also contributed to high levels of symptom expression, behavioral disengagement may more closely align with the likelihood of participants socially withdrawing from others or

experience interpersonal disturbances in an effort to maintain cognitive distance from traumatic reminders (Cloitre et al., 2013).

Additionally, increases in male participants' psychological symptoms were most strongly associated with coping through behavioral disengagement, relative to female participants' strong indication of coping through denial. Male participants also employed venting and restraint as coping techniques, which contributed to higher psychological symptoms, in contrast to female participants and the combined overall sample. These results support previous research by Cloitre and colleagues (2013) highlighting poor coping responses through the use of heightened emotional reactivity, violent outbursts, and self-destructive behavior, that may maintain avoidance suggested by the CPTSD diagnostic criteria.

Female participants were more likely to report high levels of BPD symptoms and coping through the use of denial. Previous research with trauma survivors has suggested that externally oriented thinking through interactions with others may result in the use of denial as a coping technique, in turn maintaining avoidant symptoms related to unprocessed traumatic memories (Gaher, O'Brien, Smiley, & Hahn, 2016). While individuals with BPD symptoms may not be seeking instrumental or emotional social support in relation to processing their trauma, as previously hypothesized, coping through the use of denial suggests that participants with higher BPD symptoms may be engaging with others socially but denying the impact of their traumatic experiences.

Clinical Implications

As suggested by Lazarus and Folkman (1984), the way individuals cope with stressful events highly influences the degree and psychological impact of outcomes that may follow. Specifically, if a coping response is adequate and readily available, an individual's cognitions

may reevaluate a stressor as less threatening than originally perceived. Conversely, if a coping response is not adequate, individuals may reevaluate the intensity of the stressor and adjust their coping response as needed. The use of avoidant coping strategies of behavioral disengagement, denial, and substance use, most prominently seen in relationship to higher psychological symptom expression in this sample of trauma survivors, may interfere with resolution of the stressor. As such, these individuals may continuously be reevaluating the threats in their environment, leading to increased distress in their daily life. This reevaluation of threats may be related to BPD symptoms, more so for women than men, in which individuals seek relationships in their life but have a difficult time with emotion regulation and ongoing interpersonal difficulty. In comparison, men more than women, may be more likely to show their emotional reactivity toward threats in their environment through anger, aggression, and emotional numbing that is characteristic of the suggested Complex PTSD diagnosis. Interpersonal isolation and a negative self-concept may result in avoidant coping strategies such as behavioral and mental disengagement, leading to higher prevalence of Complex PTSD symptoms in men (Cloitre et al., 2014).

Lazarus (2000) criticized previous stress and coping literature as failing to fill the gap between research and clinical practice. So, how can these results translate to clinical practice? Effective coping is seen as an effective fit for an individual and the environmental demands they face (French, Caplan, & Van Harrison, 1982). For individuals who experienced childhood maltreatment, behavioral disengagement and denial may have led to lower levels of psychological distress throughout childhood and helped young children learn to deal with inconsistent caregivers. These strategies may no longer work in adulthood, contributing to increased psychological symptoms and interpersonal disconnection and isolation.

While the debate regarding whether Complex PTSD and Borderline Personality Disorder are similar or separate disorders may continue, the importance of identifying effective coping strategies for trauma survivors remains. Therapeutic interventions that specifically target the reduction of maladaptive coping strategies and symptom expression, rather than the focus on their diagnostic labels, may be more beneficial. The prevalence of avoidant coping strategies in this study suggest that clinicians could target behavioral disengagement, denial, and substance use as ineffective coping strategies and use these as points of clinical intervention for more effective treatment outcomes.

Limitations

The current study is not without limitations. While CCA is a useful exploratory multivariate statistical procedure beneficial in maximizing correlational relationships, this study was limited in its capacity to find maximum interpretation of the variables included (Tabachnick & Fidell, 2013). This study was also cross-sectional in nature, limiting causal interpretations and the generalizability of the results across participants' lifetimes. Generalizability also may be limited to other college students (mean age 20) and may not represent symptom expression or coping throughout the lifespan. Furthermore, due to the sample size and the high number of participants who endorsed more than one type of trauma, separate analyses were not conducted based on the type of trauma individuals reported. While the proposed ICD-11 CPTSD diagnostic criteria do not require childhood trauma as a pre-requisite, many have suggested that the disorder and associated psychological challenges throughout the lifespan may result in different symptom expression and coping strategies used. This study was not able to separately compare individuals with childhood trauma and individuals with adult trauma in this way due to the nature in which participants were asked about their traumatic experiences. This study is also limited in the

exclusive use of self-report measures, potentially leading to overlap in symptom expression reported and bias in reporting.

Future Research

Future research in this area may benefit from confirmatory techniques in which causality and directionality between symptom expression and coping strategies can be determined.

Continued exploration of psychological outcomes and effective coping strategies is needed to provide empirical direction for effective therapeutic intervention. Future research would likely benefit from in-person interviews to confirm diagnostic criteria.

While research has consistently demonstrated the relationship between avoidant coping strategies and worse psychological and physical health outcomes for trauma survivors, targeted trauma treatments most notably focus on cognitive restructuring and reorientation to work through avoidant propensities. For individuals with prolonged and/or repeated exposure to undue traumatic experiences throughout their lifetime, targeting mental disengagement may not fully confront all maladaptive coping techniques that lead to high psychological symptomatology in trauma survivors. Additional research on evidence-based treatments for trauma survivors is needed to help these individuals confront affect dysregulation, social withdrawal, and interpersonal disturbances that are believed to result in more complex psychological outcomes such as Complex PTSD and Borderline Personality Disorder.

References

- Amad, A., Ramoz, N., Thomas, P., & Gorwood, P. (2016). The age-dependency plasticity highlights the conceptual interface between borderline personality disorder and PTSD. *European Archives of Psychiatry and Clinical Neuroscience*, 266, 373-375.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders*, (5th ed.). Washington, DC: Author.

- Bohus, M., Kleindienst, N., Limberger, M. F., Stieglitz, R., Domsalla, M., Chapman, A. L., . . . Wolf, M. (2009). The short version of the borderline symptom list (BSL-23): Development and initial data on psychometric properties. *Psychopathology*, 42(1), 32-9.
- Botche, M., Ehring, T., Kruger-Gottschalk, A., Rau, H., Schafer, I., Schellong, J., . . . Knaevelsrud, C. (2018). Testing the ICD-11 proposal for complex PTSD in trauma-exposed adults: Factor structure and symptoms profiles. *European Journal of Psychotraumatology*, 9(1), 1-11.
- Brewin, C. R., Cloitre, M., Hyland, P., Shevlin, M., Maercker, A., Bryant, R. A., Humayun, A., . . . Reed, G. M. (2017). A review of current evidence regarding the ICD-11 proposals for diagnosing PTSD and complex PTSD. *Clinical Psychology Review*, 58, 1-15.
- Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the Brief COPE. *International Journal of Behavioral Medicine*, 4, 92-100.
- Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, 56(2), 267-283.
- Cloitre, M., Garvert, D. W., Brewin, C. R., Bryant, R. A., & Maercker, A. (2013). Evidence for proposed ICD-11 PTSD and complex PTSD: A latent profile analysis. *European Journal of Psychotraumatology*, 4, 1-12.
- Cloitre, M., Garvert, D. W., Weiss, B., Carlson, E. B. & Bryant, R.A. (2014). Distinguishing PTSD, Complex PTSD, and Borderline Personality Disorder: A latent class analysis. *European Journal of Psychotraumatology*, 5(1), 1-10.
- Cloitre, M., Stolbach, B. C., Herman, J. L., van der Kolk, B., Pynoos, R., Wang, J., & Petkova, E. (2009). A developmental approach to complex PTSD: Childhood and adult cumulative trauma as predictors of symptom complexity. *Journal of Traumatic Stress*, 22(5), 399-408.
- Elzy, M., Clark, C., Dolalrd, N., & Hummer, V. (2013). Adolescent girls' use of avoidant and approach coping as moderators between trauma exposure and trauma symptoms. *Journal of Family Violence*, 28, 763-770.
- Gaher, R. M., O'Brien, C. O., Smiley, P., & Hahn, A. M. (2016). Alexithymia, coping styles and traumatic stress symptoms in a sample of veterans who experienced military sexual trauma. *Stress and Health*, 32, 55-62.
- Gittins, R (1980). *Canonical Analysis: A Review with Applications in Ecology*. Springer-Verlag Berline Heidelberg.
- Gray, M. J., Litz, B. T., Hsu, J. L., & Lombardo, T. W. (2004). Psychometric Properties of the Life Events Checklist. *Assessment*, 11(4), 330-341.
- Herman, J. L. (1992). *Trauma and recovery*. New York: Basic Books

- Kessler, R. C., Aguilar-Gaxiola, S., Alonso, J., Benjet, C., Bromet, E. J., Cardoso, G., ... Koenen, K. C. (2017). Trauma and PTSD in the WHO World Mental Health Surveys. *European Journal of Psychotraumatology*, 8(5), DOI: [10.1080/20008198.2017.1353383](https://doi.org/10.1080/20008198.2017.1353383)
- Lee, J., Possemato, K., & Ouimette, P.C. (2017). Longitudinal changes in combat-related Posttraumatic Stress Disorder among Operation Enduring Freedom/Operation Iraqi Freedom/Operation New Dawn veterans with hazardous alcohol use: The role of avoidance coping, 205(10), 805-808.
- Littleton, H., Horsley, S., John, S., & Nelson, D.V. (2007). Trauma coping strategies and psychological distress: A meta-analysis. *Journal of Traumatic Stress*, 20(6), 977-988.
- Litvin, J. M., Kaminski, P. L., & Riggs, S. A. (2017). The Complex Trauma Inventory: A self-report measure of Posttraumatic Stress Disorder and Complex Posttraumatic Stress Disorder. *Journal of Traumatic Stress*, 30, 602-613.
- Maercker, A. & Perkonig, A. (2013). Applying an international perspective in defining PTSD and related disorders: Comment of Friedman (2013). *Journal of Traumatic Stress*, 26(5), 560-562.
- McLaughlin K. A., Koenen K. C., Hill E. D., Petukhova M., Sampson N. A., Zaslavsky A. M., et al. Trauma exposure and posttraumatic stress disorder in a national sample of adolescents. *J Am Acad Child Adolesc Psychiatry*. 2013;52:815–30. e14
- Messman-Moore, T. L. & Bhuptani, P. H. (2017). A review of the long-term impact of child maltreatment on Posttraumatic Stress Disorder and its comorbidities: An emotion dysregulation perspective. *Clinical Psychology: Science and Practice*, 24(4), 155-168.
- National Center for PTSD website (2013). Retrieved from:
<https://www.ptsd.va.gov/professional/ptsd-overview/ptsd-overview.asp>
- Pineles, S. L., Mostoufi, S. M., Ready, C. B., Street, A. E., Griffin, M. G., & Resick, P. A. (2011). Trauma reactivity, avoidant coping, and PTSD symptoms: A moderating relationship? *Journal of Abnormal Psychology*, 120(1), 240–246.
- Resick, P. A., Bovin, M. J., Calloway, A. L., Dick, A. M., King, M. W., Mitchell, K. S., ... Wolf, E. J. (2012). A critical evaluation of the Complex PTSD literature: Implications for DSM-5. *Journal of Traumatic Stress*, 25, 241-251.
- Stovall-McClough, K. C. & Cloitre, M. (2006). Unresolved attachment, PTSD, and dissociation in women with childhood abuse histories. *Journal of Consulting and Clinical Psychology*, 74(2), 219–228. <https://doi.org/10.1037/0022-006X.74.2.219>
- Tabachnick, B. G. & Fidell, L. S. (2013). Using multivariate statistics (6th ed.). Boston, MA: Allyn & Bacon/Pearson Education.
- Tedeschi, R., G., & Calhoun, L. G. (1996). The posttraumatic growth inventory: Measuring the positive legacy of trauma. *Journal of Traumatic Stress*, 9(3),455-469.

- Weathers, F.W., Blake, D.D., Schnurr, P.P., Kaloupek, D.G., Marx, B.P., & Keane, T.M. (2013). *The Life Events Checklist for DSM-5 (LEC-5)*. Instrument available from the National Center for PTSD at www.ptsd.va.gov.
- Wolf, E.J., Miller, M.W., Kilpatrick, D., Resnick, H.S., Badour, C.L., Marx, B.P. Keane, T.M., Rosen, R.C., & Friedman, M.J. (2015). ICD-11 Complex PTSD in U.S. National and Veteran Samples: Prevalence and Structural Associations with PTSD. *Clinical Psychological Science*, 3(2), 215-229.
- World Health Organization. (1992). *The ICD-10 classification of mental and behavioural disorders*. Geneva, Switzerland: Author.

APPENDIX A
ADDITIONAL TABLES AND FIGURES

Table A.1

Canonical Solution Coefficients for Coping Strategies Predicting Psychological Outcomes for Total Sample

| | <u>Canonical Function 1</u> | <u>Canonical Function 2</u> | <u>Canonical Function 3</u> |
|-------------------------------|-----------------------------|-----------------------------|-----------------------------|
| <u>Psychological Outcome</u> | | | |
| 1. PTSD | <u>-.29</u> | <u>.77</u> | 1.49 |
| 2. CPTSD | <u>-.22</u> | .71 | -1.85 |
| 3. BPD | <u>-.60</u> | -1.37 | .43 |
| <u>Coping Strategy</u> | | | |
| 1. PRG | .16 | <u>.38</u> | .76 |
| 2. MEN | <u>-.04</u> | <u>.23</u> | -.39 |
| 3. VEN | -.11 | -.001 | -.50 |
| 4. ACT | .05 | -.06 | .03 |
| 5. DEN | <u>-.35</u> | -.09 | .87 |
| 6. HUM | -.02 | -.40 | -.22 |
| 7. BEH | <u>-.46</u> | -.14 | -.20 |
| 8. RES | <u>-.12</u> | <u>.30</u> | .47 |
| 9. SUB | <u>-.30</u> | .01 | -.23 |
| 10. ACC | <u>-.08</u> | <u>.65</u> | -.05 |
| 11. SUP | .02 | -.53 | -.08 |
| 12. PLN | .07 | .05 | -.67 |
| Canonical Correlation | .721* | .215 | .125 |
| Squared Canonical Correlation | .520 | .046 | .016 |

Note: PRG = Positive Reinterpretation and Growth; MEN = Mental Disengagement; VEN = Venting of Emotions; ACT = Action; DEN = Denial; HUM = Humor; BEH = Behavioral Disengagement; RES = Restraint; SUB = Substance Use; ACC = Acceptance; SUP = Suppression; PLN = Planning. Structure coefficients (r_s) greater than .45 are underlined. * $p < .001$

Table A.2

Canonical Loading and Cross-Loading Comparison for Total Sample

| | <u>Canonical Function 1</u> | | <u>Canonical Function 2</u> | | <u>Canonical Function 3</u> | |
|------------------------------|-----------------------------|----------------------|-----------------------------|----------------------|-----------------------------|----------------------|
| | <u>Canonical Loading</u> | <u>Cross Loading</u> | <u>Canonical Loading</u> | <u>Cross Loading</u> | <u>Canonical Loading</u> | <u>Cross Loading</u> |
| <u>Psychological Outcome</u> | | | | | | |
| 1. PTSD | -.85 | -.61 | .46 | .10 | .27 | .03 |
| 2. CPTSD | -.91 | -.65 | .29 | .06 | -.33 | -.04 |
| 3. BPD | -.95 | -.68 | -.32 | -.07 | -.01 | -.002 |
| <u>Coping Strategy</u> | | | | | | |
| 1. PRG | -.13 | -.10 | .56 | .12 | .09 | .01 |
| 2. MEN | -.56 | -.40 | .43 | .09 | -.26 | -.03 |
| 3. VEN | -.44 | -.32 | .30 | .06 | -.34 | -.04 |

| | Canonical Function 1 | | Canonical Function 2 | | Canonical Function 3 | |
|---------|--------------------------|----------------------|--------------------------|----------------------|--------------------------|----------------------|
| | <u>Canonical Loading</u> | <u>Cross Loading</u> | <u>Canonical Loading</u> | <u>Cross Loading</u> | <u>Canonical Loading</u> | <u>Cross Loading</u> |
| 4. ACT | -.20 | -.15 | .30 | .06 | -.14 | -.02 |
| 5. DEN | -.77 | -.56 | -.12 | -.03 | .43 | .05 |
| 6. HUM | -.34 | -.25 | -.09 | -.02 | -.16 | -.02 |
| 7. BEH | -.87 | -.63 | -.06 | -.02 | -.16 | -.02 |
| 8. RES | -.47 | -.34 | .49 | .11 | .02 | .003 |
| 9. SUB | -.73 | -.53 | .10 | .02 | -.11 | -.01 |
| 10. ACC | -.25 | -.18 | .78 | .17 | -.12 | -.01 |
| 11. SUP | -.30 | -.22 | .04 | .01 | -.11 | -.01 |
| 12. PLN | -.16 | -.12 | .32 | .07 | -.27 | -.03 |

Note: PRG = Positive Reinterpretation and Growth; MEN = Mental Disengagement; VEN = Venting of Emotions; ACT = Action; DEN = Denial; HUM = Humor; BEH = Behavioral Disengagement; RES = Restraint; SUB = Substance Use; ACC = Acceptance; SUP = Suppression; PLN = Planning

Table A.3

Pearson Correlations of Psychological Outcomes and Coping Strategies

| | <u>PRG</u> | <u>MEN</u> | <u>VEN</u> | <u>ISS</u> | <u>ACT</u> | <u>DEN</u> | <u>REL</u> | <u>HUM</u> | <u>BDI</u> | <u>RES</u> | <u>ESS</u> | <u>SUB</u> | <u>ACC</u> | <u>SUP</u> | <u>PLN</u> |
|--------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| <u>PTSD</u> | .14** | .37** | .29** | .09 | .15** | .48** | .04 | .20** | .52** | .33** | .07 | .45** | .29** | .19** | .12* |
| <u>CPTSD</u> | .13** | .41** | .32** | .10 | .16** | .50** | .05 | .22** | .57** | .35** | .08 | .50** | .23** | .21** | .13* |
| <u>BPD</u> | .05 | .35** | .28** | .06 | .12* | .54 | -.003 | .24** | .60** | .28** | .05 | .49** | .12* | .21* | .87 |

* $p < .05$. ** $p < .01$ *

Table A.4

Canonical Solution Coefficients for Coping Strategies Predicting Psychological Outcomes for Sub-Sample A

| | <u>Canonical Function 1</u> | <u>Canonical Function 2</u> | <u>Canonical Function 3</u> |
|------------------------------|-----------------------------|-----------------------------|-----------------------------|
| <u>Psychological Outcome</u> | | | |
| 4. PTSD | <u>-.39</u> | .78 | <u>1.40</u> |
| 5. CPTSD | <u>-.11</u> | <u>-1.85</u> | -.42 |
| 6. BPD | <u>-.62</u> | 1.02 | -.88 |
| <u>Coping Strategy</u> | | | |
| 13. PRG | .12 | .72 | .57 |
| 14. MEN | .07 | -.41 | -.24 |
| 15. VEN | -.001 | -.34 | -.04 |
| 16. ACT | .17 | -.55 | -.50 |
| 17. DEN | <u>-.36</u> | 1.03 | .08 |
| 18. HUM | -.08 | .32 | -.57 |

| | <u>Canonical Function 1</u> | <u>Canonical Function 2</u> | <u>Canonical Function 3</u> |
|-------------------------------|-----------------------------|-----------------------------|-----------------------------|
| 19. BEH | <u>-.43</u> | -.49 | -.01 |
| 20. RES | <u>-.21</u> | .16 | .72 |
| 21. SUB | <u>-.35</u> | -.18 | -.14 |
| 22. ACC | -.17 | -.21 | <u>.70</u> |
| 23. SUP | -.002 | -.16 | -.40 |
| 24. PLN | .08 | .12 | -.28 |
| Canonical Correlation | .74* | .27 | .22 |
| Squared Canonical Correlation | .55 | .07 | .05 |

Note: PRG = Positive Reinterpretation and Growth; MEN = Mental Disengagement; VEN = Venting of Emotions; ACT = Action; DEN = Denial; HUM = Humor; BEH = Behavioral Disengagement; RES = Restraint; SUB = Substance Use; ACC = Acceptance; SUP = Suppression; PLN = Planning. Structure coefficients (r_s) greater than .45 are underlined. * $p < .001$

Table A.5

Canonical Loading and Cross-Loading Comparison for Sub-Sample A

| | <u>Canonical Function 1</u> | | <u>Canonical Function 2</u> | | <u>Canonical Function 3</u> | |
|------------------------------|-----------------------------|----------------------|-----------------------------|----------------------|-----------------------------|----------------------|
| | <u>Canonical Loading</u> | <u>Cross Loading</u> | <u>Canonical Loading</u> | <u>Cross Loading</u> | <u>Canonical Loading</u> | <u>Cross Loading</u> |
| <u>Psychological Outcome</u> | | | | | | |
| 4. PTSD | -.85 | -.63 | -.07 | -.02 | .52 | .12 |
| 5. CPTSD | -.87 | -.64 | -.50 | -.13 | .04 | .01 |
| 6. BPD | -.93 | -.69 | .13 | .04 | -.33 | -.07 |
| <u>Coping Strategy</u> | | | | | | |
| 13. PRG | -.15 | -.11 | .06 | .02 | .23 | .05 |
| 14. MEN | -.44 | -.33 | -.30 | -.08 | .04 | .01 |
| 15. VEN | -.40 | -.30 | -.30 | -.08 | .05 | .01 |
| 16. ACT | -.23 | -.17 | -.53 | -.07 | -.11 | -.03 |
| 17. DEN | -.77 | -.57 | .42 | .11 | -.11 | -.02 |
| 18. HUM | -.37 | -.28 | .13 | .04 | -.36 | -.08 |
| 19. BEH | -.88 | -.65 | -.16 | -.04 | -.10 | -.02 |
| 20. RES | -.54 | -.40 | -.26 | .07 | .27 | .06 |
| 21. SUB | -.75 | -.55 | -.21 | -.06 | -.05 | -.01 |
| 22. ACC | -.30 | -.23 | -.24 | -.07 | .46 | .10 |
| 23. SUP | -.34 | -.25 | -.16 | -.04 | -.23 | -.05 |
| 24. PLN | -.21 | -.16 | -.24 | -.07 | -.08 | -.02 |

Note: PRG = Positive Reinterpretation and Growth; MEN = Mental Disengagement; VEN = Venting of Emotions; ACT = Action; DEN = Denial; HUM = Humor; BEH = Behavioral Disengagement; RES = Restraint; SUB = Substance Use; ACC = Acceptance; SUP = Suppression; PLN = Planning

Table A.6

Canonical Solution Coefficients for Coping Strategies Predicting Psychological Outcomes for Sub-Sample B

| | <u>Canonical</u> <u>Function 1</u> | <u>Canonical</u> <u>Function 2</u> | <u>Canonical</u> <u>Function 3</u> |
|-------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| <u>Psychological Outcome</u> | | | |
| 7. PTSD | <u>-.21</u> | .34 | 1.73 |
| 8. CPTSD | <u>-.30</u> | 1.30 | -1.65 |
| 9. BPD | <u>-.58</u> | -1.57 | .07 |
| <u>Coping Strategy</u> | | | |
| 25. PRG | .20 | <u>.71</u> | -.14 |
| 26. MEN | <u>-.13</u> | .23 | .53 |
| 27. VEN | <u>-.22</u> | .05 | -.54 |
| 28. ACT | -.01 | -.34 | <u>1.33</u> |
| 29. DEN | <u>-.38</u> | .21 | -.04 |
| 30. HUM | .01 | .17 | -.47 |
| 31. BEH | <u>-.42</u> | -.33 | -.39 |
| 32. RES | -.11 | -.19 | .53 |
| 33. SUB | <u>-.25</u> | -.08 | .05 |
| 34. ACC | -.01 | <u>.53</u> | -.20 |
| 35. SUP | .05 | -.62 | .32 |
| 36. PLN | .07 | .40 | -1.04 |
| Canonical Correlation | .72 | .33 | .13 |
| Squared Canonical Correlation | .52 | .11 | .02 |

Note. PRG = Positive Reinterpretation and Growth; MEN = Mental Disengagement; VEN = Venting of Emotions; ACT = Action; DEN = Denial; HUM = Humor; BEH = Behavioral Disengagement; RES = Restraint; SUB = Substance Use; ACC = Acceptance; SUP = Suppression; PLN = Planning. Structure coefficients (r_s) greater than .45 are underlined. * $p < .001$

Table A.7

Canonical Loading and Cross-Loading Comparison for Sub-Sample B

| | Canonical Function 1 | | Canonical Function 2 | | Canonical Function 3 | |
|------------------------------|------------------------------------|--------------------------------|------------------------------------|--------------------------------|------------------------------------|--------------------------------|
| | <u>Canonical</u> <u>Loading</u> | <u>Cross</u> <u>Loading</u> | <u>Canonical</u> <u>Loading</u> | <u>Cross</u> <u>Loading</u> | <u>Canonical</u> <u>Loading</u> | <u>Cross</u> <u>Loading</u> |
| <u>Psychological Outcome</u> | | | | | | |
| 7. PTSD | -.85 | -.61 | .33 | .11 | .41 | .06 |
| 8. CPTSD | -.93 | -.67 | .33 | .11 | -.18 | -.02 |
| 9. BPD | -.96 | -.69 | -.29 | -.10 | -.06 | -.01 |
| <u>Coping Strategy</u> | | | | | | |
| 25. PRG | -.12 | -.08 | .70 | .23 | .27 | .04 |
| 26. MEN | -.67 | -.49 | .41 | .13 | .30 | .04 |
| 27. VEN | -.46 | -.33 | .25 | .08 | -.03 | -.004 |
| 28. ACT | -.16 | -.12 | .33 | .11 | .48 | .07 |

| | Canonical Function 1 | | Canonical Function 2 | | Canonical Function 3 | |
|---------|--------------------------|----------------------|--------------------------|----------------------|--------------------------|----------------------|
| | <u>Canonical Loading</u> | <u>Cross Loading</u> | <u>Canonical Loading</u> | <u>Cross Loading</u> | <u>Canonical Loading</u> | <u>Cross Loading</u> |
| 29. DEN | -.76 | -.55 | .12 | .04 | .10 | .01 |
| 30. HUM | -.29 | -.21 | .28 | .09 | -.16 | -.02 |
| 31. BEH | -.84 | -.60 | -.10 | -.03 | -.17 | -.02 |
| 32. RES | -.37 | -.26 | .37 | .12 | .37 | .05 |
| 33. SUB | -.70 | -.50 | .05 | .02 | .13 | .02 |
| 34. ACC | -.19 | -.14 | .72 | .24 | .13 | .02 |
| 35. SUP | -.24 | -.18 | .10 | .03 | .33 | .04 |
| 36. PLN | -.08 | -.06 | .39 | .13 | .19 | .03 |

Note: PRG = Positive Reinterpretation and Growth; MEN = Mental Disengagement; VEN = Venting of Emotions; ACT = Action; DEN = Denial; HUM = Humor; BEH = Behavioral Disengagement; RES = Restraint; SUB = Substance Use; ACC = Acceptance; SUP = Suppression; PLN = Planning
 Statistical Model for full CCA.

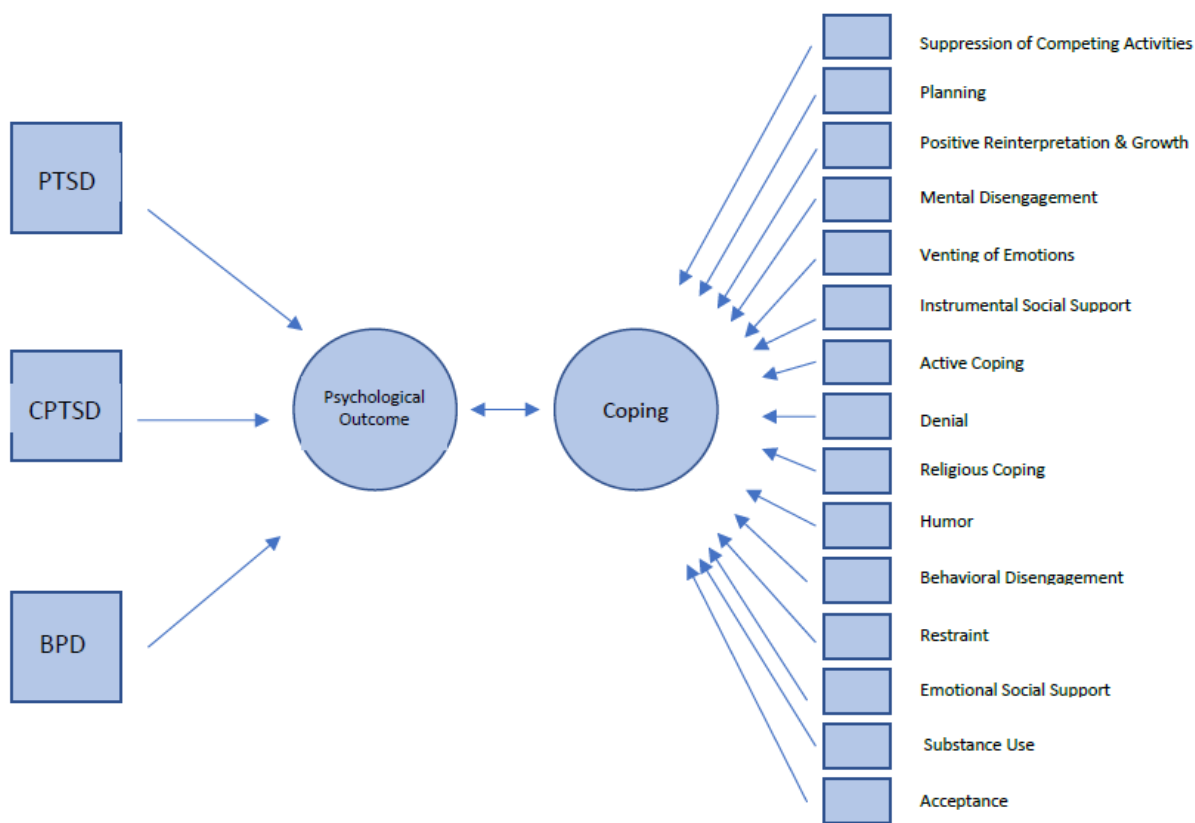


Figure A.1. Statistical model for full CCA.

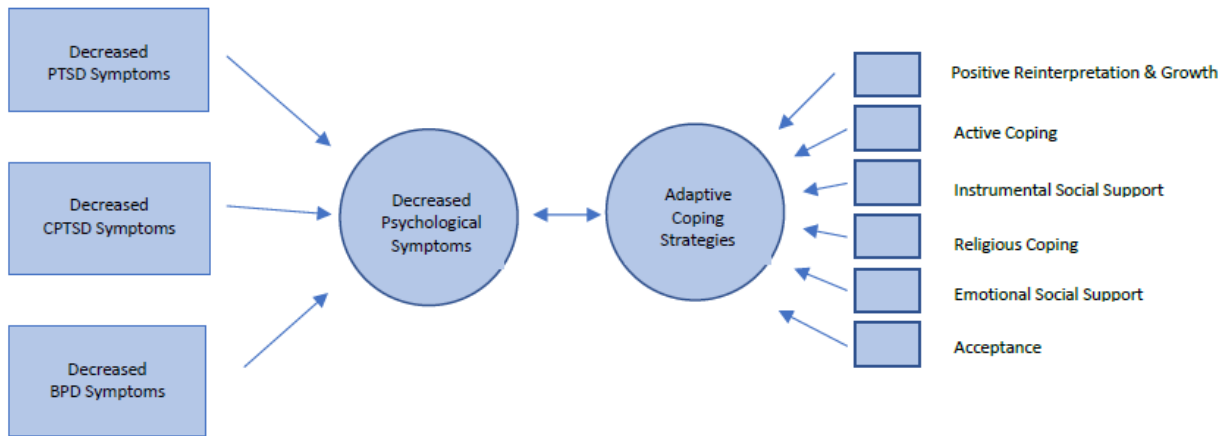


Figure A.2. Hypothesis 2: Adaptive coping strategies will be associated with lower psychological symptoms of PTSD, CPTSD, and BPD.

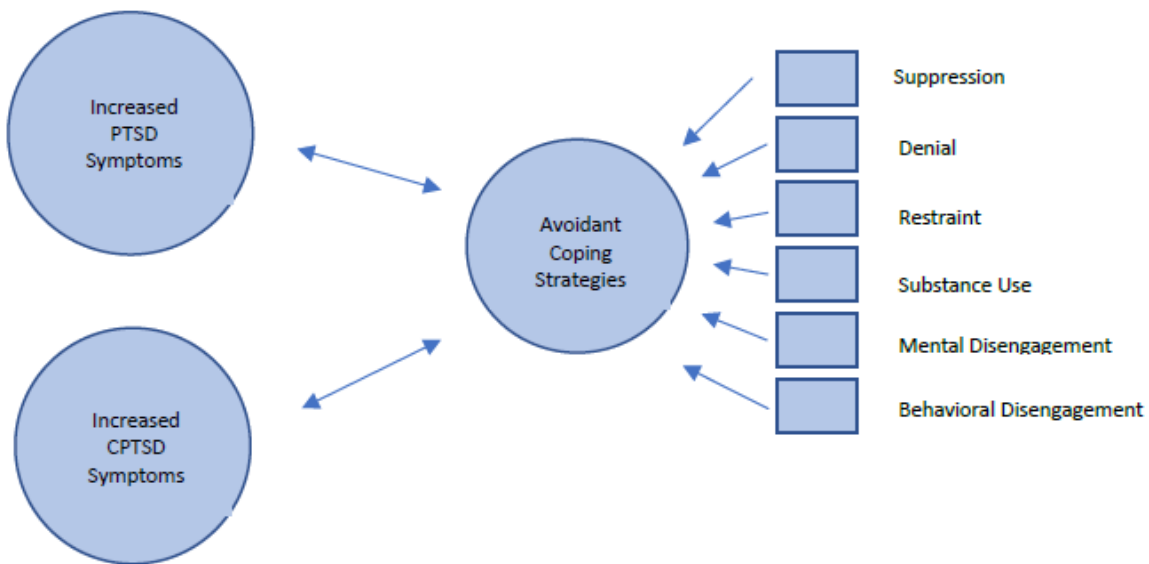


Figure A.3. Hypothesis 3: PTSD and CPTSD symptomatology will be associated with a set of avoidant coping strategies.

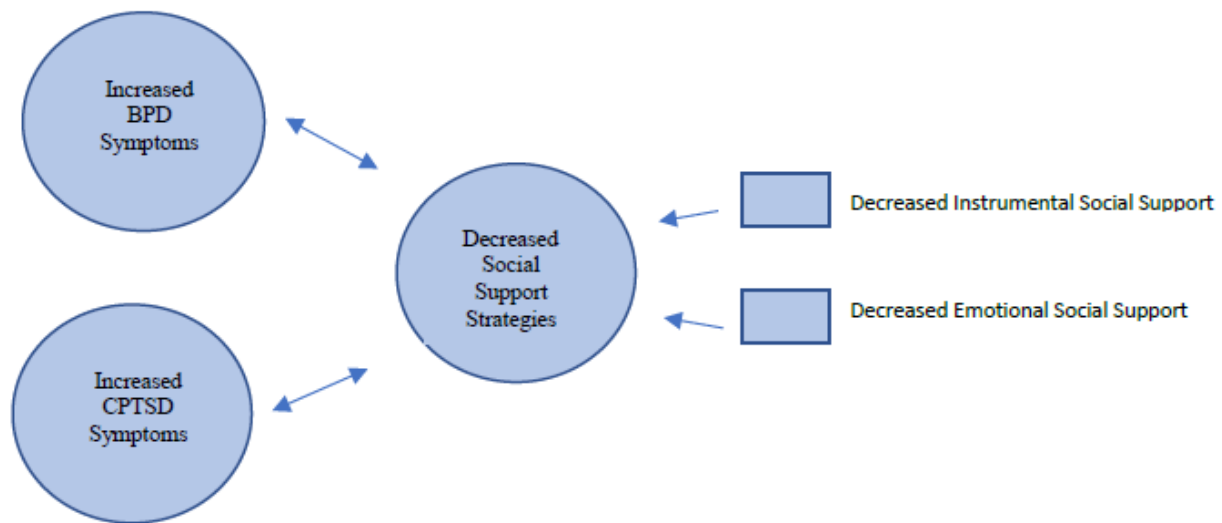


Figure A.4. Hypothesis 4: High levels of BPD and CPTSD will be associated with lower levels of coping through social support.

APPENDIX B
EXTENDED LITERATURE REVIEW

In their 2017 study, the World Health Organization found that 70.4% of respondents across 24 countries endorsed some type of traumatic event in their life (Kessler et al., 2017). In the United States alone, as many as two-thirds of children experience trauma, with 8% meeting criteria for a Post-traumatic Stress Disorder (PTSD) diagnosis by the time they enter into adulthood (McLaughlin et al., 2013). While all forms of childhood trauma are associated with increased risk of PTSD, psychological consequences are stronger for survivors of childhood emotional and sexual abuse, along with cumulative forms of abuse (Messman-Moore & Bhuptani, 2017). The psychological impact of trauma is often more severe among individuals who have lived through repeated or prolonged traumatic incidents, such as chronic childhood abuse, domestic violence, human trafficking, on-going war, or war imprisonment (Herman, 1992). Furthermore, emotion regulation, communication skills, and coping responses are compromised in young children who experience childhood abuse or adversities and can influence psychological outcomes as they age into adulthood (Cloitre et al., 2009). The purpose of this study is to examine the relationship between CPTSD, PTSD, and BPD symptom expression and the differences in coping strategies based on symptom patterns in a sample of college trauma survivors.

PTSD Diagnostic History

Post-traumatic Stress Disorder (PTSD) was first added to the third edition of Diagnostic and Statistical Manual of Mental Disorders by the American Psychiatric Association (APA) in 1980 (APA, 1980). This diagnosis, controversial at the time, first outlined the nature of traumatic incidences that fall outside the range of normal human experience and place an overwhelming pressure on an individual's capacity to adapt and overcome the stressor (National Center for PTSD, 2013). Further revisions to the definition of PTSD were incorporated in the DSM-III-R

(1987), DSM-IV (1994), with the DSM-IV (1994), DSM-IV-TR (2000) including a breakdown of symptom clusters into three categories: intrusive recollections, avoidant/numbing symptoms, and symptoms of hyperarousal. The World Health Organization's (WHO) tenth edition of the International Classification of Mental and Behavioral Disorders: Clinical Descriptions and Diagnostic Guidelines (ICD-10), includes a description of PTSD similar to the DSM-IV-TR (2000) criteria for PTSD. The traditionally accepted conceptualization of PTSD, both in the DSM-5 and the ICD-10, includes the following criteria that make up the central symptom presentation: re-experiencing the traumatic event, avoidance of reminders of the event, and hypervigilance or a heightened bodily reaction. Most recently, the latest edition of the DSM-V (APA, 2013), expanded the symptom criteria of PTSD to include negative cognitions or moods, as well as reckless and self-destructive behavioral symptoms. The current version of the DSM-V has also re-classified PTSD into the new category of Trauma-and Stressor-Related Disorders, rather than keeping it in the Anxiety Disorder category of earlier DSMs (National Center for PTSD, 2013).

CPTSD Diagnostic History

Judith Herman (1992) was the first to suggest that the traditional view of PTSD was not sufficient to characterize individuals who may be more severely impaired due to exposure to repeated traumatic events. Herman proposed that Complex PTSD (CPTSD) resulted from prolonged and repeated exposure to trauma and consists of classic PTSD symptoms, as well as lasting personality changes in affect, self-concept, and relationships with others (Herman, 1992). The theoretical basis behind the CPTSD diagnosis suggests that when individuals experience multiple, repeated trauma, their self-concept is more dramatically affected, potentially leading to feelings of shame or guilt related to the inability to prevent their suffering or the suffering of

others (Cloitre, Garverts, Brewin, Bryan & Maercker, 2013). Whereas PTSD symptoms most commonly manifest in the context of reminders to the traumatic event, additional CPTSD symptoms are often prevalent in multiple aspects of survivors' lives, regardless of reminders or triggers related to their traumatic experiences (Cloitre et al., 2013). For example, disturbances in affect, self, and relational domains are more common among individuals with early-life chronic trauma relative to those with other types of trauma histories (Van der Kolk et al., 2005). To account for these differences in symptom expression, the DSM-IV-TR (2000) included *Disorders of Extreme Stress Not Otherwise Specified* (DESNOS). Unfortunately, the DESNOS diagnostic criteria seemed to lump together all individuals who showed differential PTSD symptom expression from enduring traumatic experiences, rather than offering greater specificity. Additionally, empirically supported measures were not developed in response to this informal criterion, leading to a lack of research evidence demonstrating differential consistency to support a distinctly different set of psychological symptom expression for these individuals (Bottche et al., 2018).

Due to the lack of consistent evidence supporting a more specific disorder beyond DESNOS, the final DSM-V did not include the CPTSD diagnosis due to 92% diagnostic overlap between individuals with CPTSD/DESNOS and PTSD (National Center for PTSD, 2016). In contrast, the ICD-11 is slated to include a CPTSD diagnosis, the first formal diagnosis to account for the specific symptom expression that is over-and-above symptom criteria for PTSD. Specifically diagnostic features of PTSD will include two re-experiencing symptoms (i.e. flashbacks and nightmares), two avoidance symptoms (i.e. avoiding thoughts and avoiding behaviors), and two hyperarousal symptoms (i.e. increased startle response and hypervigilance). The CPTSD diagnosis would include these features plus at least one symptom in each of the

three CPTSD symptom clusters: affect dysregulation (i.e. emotional reactivity, dissociation, anger, aggression, and emotional numbing), negative self-concept (i.e. negative beliefs about the self, including feelings of guilt/shame), and interpersonal disturbances (i.e. avoidance in relationships, estrangement, and lack of emotional intimacy in relationship), which may not overtly or intuitively seem related to an individual's trauma experiences (Wolf et al., 2015). Maercker and Perkonig (2013) argued that this substantially different approach to the diagnostic criteria for PTSD and CPTSD will simplify the diagnoses by creating two separate and unique disorders. Others expected that the clarification of symptom clusters proposed for CPTSD will reduce comorbid diagnoses, such as Borderline Personality Disorder (BPD), Dysthymia, Major Depressive Disorder (MDD), and/or Social Phobia, which are currently being used to account for the affective dysregulation, negative self-concept, and interpersonal difficulties, that are integral to the traumatic disorder (Brewin et al., 2017).

Evidence Supporting CPTSD Criteria

Since the proposal of the CPTSD diagnosis, considerable debate has emerged among clinicians and researchers, questioning whether CPTSD categorizes a distinct set of individuals exhibiting a unique set of symptoms that are clinically significantly different from PTSD and Borderline Personality Disorder (BPD) (Wolf et al., 2015). Amad, Ramoz, Thomas, and Gorwood (2016) argued that BPD and PTSD are “two sides of the same coin” in that the disorders differ based on the ages in which the traumas occurred (pp. 374). They suggested that brain neuroplasticity alterations in response to childhood trauma, may have a more profound impact on personality throughout an individual's life and contribute to the development of BPD, whereas trauma experienced in adulthood contributes to PTSD, not BPD.

With the impending release of the ICD-11, new research is emerging that empirically examines evidence for a differential diagnosis between PTSD and CPTSD, and the potential overlap with BPD. For example, using Latent Profile Analysis (LPA) with a sample of 302 trauma survivors, Cloitre and colleagues (2013) identified three distinct classes of symptom presentation representing a PTSD symptom class, CPTSD symptom class, and a low symptom expression class. While prolonged or chronic trauma is not necessary to meet the proposed CPTSD diagnostic criteria, this study found that chronic or prolonged trauma was more predictive of CPTSD than PTSD, whereas single-event trauma was more predictive of PTSD (Cloitre et al., 2013). These results remained significant when an additional 86 participants with BPD were included in the analyses, providing further evidence for CPTSD as a separate and distinct disorder not otherwise accounted for by BPD diagnostic criteria.

A recent review of the PTSD literature concluded there was significant symptom overlap between CPTSD, PTSD, BPD, and MDD (Resick et al., 2012). After finding parallel patterns in symptom expression for their participants, Wolf et al. (2015) speculated that the CPTSD symptoms merely represent a higher degree of PTSD symptom severity. In a diverse sample of trauma individuals, four distinct profiles for symptoms emerged (low symptom expression, moderate PTSD symptoms and low CPTSD symptoms, moderate PTSD symptoms and moderate to high CPTSD symptoms, and high symptoms in PTSD and CPTSD) (Bottche et al., 2018). In contrast to other studies, findings did not identify a subset of individuals who only experienced CPTSD symptomology, which the researchers attributed to a limited number of participants who experienced childhood trauma in their sample.

In another study with a sample of 280 women with histories of childhood abuse, Cloitre, Garvert, Weiss, Carlson, & Bryant (2014) identified four distinct sets of symptom expression: 1)

a group low in all symptom expression, 2) a group high in PTSD symptoms but low in BPD and CPTSD symptoms, 3) a group high in CPTSD symptom expression and low symptoms of BPD, and 4) a group with high BPD symptoms who also endorsed PTSD and CPTSD symptoms as well. Cloitre et al. also outlined key distinguishing features between PTSD and BPD, namely that PTSD symptoms are believed to be the result of traumatic memories whereas BPD symptoms are characterized by unstable relationships, impulsivity, and self-injury. Extending these findings internationally, Dijke, Hopman and Ford (2018) also found evidence supporting the distinction between CPTSD and BPD among Dutch adult psychiatric patients with trauma histories. Each of these disorders calls for different treatment modalities based on the clinical priority of treating symptom expression.

In a recent review of the empirical evidence for and against the CPTSD diagnosis, Brewin and colleagues (2017) found that ICD-11's proposed symptom clusters of PTSD and CPTSD were supported by four studies utilizing factor analysis and nine studies that employed latent profile or class analysis techniques. Brewin et al. also suggested that the additional criteria included in the CPTSD diagnosis are leading to the increase in identification of this disorder, most notably in children. Children are often underdiagnosed due to difficulty in identifying avoidance and numbing symptoms (Brewin et al., 2017). Ultimately, through more precise diagnostic criteria based on common symptom expression, treatment can be more easily studied and specifically tailored to each disorder, resulting in positive patient outcomes for trauma survivors.

Evidence Refuting the CPTSD Diagnosis

While research findings provide supportive evidence for the differential PTSD and CPTSD diagnoses, multiple criticisms have emerged contesting the clinical utility of the

proposed CPTSD diagnosis in the ICD-11. Criticisms include the limitations of samples used in CPTSD research, the lack of validated CPTSD measures, and suggestions that CPTSD symptoms are better explained by other psychiatric disorders (Wolf et al., 2015). Some researchers have acknowledged that while a CPTSD diagnosis may offer a more socially accepted label for psychological outcomes caused by repeated trauma exposure and focus less on personality deficits than a personality disorder diagnosis, the CPTSD diagnosis may not offer additional clinical benefit and utility (Resick et al., 2012).

Many researchers have also questioned the generalizability of research findings supporting the CPTSD diagnosis due to the homogeneity of the samples of trauma survivors studied. Specifically, each of these studies included samples with a high prevalence of female participants and examined limited trauma exposure types (Wolf et al., 2015). In a response to this criticism, Botche et al. (2018) examined reported exposure to eleven different traumatic experiences in a more diverse sample. Evidence supported the ICD-11 CPTSD criteria, revealing a six-factor structure of symptom clusters that grouped into PTSD and CPTSD core symptoms. Another study found strong empirical support for the CPTSD diagnoses in four independent samples, each with a different index trauma (i.e. death of a child, motor vehicle accidents, paraplegia, and physical assault) (Hansen et al., 2015).

Finally, other criticisms of the DSM-5 and ICD-11 diagnostic criteria are based on cultural and conceptual differences. Wisco and Colleagues (2016) argued that the DSM-V uses less stringent diagnostic criteria, thus offering potentially greater access to resources in countries like the United States in which treatment options are based on medical and psychiatric diagnoses. Countering this, Hyland et al. (2018) maintained that access to healthcare options is a country specific and culturally specific issue that may inadvertently limit clinical utility world-wide if

individuals could meet diagnostic criteria for other psychiatric disorders that would increase treatment options. Other critics have suggested that the differential diagnostic criteria between the DSM-V and ICD-11 may further confuse patients on the world stage as to the true symptom expression of PTSD (Brewin et al., 2017). However, the ICD-10 is used world-wide more often than the DSM-V, which is primarily used in the United States, despite insurance companies billing for treatment based on the ICD-10 diagnostic codes. While each of these criticisms regarding the ICD-11 proposed diagnostic criteria for PTSD and CPTSD may well be valid, newly emerging research has yet to fully evaluate the utility and benefits of delineating separate psychiatric diagnoses for trauma survivors.

Coping and Trauma

The current literature shows supportive and divergent evidence in regards to the DSM-5 and proposed ICD-11 diagnostic criteria of PTSD and CPTSD. The majority of these studies focus on symptom expression and diagnostic category. Less attention has been given to other psychological factors that may influence symptom expression, such as how individuals have sought to cope, seek meaning, or potentially grow from their traumatic exposure. Coping has been implicated in post-trauma functioning (Olf et al., 2004), but little is known about potentially differential coping strategies associated with PTSD and CPTSD. If PTSD and CPTSD are two distinct disorders, differences between presentation and coping strategies may be observed.

How individuals cope with traumatic events highly influences the degree and psychological impact of outcomes that may follow. In 1966, Lazarus' work outlined the three cognitive processes involved in stress, with the last stage identified as coping, defined as the way in which an individual manages a stress response. Lazarus and Folkman (1984) further built on

this process model by explaining that if a coping response is adequate and readily available, an individual's cognitions may reevaluate a threat as less threatening than originally perceived. Conversely, if a coping response is not adequate, individuals may reevaluate the intensity of the threat and adjust their coping response as needed. In developing one of the first validated, self-assessment measures of coping, Lazarus (1966) identified two main coping responses to stress: problem-focused coping and emotion-focused coping. Problem-focused coping was defined as a response in which the individual engages in an activity aimed at solving a problem to alleviate the source of stress. In comparison, emotion-focused coping involves the use of emotion management in response to the stress. Problem-focused coping may result in more positive outcomes because individuals feel that they can engage in a productive behavior in which they have control, rather than perceiving the stressor as something that needs to be tolerated.

Extending Lazarus' work, Carver, Scheier, and Weintraub (1989) further identified conscious and unconscious processes that may result in emotion-focused coping, comparing the differences in psychological outcomes between an individual who is able to positively interpret the stressful event with someone who engages in a form of denial at the event having occurred. While problem-focused coping generally involves taking action to alter distress, these solution-oriented activities may not always promote psychological well-being. Carver et al. (1989) also delineated thirteen conceptually and statistically significant different coping strategies, which are assessed by the COPE (Carver, Scheier, & Weintraub, 1989) and Brief COPE (Carver, 1997): active coping, planning, suppression of competing activities, distraction, seeking social support for instrumental reasons, seeking social support for emotional reasons, positive reinterpretation and growth (e.g., reframing), acceptance, turning to religion, focus on and venting of emotions, denial, behavioral disengagement, mental disengagement, alcohol-drug use.

While problem-focused coping is more effective in dealing with traumatic stress (Agaibi & Wilson, 2005), children who undergo undue trauma may not have the psychological or physical resources to employ problem-focused coping strategies. For children who grow up in aversive environments, fewer resources are available to assist children in developing effective coping strategies (Abaibi & Wilson, 2005). Childhood abuse and other childhood hardships can result in other impairment as well, such as the limited development or lack of emotion regulation strategies and effective interpersonal behaviors (Cloitre et al., 2009). Prolonged and repeated stress and adversity may overwhelm and tax psychological resources so heavily, for both adults and children, that complex psychological responses manifest in a distinctly different way from acute stress responses (Abaibi & Wilson, 2005).

Stovall-McClough and Cloitre (2006) suggested that maladaptive childhood environments are also associated with avoidant coping, which in turn, serves as a precipitant for the development of adult PTSD-related outcomes. These learned psychological processes may serve children in an adaptive capacity throughout childhood but may turn into less adaptive strategies if not altered when additional stressors or traumatic experiences are encountered in adulthood (Lee, Possemato, & Ouimette, 2017). For example, Elzy, Clark, Dollard, and Hummer (2013) found that adolescent girls who experienced high levels of trauma exposure and utilized avoidant coping strategies reported lower levels of trauma symptoms. However, for adults, avoidant coping strategies, both cognitive and behavioral, have been associated with more prominent negative outcomes such as higher rates of PTSD following traumatic experiences (Tiet et al, 2006). Conversely, social support seeking and emotion-focused coping directly impacted an individual's self-rated quality of life years after trauma exposure but were not specifically related to PTSD symptomology (Huijts et al., 2012).

Although childhood or repeated trauma is not a proposed diagnostic criteria in the ICD-11 for CPTSD, many studies have found that multiple stressors increase risk in developing CPTSD (Cloitre et al., 2013). In a study of veterans who scored high on effective coping strategies, a high level of resilience was associated with fewer PTSD symptoms; however, for veterans who were involved in prolonged, intense, or repeated combat scenarios, these same effective coping strategies no longer protected veterans from PTSD symptoms (Abaibi & Wilson, 2005). Cloitre and colleagues (2009) suggested that these multiple or repeated forms of stress and maltreatment result in qualitatively different psychological outcomes compared with individuals who have not experience these same levels of trauma.

As researchers aim to differentiate between PTSD, CPTSD, and BDP, Cloitre and colleagues (2014) acknowledged that emotion regulation difficulty is an overlapping symptom in CPTSD and BPD, but argued that the expression of symptoms is quite different. They further highlighted the poor coping responses seen in PTSD and CPTSD, such as anger responses and the use of alcohol or substances, whereas maladaptive coping responses associated with BPD include self-injury and suicidality. While coping has been studied in depth in relation to PTSD, research is needed to examine coping in relation to the CPTSD diagnosis.

COMPREHENSIVE REFERENCE LIST

- Agaibi, C. E. & Wilson, J. P. (2005). Trauma, PTSD, and resilience: A review of the literature. *Trauma, Violence & Abuse, 6*(3), 195-216.
- Amad, A., Ramoz, N., Thomas, P., & Gorwood, P. (2016). The age-depending plasticity highlights the conceptual interface between borderline personality disorder and PTSD. *European Archives of Psychiatry and Clinical Neuroscience, 266*, 373-375.
- American Psychiatric Association. (1980). *Diagnostic and statistical manual of mental disorders*, (3rd ed.). Washington, DC: Author.
- American Psychiatric Association. (1987). *Diagnostic and statistical manual of mental disorders*, (Revised 3rd ed.). Washington, DC: Author.
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders*, (4th ed.). Washington, DC: Author.
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders*, (Revised 4th ed.). Washington, DC: Author.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders*, (5th ed.). Washington, DC: Author.
- Bohus, M., Kleindienst, N., Limberger, M. F., Stieglitz, R., Domsalla, M., Chapman, A. L., . . . Wolf, M. (2009). The short version of the borderline symptom list (BSL-23): Development and initial data on psychometric properties. *Psychopathology, 42*(1), 32-9.
- Bohus, M., Limberger, M. F., Frank, U., Kuhler, T., & Stieglitz, R. (2007). Psychometric properties of the Borderline Symptom List (BSL). *Psychopathology, 40*, 126-132.
- Botche, M., Ehring, T., Kruger-Gottschalk, A., Rau, H., Schafer, I., Schellong, J., . . . Knaevelsrud, C. (2018). Testing the ICD-11 proposal for complex PTSD in trauma-exposed adults: Factor structure and symptoms profiles. *European Journal of Psychotraumatology, 9*(1), 1-11.
- Bovin, M. J., Marx, B. P., Weathers, F. W., Gallagher, M. W., Rodriguez, P., Schnurr, P. P., & Keane, T. M. (2016). Psychometric properties of the PTSD Checklist for Diagnostic and Statistical Manual of Mental Disorders–Fifth Edition (PCL-5) in veterans. *Psychological Assessment, 28*(11), 1379–1391. <https://doi.org/10.1037/pas0000254>
- Brewin, C. R., Cloitre, M., Hyland, P., Shevlin, M., Maercker, A., Bryant, R. A., Humayun, A., . . . Reed, G. M. (2017). A review of current evidence regarding the ICD-11 proposals for diagnosing PTSD and complex PTSD. *Clinical Psychology Review, 58*, 1-15.
- Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the Brief COPE. *International Journal of Behavioral Medicine, 4*, 92-100.

- Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, 56(2), 267-283.
- Cloitre, M., Garvert, D. W., Brewin, C. R., Bryant, R. A., & Maercker, A. (2013). Evidence for proposed ICD-11 PTSD and complex PTSD: A latent profile analysis. *European Journal of Psychotraumatology*, 4, 1-12.
- Cloitre, M., Garvert, D. W., Weiss, B., Carlson, E. B. & Bryant, R.A. (2014). Distinguishing PTSD, Complex PTSD, and Borderline Personality Disorder: A latent class analysis. *European Journal of Psychotraumatology*, 5(1), 1-10.
- Cloitre, M., Stolbach, B. C., Herman, J. L., van der Kolk, B., Pynoos, R., Wang, J., & Petkova, E. (2009). A developmental approach to complex PTSD: Childhood and adult cumulative trauma as predictors of symptom complexity. *Journal of Traumatic Stress*, 22(5), 399-408.
- Elzy, M., Clark, C., Dolalrd, N., & Hummer, V. (2013). Adolescent girls' use of avoidant and approach coping as moderators between trauma exposure and trauma symptoms. *Journal of Family Violence*, 28, 763-770.
- Gittins, R (1980). *Canonical Analysis: A Review with Applications in Ecology*. Springer-Verlag Berline Heidelberg.
- Gray, M. J., Litz, B. T., Hsu, J. L., & Lombardo, T. W. (2004). Psychometric Properties of the Life Events Checklist. *Assessment*, 11(4), 330–341.
- Herman, J. L. (1992). *Trauma and recovery*. New York: Basic Books
- Huijts, I., Kleijn, W. C., van Emmerick, A. A. P., Noordhof, A., & Smith, A. J. M. (2012). Dealing with man-made trauma: The relationship between coping style, posttraumatic stress, and quality of life in resettled, traumatized refugees in the Netherlands. *Journal of Traumatic Stress*, 25, 71-78.
- Hyland, P., Shevlin, M., Fyvie, C., & Karatzias, T. (2018). Posttraumatic Stress Disorder and Complex Posttraumatic Stress Disorder in DSM-5 and ICD-11: Clinical and behavioral correlates. *Journal of Traumatic Stress*, 31, 174-180.
- Kessler, R. C., Aguilar-Gaxiola, S., Alonso, J., Benjet, C., Bromet, E. J., Cardoso, G., ... Koenen, K. C. (2017). Trauma and PTSD in the WHO World Mental Health Surveys. *European Journal of Psychotraumatology*, 8(5), DOI: [10.1080/20008198.2017.1353383](https://doi.org/10.1080/20008198.2017.1353383)
- Lazarus, R. S. (1966). *Psychological stress and the coping process*. New York: McGraw–Hill.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.
- Lee, J., Possemato, K., & Ouimette, P.C. (2017). Longitudinal changes in combat-related Posttraumatic Stress Disorder among Operation Enduring Freedom/Operation Iraqi

- Freedom/Operation New Dawn veterans with hazardous alcohol use: The role of avoidance coping, *Journal of Nervous and Mental Disease*, 205(10), 805-808.
- Litvin, J. M., Kaminski, P. L., & Riggs, S. A. (2017). The Complex Trauma Inventory: A self-report measure of Posttraumatic Stress Disorder and Complex Posttraumatic Stress Disorder. *Journal of Traumatic Stress*, 30, 602-613.
- Maercker, A. & Perkonig, A. (2013). Applying an international perspective in defining PTSD and related disorders: Comment of Friedman (2013). *Journal of Traumatic Stress*, 26(5), 560-562.
- McLaughlin K. A., Koenen K. C., Hill E. D., Petukhova M., Sampson N. A., Zaslavsky A. M., et al. (2013). Trauma exposure and posttraumatic stress disorder in a national sample of adolescents. *Journal of American Academy of Child Adolescent Psychiatry*, 52(14), 815–830.
- Messman-Moore, T. L. & Bhuptani, P. H. (2017). A review of the long-term impact of child maltreatment on Posttraumatic Stress Disorder and its comorbidities: An emotion dysregulation perspective. *Clinical Psychology: Science and Practice*, 24(4), 155-168.
- National Center for PTSD website (2013). Retrieved from:
<https://www.ptsd.va.gov/professional/ptsd-overview/ptsd-overview.asp>
- Olf, M., Langeland, W., & Gersons, B. P. R. (2005). The psychobiology of PTSD: Coping with trauma. *Psychoneuroendocrinology*, 30(10), 974-982.
- Resick, P. A., Bovin, M. J., Calloway, A. L., Dick, A. M., King, M. W., Mitchell, K. S., ... Wolf, E. J. (2012). A critical evaluation of the Complex PTSD literature: Implications for DSM-5. *Journal of Traumatic Stress*, 25, 241-251.
- Stovall-McClough, K. C. & Cloitre, M. (2006). Unresolved attachment, PTSD, and dissociation in women with childhood abuse histories. *Journal of Consulting and Clinical Psychology*, 74(2), 219–228. <https://doi.org/10.1037/0022-006X.74.2.219>
- Tabachnick, B. G. & Fidell, L. S. (2013). Using multivariate statistics (6th ed.). Boston, MA: Allyn & Bacon/Pearson Education.
- Tedeschi, R., G., & Calhoun, L. G. (1996). The posttraumatic growth inventory: Measuring the positive legacy of trauma. *Journal of Traumatic Stress*, 9(3),455-469.
- Tiet, Q. Q., Rosen, C., Cavella, S., Moos, R. H., Finney, J. W., & Yesavage, J. (2006). Coping, symptoms, and functioning outcomes of patients with posttraumatic stress disorder. *Journal of Traumatic Stress*, 19(6), 799–811. <https://doi.org/10.1002/jts.20185>
- Van Dijke, A., Hopman, J.A.B., & Ford, J.D. (2018) Affect dysregulation, psychoform dissociation, and adult relational fears mediate the relationship between childhood trauma and complex posttraumatic stress disorder independent of the symptoms of borderline personality disorder. *European Journal of Psychotraumatology*, 9(1), 1-14.

- Van der Kolk, B.,A. (2005). Developmental trauma disorder: Toward a rational diagnosis for children with complex trauma histories. *Psychiatric Annals*, 35(5), 401-408.
doi:http://libproxy.library.unt.edu:2126/10.3928/00485713-20050501-06
- Van der Kolk, Roth, Pelcovitz, Sunday, & Spinazzola (2005). Disorders of extreme stress: The empirical foundation of a complex adaptation to trauma. *Journal of Traumatic Stress*, 18(5), 389-399.
- Weathers, F.W., Blake, D.D., Schnurr, P.P., Kaloupek, D.G., Marx, B.P., & Keane, T.M. (2013). *The Life Events Checklist for DSM-5 (LEC-5)*. Instrument available from the National Center for PTSD at www.ptsd.va.gov.
- Wisco, B. E., Marx, B. P., Sloan, D. M., Gorman, K. R., Kulish, A. L., & Pineles, S. L. (2015). Self-Distancing From Trauma Memories Reduces Physiological but Not Subjective Emotional Reactivity Among Veterans With Posttraumatic Stress Disorder. *Clinical Psychological Science*, 3(6), 956–963.
- Wolf, E.J., Miller, M.W., Kilpatrick, D., Resnick, H.S., Badour, C.L., Marx, B.P. Keane, T.M., Rosen, R.C., & Friedman, M.J. (2015). ICD-11 Complex PTSD in U.S. National and Veteran Samples: Prevalence and Structural Associations with PTSD. *Clinical Psychological Science*, 3(2), 215-229.
- World Health Organization. (1992). *The ICD-10 classification of mental and behavioural disorders*. Geneva, Switzerland: Author.