UNIVERSITY OF CALIFORNIA

Santa Barbara

Coping Strategies, PTSD Symptoms, Substance Abuse, and Life Satisfaction: A Working Model

A dissertation submitted in partial satisfaction of the

requirements for the degree Doctor of Philosophy

in Counseling, Clinical, and School Psychology

by

Jordan Wesley Edwards

Committee in charge:

Professor Michael Furlong, Chair

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March 2016

The dissertation of Jordan Wesley Edwards is approved.

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February 2016

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A Working Model

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Jordan Wesley Edwards

VITA OF JORDAN WESLEY EDWARDS

February 2015

EDUCATION

2016 University of California, Santa Barbara
Department of Counseling, Clinical, and School Psychology
Ph.D., Clinical Psychology - APA Accredited
Dissertation: Coping Strategies, PTSD Symptoms, Substance Abuse, and Life Satisfaction: A Working Model
Dissertation Advisor: Michael Furlong, Ph.D.

2008 University of California, Santa Barbara
Master of Arts in Counseling Psychology - APA Accredited

2006 California State University, Long Beach
Master of Arts, Research in Psychology
Thesis: Antisocial Personality Disorder and HIV-Related Risks
Thesis Advisor: Dennis Fisher, Ph.D.

2004 California State University, Long Beach
College of Arts and Sciences
Bachelor of Arts in Psychology

PSYCHOLOGY RESIDENCY

2010-2011 Southwestern Consortium Predoctoral Psychology Internship, Albuquerque, NM - APA Accredited

First Trimester Rotations: New Mexico VA Health Care System (NMVAHCS)

Substance & Trauma And Rehabilitation Residence (STARR); Major Rotation
Residential treatment of dual diagnosed PTSD patients
Supervised using evidenced-based individual psychotherapy
Prolonged Exposure
Cognitive Processing Therapy
Co-facilitated PTSD Psychoeducation Group
Facilitated Cognitive Behavior Therapy and PTSD Group

Neuropsychology Rotation; Minor Rotation
2-hour weekly Neuropsychology rounds
Diagnostic fact-finding sessions
Patient presentations
Neuropsychological Assessments

Second Trimester Rotations: New Mexico VA Health Care System

Family Therapy Clinic; Major Rotation
- Treatment of families experiencing PTSD
- Functional Family Therapy
- Behavioral Couples Therapy

PTSD Clinic within Primary Care (PCMHI); Minor Rotation
- Program development of a new Internship rotation
- Program development of a novel intervention targeting PTSD patients reluctant to engage treatment and/or mental health
- Brief psychotherapy (three sessions) with PTSD patients using Motivational Interviewing targeting longer-term PTSD treatment
- Diagnostic screenings

Substance & Trauma And Rehabilitation Residence (STARR); Minor Rotation

Neuropsychology Rotation; Minor Rotation

Third Trimester Rotations:

New Mexico Women's Correctional Facility, Grants; Major Rotation
- Individual evidenced-based psychotherapy
- Facilitate PTSD psychoeducation group
- Facilitate Dialectical Behavioral Therapy Group
- Psychological Assessments
- Intake Placement
- Reclassification
- Fitness to stand trial

Neuropsychology Rotation; Minor Rotation

ACADEMIC APPOINTMENTS

2008-2009 Clinical Extern. Cottage Hospital: Psychiatric and Chemical Dependency Unit. Worked closely with the Case Management Team to provide group and individual therapy in addition to psychological assessments.

2008-2009 Supervisor CNCSP 276. Hosford Counseling and Psychological Services Clinic. UCSB. Provide education and supervision to first-year clinical and counseling Ph.D. students providing individual, couples, and family therapy.

Summer 2009 Supervisor. Hosford Counseling and Psychological Services Clinic. UCSB. Provide on site supervision to student clinicians conducting psychotherapy. Clinic Director: Heidi Zetzer, Ph.D

2007-2009 Psychotherapy Clinician. Hosford Clinic. UCSB.
Provide psychotherapy to a diverse population of patients from the Santa Barbara Community. Sessions include weekly individual, couple, and family therapy.

2006-2009 Clinic Manager. Psychology Assessment Center. UCSB.
Manage daily operations including: advertising, organization, assessment maintenance, client contact, data entry, data analysis.

2006-2009 Assessment Clinician. Psychology Assessment Center. UCSB.
Administration of cognitive, neuropsychological, and personality assessments. Assessment data entry, scoring and analysis. Writing of integrative assessment reports for the client and mental health professionals.

TEACHING APPOINTMENTS

Summer 2007 Teaching Associate. Instructor of Record. UCSB.
ED 165 Applied Psychology.

Spring 2009 Teaching Assistant. UCSB. 50% position.
Communication 88. Research Methods.
Professor: Dorthy Imrich Mullin, Ph.D.

2008-2009 Teaching Assistant. UCSB. 50% position.
Communication 1. Introduction to Communication. Three Quarters.
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Summer 2008 Teaching Assistant. UCSB. 25% position.
ED 165 Applied Psychology
Professor: Steven R. Smith, Ph.D.

Fall 2007 Teaching Assistant. UCSB. 25% position.
CNCSP 250 Cognitive Assessment in Professional Psychology.
Professor: Erin Dowdy, Ph.D.

Summer 2007 Teaching Assistant. UCSB. 25% position.
ED 166 Practicum in Applied Psychology
Professor: Steven R. Smith, Ph.D.

2006 Guest Lecturer. David Geffen School of Medicine, UCLA.
Presented Transgender and Transsexual Clients of HIV Service Programs in Los Angeles County, California to students in the David Geffen School of medicine.

2004-2005 Teaching Assistant, Department of Psychology, CSULB.
Graduate Course: Psychological Assessment. Four quarters.
Thomas Denson, Ph.D. and James Amirkhan, Ph.D.

2004 Teaching Assistant, Department of Psychology, CSULB. Fall 2004.
Graduate Course: Research in Cognition and Learning. William Kelemen, Ph.D.

RESEARCH APPIONTMENTS

2009-2011 Principal Investigator. Santa Barbara Cottage Hospital.
Cross Cultural Posttraumatic Stress Disorder in Hospitalized Trauma Patients. Wrote and received a grant for $10,000.

2005-2008 Lead Graduate Researcher. UCSB.
Managed three undergraduate research assistants to construct psychometric properties on a novel PTSD assesment.

2005 Research Assistant. UCSB.
Duties included administering neuropsychological batteries to clients, as well as scoring and data entry. In addition, trained doctoral students on administration, scoring and data entry. Research duties entailed preparing original research for conference presentations as well as publication.

2004-2005 Paid Research Assistant. Center for Behavioral Research and Services. Duties included administering batteries of assessments to ethnically and racially diverse clients as well as counseling risk behavior reductions. Research duties included preparing original research for poster presentations and oral presentations in addition to publishing journal articles.

2004-2005 Research Coordinator. CSULB.
Duties under the tutelage of William Pedersen, Ph.D. included: protocol construction, data collection form construction, research assistant training, research assistant scheduling, data collection, data analysis, completion of research paper and presentation of data.

2003-2004 Research Assistant. CSULB.
Worked under the tutelage of William Pedersen, Ph.D. to complete data collection, entry and analysis, completion of a research paper, and presentation of data.

2004 Lead Student Researcher. CSULB. “Retrieval-induced forgetting over a 24 hour delay.” Lead a research team in the collection, scoring, statistical analysis and preparation of data in a research paper. Results were presented at the Western Psychological Conference in April, 2004.

PROFESSIONAL APPOINTMENT

2009-2013 Case Manager. Santa Barbara Cottage Hospital. Psychiatric and Chemical Dependency Unit. Conduct group therapy sessions with chemical dependency patients. Conduct intake interviews, family and individual therapy, and case management which include current and aftercare treatment planning.

PUBLICATIONS

Edwards, J. W., Fisher, D. G., & Reynolds G. L. (2007). Transgender and transsexual clients of HIV service programs in Los Angeles County, California. *American Journal of Public Health, 97*(6), 1030-1033.

Edwards J. W., Redpath, D. P., Fisher, D. G., Johnson, M. E., & Reynolds, G. L. (2007). Test-retest reliability of self-reported drug treatment variables. *Journal of Substance Abuse Treatment, 33*(1), 7-11.

Smith, S. R., Chang, J., Schnoebelin, K. A., Edwards, J. W., Servesko, A. M., & Walker, S. J. (2007). The psychometrics of a simple method of scoring organizational scoring approach to the Rey-Osterrieth Complex Figure. *Journal of Neuropsychology, 1,* 39-51.

Smith, S. R., Servesko, A. M., Edwards, J. W., Barazani, S., Blazer, A. L., Green, J. G., Little, J. A., Nowinski, L. A., & Rahban, R. (May 2008). Exploring the validity of the Comprehensive Trail Making Test. *The Clinical Neuropsychologist, 22*(3), 507-518.

Reynolds, G. L., Fisher, D. G., Jaffe, A., & Edwards, J. W. (2006). Follow-up for medical care among drug users with Hepatitis C. *Evaluation & The Health Professionals, 29*(4), 355-366.

Redpath, D. P., Reynolds, G. L., Jaffe, A., Fisher, D. G., & Edwards, J. W. (2006). Internet access and use among homeless and indigent drug users in Long Beach, Califonira *CyberPsychology and Behavior, 9*(5), 257-271.

Fisher, D. G., Wishart, D., Reynolds, G. L., Edwards, J. W., & Kochems, L. M. (2010). HIV Service Utilization in Los Angeles County, California. *AIDS & Behavior, 14*(2), 440-447.

Edwards, J. W. (2006) *Antisocial Personality Disorder and HIV related risks.* Master of Arts in Research in Psychology. California State University, Long Beach. Masters Thesis.

CONFERENCE PRESENTATIONS

Edwards, J. W., & Smith, S. R. *Coping Strategies, PTSD Symptoms, and Life Satisfaction: A working Model.* Paper presentation accepted at the 10th International Conference on Traumatic Stress, Buenos Aires, Argentina, June 2009.

Edwards, J. W., Benki, C., Estrada, A. R., Cosden, M., & Smith, S. R. *The Trauma History Screen: A Psychometric Investigation.* Paper presentation at the American Psychological Association, Boston, MA, August 2008.

Chang, J., Smith, S. R., Staskal, R.E., Tran, C., Estrada, A. R., Edwards, J. W., & Rahban, R. *Clinical Differences and Stereotype Threat in a Neuropsychological Setting.* Poster presentation at the American Psychological Association, Boston, MA, August 2008.

Edwards, J. W., Walker, S. J., & Smith, S. R. *WISC-IV Validity: A Clinical Exploration with Neuropsychological Tests.* Poster presentation at National Academy of Neuropsychology, Scottsdale, Az., November 2007.

Pedersen, W. C., Denson, T. F., Aguilar, H., Cobert, E., Collins, T., Edwards, J. W., Escobedo, M., Newvine, S., Rivera, N., Simmons, D. J., & Miller, N. *Validation of a Trait Measure of Displaced Aggression.* Poster presentation at the Society for Personality and Social Psychology, Palm Springs, CA, January 2006.

Jaffe, A., Edwards, J. W., Redpath, D. P., Guzman,Y., Reynolds-Fisher G. L., & Fisher, D. G. Gender Specific Associations of STIs and Club Drug Use. Poster presentation at the American Public Health Association Conference, Philadelphia, Pa., December 2005.

Edwards, J. W., Fisher, D. G., Reynolds, G. L., Janson, M. A., Ogata, P. C., & Jaffe, A. Transgender and Transsexual Clients of HIV Service Programs in Los Angeles County, California. Paper presentation at the American Public Health Association Conference, Philadelphia, Pa., December 2005.

Edwards, J. W., Pedersen, W. C., Denson, T. F., Goss, J. R., Vasquez, E. A., Miller, N., Aguilar, H., & Walti, I. *The Effect of Rumination on Aggressive Thoughts and Arousal Levels.* Poster presented at the Western Psychological Association Conference, Portland, OR, April 2005.

Edwards, J. W., Fisher, D. G., Reynolds, G. L., Janson, M. A., Ogata, P. C., & Jaffe, A. *Transgender and Transsexual Clients of HIV Service Programs in Los Angeles County, California.* Poster presentation at UCLA Aids Institute, Center for HIV Identification, Prevention and Treatment Services, Los Angeles, CA, April 2005.

Pedersen, W. C., Denson, T. F., Goss, J. R., Vasquez, E. A., Miller, N., Aguilar, H., Edwards, J. W., & Walti, I. *The Impact of Rumination on Aggressive Thoughts, Feelings, and Behavior.* Poster presented at the Society for Personality and Social Psychology Conference, New Orleans, LA, January 2005.

Maxfield, L., & Edwards, J. W. *Retrieval-induced forgetting over a 24 hour delay.* Poster resented at the Western Psychological Association Conference, Phoenix, AZ, April 2004.

Aguilar, H., Cobert, E., Collins, T., Edwards, J. W., Escobedo, M., Newvine, S., & Rivera, N. *Provocation and Rumination.* Poster presented at CSU Psychology Day. 2004.

AWARDS AND DISTINCTIONS

2006	Thesis of the Year Nomination, College of Arts and Sciences, CSULB.
2004-2006	Sally Casanova Pre-Doctorate Scholar. Awarded to California State University students demonstrating excellence in academia.
2004-2006	J. Robert Newman Graduate Scholar. Awarded to the top Master of Arts in Psychology student based on excellence in research.
2003	California State University Research Poster Competition, 1st Place.

CLINICAL AND TEACHING TRAININGS

2007	Training in administration and interpretation of Exner's Rorschach Comprehensive System. Five-day training.
2005	Preparing to Teach Psychology, Grad 980.01, University of New Hampshire. Paid by the CSULB Psychology Department to gain training for future teaching positions.

ABSTRACT

Coping Strategies, PTSD Symptoms, Substance Abuse, and Life Satisfaction:

A Working Model

by

Jordan Wesley Edwards

The present research focused on understanding the roles of coping strategy (avoidant, problem solving, and support seeking) and trauma history in predicting Posttraumatic Stress Disorder (PTSD) symptoms and life satisfaction. Exposure to traumatic events is common in the general population, and lifetime prevalence rates for PTSD are relatively high and are estimated at 8.7% among adults in the United States. Although the psychological impact of highly stressful events can be considerable, the development of PTSD profoundly affects the individual's overall quality of life.

Structural equation modeling (SEM) was used to investigate the relation between coping strategy, trauma history, PTSD symptoms, and life satisfaction. To decrease measurement error, latent variables were created for PTSD symptoms and life satisfaction. Both the main effects and interactions associated with coping strategy and trauma history were investigated. Three separate SEM models were constructed to investigate avoidant, problem solving, and support seeking coping strategies, which have been shown to be temporally stable traits.

To investigate the hypothesized model in a non-clinical sample, completed data from 326 participants were analyzed. Two separate subsamples were targeted and included community members and college students. Community members were approached at a large shopping center and college students were approached on campus. All participants received

an incentive, which included gift certificates, cash, or course credit immediately after completion of the research assessments.

Bivariate analyses failed to support two separate subsamples in terms of demographics, coping strategies, or trauma history; therefore, one combined sample was used for analyses. The demographics of the combined sample were much more similar to the demographics associated with college students than community members.

Overall, 80.1% of participants reported at least one exposure to a wide variety of traumatic events. Hypotheses regarding coping strategies in this sample, which was largely comprised of college students, were not supported. Both problem solving and support seeking coping strategies failed to significantly predict PTSD symptoms. Even more surprising was that in this sample avoidant coping actually predicted a decrease in PTSD symptoms. Results indicated that participants who experienced high levels of traumatic events benefited from a greater reduction in PTSD symptoms compared to those who had experienced low levels of traumatic events.

In all three coping strategies, an increased trauma history predicted a significant increase in PTSD symptoms, and an increase in PTSD symptoms predicted an even greater decrease in life satisfaction. In addition, an increase in trauma history actually predicted a small increase in life satisfaction when not mediated by PTSD symptoms. This indicated that in this sample exposure to traumatic events slightly increased life satisfaction when individuals did not experience adverse affects associated with the exposure. Also unexpected was the finding that avoidant coping predicted a slight increase in life satisfaction while support seeking predicted a slight decrease in life satisfaction.

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Chapter I

Introduction

Study Rationale

Overall lifetime prevalence rates for posttraumatic stress disorder (PTSD) are relatively high and are 8.7%, with 12-month prevalence among adults in the United States at 3.5%. Exposure to highly stressful events that could cause PTSD or other psychological disorders is fairly common among the general population in the United States (Breslau & Kessler, 2001; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995) and is even more frequent among those seeking mental health treatment (Jacobson, 1989). Although the psychological impact of highly stressful events can be considerable (American Psychiatric Association, 2013), exposure to stressful events and their psychological impact often goes undetected, including those seeking psychiatric treatment.

In addition to the diagnosis of PTSD, it is helpful to understand the overall history of traumatic events. The traumatic event can greatly impact PTSD symptomology, including: (a) the number of traumatic events; (b) magnitude of the event; (c) type of trauma, which includes interpersonal versus non-interpersonal trauma; (d) age of exposure; and (e) the presence of dissociation during or immediately after the trauma.

The importance of coping strategies has been recognized in the Diagnostic and Statistical Manual of Mental Disorders Fifth Edition (DSM-5); specifically, inappropriate coping strategies is listed in the temperamental posttraumatic factors under risk and prognostic factors (American Psychiatric Association, 2013). Coping style has been shown to be a mediator between trauma and outcome (Stewart, 1999). The following three distinct coping styles were constructed through a rigorous psychometric evaluation: problem solving, support seeking, and avoidance (Amirkhan, 1990, 1994a, 1994b). Previous research

has shown that an adaptive coping style could buffer PTSD symptoms (Foa, Davidson, & Frances, 1999). However, maladaptive coping skills, such as avoidance, may lead to an increase in mental health issues such as PTSD (Bryant & Harvey, 1995; Holahan & Moos, 1987; Wolfe, Keane, Kaloupek, Mora, & Wine, 1993). The importance of coping is further complicated by the fact that having coped successfully with one traumatic event provides the necessary coping skills and efficacy to effectively cope with later events; therefore, the ability to adjust to one trauma may predict adjustment to subsequent similar or dissimilar traumatic events (Amir & Sol, 1999).

The development of PTSD has profound effects on the individual's overall quality of life (Nachar, Guay, Beaulieu-Prévost, & Marchand, 2013). Individuals with PTSD can have difficulty regulating their emotions (Tull, Barrett, McMillan, & Roemer, 2007), physical health concerns (Sareen et al., 2007), increased suicidality (Ramsawh et al., 2014), and high rates of substance abuse (Kline et al., 2014).

Importance of the Topic

Information about exposure to stressors is clinically important because high levels of such stressors can have detrimental effects on psychological and physical health (Hobfoll, Dunahoo, & Monnier, 1995; Schnurr & Green, 2004). The ability to assess persisting psychological distress associated with traumatic events in addition to assessing exposure to traumatic events can aid mental health workers' formulation of diagnoses as well as treatment plans. Furthermore, although assessing for past PTSD requires considerable time and training, it may be possible to obtain a global assessment of the severity and duration of posttraumatic distress with brief, self-administered assessments (Carlson et al., Manuscript in preparation).

The ability to quickly screen for PTSD can aid in the treatment of PTSD, including dual diagnosis patients who use substances in addition to comorbid patients diagnosed with a coexisting mental illness (Inaba & Cohen, 2004). The ability to identify a patient's coping strategy may allow mental health workers to tailor interventions to improve adaptive coping skills in order to improve outcomes (Ouimette, Ahrens, Moos, & Finney, 1998).

Understanding the mechanisms that affect the quality of life of those who have endured traumatic events is important for several reasons. As previously stated, having coped successfully with a traumatic event(s) increases the likelihood of successfully coping with traumatic events in the future. In addition, understanding how severely each traumatic event affects the quality of life in patients may identify specific treatment processes and program characteristics that can improve patients' outcomes.

Purpose of the Study

Currently, there is a dearth of research investigating how rigorously coping strategies impact the development of PTSD symptoms and the quality of life in individuals who have been exposed to traumatic events. The majority of the limited previous research has focused on the impact of PTSD and coping strategies on treatment outcomes. In addition, previous research has relied heavily on veteran and college student populations. Previous research has successfully established many differences between trauma associated with military or combat and non-combat settings. These findings show that war veterans are more severely affected by PTSD than non-combat related trauma victims (Amir, Kaplan, & Kotler, 1996). Therefore, findings predicated with military populations may not be applicable to the general public. In addition, the use of convenient college samples also heavily restricts the ability to generalize findings.

The present study aimed to add to previous findings in two important areas. First, the study included history of trauma, coping style and PTSD symptoms in one study to further understand how each of these important variables interact to impact overall quality of life. Second, the study attempted to reach participants comprised of both college students and community members to expand on the previous research conducted with military and student populations. Understanding these variables in additional populations may eventually help the outcomes of individuals with PTSD.

Hypotheses

Three separate structural equation models investigating each coping strategy (avoidant, problem solving, and support seeking) will be constructed.

1. In all three models, an increased self-reported history of traumatic events is hypothesized to predict an increase in self-reported PTSD symptoms.
2. In all three models, an increase in self-reported PTSD symptoms is hypothesized to predict a decrease in self-reported life satisfaction.
3. It is hypothesized that avoidant coping will predict an increase in self-reported PTSD symptoms.
4. It is hypothesized that problem solving coping and support seeking coping will predict fewer self-reported PTSD symptoms.

Chapter II

Literature Review

Posttraumatic Stress Disorder

The American Psychiatric Association's (APA) relatively new release of the DSM-5 (American Psychiatric Association, 2013) brought significant changes associated with PTSD from the previous version, the Diagnostic and Statistical Manual of Mental Disorders Fourth Edition Text Revision (DSM-IV-TR; American Psychiatric Association, 2000). First and foremost, research supported moving PTSD out of the Anxiety Disorders section and placing PTSD in a newly created Trauma- and Stressor-Related Disorders section (Friedman et al., 2011). Understanding the nuances of PTSD is essential to understanding its development and diagnosis.

The DSM-5 has characterized PTSD as the development of symptoms following exposure to actual or threatened death, serious injury, or sexual violence. This exposure can be due to direct experience, witnessing in person, learning the exposure occurred to a family member or friend, or experiencing repeated or extreme exposure to details of traumatic events, usually in the line of duty. An important change in the DSM-5 is that the individual no longer had to respond with intense fear, helplessness, or horror, which was not supported by research (Friedman, 2013). Examples of traumatic stressors include severe motor vehicle accidents, military combat, violent interpersonal assault, alcohol or drug facilitated penetration, terrorist attacks, and natural or man-made disasters.

The resulting symptoms must be present for more than a month and include persistent intrusions associated with re-experiencing the event. At least one of the following intrusions must be experienced: distressing memories, distressing dreams, dissociative reactions, psychological distress at internal or external cues symbolizing the trauma, or

physiological reactions to internal or external stimuli symbolizing the trauma. Individuals with PTSD commonly "re-experience" the traumatic event through repeated intrusive recollections of the event, which can include vivid dreams. These individuals may also experience dissociative states that can last a few seconds to days, during which the individual may behave as though they are re-experiencing the traumatic event in the moment (American Psychiatric Association, 2013). The role of dissociation in PTSD has been increasingly emphasized due to dissociative symptoms' prediction of later posttraumatic pathology (Galatzer-Levy, Madan, Neylan, Henn-Haase, & Marmar, 2011; Murray, Ehlers, & Mayou, 2002), including higher levels of re-experiencing and suicidality (Stein et al., 2013).

Persistent avoidance of stimuli associated with the traumatic event must include one of the following two efforts: (a) *avoidance of distressing memories*, *thoughts, or feelings associated with trauma*; or (b) *avoidance of external reminders, people, places, conversations, activities, objects, or situations that cause distressing memories, thoughts, or feelings associated with the traumatic event* (American Psychiatric Association, 2013).

A new diagnostic criteria in the DSM-5 is the negative alterations in cognitions and mood associated with the traumatic event, which must be evidenced by at least two of the following: (a) inability to remember an important aspect of the trauma; (b) exaggerated negative beliefs or expectations about oneself, others, or the world; (c) distorted cognitions about the trauma that lead the individual to blame himself/herself or others; (d) persistent negative emotional state; (e) diminished interest/participation in significant activities; (f) feelings of detachment or estrangement from others; and (g) inability to experience positive emotions (American Psychiatric Association, 2013). Changes in the DSM-5 diagnostic criteria were supported through factor analysis. Although the intrusion and arousal

symptoms clusters in the DSM-IV-TR were supported, the avoidance/numbing cluster emerged as two distinct clusters: avoidance criteria and numbing criteria (Friedman, Resick, Bryant, & Brewin, 2011). Therefore, the three-factor criteria in the DSM-IV-TR were expanded to the four-factor solution in the DSM-5, which includes both negative alterations in cognitions and mood as well as alterations in arousal and reactivity (Friedman, 2013).

Marked alterations in arousal and reactivity associated with the traumatic event must be evidenced by at least two of the following: (a) irritable behavior and angry outburst; (b) reckless or self-destructive behavior; (c) hypervigilance; (d) exaggerated startle response; (e) problems with concentration; and (f) sleep disturbance. Finally, the disturbances associated with the event must cause significant distress or impairment in social, occupational, or other important areas of functioning (American Psychiatric Association, 2013).

To further understand PTSD, it is helpful to differentiate longer lasting symptoms associated with PTSD from the shorter-duration symptoms associated with Acute Distress Disorder (ASD; American Psychiatric Association, 2013). Posttraumatic stress symptoms that last a few days to a few weeks are fairly common and are not always, or strongly, associated with persisting posttraumatic symptoms (Bryant, 2003). Depending on the type of traumatic stressor, anywhere from 6 to 33% of study samples have been found to have symptoms that meet criteria for Acute Stress Disorder, a DSM-IV diagnosis that requires symptoms of dissociation and PTSD to persist for at least two days (Bryant, 2004). When assessed an average of 13 days after their accident, 26% of severely injured accident victims met criteria for PTSD or subsyndromal PTSD, meeting DSM-III-R symptom criteria for re-experiencing plus either avoidance or hyperarousal symptom criteria (Schnyder & Moergeli, 2003). For these reasons, clinicians and researchers are often interested in whether a significant level of distress in response to a traumatic event persists beyond a few weeks.

The emerging importance of dissociation was incorporated in the DSM-5 with the addition of the "with dissociative symptoms" specifier. Again, this addition was supported through exhaustive research that provided evidence for a dissociative subtype of PTSD (Stein et al., 2103; Steuwe, Lanius, & Frewen, 2012; Wolf et al., 2012). Dissociative symptoms vary from brief visual or other sensory intrusions concerning the traumatic event to complete loss of awareness of present surroundings, sometimes referred to as "flashbacks" (American Psychiatric Association, 2013). Although there are many types of dissociation, only two types were significantly elevated in research studies: derealization or the feeling that one's surroundings are not real, and depersonalization or one's thoughts and feelings are unreal or even the loss of all sense of identity (Steuwe et al., 2012; Wolf et al., 2012). This research helped support the two DSM-5 PTSD specifiers of Depersonalization and Derealization (Friedman, 2013). Individuals with dissociation tend to experience increased PTSD symptom severity (Wolf et al., 2012), increased re-experiencing symptoms (Stein et al., 2013), comorbidity with Axis I disorders in the DSM-IV-TR (Stein et al., 2013), exposure to childhood intimate interpersonal trauma (Stein et al., 2013; Steuwe et al., 2012; Wolf et al., 2012), and adult sexual trauma (Stein et al., 2013), which are stable across a diverse set of countries (Stein et al., 2013).

Age of onset associated with PTSD can occur after the first year of life. Symptoms usually develop within the first three months after the exposure to the trauma but can be delayed as exemplified by the "with delayed expression" specifier. Adolescents may express more symptoms including estrangement from peers, irritable or aggressive behavior, reckless behaviors, as well as lost aspirations for the future. Duration of symptoms varies greatly; however, individuals who continue to experience symptoms into older adulthood may express fewer symptoms. Unfortunately, symptoms associated with PTSD can be long

lasting, with some individuals experiencing PTSD symptoms for over 50 years (American Psychiatric Association, 2013).

Trauma

One of the most variable aspects of PTSD is the actual traumatic event(s). Overall lifetime prevalence rates for PTSD are 8.7%, with 12-month prevalence among adults in the United States at 3.5%. However, the majority of individuals in the general population have been exposed to a lifetime traumatic stressor with estimated rates ranging from 69% to 81% (American Psychiatric Association, 2013; Breslau et al., 1998; Frans, Rimmo, Aberg, & Fredrikson, 2005; Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993) in both urban and rural areas (McCall-Hosenfeld, Mukherjee, & Lehman, 2014). Breslau's (2002) epidemiological study of exposure to traumatic stressors in a large American city found that most community residents had experienced at least one event that met DSM-IV criteria defining a traumatic stressor; this indicates that more detailed information about exposure to such events may be useful. Previous research has provided explanations as to why a proportionally small percent of people develop PTSD when the majority of people actually experience a traumatic event.

One predictor of the development of PTSD is multiple exposures to traumatic events, indicating a cumulative effect of exposure (Brewin, Dalgleish, & Joseph, 1996). Individuals with a history of trauma are likely to have experienced several episodes of traumatic exposure (Kessler, 2000). Multiple exposures to stressors appear to constitute a context that increases individuals' risk for developing PTSD (Carlson & Rosser-Hogan, 1991; Hobfoll et al., 1995; Kaysen, Resick, & Wise, 2003; Mollica, McInnes, Poole, & Tor, 1998). In a large epidemiological study in a U.S. urban area, Breslau and colleagues found that exposure to any stressor events increased the risk for development of PTSD following subsequent

exposure, and such exposure had an even stronger influence than did single events (Naomi Breslau, Davis, Andreski, & Peterson, 1991). Ozer et al. (2003) conducted a meta-analysis of predictors of PTSD and found that individuals who had previously experienced a traumatic event reported higher levels of PTSD symptoms when compared to those who had not been previously exposed to a stressor. The cumulative effects of repeated exposure to traumatic events were also found in children who had experienced physical as well as sexual abuse. Adults abused as children reported higher adult rates of abuse and increased rates of PTSD symptoms associated with the multiple abuses experienced (Briere & Elliott, 2003). Understanding the frequency of traumatic events can help predict the development of PTSD and the increased risk of problematic reactions to future traumas.

More recent research has provided finer-grained information regarding the number of traumas and the development of PTSD. Data analyzed from 20 surveys in the World Health Organization World Mental Health Survey Initiative, which included 51,295 cases, provided a critical cut-point for increased PTSD symptomology (Karem et al., 2014). Individuals with four or more traumatic events had greater functional impairment, longer duration of symptoms, and higher comorbidity. In addition, although these data did not allow for further detailed analyses, individuals with four or more traumatic events experienced a higher proportion of physical assault traumas, indicating the importance of the type of trauma.

Another important aspect of the traumatic event is the magnitude of the event; more specifically, understanding the proximity, intensity (directly affected versus witnessed), and the duration of the event. An example of this would be having a gun pointed at you during a robbery for an extended period of time, compared to witnessing, at a distance, a family member briefly passing within the trajectory of a gun during a robbery. Previous research

has reported increased rates in the development of PTSD in veterans who directly experienced the traumatic event, compared to veterans who witnessed the event, supporting the importance of the intensity of the event (Hoge et al., 2004). Research conducted with civilian adolescents supported the importance of proximity, with individuals experiencing traumatic events in close proximity developing higher rates of PTSD (Goenjian et al., 2005). The importance of the duration of the event was supported moderately, but only in the immediate aftermath of a sexual trauma with females (Kaysen, Rosen, Bowman, & Resick, 2010).

Research has also demonstrated the temporal importance concerning trauma, with early onset exposure to trauma increasing PTSD (Cougle, Timpano, Sachs-Ericsson, Keough, & Riccardi, 2010; Ehring & Quack, 2010; Spinhoven, Penninx, van Hemert, de Rooij, & Elzinga, 2014). Research that included both adult and child clinical samples was able to confirm the importance of the cumulative effect of the number of traumatic events on the severity and complexity of PTSD symptoms (Cloitre et al., 2009). However, finer-grained analyses in this study examining the impact of childhood trauma versus adult trauma indicated that the significant impact of the cumulative effect was associated with childhood trauma and not adult trauma. These results elicited the important finding that experiencing multiple traumas in childhood is increasingly detrimental with increases of PTSD as well as the complexity of symptomology.

Different types of trauma can have varying effects on the development of PTSD as well as the severity of symptoms. Interpersonal trauma has been shown to cause increased symptomology when compared to non-interpersonal traumas (Ehring & Quack, 2010; Luthra et al., 2009). Even within interpersonal trauma, intimate interpersonal trauma, which is trauma that occurs at the hands of someone who is emotionally close, increases the effects

of PTSD symptoms. Symptomology associated with interpersonal trauma is greater when compared to non-interpersonal trauma such as natural disasters. In addition, symptomology is greater when trauma occurs at the hands of someone who is trusted (intimate interpersonal trauma) when compared to trauma that occurred due to a relative stranger (interpersonal trauma). Symptomology associated with intimate interpersonal trauma increases substantially because individuals can feel that the world around them is no longer safe (Forbes et al., 2014).

An interesting aspect of traumatic events is how differently traumas can impact different individuals. Two individuals can experience the same trauma, such as a severe vehicle accident, causing one individual to develop PTSD, greatly impacting his or her life, while the other individual does not incur any lasting detrimental effects from the event. One previously described explanation could be the difference in the number of traumatic events previously experienced. However, pretrauma factors also impact the development of PTSD. Individuals possess different skill sets and levels of ability prior to experiencing trauma. Several pretrauma factors affect the development of PTSD symptomology. Lower cognitive abilities, prior psychopathology (Powers et al., 2014), increased biological or psychological arousal, and avoidant coping and response all increased vulnerability of developing PTSD (DiGangi et al., 2013).

Coping

Although the current research began prior to the release of the DSM-5, the importance of coping strategies has been recognized in the DSM-5. Specifically, inappropriate coping strategies is listed in the temperamental posttraumatic factors under risk and prognostic factors (American Psychiatric Association, 2013). The current study examined the impact of both maladaptive and adaptive coping strategies. Coping has been

defined as the conscious attempt to manage internal or external stressors that an individual perceives as exceeding existing resources (Folkman & Lazarus, 1991). Moos and Schaefer (1993) presented a bi-directional conceptualization of stressors, coping styles, and well-being. In effect, an individual's coping style affects ongoing life stressors, which in turn, affects the individual's wellbeing. However, the reverse pattern may also occur in which wellbeing may influence both coping style as well as life stressors. For example, an individual experiencing poor wellbeing may place themself in increasingly stressful situations. In turn, failure to actively cope with these stressors may decrease engagement in positive coping strategies. The authors found that several aspects of self-concept impacted the ability of an individual to successful cope with stressors.

Moos and Shafer (1993) found that an individual's level of self-efficacy affected coping ability. Specifically, higher levels of self-efficacy were associated with taking active coping measures, while lower levels of self-efficacy were associated with more avoidant coping strategies. Sense-of-coherence was defined as the extent to which an individual believes the world is predictable, has the adequate personal recourses to meet environmental demands, and feels that it is worthwhile to try to cope actively with stressors. Individuals with a high sense-of-coherence are more likely to actively engage in positive coping strategies, which include: adding structure, accepting the challenge, and engaging social resources. In addition, optimistic individuals are more likely to engage in problem-focused coping strategies and are less likely to engage in avoidant coping strategies leading to better outcomes (Scheier, Carver, & Bridges, 1994; Scheier, Matthews, Owens, Magovern, & Lefebvre, 1989). These findings have since been supported and a high sense-of-coherence has been found to predict a better health status which included less physical illness and less depression (Amirkhan & Greaves, 2003).

These internal processes associated with self-concept develop into three coping strategies that have been empirically supported Problem solving, avoidance, and seeking social support have been established as three orthogonal coping strategies that remain somewhat consistent over time. Although individuals may change coping strategies in certain situations, overall general engagement in coping strategies tends to be temporally stable (Amirkhan, 1990, 1994a, 1994b).

Problem-solving coping strategies have been shown to be a protective factor in the stressor-symptoms relation. Problem-solving strategies include active efforts to manage or control aspects of stressful events (Snow, Swan, Raghavan, Connell, & Kleins, 2003; Wolfe et al., 1993). Research with Gulf War Veterans (Sharkansky et al., 2000) supported the predicted hypotheses that Army personnel who used approach-based (problem solving) coping strategies to cope with combat stress, reported lower levels of psychological symptoms immediately upon returning from the Gulf, and at both 18- and 24-month follow-ups. This study investigated avoidant coping as well as approach-based coping strategies; Army personnel who engaged in approach-based coping reported far better outcomes than personnel who reported use of avoidant strategies. These relations were even stronger in personnel who reported higher levels of combat exposure, indicating that the use of problem-solving coping strategies may be even more important as stress levels increase.

Additional research with Vietnam combat veterans provided similar findings (Wolfe et al., 1993). Veterans were non-treatment-seeking volunteers who reported that they had made an adequate adjustment since returning from duty in Vietnam. Results indicated that well-adjusted veterans engaged in non-avoidant coping strategies. Even more striking was the fact that coping strategy predicted current level of adjustment better than previous combat exposure. These findings were further supported in non-military personnel;

however, the participants of the study were war refugees who had been exposed to the effects of combat (Ai, Tice, Whitsett, Ishisaka, & Chim, 2007). Findings within this population indicated that individuals who engaged in adaptive cognitive problem-solving coping strategies reported better outcomes.

Snow et al. (2003) found that coping style could act as a moderator on the effect of stressors on outcome. Specifically, stress and coping interacted in a manner in which individuals that used greater active coping skills in high stress situations reported fewer symptoms. However, previous research has provided mixed results with some findings not supporting the moderating effects of active coping (Day & Livingston, 2001; Felsten, 1998; Kirkcaldi, Cooper, & Brown, 1995) and some findings supporting coping as a moderating effect (Felsten, 1998; Greenglass & Burke, 1991; Littrell & Beck, 2001).

Engagement in avoidant coping style has been shown to be predictive of increased symptoms (Day & Livingston, 2001; Felsten, 1998; Rayburn et al., 2005; Votta & Mansion, 2003). A reciprocal relation has also been shown with higher stress levels positively correlated with increased engagement in an avoidant coping style (Ingledew, Hardy, & Cooper, 1997). In a sample of Gulf War veterans, longitudinal research findings reported that avoidant coping was positively associated with increased reports of PTSD symptoms (Benotsch et al., 2000). In addition, in a sample of indigent women, a history of trauma predicted avoidant coping style as well as depression (Rayburn et al., 2005). In the same sample, active coping (problem solving coping) predicted seeking mental health services, indicating that modifying coping strategies could ameliorate the negative impact of trauma.

In addition to the two previously discussed coping styles, some individuals seek solace in others during times of high stress. Social support is a combination of the individual's ability to reach out as well as the perceived availability of support by the

individual (Snow et al., 2003). Although mixed results have been reported, seeking social support has generally been linked to better outcomes including decreased reports of PTSD symptoms. An exception to this finding was reported in a Structural Equation Model study investigating World War II veterans 50 years after the war ended. In this research, social support was positively related to PTSD symptoms (Jankowski et al., 2004). The authors reported that this unexpected finding was contrary to studies conducted with Vietnam veterans (Green, Grace, Lindy, Gleser, & Leonard, 1990; King, King, Fairbank, Keane, & Adams, 1998). Research with children after Hurricane Andrew reported that the availability of social support was one of the four major predictors of decreased self-report of PTSD symptoms. In addition, Vickerman and Margolin (2007) reviewed established interventions for children and adolescents exposed to family violence and recommended targeting and increasing social problem-solving skills in order to increase positive outcomes.

An individual's ability to successfully cope with a traumatic event decreases the probability of developing PTSD while increasing the probability that the individual will be able to cope with future traumatic events (Amir & Sol. 1999). Being able to effectively cope with life stressors, including traumatic events, tends to lead to positive outcomes.

Quality of Life

Individuals with a history of traumatic events and PTSD experience detrimental effects to their overall quality of life (Nachar, Guay, Beaulieu-Prévost, & Marchand, 2013). Olatunji, Cisler, and Tolin (2007) conducted a meta-analytic review of the robust negative impact of anxiety disorders on life satisfaction. The review of previous research elicited that PTSD may have increased negative effects, even when compared to other anxiety disorders. The research referenced a global definition for quality of life as well as an assessment related definition associated with quality of life. Quality of life refers to the aspects that

make life worthwhile and fulfilling, and includes the individual's subjective well-being and overall life satisfaction (Angermeyer & Kilian, 1997). The assessment of quality of life includes the individual's subjective views of one's life circumstances, and includes the perceptions of their mental and physical health, functioning at work and at home, and social and family relationships (DuPont et al., 1996).

Individuals with PTSD can have difficulty regulating their emotions, which in turn, can drastically impact their quality of life (Tull, Barrett, McMillan, & Roemer, 2007). Specifically, as PTSD symptom levels increase, levels of emotion clarity and awareness are reduced, difficulty with negative emotions increases, higher levels of avoidance and emotion suppression are experienced, increased difficulty in task completion occurs under duress, impulse control decreases, and there is difficulty in emotion regulation (Ehring & Quack, 2010). The combination of avoidance and emotional instability can further isolate the individual, leading to poorer outcomes.

The increased focus on dissociation associated with PTSD is warranted in the area of quality of life as dissociative symptoms significantly predict decreases in overall quality of life. Research conducted with individuals exposed to a major earthquake reported decreases in all areas of quality of life that were measured (Ozdemir, Boysan, Ozdemir, & Yilmaz, 2015). The research elicited that those individuals with pathological dissociation incurred increased hopelessness and suicidal ideation, increased depression, poorer physical and mental health, and an overall drop in their quality of life.

Several areas of physical health, an important component of quality of life, have been shown to be associated with PTSD. In a large community sample, research assessing the negative affects of PTSD, provided evidence of a significant negative impact on overall quality of life through associations with many physical health concerns (Sareen et al. 2007).

Posttraumatic Stress Disorder has been shown to be uniquely associated with cancer (Honda & Goodwin, 2004), cardiovascular disease, chemical sensitivities, chronic fatigue syndrome, chronic pain (Asmundson, Coons, Taylor, & Katz, 2002), gastrointestinal illness, and respiratory disease. In addition, individuals with PTSD reported increased rates of both short-term and long-term disability, establishing PTSD as a significant predictor of health concerns, as well as a critical health problem.

Research in Sweden assessed higher order areas associated with quality of life less versed in many PTSD studies. In this study, PTSD was negatively associated with 13 out of the 16 domains associated with quality of life (Paunovic & Ost, 2004). The largest associations were found in the areas of self-respect, creativity, learning, philosophy of life, recreation, community, standard of living, romantic relationships, friendships, and work. This research further illuminated how pervasive PTSD symptomology is, affecting higher order areas such as one's philosophy, creativity, or even the ability to learn.

One area of great concern within overall quality of life is suicidality, or thoughts, plans, or actions associated with suicide. Increased rates of suicidality have been associated with PTSD (Cougle, Keough, Riccardi, & Sachs-Ericsson, 2009; LeBouthillier, McMillan, Thibodeau, & Asmundson, 2015; Ramsawh et al., 2014; Tarrier & Gregg, 2004; Wilcox, Storr, & Breslau, 2009). A meta-analysis elicited that this association remains across clinical and non-clinical populations, current or lifetime diagnosis of PTSD, and regardless of which type of traumatic event was experienced before the development of PTSD (Panagioti, Gooding, & Tarrier, 2012). Although clear associations between PTSD and suicidal ideation were reported, research studies investigating a correlation between PTSD and successful suicide provided mixed results, with roughly half of the applicable reviewed studies supporting this relationship, and the other half failing to support this correlation.

One of the greatest impacts on quality of life is the presence of substance abuse. The presence of PTSD significantly increases rates of alcohol dependence (Kachadourian, Pilver, & Potenza, 2014; Kline, Weiner et al., 2014; Shafer & Najavitis, 2007). Individuals with PTSD and substance abuse often report their substance abuse exacerbates their PTSD symptoms, and consequently, when their PTSD symptoms improve, substance abuse decreases (Back et al., 2014). In a series of three studies, researchers systematically investigated the relations between PTSD and substance abuse. In the first of the three studies, the investigators examined outcomes of dual diagnosis PTSD patients compared to substance abuse patients without psychiatric disorders, and to patients with Axis I psychiatric disorders other than PTSD who did not have a dual diagnosis. Dual diagnosis PTSD patients only improved on three out of eight psychosocial outcomes while patients with only a substance abuse disorder improved on seven. Discrepancies between these groups continued during the one-year follow-up. In addition, compared to the other two groups, dual diagnosis PTSD patients had more difficulty regulating their emotions, which decreased their effective coping skills (Ouimette et al., 1997). The combination of substance abuse and PTSD is associated with increased severity of PTSD and poorer outcomes (Blanco et al., 2013), as well as increased consequences related to alcohol use (Fuehrlein et al., 2014). Understanding the factors that prohibit positive outcomes in dual diagnosed PTSD patients may provide empirically supported treatment plans tailored for this treatment-resistant population.

Patients in treatment for substance abuse frequently have a dual diagnosis with PTSD (Brady et al., 1994; Brown et al., 1995; Carlson et al., 2010; Cottler, Compton, Mager, Spitznagel, & Janca, 1992; Helzer & Pryzbeck, 1988; Keane, Gerardi, Lyons, & Wolfe, 1988; Kessler, Chiu, Demler, & Waters, 2005; Kulka et al., 1990; Ouimette et al.,

1997, 1998). Often, individuals did not have a diagnosis of alcohol dependence until after experiencing a traumatic event and the diagnosis of PTSD (Back, Jackson, Sonne, & Brady, 2005). Research has shown that dual diagnosis individuals have poorer outcomes due to engaging in maladaptive coping strategies associated with substance abuse, which include avoidant strategies, such as using substances to escape (Fairbank, Hansen, & Fitterling, 1991; Nezu & Carnevale, 1987; Ouimette, Finney, & Moos, 1999). Co-occurrence of PTSD in substance abuse patients rates are high and have been reported to range between 35% and 46% (Keane et al., 1988; Kovach, 1986; McFall, Mackay, & Donovan, 1991; Pietrzak, Goldstein, Southwick, & Grant, 2011). Patients suffering with substance abuse and PTSD tend to engage in more avoidant coping strategies (Penk, Peck, Robinowitz, Bell, & Litle, 1988) and report that they attribute their relapses to PTSD symptoms approximately 25% of the time (Abueg & Fairbank, 1992).

Ouimette et al. (1998) conducted a follow-up study to further understand the relation between PTSD and substance abuse. Dual diagnosis participants with PTSD completed a substance abuse program, which did not focus on PTSD symptoms. These participants not only improved substance-specific coping skills, but general coping skills as well, indicating that tailored interventions could, in fact, improve overall adaptive coping skills. Tailored interventions may be able to change previous avoidant-coping strategies to more conducive problem-solving coping techniques. Dual diagnosis patients have benefited from an increased number of interventions, and through proper screening, could be enrolled in longer-term interventions, which begin with coping skills training. The researchers conducted a two-year follow-up study that found that comorbid PTSD had a greater negative effect than other comorbid psychiatric disorders (Ouimette, Finney, & Moos, 1999). The investigators explained this important difference due to the very nature of PTSD symptoms.

When compared to individuals experiencing other anxiety disorders, individuals experiencing PTSD are less successful at avoiding fear-producing cues. This may produce the perception, and even the reality, of less control, which can lead to the abuse of substances. These substances, and the subsequent substance abuse, may provide the individual with some control over previously uncontrollable symptoms. This unique difference in control can explain the higher recidivism rates, as well as lower functioning of substance abusers with PTSD than substance abusers with other co-occurring psychological disorders. The researchers likened this phenomenon to increased engagement in avoidant coping strategies and less use of problem solving strategies.

In addition, a relation has been established between coping skills and substance abuse. In a sample of dual-diagnosis adolescents and adults, positive coping skills were shown to be a protective factor against alcohol and other drug abuse (Anderson, Ramos, & Brown, 2006). These findings were even stronger in participants who had experienced high levels of life stress. Understanding the relation between coping skills, substance abuse, and PTSD may improve outcomes of patients in in-patient and out-patient treatment by tailoring interventions to improve coping skills.

Previous Structural Equation Models

Several structural equation models have been constructed in previous research and have added to knowledge surrounding the interplay of coping strategies and PTSD. In general, these studies examined the association between coping and PTSD symptoms, but did not investigate how coping could mitigate possible development of PTSD symptoms after exposure to traumatic events. Tiet et al. (2006) constructed a structural equation model to investigate the relation among PTSD symptoms, coping, and social functioning of veteran medical center patients with PTSD. The simple yet strong model established that avoidant

coping strategies were, in fact, associated with an increase in PTSD symptoms. In addition, problem solving coping strategies led to increased family and social functioning. Interestingly, an investigation of reciprocal paths found that PTSD symptoms predicted the use of both problem solving and avoidant coping strategies. The investigators hypothesized that avoidant coping strategies led to increased PTSD symptoms due to increased denial regarding the severity of the problem. Furthermore, the investigators theorized that increased engagement in cognitive avoidance actually lead to more recurrent and intrusive recollections. The investigators reported that treatment focusing on reducing avoidant coping could lessen PTSD symptoms; in addition, the investigators reported the need for further studies to confirm the association between coping and functioning outcomes in patients with PTSD.

Path analyses investigating the relation between avoidant coping and poor outcomes were supported in college students (Lawler, Ouimette, & Dahlstedt, 2005), female survivors of child abuse (Sullivan, Meese, Swan, Mazure, & Snow, 2005), and survivors of sexual assault (Ullman, Townsend, Filipas, & Starzynski, 2007). However, research using college students who reported grief associated with a significant death found that both avoidant and problem coping strategies were associated with increased grief and PTSD symptoms (Schnider, Elhai, & Gray, 2007). The researchers provided finer grained analyses, revealing that the majority of the variance was accounted for by avoidant coping, supporting avoidant coping as a stronger predictor of poor outcomes; however, this did not alleviate the association between problem-solving with both grief and PTSD symptoms. The only explanation for these unexpected findings provided by the researchers was that with the burden of both PTSD and grief, these emotional difficulties might respond best with professional treatment, and respond less to personal coping strategies. It is important to note

that each of the previous structural equation model studies appealed for further studies to replicate and expand on these preliminary findings.

Conclusion

Overall, exposure to traumatic events is high, with the majority of individuals in the general population experiencing at least one traumatic event in their life. Many factors associated with the traumatic event impact individuals in different, and sometimes, profound ways. In addition, how the individual copes with the traumatic event can influence the outcome of the experience. Although most individuals who experience a traumatic event do not develop PTSD, those who do, experience devastating symptoms, which negatively impact the individual's quality of life. Further research is needed to investigate the history of trauma, coping style, and PTSD symptoms in order to further understand how each of these important variables impact each other, and overall quality of life. Further comprehension regarding the role of each of these important variables may eventually help interventions and outcomes associated with individuals who have experienced traumatic events, as well as those diagnosed with PTSD.

Chapter III

Method

Research Design and Data Analysis

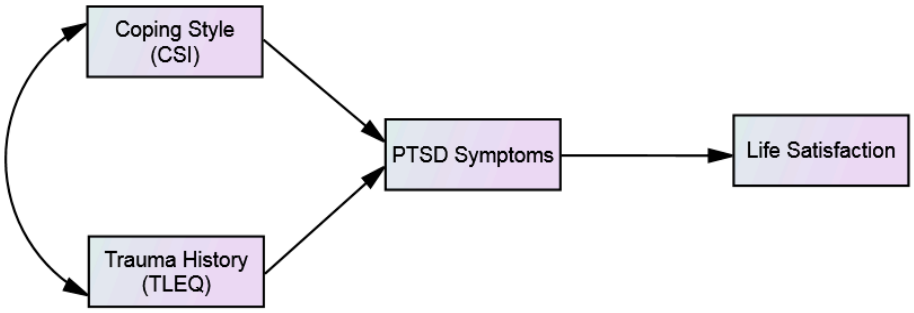
Structural Equation Modeling was used to investigate the relation between coping strategies, a history of traumatic events, PTSD symptoms, and life satisfaction. Construction and analysis of the structural equation models were completed to the specifications of Kline (2005). Models used in the current study contained both observed and latent variables. Observed variables in the models are represented inside of rectangles while latent variables are represented inside of ovals. The use of latent variables provides several benefits. Latent variables can reduce imperfect score reliability, although it cannot compensate for gross psychometric flaws. Including scores across measures tend to produce more reliable and valid scores than any one individual measure (Tomarken & Waller, 2005).

The basic technique of Structural Equation Modeling is covariance. Covariances are statistically derived through analyses and represent the strength of the association between variables, albeit latent or observed variables. These covariances are sometimes referred to as unstandardized correlations because they have no upper or lower bounds. Although correlations usually range between negative one and positive one, covariances can be lower than negative one or higher than positive one.

The curved lines with two arrowheads represent the observed covariance between two variables. Lines with a single arrowhead represent hypothesized direct effects of one variable onto the other variable. These direct effects, known as paths, produce path coefficients, which represent the strength of the presumed cause onto the presumed effect. Essentially, path analysis estimates the presumed causal relationship among observed

variables. To investigate these relations in the present research, the following model was constructed based on previous research.

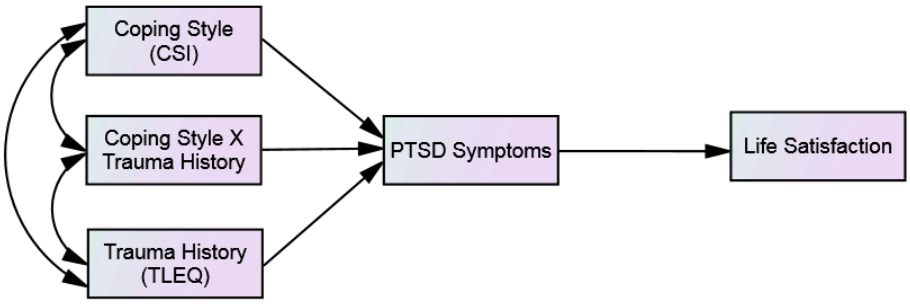
Figure 1. Basic Main Effects Model



This model explored the link between Coping Style and previous Trauma History on Life Satisfaction after controlling for PTSD Symptoms. Specifically, the impact of self-reported Coping Style was hypothesized to impact the self-report of PTSD Symptoms. In addition, an increased self-reported Trauma History was hypothesized to increase the self-report of PTSD Symptoms. Finally, increased self-reported PTSD Symptoms were hypothesized to decrease self-reported ratings of Life Satisfaction. This model tested the main effects of Coping Style and Trauma History on PTSD Symptoms.

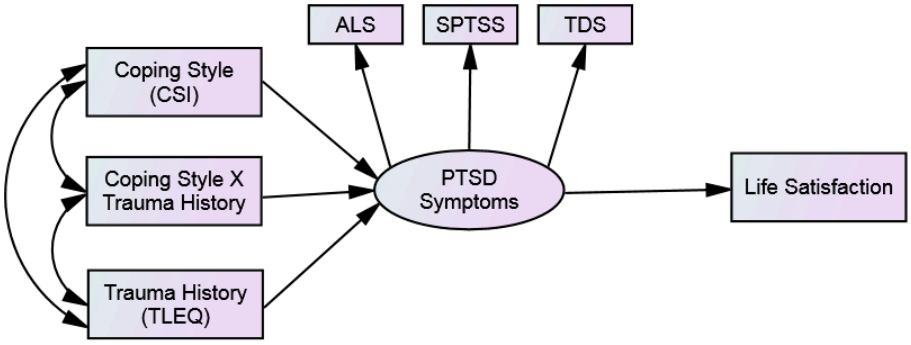
To investigate the possibility of an interaction between Coping Style and Trauma History, an interaction variable (Coping Style X Trauma History) was created and included in an interaction model. The interaction model investigated the presence or absence of an interaction as well as the possible interaction effect on self-reported PTSD symptoms. In the present research, the main effects were tested prior to testing for the presence of an interaction.

Figure 2. Basic Interaction Model



Researchers have constructed diverse psychometrically supported assessments that measure PTSD symptoms in unique ways. For example, some assessments focus on dissociation, while others use a more global application. To account for this diversity and to decrease measurement error, three separate PTSD symptom assessments were included in the present research: the Affect Liability Scale (ALS), the Screen for Posttraumatic Stress Symptoms (SPTSS), and the Trauma Dissociation Scale (TDS). To accommodate these assessments, the PTSD Symptom variable was converted from an observed variable into a latent variable as shown below. The combination of all three PTSD symptom assessments represents the latent variable PTSD Symptoms.

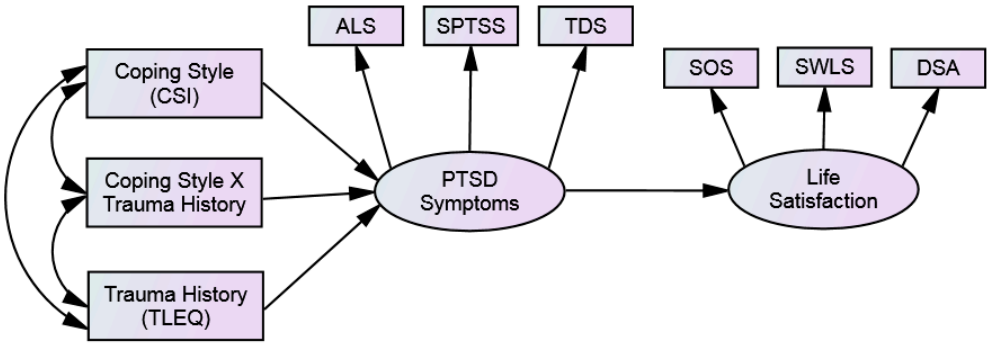
Figure 3. PTSD Symptoms Latent Variable Model



Finally, three separate measures of life satisfaction were included in the measurement of Life Satisfaction to accomplish the previously discussed assessment diversity and measurement goals. The inclusion of the three assessments accomplished the

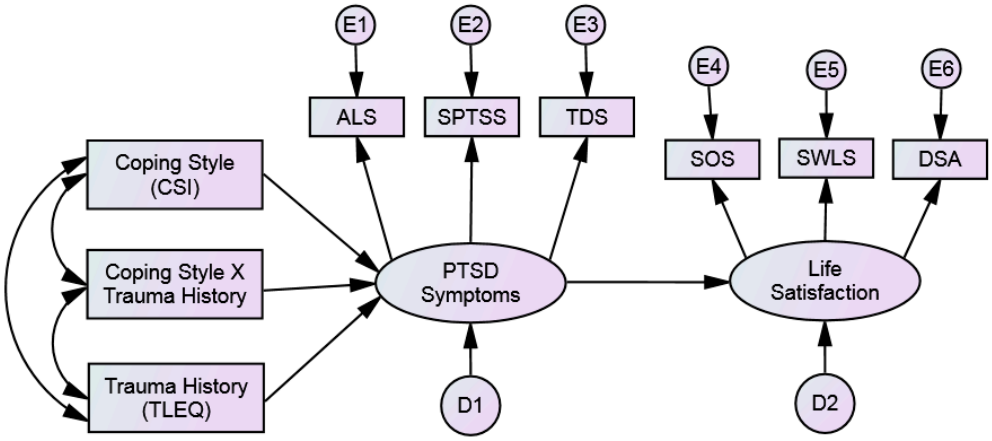
measurement of global satisfaction with life, satisfaction with life the day and the week the assessment was completed, as well as measurement of the effect of stress on day-to-day satisfaction. These assessments included the Stress Overload Scale (SOS), which measures the effect of stress on satisfaction; the Satisfaction with Life Scale (SWLS), which measures long-term global life satisfaction; and the Daily Satisfaction Assessment scale (DSA), which measures general satisfaction the day and the week the assessment was completed. To accommodate the inclusion of the three satisfaction with life assessments, the Life Satisfaction variable was converted from an observed variable to a latent variable. The hypothesized model is illustrated below and explores the associations previously mentioned with two latent variables that were constructed to measure a broader span of functioning while decreasing measurement error.

Figure 4. PTSD Symptoms and Life Satisfaction Latent Variables Model



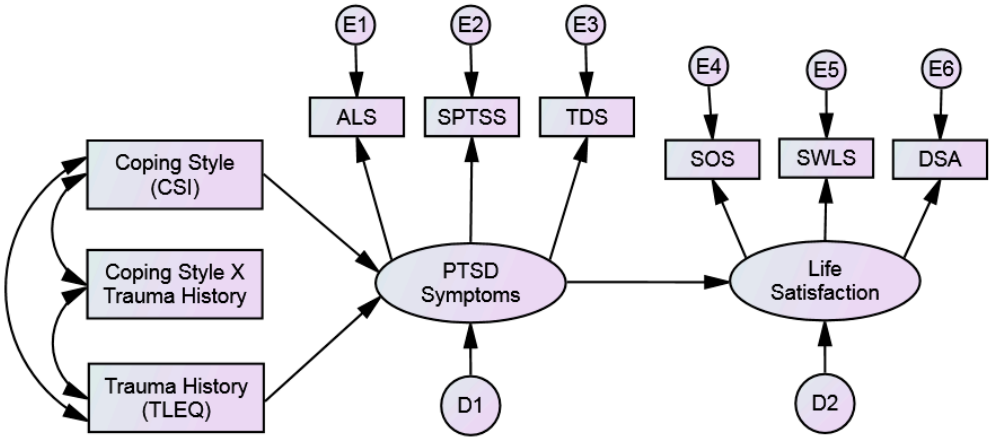
Finally, circles with an uppercase “D” were added and represent “disturbances” that account for unmeasured causes of that latent variable. Circles with an uppercase “E” were added and account for the measurement error associated with the assessment of observed variables. The full model is presented below.

Figure 5. Interaction Model



The first model analyzed tested the main effects of Coping Style and Trauma History on PTSD Symptoms. After the main effects were analyzed, the interaction term was tested to investigate if an interaction was present. Therefore, Model A, the Main Effects Model presented in Figure 6, was analyzed first. The interaction term (Coping Style X Trauma History) was included in Model A so that Model A could be modified with the addition of a single direct effect to create the Interaction Model (Figure 5), which was analyzed second. It is important to note that although the interaction term was present in Model A, the interaction was not analyzed yet because there was no direct effect from the interaction term to PTSD Symptoms. Including the interaction term in Model A allowed a single direct effect to be added to Model A to create the Interaction Model. The addition of a single direct effect provided the ability to directly compare the two models to each other.

Figure 6. Model A (Main Effects Model)



Model A includes all of the associations that were hypothesized. Model A was analyzed three times, once for each type of coping style (avoidant, problem solving, support seeking). The use of avoidant coping was hypothesized to increase self-reported PTSD symptoms, decreasing overall life satisfaction. Problem solving and support seeking were hypothesized to decrease PTSD symptoms, increasing overall life satisfaction. In each of the three models, a history of trauma was hypothesized to increase PTSD symptoms, decreasing overall life satisfaction.

Measures

Measures were chosen for their psychometric properties as well as their ease of use. Specifically, screening measures were chosen that were self-administered, easily understood, and could be completed in a short period of time. The Appendix includes all measures.

Coping Strategy Indicator (CSI). Coping style was measured by the CSI (Amirkhan, 1990) due to its strong psychometrics. The CSI provides the following three orthogonal scales: avoidant coping, support seeking coping, as well as problem solving coping. Avoidant coping reflects tendencies to escape the problem, both by means of

physical and psychological withdrawal (e.g., "Avoided being with people…" and "Buried yourself in a hobby…"). Support seeking coping reflects a tendency to seek human contact in times of duress by turning to others for advice, help, and comfort (e.g., "Told people about the situation because talking about it helped you come up with solutions?"). Problem solving coping reflects tendencies to actively manage stressors through a problem-oriented approach (e.g., "Brainstormed all possible solutions before deciding what to do?"). These scales assess the "common denominators of coping" strategies common to a wide diversity of people dealing with a broad range of problems.

Despite its brevity, the CSI was shown to be psychometrically superior to other coping questionnaires (Amirkhan, 1994a). In community samples, its scales are internally consistent (with alphas ranging from .84 to .93), and yield stable scores (with test-retest correlations averaging .82 across 4- to 8-week spans). Convergent validity has been demonstrated, both in terms of convergence with existing measures of coping, personality, and pathology, and in terms of non-covariation with social desirability indices. Criterion validity is evidenced by the CSI's ability to predict actual coping responses made in both laboratory simulations and real-world settings (Amirkhan, 1994a).

Traumatic Life Events Questionnaire (TLEQ). The TLEQ (Kubany et al., 2000) was used as a measure of trauma exposure. The TLEQ is a self-report measure that assesses a broad range of potentially traumatic events in behaviorally specific terms. This measure was chosen as it not only assessed for exposure to stressors, but also assessed for frequency, as well as impact of the exposure. For 21 items, participants were asked whether they have ever experienced a particular stressor, the frequency of that event (*never*, *once*, *twice*, *3 times*, *4 times*, *5 times*, *more than 5 times*), and whether the event evoked intense fear, helplessness, or horror (Criterion A2 of the DSM-IV criteria for PTSD). A final item

elicited "If any of these events happened to you, CIRCLE the number of the ONE event that CAUSES YOU THE MOST DISTRESS." In studies of college students, Vietnam veterans, battered women, and residential substance abuse patients, temporal stability of the TLEQ items was good to excellent with kappa coefficients of .40 for most items and .60 or higher for about one third of the items. In a study of college students, disclosure agreement between an earlier version of the TLEQ and a structured interview using the same content as the TLEQ ranged from adequate to substantial across different events with kappas of .40 or higher on 15 of 16 items.

Affective Lability Scales (ALS). The ALS (Harvey, Greenberg, & Serper, 1989; Oliver & Simons, 2004) was developed to assess affect dysregulation, which refers to maladaptive patterns of emotional regulation that impair daily functioning. More specifically, affect lability refers to speed, frequency, and the range of changes in affective states. Participants responded to questions such as, "I felt fine and then got suddenly furious or angry" with *not at all*, *once or twice*, *3-6 times*, *7-10 times*, or *more than 10 times*. The ALS measures self-reported affect lability changes between euthymia and depression, anxiety, anger, hypomania, as well as shifts between hypomania and depression, and anxiety and depression. The ALS total score was analyzed in the current study. Strong psychometric properties were demonstrated with Cronbach's alphas for internal consistency ranging from .73 to .85. The assessment's kappa coefficient was excellent at .90.

Screen for Posttraumatic Stress Symptoms (SPTSS). The SPTSS (Carlson, 2001) is a 17-item self report measure of the DSM-IV PTSD symptoms of re-experiencing, avoidance, and hyper arousal that has shown good evidence of reliability and validity. Participants responded to questions such as, "I feel numb: I don't feel emotions as strongly as I used to" on an 11-point Likert scale which ranged from 0 (*never*) to 10 (*always*). The

total score was used for the present analyses. Previous analyses of the internal consistency of the SPTSS yielded a kappa coefficient of .75.

Traumatic Dissociation Scale (TDS). The TDS (Carlson et al., 2011) was used to assess dissociation symptoms. This 24-item scale assesses the experiences of derealization, depersonalization, gaps in awareness, and amnesia. Participants responded to questions such as, "My body felt strange or unreal." Participants could respond to the questions with *not at all*, *once or twice*, *almost every day*, *about once a day*, or *more than once a day*. Evidence of its reliability and validity has been found in studies of outpatients with exposure to traumatic events, combat veterans with chronic PTSD, a community sample of persons exposed to traumatic stressors, and female college students. In these studies, the TDS showed Cronbach's alphas for internal consistency ranging from .89 to .94, correlations with other measures of dissociation ranging from .50 to .66, and correlations with measures of PTSD ranging from .51 to .55.

Stress Overload Scale (SOS). The SOS (Amirkhan, 2002, 2012) is a 24-item scale that measures the effects of stress on an individual's life. The assessment was chosen as it reflects the "overload" essence of stress theory which posits that stress does not function as an additive model in which stressors simply combine to produce an overall stress level; to the contrary, the assessment captures the "overload" essence of stress theory in which overall stress level can remain low up to a breaking point, after which, stress jumps dramatically.

Participants answered questions such as "have you felt overcommitted in the past week" on a five-point Likert scale. The SOS has shown to be a reliable with one-week test-retest correlations for the Total SOS Score at .72. In addition, adequate convergent and discriminant validity was established with multiple established assessments. Exploratory and

confirmatory factor analyses were conducted to establish good internal validity with all coefficients exceeding .90. The SOS contains strong criterion validity, with excellent sensitivity (96%) and specificity (100%) when assessing stress, identifying the SOS as a valid indication of stress (Amirkhan, Urizar, & Clark, 2015). It is important to note that the SOS measures high levels of stress, and therefore, lower levels of satisfaction. To account for this, the measure was reverse-coded for analyses so that high scores in the structural equation models indicated lower levels of stress and higher quality of life.

Satisfaction With Life Scale (SWLS) and Daily Satisfaction Assessment (DSA). Subjective well-being was assessed by the SWLS (Diener, Emmons, Larsen, & Griffin, 1985) and the DSA (Oishi, 2002). The SWLS is a 5-item questionnaire with a 7-point Likert scale. The assessment measures overall long-term satisfaction with life, such as, "I am satisfied with my life" and "If I could live my life over, I would change almost nothing." Each item is summed for a total score, and Cronbach's alpha (.81) was demonstrated as acceptable. The DSA assesses short-term satisfaction of life. The assessment captures the degree of life satisfaction the day and the week assessment was completed, and consists of the following three questions: "How was today?" "How satisfied are you with your life today?" and "How was this week?" Respondents answered using a 7-point scale for both the SWLS (1 = *strongly disagree*, 3 = *neutral*, 7 = *strongly agree*) and the DSA (1 = *terrible* to 7 = *excellent*). A total summation score was derived for the global DSA score and Cronbach's alpha for this score (.70) was established as acceptable. The SWLS and the DSA were developed to be brief assessments of quality of life. The five-question SWLS focuses on overall life satisfaction while the DSA focuses on satisfaction on the day and week the assessment was completed. Both forms previously showed adequate evidence of reliability and validity.

Procedures

Two separate populations were targeted, a student population consisting of college students from a Southern California university as well as students from the community college in the same area. The second population targeted was a community sample from the same city as the university. Students from the university were students taking an applied psychology course for credit as well as students who were approached in a common area where students gather to eat. Students who were approached were asked if they would like to take part in research and receive five dollars in cash. Community college students were approached in the same manner in a similar common area on the community college campus and received the same incentive.

The community sample was comprised of individuals who were approached in a major shopping area. Potential participants were approached and asked if the would like to participate in a research project and receive a $10 gift certificate for a bookstore located in the shopping center. The shopping center was located in the same city as the university.

Participants who agreed to take part in the present research were given an assessment packet that included a Research Information Sheet and a demographic questionnaire in addition to the assessments. Completion of the packet usually took between 20 and 30 minutes. Anonymity was stressed with participants allowed to take the assessments to an area they felt comfortable and place them into a sealed container when completed. Participants who received cash or a gift certificate incentive were given the incentive immediately upon completion.

Participants

The participants were college students and community members in a Southern California city. To investigate the hypothesized model in a non-clinical sample, completed

data from 326 participants were analyzed, which was adequate to perform structural equation modeling. Two separate sub-samples were targeted and included community members (n = 156) and college students attending a local university or a local community college (n = 170). Community members were approached at a large shopping center and asked to participate in a research project. College students were approached on their respective campuses. All participants received an incentive, which included gift certificates, cash, or course credit.

The demographics (sex, age, race, and ethnicity) of the two sub-samples are presented in Table 1. The majority of participants were female in both sub-samples (57.1% of community members and 54.9% of college students). The mean age of the community sample was 25.3 years (SD = 10.3), and the mean age of the college students was 21.5 years (SD = 5.3). The majority of both sub-samples identified as European-American (71.2% of community members and 62.7% of college students). In addition, a minority of both sub-samples identified as Hispanic or Latino (18.7% of community members and 23.1% of college students). Bivariate analyses revealed that the composition of community members and college students did not differ in terms of sex, χ^2 (1, n = 307) = 0.16, p = 0.69), race, χ^2 (5, n = 303) = 6.51, p = 0.26), or ethnicity, χ^2 (1, n = 253) = 0.73, p = 0.39). The two sub-samples did significantly differ in terms of age, t (303) = 3.82, p < .001.

Table 1. *Sub-sample Demographics*

	Demographic	Community Members (*n* = 156)		College Students (*n* = 170)	
		n	%	*n*	%
Gender	Male	66	42.9	69	45.1
	Female	88	57.1	84	54.9
Age	18-24	102	68.9	130	90.3
	25-34	28	18.9	9	6.2
	35-44	6	4.1	2	1.4
	45+	12	8.1	3	2.1
Race	European-American	109	71.2	94	62.7
	African American	5	3.3	7	4.7
	Asian American	9	5.9	11	7.3
	Native American/Alaskan Native	3	2.0	0	0.0
	Native Hawaiian/Pacific Islander	4	2.6	5	3.3
	Other	23	15.0	33	23.0
Ethnicity	Not Hispanic or Latino	100	81.3	100	76.9
	Hispanic or Latino	23	18.7	30	23.1

N = 326

Except for age, the demographics did not significantly differ between the two sub-samples. In addition, although there was a significant difference in age, the difference in the mean age between the two sub-samples was less then four years. The mean age of the community members subsample who participated in the present research was 25.3 years, substantially less then the mean age of the actual community. The 2006 estimated median age in the city where the community members were approached in the present research was 39 years of age (City of Goleta, 2015). Although two sub-samples were targeted, the demographics and bivariate analyses indicated the presence of a single sample. The demographics of the single sample were closer to those associated with college students then community members. In order to further investigate if two sub-samples were present for Structural Equation Modeling, bivariate analyses were conducted between the targeted sub-samples on Coping Styles and Trauma History. The analyses failed to indicate a significant

difference between the sub-samples in terms of avoidant coping, t (323) = 1.39, p = .16, problem solving coping, t (323) = 0.02, p = .98, support seeking coping, t (323) = -0.43, p = .67, or trauma history, t (323) = -0.89, p = .37. Due to a lack of statistical support indicating two sub-samples, a single combined sample was analyzed with Structural Equation Modeling. The demographics (sex, age, race, and ethnicity) of the combined sample used in the present research are presented in Table 2.

Table 2. *Combined Demographics (N = 326)*

Demographic		*n*	%
Gender	Male	135	43.8
	Female	173	56.2
Age	18-24	232	79.2
	25-34	37	12.6
	35-44	8	2.7
	45+	16	5.5
Race	European-American	204	67.1
	African American	12	3.9
	Asian American	20	6.6
	Native American/Alaskan Native	3	1.0
	Native Hawaiian/Pacific Islander	9	3.0
	Other	56	18.4
Ethnicity	Not Hispanic or Latino	201	79.1
	Hispanic or Latino	53	20.9

The mean age of the sample analyzed in the present research was 23.4 years (SD = 8.4) with 43.8% of the sample male. When asked about their race, the majority of participants (67.1%) reported European-American. In addition, when asked about their ethnicity, 20.9% responded Hispanic or Latino.

Chapter IV

Results

All data was entered into SPSS 16.0 (SPSS 16.0, 2007). Descriptive analyses were analyzed with SPSS 19.0 (SPSS 19.0, 2010). AMOS 23.0 software (Arbuckle, 2015) was used for construction of the structural equation modeling as well as path analysis. Preliminary data screening and cleaning was intensive and indicated that the assumption of multivariate normality was reasonably met by the data. Cases were dropped from the data set if they did not complete all the assessments. In addition, the sample size ($N = 326$) was adequate for testing the model. The ratio of participants to parameters was approximately 15.5 to 1. Each assessment consisted of a summated scale, and therefore, was impacted if all summated items were not completed. Consequently, cases were dropped if more than two items were skipped on a summated scale. However, consistent with the author's protocol, skipped items were entered as "not experienced" if less than two summated items were missed. For example, if a participant failed to respond to "Have you ever been beaten up by a stranger or by someone you didn't know very well?" the data was entered as "never." This was a conservative data integrity approach that balanced responding for participants with losing integral data that may increase a systematic error of a certain type of individual who may miss an item. Missing items, or items that were skipped by the participant, consisted of less than one percent of the total items that were included in the analyses.

Structural Equation Modeling

The structure equation model was constructed and analyzed to the specifications of Kline (2005), and is summarized as follows. As specified, the original model (Model A) was conceptualized a priori based on previous research, which was previously discussed. However, once the model was constructed, the analyses can be conceptualized as

confirmatory. Once the model is entered for analyses, the main question to be answered is whether or not the model is supported by the data. Based on the results of the analyses, the researcher can abandon the model if it is not supported, or modify the hypotheses on which the model was based. Rarely is a model outright rejected or accepted; model generating is usually conducted, which consists of the researcher modifying the original model which does not adequately fit the data. These data can be analyzed again, and the model further modified until it is supported by the data. The goal of Structural Equation Modeling is to discover a model that makes theoretical sense, and is statistically supported. Failure to achieve both goals would result in an unsupported model.

Once a viable model is constructed, a statistical program is used to estimate the model fit. The researcher can then evaluate the model fit statistics to determine how well the model explained the data. Model fit is assessed with the following statistics: chi-square, Hoelter's Critical N, the Comparative Fit Index (CFI), the Root Mean Square Error of Approximation (RMSEA), the Standardized Root Mean Square Residual (SRMR), and the Akaike Information Criterion (AIC). A good model fit is evidenced by a non-significant chi-square, a Hoelter's Critical N of 200 or more, a RMSEA of .05 or less, a CFI of .95 or higher, and a SRMR less than or equal to .05. In addition, in nested models, a higher Hoelter's Critical N and a lower AIC indicate a better model fit (Kline, 2005). If the model does not explain the data, the model is re-specified, or abandoned, by the researcher's hypotheses. Standardized path coefficient values less than .10 represent a small effect, .30 a medium effect, and values greater than or equal to .50 represent a large effect (Cohen, 1988).

Once the model fits the data, the parameter estimates are interpreted as stated above. Statistical packages produce a correlational residual matrix based on possible correlations

and standard deviations. Correlational residuals indicate two variables that are statistically correlated and are unaccounted for in the model due to the absence of a covariance or direct effect connecting the two variables. A correlational residual equal to or greater than .10 may indicate a poor model fit and a correlation that should be accounted for. If the covariance or direct effect associated with the correlational residual makes theoretical sense, an additional path is added to the model to account for the correlation. This step is repeated until all theoretically sound correlational residuals at or above .10 are accounted for. These correlations are modeled in a hierarchical manner with the largest theoretically sound correlation accounted for first. Once all residuals are accounted for, the researcher can then consider equivalent models that explain the data equally as well but with a different configuration. If there are equivalent models, the researcher must then explain why the preferred model should not be rejected in favor of the statistically equivalent model.

Participants

Participants in the current research experienced a wide range of traumatic events. Please see Table 3 for the percentage of participants that experienced each type of traumatic event as measured by the TLEQ. Very few participants (3.1%) indicated that they had experienced traumatic events in a war zone, which supported a non-veteran sample. Exposure to traumatic events as a child ranged from 9.8% to 26.4% with intimate interpersonal specific traumas as a child ranging from 18.4% to 26.4%. Overall, 80.1% of participants reported exposure to a traumatic event, which falls into the reported range of exposures (Moser, Hajcak, Simons, & Foa, 2007; Schnider, Elhai, & Gray, 2007; Smyth, Hockemeyer, Heron, Wonderlich, & Pennebaker, 2008).

Table 3. *Experienced Traumatic Events (N =326)*

Traumatic event	n	%
Natural disaster	225	69.0
Vehicle accident with injury or death	65	19.9
Other accident with bad injury	55	16.9
Experienced war zone	10	3.1
Sudden death of someone close	182	55.8
Loved one survived life threatening incident	145	44.5
Had a life threatening illness	46	14.1
Experienced robbery with a weapon	63	19.3
Badly hurt by stranger	62	19.0
Witness attack with serious injury or death	93	28.5
Threatened with death or serious harm	109	33.4
Severely punished as a child	60	18.4
Witness family violence as a child	86	26.4
Physically hurt by intimate partner	47	14.4
Before 13 sexual contact with someone 5 years older	37	11.3
Before 13 unwanted sexual contact with similar age	32	9.8
Between 13 & 18 unwanted sexual contact	41	12.6
Unwanted sexual contact as an adult	36	11.0
Stalked with intimidation or safety concern	67	20.6
Experienced a miscarriage	26	8.0
Experienced an abortion	32	9.8
Other highly disturbing event	103	31.6

Model Testing

Path analyses were conducted using Amos software (Arbuckle, 2005b). A strength of structural equation models that include latent variables is the ability to assess the strength of the correlation (factor loadings) between the assessments and the latent variables. If an assessment failed to produce a significantly strong correlation, the assessment would not be supported as a good measure of the latent variable and could be dropped from the structural equation model and the analyses. The current research included two latent variables that were both comprised of three separate measures. All factor loadings were significantly associated in the hypothesized direction with the latent variables. The standardized estimates associated with these factor loadings were all at the $p < .001$ level and ranged from $\beta = .54$

to .94. The SOS had the smallest factor loading on Life Satisfaction and the SPTSS had the largest factor loading on PTSD Symptoms.

Avoidant Coping

Avoidant coping was the first coping strategy analyzed, and the initial avoidant coping model is shown in Figure 7. This was the initial model hypothesized, Model A, with Avoidant Coping inserted instead of the generic Coping Style variable. This model investigated the main effects of Avoidant Coping and Trauma History on PTSD Symptoms. Although the interaction variable, Avoidant X Trauma History, is shown in Avoidant Coping Model A (Main Effects Model), the interaction effect on PTSD Symptoms was not analyzed until Avoidant Coping Model B (Interaction Model) was tested. Avoidant Coping Model A was analyzed and is presented along with the accompanying sample correlations, model result, regression weights, and modification indices.

Table 4. *Avoidant Coping Model Sample Correlations, Means, and Standard Deviations (N = 326)*

	Avoidant X Trauma	Trauma History	Avoidant Coping	DSA	SWLS	SOS	TDS	SPTSS	ALS
Avoidant X Trauma	1								
Trauma History	-.275	1							
Avoidant Coping	.051	-.225	1						
DSA	.088	-.073	.251	1					
SWLS	.121	-.186	.336	.603	1				
SOS	.055	-.226	.477	.420	.331	1			
TDS	-.292	.453	-.408	-.328	-.300	-.420	1		
SPTSS	-.295	.459	-.488	-.423	-.430	-.483	.781	1	
ALS	-.199	.281	-.356	-.346	-.275	-.438	.620	.661	1
Mean	293.50	12.78	24.02	15.21	24.23	57.60	9.68	11.32	6.34
SD	269.17	11.92	5.04	3.44	6.36	20.27	12.91	10.84	7.02

Figure 7. Avoidant Coping Model A (Main Effects Model, *N* = 326)

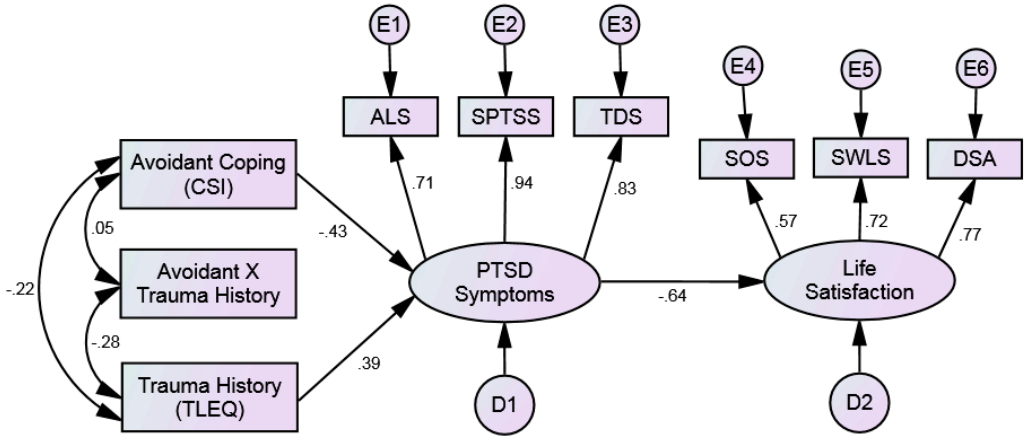


Table 5. *Avoidant Coping Model A Result*

Minimum was achieved
Chi-square = 126.840
Degrees of freedom = 24
Probability level = .0001

Table 6. *Avoidant Coping Model A Regression Weights*

			Estimate	S.E.	C.R.	*p*
PTSD Symptoms	←	Avoidant Coping	-.428	.052	-8.186	***
PTSD Symptoms	←	Trauma History	.162	.022	7.486	***
Life Satisfaction	←	PTSD Symptoms	-1.532	.209	-7.314	***
ALS	←	PTSD Symptoms	1.000	*nt*	*nt*	*nt*
SPTSS	←	PTSD Symptoms	2.043	.133	15.382	***
TDS	←	PTSD Symptoms	2.159	.151	14.304	***
SOS	←	Life Satisfaction	1.000	*nt*	*nt*	*nt*
SWLS	←	Life Satisfaction	.383	.044	8.611	***
DSA	←	Life Satisfaction	.222	.025	8.751	***

Note. nt = parameter fixed, not tested.
*** $p < .001$.

Table 7. *Avoidant Coping Model A Modification Indices (M.I.)*

			M.I.	Parameter Change
D1	←→	Avoidant X Trauma	17.946	-54.612
D2	←→	Trauma History	6.012	17.744
D2	←→	Avoidant Coping	8.570	9.298
E6	←→	Trauma History	10.838	5.395
E5	←→	E6	6.157	1.713
E4	←→	Avoidant Coping	27.855	26.085
E4	←→	D2	12.193	-39.953
E4	←→	E5	9.099	-15.031
E3	←→	D2	5.221	11.589
E3	←→	E5	5.090	4.938
E1	←→	E5	4.279	2.968
E1	←→	E4	5.206	-11.845

The model fit produced mixed results. First, the chi-square statistic was significant, $\chi 2\ (24) = 126.84$, $p < .0001$, indicating a poor fit. However, the chi-square statistic is heavily influenced by sample size. To account for the sample size, the Hoelter's Critical N was examined (N = 94). This indicated that the chi-square would still have been significant even with as few as 94 participants. A Hoelter's Critical N between 75 and 200 indicates a marginal fit, with a higher numbers indicating a better fit. In addition, the RMSEA indicated

a poor model fit (RMSEA = .12, 90% CI [.10, .14]). However, two indices indicated an adequate fit. The SRMR indicated an adequate fit (SRMR = .08), as well as the CFI (CFI = .91). Overall, the model fit statistics indicated an acceptable model fit.

To investigate the possibility of an interaction between Avoidant Coping and Trauma History, Avoidant Coping Model B was created. In order to conduct the analyses, both the Avoidant Coping and Trauma History variables were statistically centered in order to create an interaction variable that can be analyzed in the model. The centered Avoidant Coping and Trauma History variables produced the same correlations that would have been produced if they had not been centered. To accommodate this association, Avoidant Coping Model B was analyzed and is presented along with the accompanying model result, regression weights, and modification indices.

Figure 8. Avoidant Coping Model B (Interaction Model, *N* = 326)

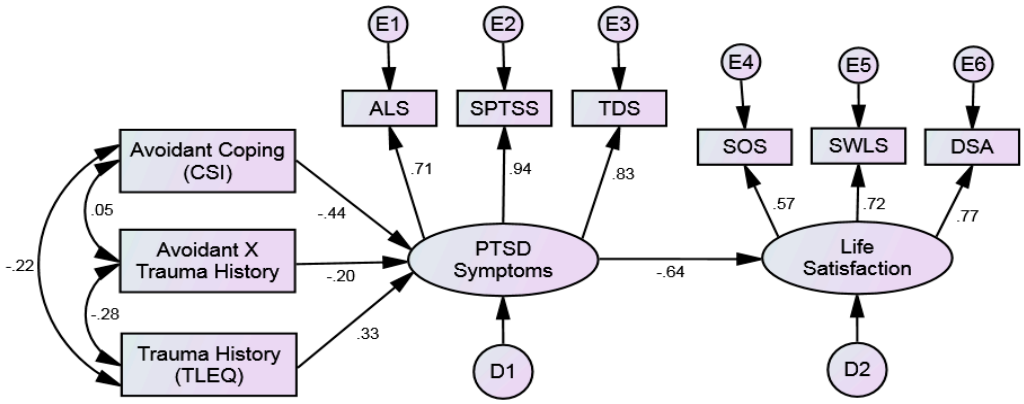


Table 8. *Avoidant Coping Model B Result*

Minimum was achieved
Chi-square = 108.374
Degrees of freedom = 23
Probability level = .000

Table 9. *Avoidant Coping Model B Regression Weights*

			Estimate	S.E.	C.R.	*p*
PTSD Symptoms	←	Avoidant Coping	-.430	.051	-8.405	***
PTSD Symptoms	←	Trauma History	.138	.021	6.516	***
PTSD Symptoms	←	Avoidant X History	-.017	.004	-4.232	***
Life Satisfaction	←	PTSD Symptoms	-1.526	.209	-7.293	***
ALS	←	PTSD Symptoms	1.000	*nt*	*nt*	*nt*
SPTSS	←	PTSD Symptoms	2.043	.133	15.422	***
TDS	←	PTSD Symptoms	2.163	.151	14.317	***
SOS	←	Life Satisfaction	1.000	*nt*	*nt*	*nt*
SWLS	←	Life Satisfaction	.384	.045	8.600	***
DSA	←	Life Satisfaction	.223	.025	8.736	***

Note. *nt* = parameter fixed, not tested.
***$p < .001$.

Table 10. *Avoidant Coping Model B Modification Indices (M.I.)*

		M.I.	Parameter Change
D2	←→ Trauma History	5.568	17.054
D2	←→ Avoidant Coping	8.564	9.282
E6	←→ Trauma History	10.538	5.319
E5	←→ E6	5.966	1.684
E4	←→ Avoidant Coping	27.927	26.135
E4	←→ D2	11.966	-39.562
E4	←→ E5	9.009	-14.959
E3	←→ D2	5.192	11.510
E3	←→ E5	5.253	5.000
E1	←→ E5	4.323	2.983
E1	←→ E4	5.392	-12.066

The model fit continued to produce mixed results. Overall, the model fit statistics improved with the added parameter. The chi-square statistic, $\chi^2 (23) = 108.37$, $p < .0001$, decreased, but was still significant, indicating a poor fit. However, the decrease, which represents an improvement in fit, was statistically significant, $\Delta\chi^2 (1, N = 326) = 18.47$, $p < .01$. In addition, the Hoelter's Critical N increased to 106, and the AIC decreased (Model A: *AIC* = 168.84; Model B: *AIC* = 152.37), indicating a better fitting model. The RMSEA

improved by slightly decreasing, but continued to indicate a poor model fit (RMSEA = .11, 90% CI [.09, .13]). However, two indices improved and indicated an adequate fit. Both the SRMR (SRMR = .07) and the CFI (CFI = .92) indicated an adequate fit. Overall, the model fit statistics improved and indicated an acceptable model fit. Due to the presence of an interaction effect, this model was further analyzed.

A finer-grained analysis of the standardized residual covariances and modification indices continued to indicate several areas of concern. In particular, the Avoidant Coping Model B Modification Indices indicated that covarying Avoidant Coping and the SOS error term would decrease the chi-square statistic by 27.93. An inspection of the standardized residuals covariance matrix indicated that there was significant unexplained covariation between Avoidant Coping and the SOS (standardized residual = 5.13). However, it made more theoretical sense to add a direct effect from Avoidant Coping to Life Satisfaction, instead of covarying Avoidant Coping with an error term associated with a Life Satisfaction measure. To accommodate this association, Avoidant Coping Model C was analyzed and is presented with the accompanying Sample Correlations, model Result, Regression Weights, and Modification Indices.

Figure 9. Avoidant Coping Model C (*N* = 326)

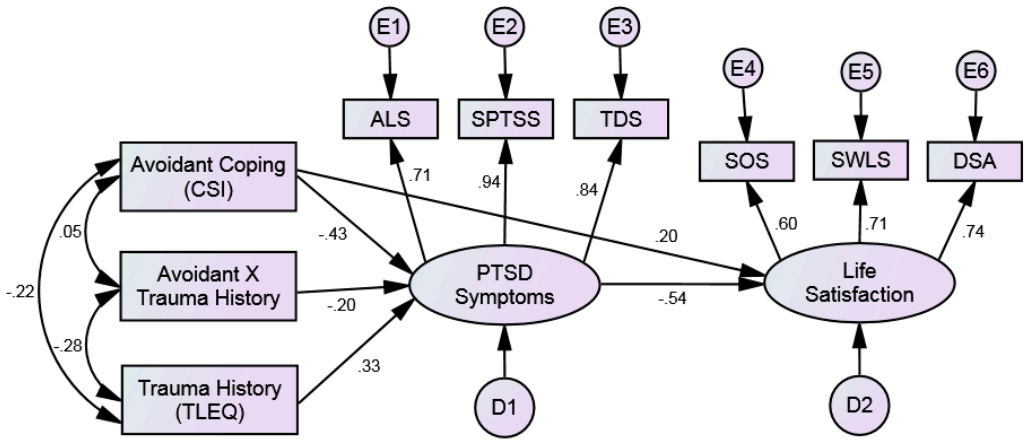


Table 11. *Avoidant Coping Model C Result*

Minimum was achieved
Chi-square = 99.440
Degrees of freedom = 22
Probability level = .000

Table 12. *Avoidant Coping Model C Regression Weights*

			Estimate	S.E.	C.R.	*p*
PTSD Symptoms	←	Avoidant Coping	-.421	.051	-8.218	***
PTSD Symptoms	←	Trauma History	.140	.021	6.539	***
PTSD Symptoms	←	Avoidant X History	-.017	.004	-4.235	***
Life Satisfaction	←	PTSD Symptoms	-1.369	.214	-6.399	***
Life Satisfaction	←	Avoidant Coping	.499	.164	3.045	.002
ALS	←	PTSD Symptoms	1.000	*nt*	*nt*	*nt*
SPTSS	←	PTSD Symptoms	2.046	.133	15.375	***
TDS	←	PTSD Symptoms	2.166	.151	14.332	***
SOS	←	Life Satisfaction	1.000	*nt*	*nt*	*nt*
SWLS	←	Life Satisfaction	.361	.041	8.910	***
DSA	←	Life Satisfaction	.204	.023	9.038	***

Note. *nt* = parameter fixed, not tested.
*** $p < .001$.

Table 13. *Avoidant Coping Model C Modification Indices (M.I.)*

			M.I.	Parameter Change
E6	←→	Trauma History	8.022	4.718
E6	←→	Avoidant Coping	6.492	-1.863
E6	←→	D2	4.854	3.597
E5	←→	E6	12.125	2.493
E4	←→	Avoidant Coping	18.435	20.898
E4	←→	D2	17.088	-47.778
E4	←→	E5	14.031	-18.433
E3	←→	E5	4.839	4.819
E1	←→	E4	5.830	-12.348

The model fit statistics improved with the added parameter, but continued to produce mixed results. The chi-square statistic, χ^2 (22) = 99.44, $p < .0001$, decreased, but was still

significant. However, the reduction was statistically significant, $\Delta\chi^2$ (1, N = 326) = 8.93, p < .01. In addition, the Hoelter's Critical N increased to 111 while the AIC decreased (Model B: *AIC* = 152.37; Model C: *AIC* = 145.44), indicating a better fitting model. The RMSEA decreased but remained a poor model fit (*RMSEA* = .10, 90% CI [.08, .13]). However, two indices improved and indicated an adequate fit. Both the SRMR (*SRMR* = .06) and the CFI indicated an adequate fit (*CFI* = .93). Overall, the model fit statistics improved and indicated an acceptable model fit.

Further analysis of the standardized residual covariances and modification indices indicated several areas of concern. In particular, the Avoidant Coping Model C Modification Indices indicated that covarying Trauma History and the DSA error term would decrease the chi-square statistic by 8.02. An inspection of the standardized residuals covariance matrix indicated that there was significant unexplained covariation between Trauma History and the DSA (standardized residual = 2.74). Again, it made more theoretical sense to add a direct effect from Trauma History to Life Satisfaction, instead of covarying Trauma History with a Life Satisfaction measure error term. A direct effect from Trauma History to Life Satisfaction made theoretical sense. Life satisfaction may be negatively affected through exposures to traumatic events. To accommodate this association, Avoidant Coping Model D was analyzed and is presented along with the accompanying model Result, Regression Weights, and Modification Indices.

Figure 10. Avoidant Coping Model D ($N = 326$)

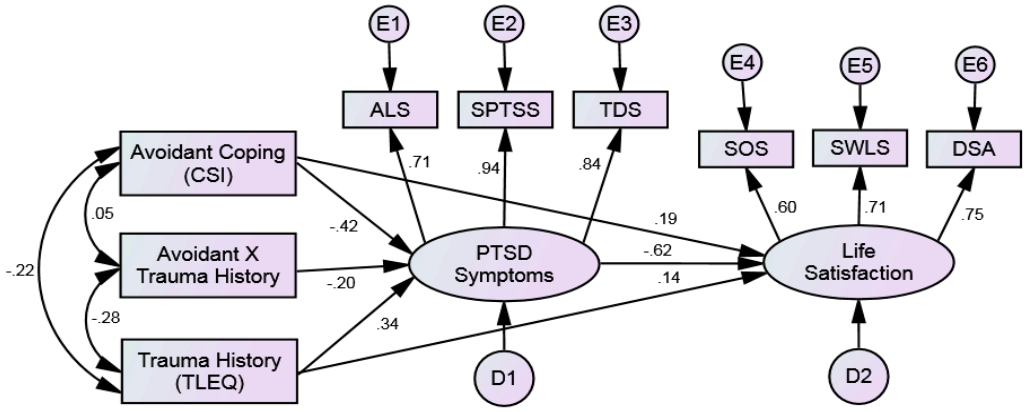


Table 14. *Avoidant Coping Model D Result*

Minimum was achieved
Chi-square = 94.713
Degrees of freedom = 21
Probability level = .000

Table 15. *Avoidant Coping Model D Regression Weights*

			Estimate	S.E.	C.R.	*p*
PTSD Symptoms	←	Avoidant Coping	-.420	.051	-8.223	***
PTSD Symptoms	←	Trauma History	.142	.021	6.649	***
PTSD Symptoms	←	Avoidant X History	-.017	.004	-4.229	***
Life Satisfaction	←	PTSD Symptoms	-1.554	.243	-6.404	***
Life Satisfaction	←	Avoidant Coping	.460	.162	2.843	.004
Life Satisfaction	←	Trauma History	.144	.067	2.165	.030
ALS	←	PTSD Symptoms	1.000	*nt*	*nt*	*nt*
SPTSS	←	PTSD Symptoms	2.043	.133	15.400	***
TDS	←	PTSD Symptoms	2.167	.151	14.332	***
SOS	←	Life Satisfaction	1.000	*nt*	*nt*	*nt*
SWLS	←	Life Satisfaction	.361	.041	8.883	***
DSA	←	Life Satisfaction	.208	.023	9.076	***

Note. *nt* = parameter fixed, not tested.
***$p < .001$.

Table 16. *Avoidant Coping Model D Modification Indices (M.I.)*

	M.I.	Parameter Change
E6 ⟷ Avoidant Coping	8.237	-2.080
E5 ⟷ E6	11.104	2.365
E4 ⟷ Avoidant Coping	18.067	20.714
E4 ⟷ D2	16.238	-46.080
E4 ⟷ E5	12.047	-17.147
E3 ⟷ E5	4.860	4.833
E1 ⟷ E5	4.475	3.057
E1 ⟷ E4	5.331	-11.826

The model fit statistics improved with the added parameter. The chi-square statistic, χ^2 (21) = 94.71, $p < .0001$, decreased, but was still significant. However, the reduction was statistically significant, $\Delta\chi^2$ (1, $N = 326$) = 4.73, $p < .05$. In addition, the Hoelter's Critical N increased to 113 while the AIC decreased (Model C: *AIC* = 145.44; Model D: *AIC* = 142.71), indicating a better fitting model. However, the RMSEA remained stable indicating a poor fit (*RMSEA* = .10, 90% CI [.08, .13]). The SRMR (*SRMR* = .06) and the CFI (*CFI* = .93) both remained stable and indicated an adequate fit.

It is important to note that the examination of the Avoidant Coping Model D Modification Indices indicated six other covariances that were unaccounted for in the model that would reduce the chi-square. However, none of these residuals were theoretically valid. In addition, examination of the standardized residual covariances matrix indicated two residuals over the 2.0 level of concern. However, neither of these residuals were theoretically valid. In addition to direct effect paths representing the main effects on Life Satisfaction, a direct effect path investigating the interaction term on Life Satisfaction was added to analyze the possibility of an interaction effect of the interaction term on Life Satisfaction. To accommodate this association, Avoidant Coping Model E was analyzed and

is presented along with the accompanying model Result, Regression Weights, and Modification Indices.

Figure 11. Avoidant Coping Model E ($N = 326$)

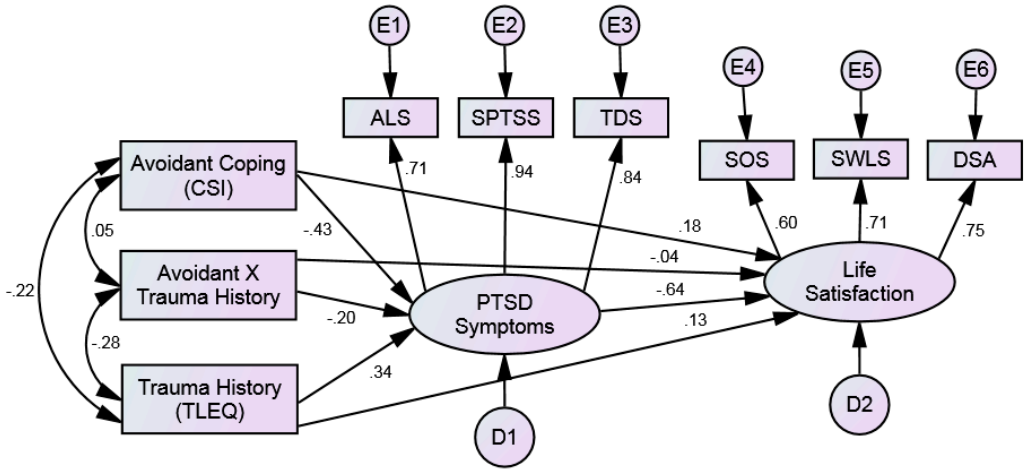


Table 17. *Avoidant Coping Model E Result*

Minimum was achieved
Chi-square = 94.119
Degrees of freedom = 20
Probability level = .000

Table 18. *Avoidant Coping Model E Regression Weights*

			Estimate	S.E.	C.R.	*p*
PTSD Symptoms	←	Avoidant Coping	-.420	.051	-8.230	***
PTSD Symptoms	←	Trauma History	.142	.021	6.643	***
PTSD Symptoms	←	Avoidant X History	-.017	.004	-4.272	***
Life Satisfaction	←	Avoidant Coping	.447	.164	2.719	.007
Life Satisfaction	←	Trauma History	.139	.067	2.066	.039
Life Satisfaction	←	Avoidant X History	-.009	.012	-.773	.440
Life Satisfaction	←	PTSD Symptoms	-1.607	.252	-6.372	***
ALS	←	PTSD Symptoms	1.000	*nt*	*nt*	*nt*
SPTSS	←	PTSD Symptoms	2.041	.133	15.407	***
TDS	←	PTSD Symptoms	2.167	.151	14.334	***
SOS	←	Life Satisfaction	1.000	*nt*	*nt*	*nt*
SWLS	←	Life Satisfaction	.358	.040	8.906	***
DSA	←	Life Satisfaction	.206	.023	9.111	***

Note. *nt* = parameter fixed, not tested.
***$p < .001$.

Table 19. *Avoidant Coping Model E Modification Indices (M.I.)*

			M.I.	Parameter Change
E6	←→	Trauma History	4.189	3.384
E6	←→	Avoidant Coping	8.239	-2.083
E5	←→	E6	11.877	2.456
E4	←→	Avoidant Coping	17.766	20.504
E4	←→	D2	16.723	-46.831
E4	←→	E5	12.254	-17.289
E3	←→	E5	4.929	4.875
E1	←→	E5	4.550	3.088
E1	←→	E4	5.289	-11.758

The model fit statistics decreased with the added parameter. The chi-square statistic, χ^2 (20) = 94.12, $p < .001$, decreased, and was still significant. However, the reduction was not statistically significant, $\Delta\chi^2$ (1, N = 326) = 0.59, p = 0.44. The Hoelter's Critical N (N = 109) decreased while the AIC increased (Model D: *AIC* = 142.71; Model E: *AIC* = 144.12), indicating a poorer fitting model. The RMSEA increased and remained a poor fit (*RMSEA* =

.11, 90% CI [.09, .13]). The SRMR (*SRMR* = .06) and the CFI (*CFI* = .93) both remained stable and continued to indicate an adequate fit.

Examination of the Avoidant Coping Model E Modification Indices indicated six other covariances that were unaccounted for in the model that would reduce the chi-square. However, none of these covariances were theoretically valid. In addition, examination of the standardized residual covariances matrix indicated one residual that was unaccounted for in the model over the 2.0 level of concern. However, the covariance was not theoretically valid. Due to Avoidant Coping Model E's decreased model fit, this model was discarded and Avoidant Coping Model D was established as the final model for discussion. Please see Table 20 for a list of parameter estimates and critical ratios for this model.

Table 20. *Avoidant Coping Model D Parameter Estimates and Critical Ratios (N = 326)*

	Unstandardized Estimate	Standard Error	Critical Ratio (*z*)	*p*-value ≤	Standardized Estimate
Variances					
Avoidant Coping	25.288	1.984	12.748	0.001	
Avoidant X Trauma	3491.142	273.868	12.748	0.001	
Trauma History	141.677	11.114	12.748	0.001	
D1	13.619	1.954	6.971	0.001	
D2	84.288	17.649	4.776	0.001	
E1	24.456	2.121	11.528	0.001	
E2	13.984	3.202	4.367	0.001	
E3	50.166	5.305	9.456	0.001	
E4	283.389	26.364	10.749	0.001	
E5	20.000	2.239	8.933	0.001	
E6	5.080	0.651	7.807	0.001	
Covariances					
Avoidant Coping, Avoidant X Trauma	15.043	16.503	0.912	0.362	0.05
Avoidant X Trauma, Trauma History	-193.432	40.460	-4.781	0.001	-0.28
Avoidant Coping, Trauma History	-13.439	3.403	-3.949	0.001	-0.22
Factor Loadings & Path Coefficients					
PTSD Symptoms ← Avoidant Coping	-0.420	0.051	-8.223	0.001	-0.42
PTSD Symptoms ← Trauma History	0.142	0.021	6.649	0.001	0.34
PTSD Symptoms ← Avoidant X Trauma	-0.017	0.004	-4.229	0.001	-0.20
Life Satisfaction ← PTSD Symptoms	-1.554	0.243	-6.404	0.001	-0.62
Life Satisfaction ← Avoidant Coping	0.460	0.162	2.843	0.004	0.19
Life Satisfaction ← Trauma History	0.144	0.067	2.165	0.030	0.14
ALS ← PTSD Symptoms	1	*nt*	*nt*	*nt*	0.71
SPTSS ← PTSD Symptoms	2.043	0.133	15.400	0.001	0.94
TDS ← PTSD Symptoms	2.167	0.151	14.332	0.001	0.84
SOS ← Life Satisfaction	1	*nt*	*nt*	*nt*	0.60
SWLS ← Life Satisfaction	0.361	0.041	8.883	0.001	0.71
DSA ← Life Satisfaction	0.208	0.023	9.076	0.001	0.75

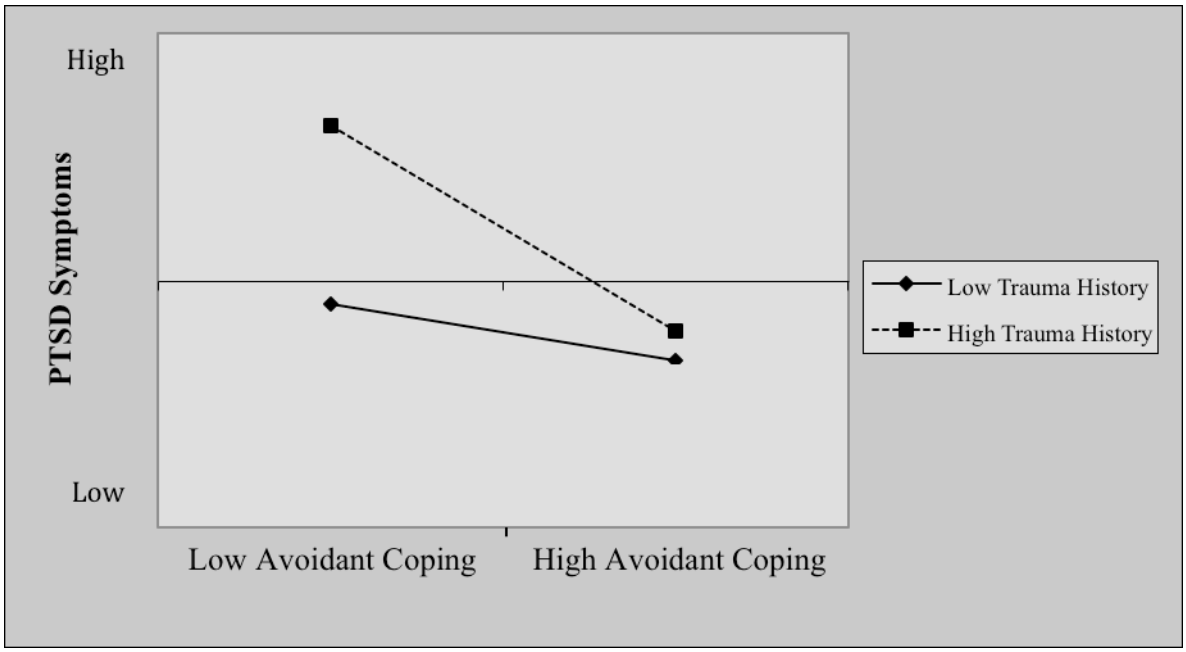
Note. nt = parameter fixed, not tested.

Avoidant Coping Final Model

Avoidant Coping Model D included a statistically significant interaction of Coping Style and Trauma History on PTSD Symptoms. To examine this interaction, the simple slopes relating Avoidant Coping to PTSD Symptoms were computed at one standard deviation above and below the mean on Trauma History (Dawson, 2015). The Avoidant

Coping Model D interaction is presented below. Overall, participants with high Avoidant Coping experienced fewer PTSD Symptoms. However, participants with a high Trauma History experienced a greater decrease in PTSD Symptoms through the use of Avoidant Coping when compared to participants with a low Trauma History.

Figure 12. Avoidant Coping Model D Interaction Effect



Hypothesis 1. Increased self-reported history of traumatic events was hypothesized to predict an increase in self-reported PTSD symptoms. This hypothesis was supported in the Avoidant Coping Model; higher levels of self-reported history of traumatic events predicted increased self-reported PTSD symptoms ($\beta = .34$, $p < .001$).

Hypothesis 2. An increase in self-reported PTSD symptoms was hypothesized to predict a decrease in self-reported life satisfaction. This hypothesis was also supported in the current model; higher levels of self-reported PTSD symptoms predicted lower life satisfaction ($\beta = -.62$, $p < .001$).

Hypothesis 3. It was hypothesized that avoidant coping would predict an increase in self-reported PTSD symptoms. This hypothesis was not supported; avoidant coping

predicted the opposite effect. Higher avoidant coping predicted a decrease in PTSD symptoms ($\beta = -.42$, $p < .001$).

In addition to the hypothesized covariances and direct effects, three additional direct effects were statistically and theoretically supported. An increase in Avoidant Coping predicted slightly higher Life Satisfaction ($\beta = .19$, $p < .01$). Also, an increase in Trauma History predicted slightly higher Life Satisfaction ($\beta = .14$, $p < .05$). The interaction of Avoidant Coping and Trauma History, as previously discussed, was significantly and negatively related to the self-report of PTSD symptoms ($\beta = -.20$, $p < .001$). The interaction elicited that although Avoidant Coping was associated with fewer PTSD symptoms overall, this effect was strongest among respondents who had experienced a high Trauma History.

Problem Solving

Problem Solving Model A was the first problem solving coping model tested, and is shown in Figure 13. This was the initial model hypothesized, Model A, with Problem Solving inserted instead of the generic Coping Style variable. This model investigated the main effects of Problem Solving and Trauma History on PTSD Symptoms. Although the interaction variable, Problem X Trauma History, is shown in Problem Solving Coping Model A (Main Effects Model), the interaction effect on PTSD Symptoms was analyzed in Problem Solving Coping Model B (Interaction Model). Problem Solving Model A was analyzed and is presented along with the accompanying Sample Correlations, model Result, Regression Weights, and Modification Indices.

Table 21. *Problem Solving Model Sample Correlations, Means, and Standard Deviations (N = 326)*

	Problem X Trauma	Trauma History	Problem Solving	DSA	SWLS	SOS	TDS	SPTSS	ALS
Problem X Trauma	1								
Trauma History	-.090	1							
Problem Solving	-.111	-.068	1						
DSA	.007	-.073	-.003	1					
SWLS	-.021	-.186	-.045	.603	1				
SOS	-.046	-.226	.169	.420	.331	1			
TDS	-.104	.453	-.111	-.328	-.300	-.420	1		
SPTSS	-.121	.459	-.102	-.423	-.430	-.483	.781	1	
ALS	-.070	.281	-.120	-.346	-.275	-.438	.620	.661	1
Mean	249.13	12.78	19.86	15.21	24.23	57.60	9.68	11.32	6.34
SD	243.19	11.92	5.66	3.44	6.36	20.27	12.91	10.84	7.02

Figure 13. Problem Solving Model A (Main Effects, *N* = 326)

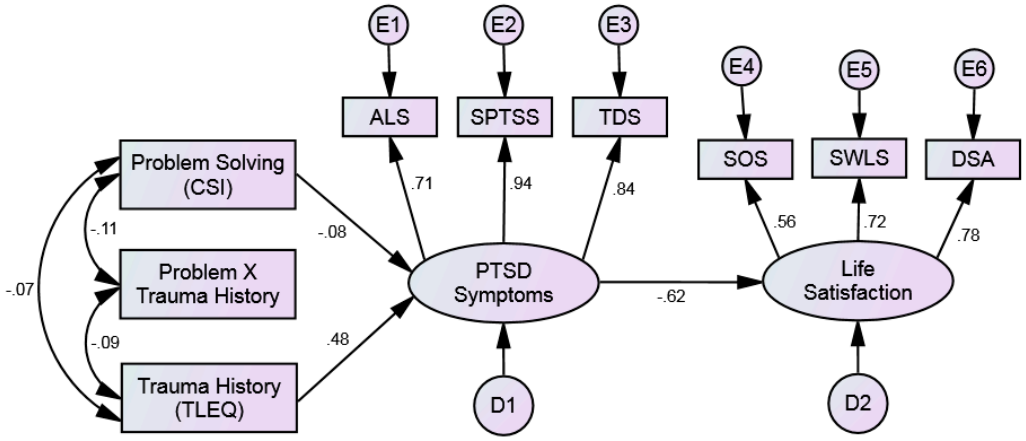


Table 22. *Problem Solving Model A Result*

Minimum was achieved

Chi-square = 86.589

Degrees of freedom = 24

Probability level = .000

Table 23. *Problem Solving Model A Regression Weights*

			Estimate	S.E.	C.R.	*p*
PTSD Symptoms	←	Problem Solving	-.074	.045	-1.633	.103
PTSD Symptoms	←	Trauma History	.201	.024	8.270	***
Life Satisfaction	←	PTSD Symptoms	-1.476	.206	-7.167	***
ALS	←	PTSD Symptoms	1.000	*nt*	*nt*	*nt*
SPTSS	←	PTSD Symptoms	2.027	.133	15.209	***
TDS	←	PTSD Symptoms	2.163	.150	14.399	***
SOS	←	Life Satisfaction	1.000	*nt*	*nt*	*nt*
SWLS	←	Life Satisfaction	.387	.045	8.528	***
DSA	←	Life Satisfaction	.227	.026	8.661	***

Note. nt = parameter fixed, not tested.
***$p < .001$.

Table 24. *Problem Solving Model A Modification Indices (M.I.)*

			M.I.	Parameter Change
E6	←→	Trauma History	14.127	6.499
E5	←→	Problem Solving	5.533	-3.673
E5	←→	E6	5.126	1.552
E4	←→	Trauma History	4.087	-24.180
E4	←→	Problem History	9.591	17.557
E4	←→	D1	6.342	-11.735
E4	←→	D2	10.988	-37.942
E4	←→	E5	7.950	-14.105
E3	←→	D2	4.538	10.712
E3	←→	E5	4.323	4.537
E2	←→	D2	4.085	-7.473
E2	←→	E5	4.147	-3.322
E1	←→	E4	6.085	-12.836

The model fit produced mixed results. First, the chi-square statistic was significant, $\chi 2$ (24) = 86.59, $p = .000$, indicating a poor fit. However, the chi-square statistic is heavily influenced by sample size. To account for the sample size, the Hoelter's Critical N was examined ($N = 137$). This indicated the chi-square would still have been significant even with as few as 137 participants. A Hoelter's Critical N between 75 and 200 indicates a marginal fit. In addition, the RMSEA indicated a marginal model fit (RMSEA = .09, 90% CI

[.07, .11]). However, two indices indicated an adequate to good fit. The SRMR indicated an adequate fit (SRMR = .06) while the CFI indicated a good fit (CFI = .94). Overall, the model fit statistics indicated an acceptable model fit. All covariances and direct effects were statistically significant in the model with the exception of Problem Solving to PTSD Symptoms (p = .10).

To investigate the possibility of an interaction between Problem Solving and Trauma History, the following model was created. In order to conduct the analyses, both Problem Solving and Trauma History were statistically centered before the interaction variable was created. The centered Problem Solving and Trauma History variables produced the same correlation coefficients as the non-centered variables. Problem Solving Model B was analyzed and is presented along with the accompanying, model Result, Regression Weights, and Modification Indices.

Figure 14. Problem Solving Model B (Interaction Term, N = 326)

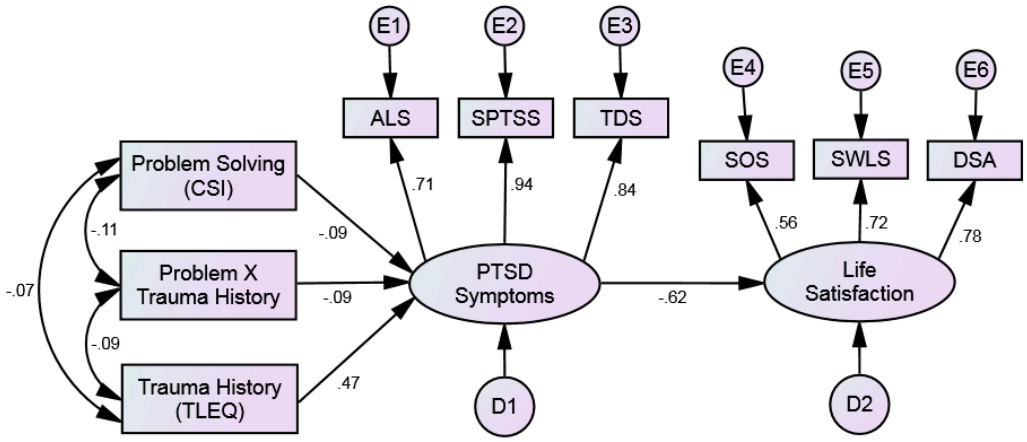


Table 25. *Problem Solving Model B Result*

Minimum was achieved
Chi-square = 83.729
Degrees of freedom = 23
Probability level = .000

Table 26. *Problem Solving Model B Regression Weights*

			Estimate	S.E.	C.R.	*p*
PTSD Symptoms	←	Problem Solving	-.083	.046	-1.824	.068
PTSD Symptoms	←	Trauma History	.197	.024	8.148	***
PTSD Symptoms	←	Problem X Trauma	-.007	.004	-1.688	.091
Life Satisfaction	←	PTSD Symptoms	-1.473	.206	-7.155	***
ALS	←	PTSD Symptoms	1.000	*nt*	*nt*	*nt*
SPTSS	←	PTSD Symptoms	2.031	.133	15.213	***
TDS	←	PTSD Symptoms	2.163	.150	14.388	***
SOS	←	Life Satisfaction	1.000	*nt*	*nt*	*nt*
SWLS	←	Life Satisfaction	.387	.045	8.522	***
DSA	←	Life Satisfaction	.227	.026	8.654	***

Note. nt = parameter fixed, not tested.
***$p < .001$.

Table 27. *Problem Solving Model B Modification Indices (M.I.)*

			M.I.	Parameter Change
E6	←→	Trauma History	14.063	6.484
E5	←→	Problem Solving	5.542	-3.675
E5	←→	E6	5.051	1.540
E4	←→	Trauma History	4.126	-24.302
E4	←→	Problem Solving	9.576	17.548
E4	←→	D1	6.962	-12.231
E4	←→	D2	10.891	-37.770
E4	←→	E5	7.879	-14.045
E3	←→	D2	4.324	10.451
E3	←→	E5	4.215	4.479
E2	←→	D2	4.298	-7.645
E2	←→	E5	4.317	-3.382
E1	←→	E4	6.163	-12.924

The model fit continued to produce mixed results. Overall, the model fit statistics tended to remain stable with the added parameter. The chi-square statistic, $\chi^2 (23) = 83.73$, $p < .0001$, decreased, but was still significant, indicating a poor fit. The decrease, which represents an improvement in fit, was not statistically significant, $\Delta\chi^2 (1, N = 326) = 2.86$, $p = .09$. In addition, the Hoelter's Critical N remained at 137, and the AIC minimally

decreased (Problem Solving Model A: *AIC* = 128.59; Problem Solving Model B: *AIC* = 127.73), indicating a similar fitting model, but with one less degree of freedom. In addition, the RMSEA remained stable and continued to indicate a marginal model fit (RMSEA = .09, 90% CI [.07, .11]). Neither the SRMR nor the CFI changed between the models. The SRMR indicated an adequate fit (SRMR = .06) while the CFI indicated a good fit (CFI = .94). Overall, the model fit statistics tended to remain stable even though one degree of freedom was lost. In addition, the added interaction direct effect on PTSD was not significant (p = .09). Therefore, Problem Solving Model B, with the interaction term, was not supported by the model fit indices. Problem Solving Model B was discarded due to a lack of statistical support, and Problem Solving Model A, with the main effects, was further analyzed due to an acceptable model fit.

A finer-grained analysis of the standardized residual covariances and modification indices associated with Problem Solving Model A indicated several areas of concern. In particular, the Problem Solving Model A Modification Indices indicated that covarying Trauma History and the DSA error term (M.I. = 14.06), and Trauma History with the SOS error term (M.I. = 4.13), would decrease the chi-square statistic. An inspection of the standardized residuals covariance matrix indicated that there was significant unexplained covariation between Trauma History and the DSA (standardized residual = 2.85). However, it made theoretical sense to add a direct effect from Trauma History to Life Satisfaction, instead of covarying Trauma History with error terms associated with Life Satisfaction measures. To accommodate this association, Problem Solving Model C was analyzed and is presented with the accompanying model Result, Regression Weights, and Modification Indices.

Figure 15. Problem Solving Model C (*N* = 326)

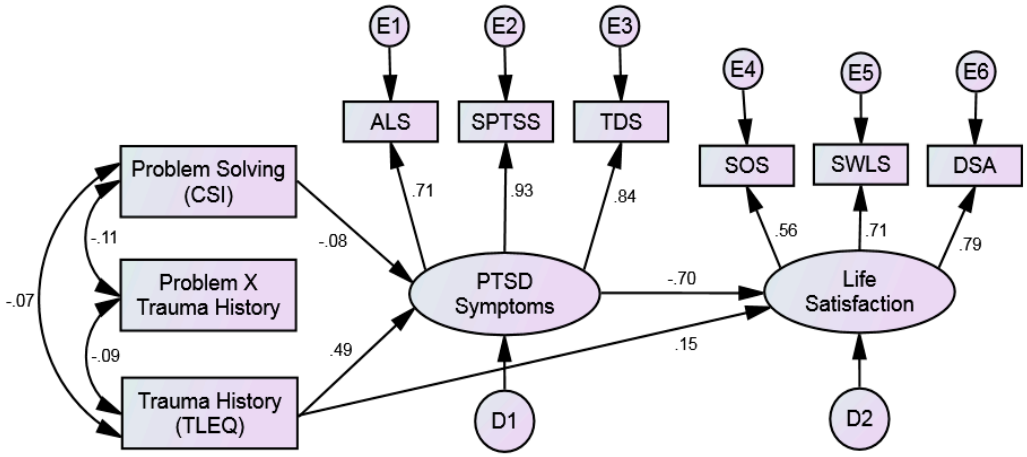


Table 28. Prob*lem Solving Model C Result*

Minimum was achieved
Chi-square = 80.922
Degrees of freedom = 23
Probability level = .000

Table 29. *Problem Solving Model C Regression Weights*

			Estimate	S.E.	C.R.	*p*
PTSD Symptoms	←	Problem Solving	-.074	.045	-1.627	.104
PTSD Symptoms	←	Trauma History	.204	.024	8.383	***
Life Satisfaction	←	PTSD Symptoms	-1.653	.235	-7.047	***
Life Satisfaction	←	Trauma History	.152	.064	2.356	.018
ALS	←	PTSD Symptoms	1.000	*nt*	*nt*	*nt*
SPTSS	←	PTSD Symptoms	2.023	.133	15.253	***
TDS	←	PTSD Symptoms	2.164	.150	14.397	***
SOS	←	Life Satisfaction	1.000	*nt*	*nt*	*nt*
SWLS	←	Life Satisfaction	.385	.045	8.509	***
DSA	←	Life Satisfaction	.231	.027	8.693	***

Note. nt = parameter fixed, not tested.
***$p < .001$.

Table 30. *Problem Solving Model C Modification Indices (M.I.)*

			M.I.	Parameter Change
E6	⟷	Trauma History	7.850	4.802
E5	⟷	Problem Solving	5.536	-3.681
E5	⟷	E6	4.792	1.490
E4	⟷	Trauma History	6.565	-30.660
E4	⟷	Problem Solving	9.309	17.304
E4	⟷	D1	5.129	-10.515
E4	⟷	D2	10.431	-36.483
E4	⟷	E5	6.339	-12.650
E3	⟷	D2	4.625	10.638
E3	⟷	E5	4.293	4.529
E1	⟷	E5	4.350	2.996
E1	⟷	E4	5.610	-12.336

The model fit statistics improved with the added parameter, but continued to produce mixed results. The chi-square statistic, χ^2 (23) = 80.92, $p < .0001$, decreased, but was still significant. However, the reduction was statistically significant, $\Delta\chi^2$ (1, N = 326) = 5.67, $p <$ .05. In addition, the Hoelter's Critical N increased to 142 while the AIC decreased (Problem Solving Model A: *AIC* = 128.59; Problem Solving Model C: *AIC* = 124.92), indicating a better fitting model. Furthermore, the RMSEA remained stable indicating a marginal model fit (*RMSEA* = .09, 90% CI [.07, .11]). Both the SRMR and the CFI remained constant over the models. The SRMR indicated an adequate fit (*SRMR* = .06) while the CFI indicated a good fit (*CFI* = .94). Overall, the model fit statistics indicated an acceptable fit. All covariances and direct paths were statistically significant with the exception of Problem Solving on PTSD Symptoms (p = .10).

Further analysis of the standardized residual covariances and modification indices of Problem Solving Model C indicated another area of concern. In particular, the Problem Solving Model C Modification Indices indicated that covarying Problem Solving and the SOS error term (M.I. = 9.31), and Problem Solving with the SWLS error term (M.I. = 5.54),

would decrease the chi-square statistic. An inspection of the standardized residuals covariance matrix indicated that there was significant unexplained covariation between Problem Solving and the SOS (standardized residual = 2.32). Again, it made theoretical sense to add a direct effect from Problem Solving to Life Satisfaction, instead of covarying Problem Solving with error terms associated with Life Satisfaction measures. Adding a direct effect path from Problem Solving to Life Satisfaction made theoretical sense. Individuals who actively work on presenting problems and decreasing stress may experience a direct affect on the individual's wellbeing. To accommodate this association, Problem Solving Model D was analyzed and is presented along with the accompanying model Result, Regression Weights, and Modification Indices.

Figure 16. Problem Solving Model D (N = 326).

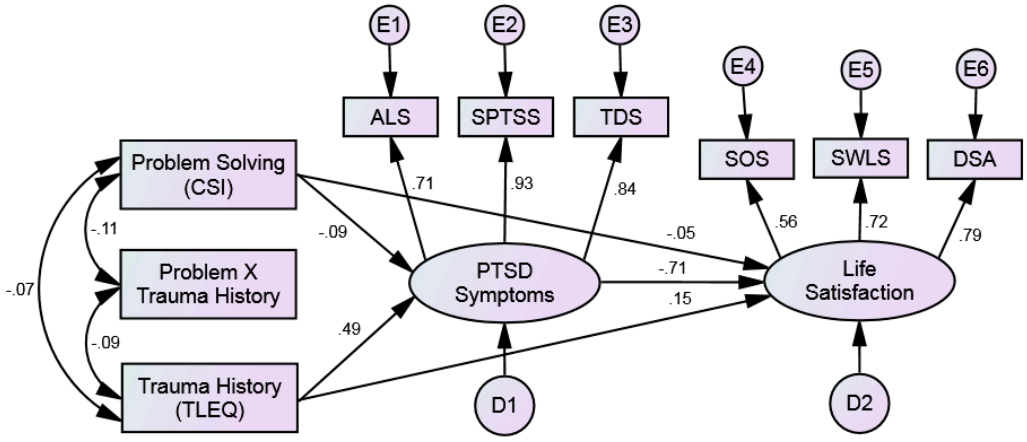


Table 31. *Problem Solving Model D Result*

Minimum was achieved
Chi-square = 79.930
Degrees of freedom = 22
Probability level = .000

Table 32. *Problem Solving Model D Regression Weights*

			Estimate	S.E.	C.R.	*p*
PTSD Symptoms	←	Problem Solving	-.077	.045	-1.698	.089
PTSD Symptoms	←	Trauma History	.204	.024	8.385	***
Life Satisfaction	←	PTSD Symptoms	-1.649	.235	-7.017	***
Life Satisfaction	←	Trauma History	.150	.064	2.355	.019
Life Satisfaction	←	Problem Solving	-.113	.113	-1.002	.316
ALS	←	PTSD Symptoms	1.000	*nt*	*nt*	*nt*
SPTSS	←	PTSD Symptoms	2.021	.132	15.263	***
TDS	←	PTSD Symptoms	2.164	.150	14.406	***
SOS	←	Life Satisfaction	1.000	*nt*	*nt*	*nt*
SWLS	←	Life Satisfaction	.390	.046	8.468	***
DSA	←	Life Satisfaction	.234	.027	8.639	***

Note. nt = parameter fixed, not tested.
***$p < .001$.

Table 33. *Problem Solving Model D Modification Indices (M.I.)*

			M.I.	Parameter Change
E6	←→	Trauma History	8.047	4.852
E5	←→	E6	4.031	1.358
E4	←→	Trauma History	6.582	-30.777
E4	←→	Problem Solving	10.706	18.604
E4	←→	D1	5.366	-10.785
E4	←→	D2	9.213	-34.034
E4	←→	E5	5.985	-12.292
E3	←→	D2	4.694	10.598
E3	←→	E5	4.255	4.496
E1	←→	E5	4.291	2.966
E1	←→	E4	5.610	-12.365

The model fit statistics declined with the added parameter. The chi-square statistic, χ^2 (22) = 79.93, p = .000, decreased minimally and was still significant. In addition, the reduction was not statistically significant, $\Delta\chi^2$ (1, N = 326) = 0.99, p = .32. The Hoelter's Critical N decreased to 138 while the AIC increased (Model C: *AIC* = 124.92; Model D: *AIC* = 125.93), both indicating a poorer fitting model. However, the RMSEA remained constant

indicating a marginal fit (*RMSEA* = .09, 90% CI [.07, .11]). Both the SRMR and the CFI remained constant with the SRMR indicating an adequate fit (*SRMR* = .06) while the CFI indicated a good fit (*CFI* = .94). Overall, the model fit statistics declined or remained stable even though one degree of freedom was lost. In addition, the added direct effect from Problem Solving to Life Satisfaction was not significant (p = .32). Therefore, Problem Solving Model D was not supported by the model fit indices. Problem Solving Model D was discarded due to a lack of statistical support. Due to Problem Solving Model D's decreased model fit, Problem Solving Model C was established as the final problem solving model for discussion. Please see Table 34 for a list of parameter estimates and critical ratios for this model.

Table 34. *Problem Solving Model C Parameter Estimates and Critical Ratios (N = 326).*

	Unstandardized Estimate	Standard Error	Critical Ratio (z)	*p*-value ≤	Standardized Estimate
Variances					
Problem Solving	31.962	2.507	12.748	0.001	
Problem X Trauma	3841.828	301.378	12.748	0.001	
Trauma History	141.677	11.114	12.748	0.001	
D1	18.717	2.640	7.090	0.001	
D2	81.445	17.774	4.582	0.001	
E1	24.212	2.125	11.396	0.001	
E2	14.933	3.461	4.314	0.001	
E3	49.341	5.468	9.023	0.001	
E4	300.942	27.093	11.108	0.001	
E5	19.836	2.259	8.782	0.001	
E6	4.434	0.668	6.638	0.001	
Covariances					
Problem Solving, Problem X Trauma	-38.897	19.557	-1.989	0.047	-0.11
Problem X Trauma, Trauma History	-66.697	41.091	-1.623	0.105	-0.09
Problem Solving, Trauma History	-4.587	3.741	-1.226	0.220	-0.07
Factor Loadings & Path Coefficients					
PTSD Symptoms ← Problem Solving	-0.074	0.045	-1.627	0.104	-0.08
PTSD Symptoms ← Trauma History	0.204	0.024	8.383	0.001	0.49
Life Satisfaction ← PTSD Symptoms	-1.653	0.235	-7.047	0.001	-0.70
Life Satisfaction ← Trauma History	0.152	0.064	2.356	0.018	0.15
ALS ← PTSD Symptoms	1	*nt*	*nt*	*nt*	0.71
SPTSS ← PTSD Symptoms	2.023	0.133	15.253	0.001	0.93
TDS ← PTSD Symptoms	2.164	0.150	14.397	0.001	0.84
SOS ← Life Satisfaction	1	*nt*	*nt*	*nt*	0.56
SWLS ← Life Satisfaction	0.385	0.045	8.509	0.001	0.71
DSA ← Life Satisfaction	0.231	0.027	8.693	0.001	0.79

Note. nt = parameter fixed, not tested.

Problem Solving Final Model

The examination of the Problem Solving Model C Modification Indices indicated eight other covariances that are unaccounted for in the model that would reduce the chi-square. However, none of these covariances were theoretically valid. In addition, examination of the standardized residual covariances matrix indicated two residuals that

were unaccounted for in the models over the 2.0 level of concern. However, the covariances were not theoretically valid.

Hypothesis 1. Increased self-reported history of traumatic events was hypothesized to predict an increase in self-reported PTSD symptoms. The hypothesis was supported in the problem solving model; higher levels of self-reported history of traumatic events predicted increased self-reported PTSD symptoms ($\beta = .49$, $p < .001$).

Hypothesis 2. An increase in self-reported PTSD symptoms was hypothesized to predict a decrease in self-reported life satisfaction. The hypothesis was also supported in the current model; higher levels of self-reported PTSD symptoms predicted lower life satisfaction ($\beta = -.70$, $p < .001$).

Hypothesis 4. It was hypothesized that problem solving coping would predict fewer self-reported PTSD symptoms. The hypothesis was not supported; problem solving coping did not significantly predict PTSD symptoms ($\beta = -.08$, $p = .10$).

In addition to the hypothesized covariances and direct effects, an additional direct effect was statistically and theoretically supported. An increase in Trauma History predicted slightly higher Life Satisfaction ($\beta = .15$, $p < .05$). All factor loadings were significantly associated in the hypothesized direction with the latent variables. The standardized estimates associated with these factor loadings were all at the $p < .001$ level and ranged from $\beta = .56$ to .93.

Support Seeking

Support Seeking Model A was the first support seeking coping model tested, and is shown in Figure 17. This was the initial model hypothesized, Model A, with Support Seeking inserted instead of the generic Coping Style variable. This model investigated the main effects of Support Seeking and Trauma History on PTSD Symptoms. Although the

interaction variable, Support X Trauma History, is shown in Support Seeking Coping Model A (Main Effects Model), the interaction effect on PTSD Symptoms was examined in Support Seeking Coping Model B (Interaction Model). Support Seeking Model A was analyzed and is presented along with the accompanying Sample Correlations, model Result, Regression Weights, and Modification Indices.

Table 35. *Support Seeking Model Sample Correlations, Means, Standard Deviations* (*N* = 326).

	Support X Trauma	Trauma History	Support Seeking	DSA	SWLS	SOS	TDS	SPTSS	ALS
Support X Trauma	1								
Trauma History	-.090	1							
Support Seeking	-.111	-.068	1						
DSA	.007	-.073	-.003	1					
SWLS	-.021	-.186	-.045	.603	1				
SOS	-.046	-.226	.169	.420	.331	1			
TDS	-.104	.453	-.111	-.328	-.300	-.420	1		
SPTSS	-.121	.459	-.102	-.423	-.430	-.483	.781	1	
ALS	-.070	.281	-.120	-.346	-.275	-.438	.620	.661	1
Mean	250.74	12.78	20.04	15.21	24.23	57.60	9.68	11.32	6.34
SD	249.90	11.92	5.94	3.44	6.36	20.27	12.91	10.84	7.02

Figure 17. Support Seeking Model A (Main Effects, *N* = 326)

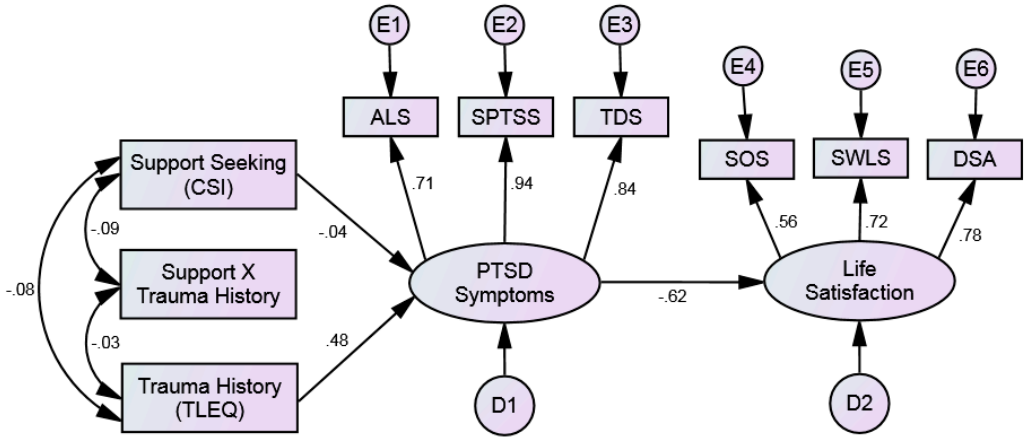


Table 36. *Support Seeking Model A Result*

Minimum was achieved
Chi-square = 114.32
Degrees of freedom = 24
Probability level = .000

Table 37. *Support Seeking Model A Regression Weights*

			Estimate	S.E.	C.R.	*p*
PTSD Symptoms	←	Support Seeking	-.037	.043	-.848	.396
PTSD Symptoms	←	Trauma History	.202	.024	8.268	***
Life Satisfaction	←	PTSD Symptoms	-1.479	.206	-7.167	***
ALS	←	PTSD Symptoms	1.000	*nt*	*nt*	*nt*
SPTSS	←	PTSD Symptoms	2.036	.134	15.181	***
TDS	←	PTSD Symptoms	2.162	.151	14.354	***
SOS	←	Life Satisfaction	1.000	*nt*	*nt*	*nt*
SWLS	←	Life Satisfaction	.387	.045	8.528	***
DSA	←	Life Satisfaction	.227	.026	8.660	***

Note. *nt* = parameter fixed, not tested.
***$p < .001$.

Table 38. *Support Seeking Model A Modification Indices (M.I.)*

			M.I.	Parameter Change
D2	←→	Support X Trauma	5.039	-90.083
D2	←→	Support Seeking	4.934	-8.432
E6	←→	Trauma History	13.877	6.466
E5	←→	Support Seeking	17.337	-6.838
E5	←→	E6	5.095	1.547
E4	←→	Support Seeking	20.054	26.713
E4	←→	D1	6.656	-12.026
E4	←→	D2	10.934	-37.824
E4	←→	E5	7.952	-14.105
E3	←→	D2	4.301	10.436
E3	←→	E5	4.270	4.514
E2	←→	E5	4.038	-3.269
E1	←→	E4	6.162	-12.928

The model fit produced mixed results. First, the chi-square statistic was significant, $\chi 2\ (24) = 114.32$, $p = .000$, indicating a poor fit. However, the chi-square statistic is heavily

influenced by sample size. To account for the sample size, the Hoelter's Critical N was examined ($N = 104$). This indicated the chi-square would still have been significant even with as few as 104 participants. A Hoelter's Critical N between 75 and 200 indicates a marginal fit. In addition, the RMSEA indicated a poor model fit (RMSEA = .11, 90% CI [.09, .13]). However, two indices indicated a marginal fit. The SRMR indicated a marginal fit (SRMR = .07) while the CFI also indicated a marginal fit (CFI = .91). Overall, the model fit statistics indicated an acceptable model fit.

To investigate the possibility of an interaction between Support Seeking and Trauma History, Support Seeking Model B was created. In order to conduct the analyses, both Support Seeking and Trauma History were statistically centered in order to create the interaction variable. The centered Support Seeking and Trauma History variables produced the same correlations as non-centered variables. To accommodate this association, Support Seeking Model B was analyzed and is presented along with the accompanying model Result, Regression Weights, and Modification Indices.

Figure 18. Support Seeking Model B (Interaction Term, $N = 326$)

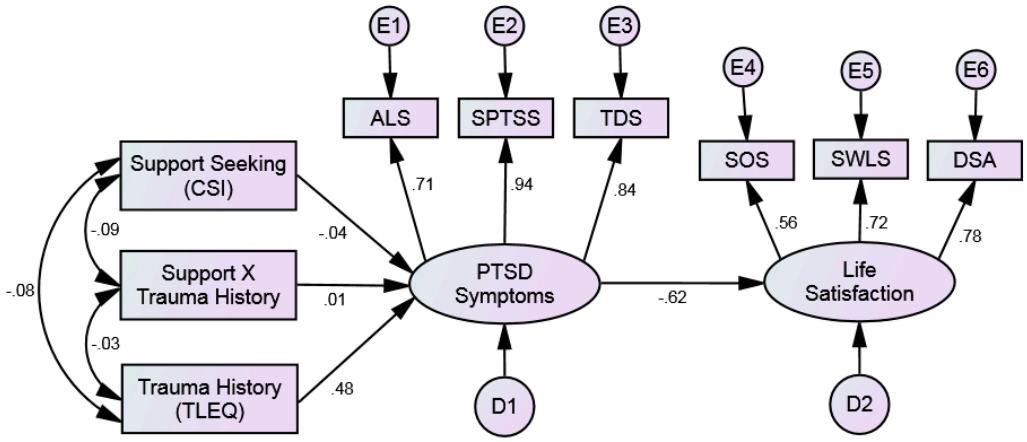


Table 39. *Support Seeking Model B Result*

Minimum was achieved
Chi-square = 114.29
Degrees of freedom = 23
Probability level = .000

Table 40. *Support Seeking Model B Regression Weights*

			Estimate	S.E.	C.R.	*p*
PTSD Symptoms	←	Support Seeking	-.036	.043	-.828	.408
PTSD Symptoms	←	Trauma History	.202	.024	8.270	***
PTSD Symptoms	←	Support X Trauma	.001	.004	.183	.855
Life Satisfaction	←	PTSD Symptoms	-1.479	.206	-7.168	***
ALS	←	PTSD Symptoms	1.000	*nt*	*nt*	*nt*
SPTSS	←	PTSD Symptoms	2.035	.134	15.180	***
TDS	←	PTSD Symptoms	2.162	.151	14.355	***
SOS	←	Life Satisfaction	1.000	*nt*	*nt*	*nt*
SWLS	←	Life Satisfaction	.387	.045	8.528	***
DSA	←	Life Satisfaction	.227	.026	8.661	***

Note. nt = parameter fixed, not tested.
***$p < .001$.

Table 41. *Support Seeking Model B Modification Indices (M.I.)*

			M.I.	Parameter Change
D2	←→	Support X Trauma	4.987	-89.627
D2	←→	Support Seeking	4.928	-8.427
E6	←→	Trauma History	13.881	6.467
E5	←→	Support Seeking	17.336	-6.838
E5	←→	E6	5.105	1.548
E4	←→	Support Seeking	20.058	26.715
E4	←→	D1	6.568	-11.946
E4	←→	D2	10.947	-37.846
E4	←→	E5	7.962	-14.113
E3	←→	D2	4.335	10.477
E3	←→	E5	4.290	4.524
E2	←→	E5	4.009	-3.257
E1	←→	E4	6.154	-12.920

The model fit continued to produce mixed results. Overall, the model fit statistics tended to remain stable with the added parameter. The chi-square statistic, χ^2 (23) = 114.29, $p < .001$, remained stable even though a degree of freedom was lost and was still significant, indicating a poor fit. The decrease was not statistically significant, $\Delta\chi^2$ (1, N = 326) = 0.03, p = .86. In addition, the Hoelter's Critical N remained fairly stable at 101, and the AIC increased (Support Seeking Model A: *AIC* = 156.32; Support Seeking Model B: *AIC* = 158.29), indicating a poorer fitting model. In addition, the RMSEA remained stable and continued to indicate a poor model fit (RMSEA = .11, 90% CI [.09, .13]). Neither the SRMR nor the CFI changed between the models. The SRMR indicated a marginal fit (SRMR = .07) while the CFI also indicated a marginal fit (CFI = .91). Overall, the model fit statistics tended to remain stable while sacrificing a degree of freedom. In addition, the added interaction term direct effect path to PTSD Symptoms was not significant (p = .86). Therefore, Support Seeking Model B, with the interaction term, was not supported by the model fit indices. Support Seeking Model B was discarded due to lack of statistical support, and Support Seeking Model A, with the main effects, was further analyzed due to an acceptable model fit.

A finer-grained analysis of the standardized residual covariances and modification indices of Support Seeking Model A indicated several areas of concern. In particular, the Support Seeking Model A Modification Indices indicated that covarying Support Seeking and the SOS error term (M.I. = 20.05), and Support Seeking with the SWLS error term (M.I. = 17.34), would decrease the chi-square statistic. An inspection of the standardized residuals covariance matrix indicated that there was significant unexplained covariation between Support Seeking and the SOS (standardized residual = 2.99) and Support Seeking and the SWLS (standardized residual = -3.38). Covarying Support Seeking and the error terms

associated with Life Satisfaction measures would have decrease the chi-square; however, it made more theoretical sense to add a direct effect from Support Seeking to Life Satisfaction, instead of covarying Support Seeking with error terms associated with PTSD Symptom measures. To accommodate this association, Support Seeking Model C was analyzed and is presented along with the accompanying model Result, Regression Weights, and Modification Indices.

Figure 18. Support Seeking Model C (*N* = 326)

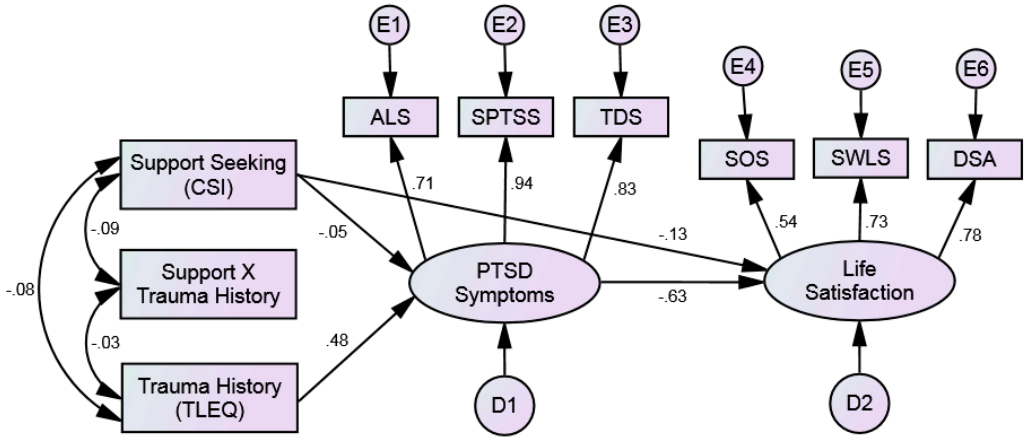


Table 42. *Support Seeking Model C Result*

Minimum was achieved
Chi-square = 109.23
Degrees of freedom = 23
Probability level = .000

Table 43. *Support Seeking Model C Regression Weights*

			Estimate	S.E.	C.R.	*p*
PTSD Symptoms	←	Support Seeking	-.043	.043	-.993	.321
PTSD Symptoms	←	Trauma History	.201	.024	8.259	***
Life Satisfaction	←	PTSD Symptoms	-1.445	.205	-7.064	***
Life Satisfaction	←	Support Seeking	-.243	.107	-2.271	.023
ALS	←	PTSD Symptoms	1.000	*nt*	*nt*	*nt*
SPTSS	←	PTSD Symptoms	2.042	.135	15.180	***
TDS	←	PTSD Symptoms	2.160	.151	14.319	***
SOS	←	Life Satisfaction	1.000	*nt*	*nt*	*nt*
SWLS	←	Life Satisfaction	.409	.049	8.382	***
DSA	←	Life Satisfaction	.235	.028	8.473	***

Note. nt = parameter fixed, not tested.
***$p < .001$.

Table 44. *Support Seeking Model C Modification Indices (M.I.)*

			M.I.	Parameter Change
D2	←→	Support X Trauma	5.087	-86.715
E6	←→	Trauma History	14.030	6.465
E5	←→	Support Seeking	10.470	-5.251
E4	←→	Support Seeking	24.299	29.670
E4	←→	D1	7.744	-13.056
E4	←→	D2	6.737	-28.799
E4	←→	E5	6.902	-13.112
E3	←→	D2	5.082	10.885
E3	←→	E5	4.481	4.576
E2	←→	D2	4.009	-7.032
E2	←→	E5	4.255	-3.303
E1	←→	E4	6.099	-12.982

The model fit statistics improved with the added parameter, but continued to produce mixed results. The chi-square statistic, χ^2 (23) = 109.23, $p < .0001$, decreased, but was still significant. However, the reduction, which indicates an improvement in fit, was statistically significant, $\Delta\chi^2$ (1, N = 326) = 5.09, $p < .05$. In addition, the Hoelter's Critical N remained stable (N = 105) while the AIC decreased (Support Seeking Model B: *AIC* = 156.32; Support Seeking Model C: *AIC* = 153.23), indicating a better fitting model. Furthermore, the RMSEA remained stable indicating a poor model fit (*RMSEA* = .11, 90% CI [.09, .13]).

Both the SRMR and the CFI remained constant over the models. The SRMR indicated an adequate fit (*SRMR* = .07) as did the CFI (*CFI* = .91). Overall, the model fit statistics increased or remained stable and indicated an acceptable fit. In addition, the added direct path from Support Seeking to Life Satisfaction was significant ($p < .05$).

Further analysis of the standardized residual covariances and modification indices of Support Seeking Model C indicated another area of concern. In particular, the Support Seeking Model C Modification Indices indicated that covarying Trauma History and the DSA error term would decrease the chi-square statistic by 14.03. An inspection of the standardized residuals covariance matrix indicated that there was significant unexplained covariation between Trauma History and the DSA (standardized residual = 2.77). Again, it made more theoretical sense to add a direct effect from Trauma History to Life Satisfaction, instead of covarying Trauma History with the error term associated with a Life Satisfaction measure. Adding a direct effect path from Trauma History to Life Satisfaction made theoretical sense. Individuals who actively seek support may decrease stress, which, in turn, may directly affect the individual's wellbeing. To accommodate this association, Support Seeking Model D was analyzed and is presented along with the accompanying model Result, Regression Weights, and Modification Indices.

Figure 19. Support Seeking Model D (*N* = 326).

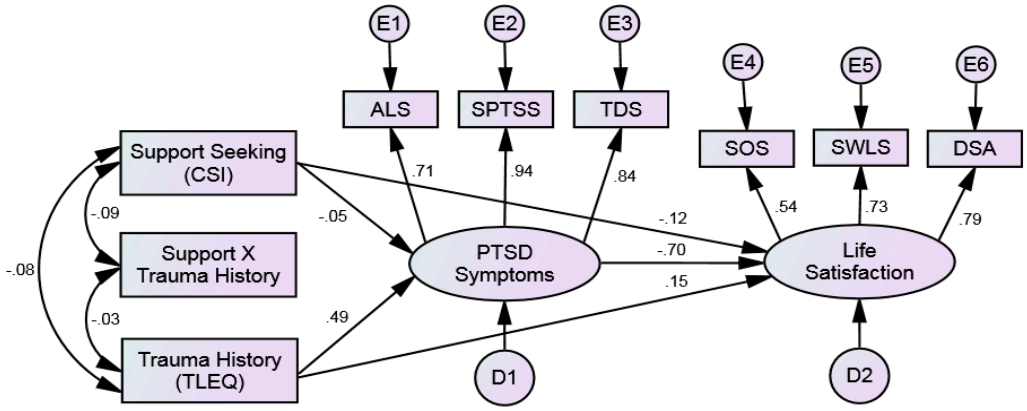


Table 45. *Support Seeking Model D Result*

Minimum was achieved
Chi-square = 104.00
Degrees of freedom = 22
Probability level = .000

Table 46. *Support Seeking Model D Regression Weights*

			Estimate	S.E.	C.R.	*p*
PTSD Symptoms	←	Support Seeking	-.042	.043	-.980	.327
PTSD Symptoms	←	Trauma History	.204	.024	8.368	***
Life Satisfaction	←	PTSD Symptoms	-1.612	.232	-6.955	***
Life Satisfaction	←	Support Seeking	-.231	.106	-2.177	.029
Life Satisfaction	←	Trauma History	.140	.062	2.267	.023
ALS	←	PTSD Symptoms	1.000	*nt*	*nt*	*nt*
SPTSS	←	PTSD Symptoms	2.036	.134	15.233	***
TDS	←	PTSD Symptoms	2.162	.151	14.327	***
SOS	←	Life Satisfaction	1.000	*nt*	*nt*	*nt*
SWLS	←	Life Satisfaction	.404	.048	8.380	***
DSA	←	Life Satisfaction	.239	.028	8.519	***

***$p < .001$.

Table 47. *Support Seeking Model D Modification Indices (M.I.)*

			M.I.	Parameter Change
D2	←→	Support X Trauma	4.928	-84.488
E6	←→	Trauma History	8.104	4.872
E5	←→	Support Seeking	10.771	-5.344
E4	←→	Trauma History	5.753	-29.050
E4	←→	Support Seeking	23.629	29.245
E4	←→	D1	6.443	-11.868
E4	←→	D2	6.494	-27.995
E4	←→	E5	5.509	-11.769
E3	←→	D2	5.083	10.759
E3	←→	E5	4.365	4.529
E1	←→	E5	4.313	2.953
E1	←→	E4	5.632	-12.473

The model fit statistics improved or remained fairly stable with the added parameter. The chi-square statistic, χ^2 (22) = 104.00, $p < .0001$, decreased and was still significant, indicating a poor fit. However, the reduction was statistically significant, $\Delta\chi^2$ (1, $N = 326$) = 5.23, $p < .05$. The Hoelter's Critical N remained fairly stable (N = 107) indicating a marginal fit while the AIC decreased (Model C: *AIC* = 153.23; Model D: *AIC* = 150.00), indicating a better fitting model. However, the RMSEA remained constant, continuing to indicate a poor fit (*RMSEA* = .11, 90% CI [.09, .13]). Both the SRMR (*SRMR* = .07) and the CFI (*CFI* = .92) remained fairly constant, indicating a marginal fit. Overall, the model fit statistics became slightly better or remained stable. In addition, the added direct path from Trauma History to Life Satisfaction was significant ($p < .05$). Therefore, Support Seeking Model D was supported by the model fit indices.

The examination of the Support Seeking Model D Modification Indices indicated seven other covariances that were unaccounted for in the model that would reduce the chi-square statistic. However, none of these covariances were theoretically valid. In addition, examination of the standardized residual covariances matrix indicated three residuals that were unaccounted for in the models over the 2.0 level of concern; however, the covariances were not theoretically valid.

Support Seeking Final Model

Support Seeking Model D was considered the final support seeking coping model and was examined for further discussion, as no further model fit modifications were theoretically supported. Please see Table 48 for a list of parameter estimates and critical ratios for this model.

Table 48. *Support Seeking Model D Parameter Estimates and Critical Ratios (N = 326).*

	Unstandardized Estimate	Standard Error	Critical Ratio (*z*)	*p*-value ≤	Standardized Estimate
Variances					
Support Seeking	35.213	2.762	12.748	0.001	
Support X Trauma	3915.439	307.152	12.748	0.001	
Trauma History	141.677	11.114	12.748	0.001	
D1	18.752	2.650	7.076	0.001	
D2	75.475	16.965	4.449	0.001	
E1	24.341	2.130	11.429	0.001	
E2	14.182	3.457	4.103	0.001	
E3	50.244	5.494	9.145	0.001	
E4	309.244	27.392	11.289	0.001	
E5	19.096	2.233	8.553	0.001	
E6	4.400	0.660	6.662	0.001	
Covariances					
Support Seeking, Support X Trauma	-32.697	20.676	-1.581	0.114	-0.09
Support X Trauma, Trauma History	-18.851	41.327	-0.456	0.648	-0.03
Support Seeking, Trauma History	-5.331	3.929	-1.357	0.175	-0.08
Factor Loadings & Path Coefficients					
PTSD Symptoms ← Support Seeking	-0.042	0.043	-0.980	0.327	-0.05
PTSD Symptoms ← Trauma History	0.204	0.024	8.368	0.001	0.49
Life Satisfaction ← PTSD Symptoms	-1.612	0.232	-6.955	0.001	-0.70
Life Satisfaction ← Support Seeking	-0.231	0.106	-2.177	0.029	-0.12
Life Satisfaction ← Trauma History	0.140	0.062	2.267	0.023	0.15
ALS ← PTSD Symptoms	1	*nt*	*nt*	*nt*	0.71
SPTSS ← PTSD Symptoms	2.036	0.134	15.233	0.001	0.94
TDS ← PTSD Symptoms	2.162	0.151	14.327	0.001	0.84
SOS ← Life Satisfaction	1	*nt*	*nt*	*nt*	0.54
SWLS ← Life Satisfaction	0.404	0.048	8.380	0.001	0.73
DSA ← Life Satisfaction	0.239	0.028	8.519	0.001	0.79

Note. *nt* = parameter fixed, not tested.

Hypothesis 1. Increased self-reported history of traumatic events was hypothesized to predict an increase in self-reported PTSD symptoms. The hypothesis was supported in the support seeking model; higher levels of self-reported history of traumatic events predicted increased self-reported PTSD symptoms ($\beta = .34$, $p < .001$).

Hypothesis 2. An increase in self-reported PTSD symptoms was hypothesized to predict a decrease in self-reported life satisfaction. The hypothesis was also supported in the

current model; higher levels of self-reported PTSD symptoms predicted lower life satisfaction ($\beta = -.70$, $p < .001$).

Hypothesis 4. It was hypothesized that support seeking coping would predict fewer self-reported PTSD symptoms. The hypothesis was not supported; support seeking coping failed to significantly predict PTSD symptoms ($\beta = -.05$, $p = .33$).

In addition to the hypothesized covariances and direct effects, two additional direct effects were statistically and theoretically supported. An increase in Support Seeking predicted a slight decrease in Life Satisfaction ($\beta = -.12$, $p < .05$). Also, an increase in Trauma History predicted slightly higher Life Satisfaction ($\beta = .15$, $p < .05$).

Summary of Results

The hypothesis that increased self-reported history of traumatic events would predict an increase in self-reported PTSD symptoms was supported across all three coping strategies. In addition, the hypothesis that an increase in self-reported PTSD symptoms would predict a decrease in self-reported life satisfaction was also supported across coping strategies. However, the hypotheses regarding coping strategies predicting a directional change in PTSD symptoms were not supported. Although Avoidant Coping significantly predicted a change in PTSD symptoms, the change was in the opposite direction of the hypothesis. Both Problem Solving and Support Seeking failed to significantly predict a change in PTSD symptoms. Please see Table 49 for a summary of the hypotheses results.

Table 49. *Summary of Results by Hypothesis and Coping Strategy (N = 326).*

	Confirmation	β	*p*-value ≤
Hypothesis 1. An increased history of trauma would predict increased PTSD symptoms			
Avoidant Coping	Supported	0.34	0.001
Problem Solving Coping	Supported	0.49	0.001
Support Seeking Coping	Supported	0.34	0.001
Hypothesis 2. An increase in PTSD symptoms would predict a decrease in life satisfaction			
Avoidant Coping	Supported	-0.62	0.001
Problem Solving Coping	Supported	-0.70	0.001
Support Seeking Coping	Supported	-0.70	0.001
Hypothesis 3. Avoidant Coping would predict increased PTSD symptoms			
Avoidant Coping	Not Supported	-0.42	0.001
Hypothesis 4. Problem Solving and Support Seeking would predict fewer PTSD symptoms			
Problem Solving Coping	Not Supported	-0.08	-0.08
Support Seeking Coping	Not Supported	-0.05	-0.05

Chapter V

Discussion

The current research examined the role of coping strategies in predicting the development of PTSD symptoms after experiencing a traumatic event. Furthermore, the goal was to examine how these variables impacted overall life satisfaction. Analyses included 326 college students and community members, of whom 80.1% reported lifetime exposure to a traumatic event. A large majority of the participants were college students, with the overall demographics similar to the college student population. The most prevalent traumatic events reported were natural disasters (69%), sudden death of someone close (55.8%), and a loved one survived a life-threatening incident (44.5%).

Avoidant Coping

The overall fit of the avoidant coping model was good with analyses supporting the structure of the model. Higher rates of exposure to trauma, as predicted, increased PTSD symptoms. Also as predicted, individuals experiencing increased PTSD symptoms suffered decreases in overall quality of life. The negative covariance between avoidant coping and trauma history was of interest, indicating higher avoidance coping was associated with lower trauma history, and conversely, a higher trauma history was associated with lower levels of avoidant coping. The relation between avoidant coping and PTSD symptoms was not as hypothesized with higher avoidance coping leading to fewer PTSD symptoms. An interaction between avoidant coping and trauma history was not hypothesized. Avoidant coping and trauma history did result in a significant interaction, with those experiencing a high number of traumatic events, benefiting from avoidant coping with a greater reduction in PTSD symptoms than those experiencing lower numbers of traumatic events. The direct effects of avoidant coping and trauma history on life satisfaction were not hypothesized.

Although the correlation was small, the unpredicted positive correlation of avoidant coping and life satisfaction was of interest. If the direct effect had been hypothesized, it would have been predicted that avoidant coping would be associated with decreased quality of life. However, in this sample, the opposite was found to be true; an increase in avoidant coping predicted a small increase in life satisfaction. This association increased when mediated by PTSD symptoms, with an increase in avoidant coping predicting a greater increase in life satisfaction when mediated by PTSD symptoms. Avoidant coping predicted a decrease in PTSD symptoms, and this decrease in PTSD symptoms predicted a substantial increase in life satisfaction. A short-term benefit in avoidant coping could have been operationalized by the DSA, which measures relatively short-term life satisfaction (the day and week the assessment was completed); however, both the DSA and the SWLS (global long-term life satisfaction) had similar factor loadings in the same direction, indicating no difference between the association of avoidant coping and short-term and long-term satisfaction with life. In this sample, high avoidant coping had a small direct positive association with life satisfaction, indicating that the use of avoidant coping predicted a slight increase in life satisfaction. It is important to consider the impact of the high proportion of college students in this sample. College-age students tend to engage in avoidant strategies at higher rates then older adults (Amirkhan & Auyeung, 2007; Irion & Blanchard-Fields, 1987; Labouvie-Vief, Hakim-Larson, & Hobart, 1987). College student tactics can include drinking, delaying studying, as well as other distractions. It is conceivable that college students in the college environment tend to benefit greater through the use of avoidant coping than the general population. Students who are not engaging in fun activities while avoiding responsibilities may be experiencing a short-term decrease in their life satisfaction.

In addition, college students may be more likely to report their current satisfaction with life, even when assessments are examining more global long-term life satisfaction questions.

Another small unpredicted correlation was the positive association between trauma history and life satisfaction. If the direct effect had been hypothesized, it would have been predicted that an increase in trauma history would have been associated with a decrease in quality of life. However, in this sample, the opposite association was discovered. An increase in experienced traumas was associated with a small increase in life satisfaction. This direct effect may be best understood by comparing this finding to the association of trauma history and life satisfaction when mediated by PTSD symptoms. The opposite association between trauma history and life satisfaction was supported through the mediation of PTSD symptoms. More specifically, increased trauma history was associated with increased PTSD symptoms, and increased PTSD symptoms were associated with a substantial decrease in life satisfaction. Therefore, in this sample, when individuals experienced negative symptoms associated with experiencing a traumatic event, life satisfaction dropped significantly; however, when individuals did not experience negative symptoms associated with the traumatic event, experiencing traumatic events was associated with a small increase in life satisfaction. This finding is similar to previous research that reported individuals that experienced a traumatic event but did not develop PTSD reported gains in greater social support, increased self-esteem, and greater optimism, compared to individuals that did develop PTSD (Grasso et al., 2012).

The small negative covariance between avoidant coping and trauma history required further elucidation. The finding that higher avoidant coping was associated with lower trauma history, and higher trauma history was associated with lower levels of avoidant coping in this sample was contrary to previous research (Gil & Weinberg, 2015). Previous

research has shown that early exposure to traumatic events is associated with increased acts of avoidant measures (Rayburn et al., 2005). In addition, although the presence of PTSD was not part of this research, PTSD, by definition, requires avoidant coping; for example, the diagnosis of PTSD requires the persistent avoidance of stimuli associated with the experienced traumatic event. This covariance may help explain why increased avoidant coping was actually associated with fewer PTSD symptoms in this sample. However, it is unclear in the present study why an increase in avoidant coping would be associated with a decrease in trauma history.

The finding that avoidant coping actually predicted a decrease in PTSD symptoms was of particular interest. This was the opposite of the hypothesized association based on previous research (Day & Livingston, 2001; Rayburn et al., 2005; Tiet et al., 2006; Votta, & Mansion, 2006). It was hypothesized that individuals who experienced traumatic events and took measures to actively cope with the trauma, would have lower PTSD symptoms than those who tended to avoid coping with the traumatic event. In addition, those who use avoidant coping would be more likely to engage in "Persistent avoidance of stimuli associated with the event(s)…" (American Psychiatric Association, 2013), which is a required symptom in the diagnosis of PTSD. However, avoidant coping predicted a decrease in PTSD symptoms. The negative covariance between trauma history and avoidant coping in this sample may help explain this surprising finding. Exposure to a traumatic event is necessary for the development of PTSD symptoms. In addition, an increase in trauma history predicted an increase in PTSD symptoms. However, in this sample, those who had experienced trauma were less likely to use avoidant coping, and those engaging in avoidant coping were less likely to experience a trauma, and consequently, would be less likely to experience PTSD symptoms. It is possible that the benefit of avoidant coping predicting

lower levels of PTSD symptoms in this model is unique to the high proportion of college students analyzed.

The interaction of avoidant coping and trauma history was not predicted and produced interesting results. Overall, in this sample, individuals benefited from the use of avoidant coping. However, individuals who experienced high levels of traumatic events experienced a greater reduction in PTSD symptoms when compared to those who had experienced low levels of trauma. The benefit of avoidant coping increased as trauma exposure increased. Again, this outcome may have been impacted by the finding that, in this sample, individuals who experienced more traumatic events were less likely to engage in avoidant coping.

Although causal inferences cannot be made with the analyses used, the relations among avoidant coping, trauma history, the avoidant coping and trauma history interaction, PTSD symptoms, and life satisfaction provided insight into the complex mechanism that may explain why those experiencing PTSD symptoms in this sample benefited through the use of avoidance. Individuals in this sample, which was highly represented by college students, tended to benefit from avoidant coping in general. This benefit included the direct reduction of PTSD symptoms and a small increase in life satisfaction. In addition, individuals that experienced high levels of traumatic events benefited even greater through the use of avoidant coping.

Problem Solving

The overall fit of the problem solving model was good with statistical analyses supporting the structure of the model. As predicted, higher rates of exposure to trauma were associated with increased PTSD symptoms. Also as predicted, individuals experiencing increased PTSD symptoms suffered decreases in overall quality of life. Contrary to the

avoidant coping model, problem solving and a history of trauma did not produce a significantly covariance. The relationship between problem solving coping and PTSD symptoms was not significant, failing to support the hypothesis that problem solving coping would predict a decrease in PTSD symptoms. Also contrary to avoidant coping, problem solving coping did not interact with trauma history. Not predicted was the direct effect of trauma history on life satisfaction.

Although the unpredicted positive correlation was small, the association between trauma history and life satisfaction was of interest. If the direct effect had been hypothesized, it would have predicted that an increase in trauma history would have been associated with a decrease in quality of life. However, in this sample, the opposite association was discovered. An increase in exposure to traumatic events was associated with a small increase in life satisfaction. This direct effect may be best understood when comparing this finding to the association of trauma history and life satisfaction when mediated by PTSD symptoms. The opposite association between trauma history and life satisfaction was found through the mediation of PTSD symptoms. More specifically, increased exposures to traumatic events was associated with increased PTSD symptoms; in addition, increased PTSD symptoms were associated with a substantial decrease in life satisfaction. This finding concerning problem solving coping was very similar to the findings of trauma history and life satisfaction when mediated by PTSD in the avoidant coping model. In this sample, when individuals experienced negative symptoms associated with experiencing a traumatic event, life satisfaction dropped significantly; however, when individuals did not experience negative symptoms associated with the traumatic event, experiencing traumatic events was associated with a small increase in life satisfaction.

Despite a significant finding in the avoidant coping model, problem solving coping and trauma history did not significantly covary. Also contrary to the avoidant coping model was the finding that problem solving and trauma history did not produce an interaction, which was impacted by the failure of problem solving to significantly predict PTSD symptoms.

The outcome that problem solving coping did not significantly correlate with PTSD symptoms was of interest. It was hypothesized that individuals who experienced traumatic events and actively tried to cope with the trauma, would have lower PTSD symptoms. The engagement of actively trying to manage and control PTSD symptoms might also decrease the engagement in avoidant PTSD criteria. This finding supports earlier findings that the temporal stability of PTSD requires professional treatment in order to alleviate PTSD symptoms (Orcutt, Erickson, & Wolfe, 2004). However, convoluting this finding was that problem solving coping did not predict a direct increase in life satisfaction. In this sample, problem solving coping failed to predict a reduction in PTSD symptoms, an increase in life satisfaction, or a change associated with trauma history.

The relations among problem solving coping, trauma history, PTSD symptoms, and life satisfaction provided insight into the complex mechanism that may explain why individuals in this sample did not benefit from the use of problem solving coping strategies. In this sample, problem solving coping failed to produce positive results in this model. This included problem solving failing to impact both PTSD symptoms and life satisfaction. Again, it is possible that college students who engage in problem solving coping strategies do not receive the short-term benefits that their colleagues enjoy through the use of avoidant behaviors that may increase short-term pleasure. An example of this benefit would be enjoying a night out instead of studying for an upcoming test. College students answering

the longer-term life satisfaction questions may be responding to the question with their present state in mind.

Support Seeking

The overall fit of the support seeking model was good with stastical analyses supporting the structure of the model. In congruence with the previous models, an increased history of trauma, as predicted, increased PTSD symptoms. In addition, increased PTSD symptoms predicted a substantial decrease in overall life satisfaction. The model did not support a significant relation between support seeking coping and history of trauma. Contrary to the hypothesis, support seeking coping failed to predict a change in PTSD symptoms. There was not a significant interaction between support seeking coping and trauma history. Two direct effects were significant that were not hypothesized. Increased support seeking coping predicted a small decrease in life satisfaction and increased exposure to traumatic events predicted a small increase in life satisfaction.

The small unpredicted negative correlation between support seeking coping and life satisfaction was of interest. If the direct effect from support seeking to life satisfaction had been hypothesized, it would have been predicted that support seeking coping would predict an increase in quality of life (Vickerman & Margolin, 2007). However, in this sample, the opposite was found to be true; an increase in support seeking coping actually predicted a small decrease in life satisfaction. This direct effect cannot be compared to the path mediated by PTSD as support seeking coping failed to significantly predict PTSD symptoms.

An additional small unpredicted positive correlation was the association between trauma history and life satisfaction. This direct effect was similar to the previous two models indicating a stable effect across coping strategies. An increase in experienced traumas was

associated with a small increase in life satisfaction. However, the opposite association between trauma history and life satisfaction was found when mediated by PTSD symptoms. An increase in trauma history was associated with increased PTSD symptoms, and increased PTSD symptoms were associated with a substantial decrease in life satisfaction. Individuals who experienced negative symptoms associated with the traumatic event experienced a significant decrease in life satisfaction; however, when individuals did not experience negative symptoms associated with the traumatic event, increased exposure to traumatic events was associated with a small increase in life satisfaction.

Similar to the problem solving coping model, support seeking coping and trauma history did not significantly covary. Consequently, there was no relation between support seeking coping and trauma history in this sample. In addition, there was not a significant interaction between support seeking coping and trauma history.

Support seeking coping did not significantly predict PTSD symptoms. It was hypothesized that support seeking coping would predict lower PTSD symptoms. Previous research has produced mixed results, with some research supporting actively seeking support predicting lower PTSD symptoms while other research supported actively seeking support predicted an increase in PTSD symptoms (Jankowski et al., 2004; Green et al. 1990; King et al., 1998). This finding may also support earlier findings that the temporal stability of PTSD symptoms requires professional treatment in order to alleviate PTSD symptoms (Orcutt et al., 2004). In this sample, support seeking coping failed to predict a reduction, or any change, in PTSD symptoms.

Although causal inferences cannot be made with the analyses used, the relations among support seeking coping, trauma history, PTSD symptoms, and life satisfaction provided insight into the complex mechanism that may explain why those experiencing

PTSD symptoms in this sample failed to benefit through the use of support seeking coping. Support seeking coping failed to impact self-reported PTSD symptoms and predicted a small decrease in overall life satisfaction. In this sample, support seeking coping was not a productive coping strategy.

Limitations

The convenience sample used in the present research restricts the external validity, and the ability to generalize these findings. In addition, the ability to apply the findings to those in the general public who are exposed to traumatic events is heavily restricted by the high ratio of college students who participated in the present research. Although the current research tried to include two separate samples of college students and community members, bivariate analyses indicated that there were no statistical differences between the two samples. The community and student samples were statistically a single sample. Reaching two samples would have added to current PTSD research that relies heavily on veteran and college samples. In addition, if the two samples were successfully reached, comparisons could have been made between college students and community members with structural equation modeling to further elicit any differences associated with coping style engagement, as well as the impact on PTSD symptom development and quality of life. Although the single sample contained college students and community members, the demographics were more representative of college students then community members. Unfortunately, the research goal of reaching two sub-samples was not achieved. The lack of two distinct samples provided only one combined sample for analyses.

There were several reasons that contributed to the inability to reach two distinct sub-samples. First, the major shopping center where community members were approached was within several miles of the university and may have been comprised of a significant

proportion of college students. Second, university students may have been much more likely to participate in the research than community members at the shopping center due to a familiarity with research and research questionnaires. Third, university students at the shopping center may have been more motivated by the $10 gift certificate incentive then community members. Therefore, increased rates of college students were likely captured compared to non-student community members.

Due to the large number of students in the sample, the range of the results is heavily restricted. Therefore, external validity is limited. The research findings are more likely representative of college students then general community members. Although the present research contained several limitations, the analyses did elucidate the relations between the specified parameters in this sample, adding to the broader knowledge of the roles of these in predicting the development of PTSD symptoms and life satisfaction.

Future Directions

Conducting the current research in samples other then college students could increase the understanding of the role of coping strategies in predicting the development of PTSD symptoms. College students by nature are immersed in a culture that is significantly different then those of non-students. This difference in environment may have produced significantly different results then would be obtained from non-student samples. Specifically, conducting similar research with clinical and community samples could greatly increase the understanding of the role of coping strategies, as well as increase generalizability.

Although it was not measured in the present research, future research may elucidate if individuals, including both college and community samples, using problem solving coping strategies fair better than individuals using avoidant, or even support seeking, coping

strategies while in treatment. Although the current research did not support the use of problem solving coping strategies with non-treatment seeking college participants, individuals using problem solving and support seeking coping strategies while in treatment may experience increased benefits, including PTSD symptom reduction and increased quality of life.

Conclusion

In general, hypotheses regarding coping strategies in this sample, which was largely composed of college students, were not supported. Both problem solving and support seeking coping strategies failed to significantly predict PTSD symptoms. Even more surprising was that in the present sample, avoidant coping actually predicted a decrease in PTSD symptoms. Several direct effects remained across all three coping strategy models indicating their stability. With all three coping strategies, an increased trauma history predicted a significant increase in PTSD symptoms, and an increase in PTSD symptoms predicted an even greater decrease in life satisfaction. Interestingly, also across all three coping strategies, an increase in trauma history actually predicted a small increase in life satisfaction when not mediated by PTSD symptoms. This indicated that in this sample, exposure to traumatic events slightly increased life satisfaction when individuals did not experience adverse effects associated with the exposure. Also unexpected was the finding that avoidant coping predicted a slight increase in life satisfaction while support seeking predicted a slight decrease in life satisfaction.

While the current research with this sample suggests that problem solving and support seeking coping strategies failed to predict a decrease in PTSD symptoms while an avoidant coping strategy predicted a decrease in PTSD symptoms, further research is needed to replicate and expand on these findings. Questions remain regarding the impact of the

college environment, which may be clarified with future research conducted with both clinical and community samples. In addition, understanding the role of coping strategies in college students in treatment for PTSD may help tailor interventions for this population.

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Appendix

Assessment Packet:

Demographic Questionnaire

Coping Strategy Indicator

Traumatic Life Events Questionnaire

Affective Lability Scales

Screen for Posttraumatic Stress Symptoms

Traumatic Dissociation Scale

Stress Overload Scale

Satisfaction with Life Scale

Daily Satisfaction Assessment

Background Information

Age: _____

Sex:
❑ Male
❑ Female

Race:
❑ American Indian/Alaskan Native
❑ Asian
❑ Native Hawaiian or Other Pacific Islander
❑ Black or African American
❑ White
❑ Other _____

Ethnicity:
❑ Not Hispanic or Latino
❑ Hispanic or Latino
If Hispanic or Latino: ❑ Mexican or Mexican American
❑ Not Mexican or Mexican American (Other Hispanic or Latino)

Is English your first language?
❑ Yes
❑ No
If not, what is your first language: _____

Using the scale below, please circle the number that represents the degree to which you follow the traditional cultural values of your ethnic/racial background?

Not at all									Always
1	2	3	4	5	6	7	8	9	10

Marital Status:
times married _____
❑ Never Married
❑ Married
❑ Domestic Partner
❑ Separated
❑ Divorced
❑ Widowed

Education:
How many total years of school did you finish? _____
If you went to college, how many years did you finish (circle one)? 1 2 3 4 more

Employment:
Do you work (circle one)? Yes No If unemployed, for how long? _____
What kind of work do you usually do? _____
If you live with a spouse, domestic partner, or parent, what kind of work do they do?
_____

History:
1. Have you been diagnosed with ADHD (circle one)? Yes No

2. Have you been diagnosed with a learning disability? Yes No

3. Have you ever been hit on the head hard enough to be knocked unconscious? Yes No

4. Are you currently in treatment for mental health issues (e.g., psychological treatment, psychiatric treatment, counseling, psychotherapy, etc.)? Yes No

5. Has anyone from either side of your family suffered from mental disorder such as depression, anxiety, schizophrenia, social phobias, etc.? Yes No

6. Have you ever been diagnosed with a mental disorder? Yes No
   6a. If so, what was the disorder? _____

7. Have you ever experienced anxiety or depression? Yes No

8. Have you ever used alcohol? Yes No
   8a. If so, how old were you at the age of first use? _____
   8b. How many times did you use alcohol in last 90 days? _____

9. Have you ever used marijuana? Yes No
   9a. If so, how old were you at the age of first use? _____
   9b. How many times did you use marijuana in last 90 days? _____

10. Have you ever used amphetamines? Yes No
    10a. If so, how old were you at the age of first use? _____
    10b. How many times did you use amphetamines in last 90 days? _____

11. Have you ever used cocaine or crack cocaine? Yes No
    11a. If so, how old were you at the age of first use? _____
    11b. How many times did you use cocaine or crack cocaine in last 90 days? _____

12. Have you ever used heroin? Yes No
    12a. If so, how old were you at the age of first use? _____
    12b. How many times did you use heroin in last 90 days? _____

13. Have you ever had sex? Yes No

If so:

13a. Have you ever had unprotected sex? Yes No

13b. How many times have you had unprotected sex in the last 90 days? ____

13c. Have you ever been diagnosed with a sexually transmitted disease other than HIV? Yes No

13d. Have you ever been diagnosed with HIV? Yes No

14. Have you ever used an erectile enhancer such as Viagra, Levitra, or Cialis (males only)? Yes No

14a. If so, how old were you at the age of first use? _____

14b. How many times did you use an erectile enhancer in last 90 days? _____

15. Please circle any of the following individuals that you can go to for support concerning important personal problems (more than one item may be circled)?

Parents	Siblings	Close Friends
Casual Friends	Coworkers	Significant Other
Religious Representative	Mental Health Worker	

Coping Strategy Indicator

Please think of one problem you have encountered in the last six months or so. This should be a problem that was important to you, and caused you to worry (anything from the loss of a loved one to a traffic citation, but one that was important to you). Please write down this problem in a few words:

_____

With this problem in mind, indicate to what extent you…

	Circle one answer:		
1. Let your feelings out to a friend?	A lot	A Little	Not at all
2. Rearranged things around you so that your problem had the best chance of being resolved?	A lot	*A Little*	Not at all
3. Brainstormed all possible solutions before deciding what to do?	A lot	A Little	Not at all
4. Tried to distract yourself from the problem?	A lot	A Little	Not at all
5. Accepted Sympathy and understanding from someone?	A lot	A Little	Not at all
6. Did all you could to keep others from seeing how bad things really were?	A lot	A Little	Not at all
7. Talked to people about the situation because talking about it helped you feel better?	A lot	A Little	Not at all
8. Set some goals for yourself to deal with the situation?	A lot	A Little	Not at all
9. Weighed your options very carefully?	A lot	A Little	Not at all
10. Daydreamed about better times?	A lot	A Little	Not at all
11. Tried different ways to solve the problem until you found one that worked?	A lot	A Little	Not at all
12. Confided your fears and worries to a friend or relative?	A lot	A Little	Not at all
13. Spent more time than usual alone?	A lot	A Little	Not at all
14. Told people about the situation because talking about it helped you come up with solutions?	A lot	A Little	Not at all
15. Thought about what needed to be done to straighten things out?	A lot	A Little	Not at all
16. Turned your full attention to the problem?	A lot	A Little	Not at all
17. Formed a plan of action in your mind?	A lot	A Little	Not at all
18. Watched Television more than usual?	A lot	A Little	Not at all

19. Went to someone (friend or professional) in order to help you feel better?	A lot	A Little	Not at all
20. Stood firm and fought for what you wanted in the situation?	A lot	A Little	Not at all
21. Avoided being with people in general?	A lot	A Little	Not at all
22. Buried yourself in a hobby or sports activity to avoid the problem?	A lot	A Little	Not at all
23. Went to a friend to help you feel better about the problem?	A lot	A Little	Not at all
24. Went to a friend for advice on how to change the situation?	A lot	A Little	Not at all
25. Accepted sympathy and understanding from friends who had the same problem?	A lot	A Little	Not at all
26. Slept more than usual?	A lot	A Little	Not at all
27. Fantasized about how things could have been different?	A lot	A Little	Not at all
28. Identified with characters in a novel?	A lot	A Little	Not at all
29. Tried to solve the problem?	A lot	A Little	Not at all
30. Wished that people would just leave you alone?	A lot	A Little	Not at all
31. Accepted help form a friend or relative?	A lot	A Little	Not at all
32. Sought reassurance from those than know you best?	A lot	A Little	Not at all
33. Tried carefully to plan course of action rather than acting on impulse?	A lot	A Little	Not at all

Traumatic Life Events

The purpose of this questionnaire is to identify important life experiences that can affect a person's emotional well-being or later quality of life. The events listed below are far more common than many people realize. Please read each question carefully and mark the answers that best describe your experience.

1. Have you ever experienced a natural disaster (a flood, hurricane, earthquake, etc.)?
never once twice 3 times 4 times 5 times more than 5 times
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no
Were you seriously injured? yes / no
Was someone you cared about or close by seriously injured or killed? yes / no
Did you think you or a loved one was in danger of being killed by the disaster? yes / no

2. Were you involved in a motor vehicle accident for which you received medical attention or that badly injured or killed someone?
never once twice 3 times 4 times 5 times more than 5 times
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no
Were you seriously injured? yes / no

3. Have you been involved in any other kind of accident where you or someone else **was badly hurt?**
(examples: a plane crash, a drowning or near drowning, an electrical or machinery accident, an explosion, home fire, chemical leak, overexposure to radiation or toxic chemicals)
never once twice 3 times 4 times 5 times more than 5 times
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no
Were you seriously injured? yes / no

4. Have you lived, worked, or had military service in a war zone? yes / no
If yes: were you ever exposed to warfare or combat? (for example, in the vicinity of a rocket attack or people being fired upon; seeing someone get wounded or killed)
never once twice 3 times 4 times 5 times more than 5 times
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no
Were you seriously injured? yes / no

5. Have you ever experienced the sudden unexpected death of a close friend or loved one?
never once twice 3 times 4 times 5 times more than 5 times
due to accident? yes / no illness yes /no suicide? yes / no murder? yes / no
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

6. Has a loved one ever survived a life threatening or permanently disabling **accident, assault, or illness?**
(examples: spinal cord injury, rape cancer, life threatening virus)?
never once twice 3 times 4 times 5 times more than 5 times
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

7. Have you ever had a life threatening illness?
never once twice 3 times 4 times 5 times more than 5 times
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

8. Have you been robbed or been present during a robbery-where the robber(s) used or displayed a weapon?
never once twice 3 times 4 times 5 times more than 5 times
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no
Were you seriously injured? yes / no

9. Have you ever been hit or beaten up and badly hurt by a stranger or by someone you **didn't know very well?**
never once twice 3 times 4 times 5 times more than 5 times
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no
Were you seriously injured? yes / no

10. Have you seen a stranger (or someone you didn't know very well) attack or beat up someone **and seriously injure or kill them?**
never once twice 3 times 4 times 5 times more than 5 times
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no
Were you seriously injured? yes / no

11. Has anyone ever threatened to kill you or cause you serious harm?
never once twice 3 times 4 times 5 times more than 5 times
stranger? yes / no friend or acquaintance? yes / no relative? yes / no intimate partner? yes / no
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

12. While growing up, Were you physically punished in a way that resulted in bruises, burns, cuts, or broken bones?
never once twice 3 times 4 times 5 times more than 5 times
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

13. While growing up, Did you see or hear family violence? (such as your father hitting your mother, or any family member beating up or inflicting bruises, burns, or cuts on another family member)
never once twice 3 times 4 times 5 times more than 5 times
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

14. Have you ever been slapped, punched, kicked, beaten-up, or otherwise physically hurt by your spouse (or former spouse), a boyfriend/girlfriend, or some other intimate partner?
never once twice 3 times 4 times 5 times more than 5 times
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no
Were you seriously injured? yes / no
Has more than one intimate partner physically hurt you? yes / no
If yes, how many hurt you?

15. Before your 13th birthday: Did anyone-who was at least 5 years older than you-touch or fondle your body in a sexual way or make you touch or fondle their body in a sexual way?
never once twice 3 times 4 times 5 times more than 5 times
Was the person a stranger? yes / no friend or acquaintance? yes / no parent or care giver? yes / no other relative? yes / no
Was threat of force used? yes / no Were you seriously injured? yes / no
Was there oral, anal, or vaginal penetration? yes / no
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

16. Before your 13th birthday, Did anyone close to your age touch or sexual parts of your body or make you touch sexual parts of their body-against your will or without your consent?
never once twice 3 times 4 times 5 times more than 5 times
Was this person a stranger? yes / no friend or acquaintance? yes / no relative? yes / no
Was threat of force used? yes / no Were you seriously injured? yes / no
Was there oral, anal, or vaginal penetration? yes / no
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

17. After your 13th birthday, Did anyone close to your age touch or sexual parts of your body or make you touch sexual parts of their body-against your will or without your consent?
never once twice 3 times 4 times 5 times more than 5 times
Was this person a stranger? yes / no friend or acquaintance? yes / no relative? Yes / no
intimate partner? yes / no
Was threat of force used? yes / no Were you seriously injured? yes / no
Was there oral, anal, or vaginal penetration? yes / no
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

18. After your 18th birthday, Did anyone close to your age touch or sexual parts of your body or make you touch sexual parts of their body-against your will or without your consent?
never once twice 3 times 4 times 5 times more than 5 times
Was this person a stranger? yes / no friend or acquaintance? yes / no relative? yes / no
intimate partner? yes / no
Was threat of force used? yes / no Were you seriously injured? yes / no
Was there oral, anal, or vaginal penetration? yes / no
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

19. Has anyone stalked you-in other words: followed you or kept track of your activities-causing you to feel intimidated or concerned about your safety?
never once twice 3 times 4 times 5 times more than 5 times
Was this person a stranger? yes / no friend or acquaintance? yes / no relative? yes / no
intimate partner? yes / no
Was threat of force used? yes / no Were you seriously injured? yes / no
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

20. Have you or a romantic partner ever had a miscarriage?
never once twice 3 times 4 times 5 times more than 5 times
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no
Did it (ever) happen after you were physically injured? yes / no

21. Have you or a romantic partner ever had an abortion?
never once twice 3 times 4 times 5 times more than 5 times
If this happened: Did you experience intense fear, helplessness, or horror when it happened? yes / no

22. Have you experienced (or seen) any other events that were life threatening, caused serious injury, or were highly disturbing or distressing? (examples: lost in the wilderness; a serious animal bite; violent death of a pet; being kidnapped or held hostage; seeing a mutilated body or body parts)?
never once twice 3 times 4 times 5 times more than 5 times

Please describe:

23. The events listed below correspond to items #1 to #22 on this questionnaire. If any of these events happened to you, CIRCLE the number of the ONE event that CAUSES **YOU THE MOST DISTRESS?**

1. Natural disaster
2. Motor vehicle accident contact
3. "Other" kind of accident
4. Combat or warfare
5. Sudden death friend/loved one
6. Life threatening/disabling event to loved one
7. Life threatening illness
8. Robbery/weapon used
9. Assaulted by acquaintance/stranger
10. Witnessed severe assault to acquaintance/stranger
11. Threatened with death/serious harm
12. Growing up: witnessed family violence
13. Growing up: physically punished
14. Physically hurt by intimate partner
15. Before 13: sexual contact someone 5 years older
16. Before 13: sexual someone close in age
17. As a teen: unwanted sexual contact
18. As an adult: unwanted sexual contact
19. Stalked
20. Miscarriage
21. Abortion
22. Some "other" traumatic event

(a) When did this event (first) occur? (your age or date):

(b) When did this event last occur? (try to be precise e.g., year, month, day):

(c) How much distress (anxiety, worry, sadness, grief) does this event cause you? *(Circle the best answer)*

None happened to me	No Distress	Slight Distress	Moderate Distress	Considerable Distress	Extreme Distress

A.L.S.

For each statement below, circle one of the choices to show how many times each thing has happened to you in the past week.

	NOT AT ALL	ONCE OR TWICE	3-6 TIMES	7-10 TIMES	MORE THAN 10 TIMES
		(IN THE PAST WEEK)			
1. I felt calm one minute and very anxious or scared the next.	0	1-2	3-6	7-10	10+
2. I got depressed all of the sudden for no reason.	0	1-2	3-6	7-10	10+
3. I went from a good mood to a bad mood quickly.	0	1-2	3-6	7-10	10+
4. I felt angry about something, but calmed down after an hour or so.	0	1-2	3-6	7-10	10+
5. I went between feeling very optimistic to feeling pessimistic in a short period of time.	0	1-2	3-6	7-10	10+
6. I went from feeling really scared to feeling OK in a short period of time.	0	1-2	3-6	7-10	10+
7. I was in a good mood in the morning, but felt depressed later in the day.	0	1-2	3-6	7-10	10+
8. I felt fine and then got suddenly furious or angry.	0	1-2	3-6	7-10	10+
9. I felt normal one minute and then suddenly started to feel excited and full of energy and really good.	0	1-2	3-6	7-10	10+
10. I felt scared one minute and angry the next.	0	1-2	3-6	7-10	10+
11. I was really scared or anxious about something, but after a while I gradually got over it and felt calm again.	0	1-2	3-6	7-10	10+
12. I was really mad and then suddenly started to feel depressed.	0	1-2	3-6	7-10	10+
13. I felt irritable or grouchy when I got up in the morning, but then began to feel better as the day went on.	0	1-2	3-6	7-10	10+
14. I was really angry, then suddenly felt calm and not mad.	0	1-2	3-6	7-10	10+

SPTSS

IN THE BLANK SPACE BEFORE EACH QUESTION, PUT A NUMBER TO TELL HOW MUCH THAT THING HAS HAPPENED TO YOU DURING THE PAST TWO WEEKS. Use the scale below to decide which number to put in the blank space. Put "0" if you never had the experience during the past two weeks, and put "10" if it was always happening to you or happened every day during the past two weeks. If it happens sometimes, but not every day, put in one of the numbers between "0" and "10" to show how much.

0 1 2 3 4 5 6 7 8 9 10
(never) (always)

_____ 1. I don't feel like doing things that I used to like doing.

_____ 2. I can't remember much about bad things that have happened to me.

_____ 3. I feel cut off and isolated from other people.

_____ 4. I try not to think about things that remind me of something bad that happened to me.

_____ 5. I feel numb: I don't feel emotions as strongly as I used to.

_____ 6. I have trouble concentrating on things or paying attention to something for a long time.

_____ 7. I have a hard time thinking about the future and believing that I'm going to live to old age.

_____ 8. I feel very irritable and lose my temper.

_____ 9. I avoid doing things or being in situations that might remind me of something terrible that happened to me in the past.

_____ 10. I am very aware of my surroundings and nervous about what's going on around me.

_____ 11. I find myself remembering bad things that happened to me over and over, even when I don't want to think about them.

_____ 12. I get startled or surprised very easily and "jump" when I hear a sudden sound.

_____ 13. I have bad dreams about terrible things that happened to me.

_____ 14. I get very upset when something reminds me of something bad that happened to me.

_____ 15. I have trouble getting to sleep or staying asleep.

_____ 16. When something reminds me of something bad that happened to me, I feel shaky, sweaty, nervous and my heart beats really fast.

_____ 17. I suddenly feel like I am back in the past, in a bad situation that I was once in, and it's like it was happening it all over again.

TDS

(Carlson & Waelde, 1999)

For each statement below, circle one of the choices to show how many times each thing has happened to you in the past week.

	NOT AT ALL	ONCE OR TWICE	3-6 TIMES	7-10 TIMES	MORE THAN 10 TIMES
			(IN THE PAST WEEK)		
1. My body felt strange or unreal.	0	1-2	3-6	7-10	10+
2. Things around me seemed strange or unreal.	0	1-2	3-6	7-10	10+
3. I got reminded of something upsetting and then spaced out for a while.	0	1-2	3-6	7-10	10+
4. I had moments when I lost control and acted like I was back in an upsetting time in my past.	0	1-2	3-6	7-10	10+
5. I noticed that I couldn't remember the details of something upsetting that happened to me.	0	1-2	3-6	7-10	10+
6. Familiar places seemed strange or unreal.	0	1-2	3-6	7-10	10+
7. I felt like I was outside myself, watching myself do things.	0	1-2	3-6	7-10	10+
8. I heard something that I know really wasn't there.	0	1-2	3-6	7-10	10+
9. I got upset about something and can't remember what happened next.	0	1-2	3-6	7-10	10+
10. I felt like I was in a movie - like nothing that was happening was real.	0	1-2	3-6	7-10	10+
11. I didn't feel pain when I was hurt and should have felt something.	0	1-2	3-6	7-10	10+
12. A memory came back to me that was so strong that I lost track of what was going on around me.	0	1-2	3-6	7-10	10+
13. I found myself staring into space and thinking of nothing.	0	1-2	3-6	7-10	10+
14. I couldn't remember things that had happened during the day even when I tried to.	0	1-2	3-6	7-10	10+
15. I felt like I wasn't myself.	0	1-2	3-6	7-10	10+
16. I felt like I was in a daze and couldn't make sense of what was going on around me.	0	1-2	3-6	7-10	10+
17. I saw something that seemed real, but was not.	0	1-2	3-6	7-10	10+
18. I suddenly realized that I hadn't been paying attention to what was going on around me.	0	1-2	3-6	7-10	10+
19. I felt cut off from what was going on around me.	0	1-2	3-6	7-10	10+
20. Parts of my body seemed distorted - like they were bigger or smaller than usual.	0	1-2	3-6	7-10	10+
21. I reacted to people or situations as if I were back in an upsetting time in my past.	0	1-2	3-6	7-10	10+
22. I got so focused on something going on in my mind that I lost track of what was happening around me.	0	1-2	3-6	7-10	10+
23. I noticed there were gaps in my memory for things that happened to me that I should be able to remember.	0	1-2	3-6	7-10	10+
24. I smelled something that I know really wasn't there.	0	1-2	3-6	7-10	10+

S. O. S.

(A Measure of Day-to-Day Feelings)

IN THE PAST WEEK, have you felt:	**Check only ONE box**
1...strained?	☐ ☐ ☐ ☐ ☐ Not At All — A Lot
2...inadequate?	☐ ☐ ☐ ☐ ☐ Not At All — A Lot
3...overextended?	☐ ☐ ☐ ☐ ☐ Not At All — A Lot
4...confident?	☐ ☐ ☐ ☐ ☐ Not At All — A Lot
5...no sense of getting ahead?	☐ ☐ ☐ ☐ ☐ Not At All — A Lot
6...swamped by your responsibilities?	☐ ☐ ☐ ☐ ☐ Not At All — A Lot
7...that the odds were against you?	☐ ☐ ☐ ☐ ☐ Not At All — A Lot
8...that there wasn't enough time to get to everything?	☐ ☐ ☐ ☐ ☐ Not At All — A Lot
9...like you were rushed?	☐ ☐ ☐ ☐ ☐ Not At All — A Lot
10...like you couldn't cope?	☐ ☐ ☐ ☐ ☐ Not At All — A Lot
11...like you had a lot on your mind?	☐ ☐ ☐ ☐ ☐ Not At All — A Lot
12...like nothing was going right?	☐ ☐ ☐ ☐ ☐ Not At All — A Lot
13...powerless?	☐ ☐ ☐ ☐ ☐ Not At All — A Lot

IN THE PAST WEEK, have you felt:	**Check only ONE box**
14...overcommitted?	☐ ☐ ☐ ☐ ☐ Not At All A Lot
15...like your life was "out of control"?	☐ ☐ ☐ ☐ ☐ Not At All A Lot
16...like things kept piling up?	☐ ☐ ☐ ☐ ☐ Not At All A Lot
17...like you had to make quick decisions?	☐ ☐ ☐ ☐ ☐ Not At All A Lot
18...like asking "what else can go wrong?"	☐ ☐ ☐ ☐ ☐ Not At All A Lot
19...like you didn't have time to breathe?	☐ ☐ ☐ ☐ ☐ Not At All A Lot
20...like things couldn't get worse?	☐ ☐ ☐ ☐ ☐ Not At All A Lot
21...like there was no escape?	☐ ☐ ☐ ☐ ☐ Not At All A Lot
22...like you were carrying a heavy load?	☐ ☐ ☐ ☐ ☐ Not At All A Lot
23...like just giving up?	☐ ☐ ☐ ☐ ☐ Not At All A Lot
24...like there was "too much to do, too little time"?	☐ ☐ ☐ ☐ ☐ Not At All A Lot

Satisfaction With Life Scale

Below are five statements with which you may agree or disagree. Using the 1 -7 scale below, indicate your agreement with each item by placing the appropriate number on the line preceding that item. Please be open and honest in your responding. The 7-point scale is as follows:

1 = strongly disagree; 2 = disagree; 3 = slightly disagree; 4 = neutral; 5 = slightly agree; 6 = agree; 7 = strongly agree

In most ways my life is close to my ideal. 1--------2--------3--------4--------5---------6---------7
strongly disagree neutral strongly agree

The conditions of my life are excellent. 1--------2--------3--------4--------5---------6---------7
strongly disagree neutral strongly agree

I am satisfied with my life. 1--------2--------3--------4--------5---------6---------7
strongly disagree neutral strongly agree

So far I have gotten the important things I want in life.

1--------2--------3--------4--------5---------6---------7
strongly disagree neutral strongly agree

If I could live my life over, I would change almost nothing.

1--------2--------3--------4--------5---------6---------7
strongly disagree neutral strongly agree

Please rate these three statements on the following 7-point scales. Please be open and honest in responding.

How was today? 1--------2--------3--------4--------5---------6---------7
Terrible Excellent

How satisfied are you with your life today? 1-------2---------3--------4--------5---------6---------7
Very Dissatisfied Very Satisfied

How was the week? 1--------2--------3---------4--------5---------6---------7
Terrible Excellent