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Gender as a Moderator of the Relations Between Potentially Traumatic Events, PTSD Symptoms, and Alcohol Use Disorder Symptoms Among Young Adults

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Abstract

Potentially traumatic events (PTEs), posttraumatic stress disorder (PTSD) symptoms, and alcohol use disorder (AUD) symptoms can significantly impair functioning (American Psychiatric Association [APA], 2000). Understanding the relationships between PTEs, PTSD symptoms, and AUD symptoms and how these relationships may differ by gender among young adults, in particular, can be informative for providing multiculturally-sensitive early intervention efforts. Thus, the aim of the current study was to build upon existing research by being one of the first studies to examine the relationships between PTEs, PTSD symptoms, and AUD symptoms and to investigate whether gender moderates these relationships. The study utilized data from the Drug Use Trajectories: Ethnic/Racial Comparisons 1998-2002 (Turner, 2011). Data for PTEs, PTSD symptoms, and AUD symptoms at two waves were obtained from the Michigan Composite International Diagnostic Interview, DSM-IV version (Johnson, Turner, & Iwata, 2003) and selected modules from the National Institute of Mental Health Diagnostic Interview Schedule (e.g., Robins, Helzer, Croughan, & Ratcliff, 1981). Path analysis was conducted to examine eight research hypotheses exploring the relationships between the aforementioned variables and gender as moderator. Eight out of the twelve paths were found to be statistically significant, and of the eight significant paths, seven confirmed hypotheses. With regards to gender, three out of the twelve paths were moderated by gender, which confirmed one of the three related hypotheses. Results provide important implications for research and practice.

Chapter I

Introduction

When left untreated, mental health disorders, including posttraumatic stress disorder (PTSD) and alcohol use disorders (AUDs; alcohol abuse and alcohol dependence), can have debilitating consequences that inhibit social, emotional, occupational, and other areas of functioning (APA, 2000). For example, individuals with PTSD may display irritability, angry outbursts, or flashbacks where an individual experiences dissociation for a period of time due to re-experiencing a trauma (APA, 2000), they may disconnect from meaningful relationships (Carruth, 2006), and they may have an increased mistrust in others, which can impact relationships. Similarly, untreated AUDs can lead to blackouts, disruptions with sleep, interpersonal problems (e.g., interpersonal violence when intoxicated), or physical health problems (e.g., liver disease; APA, 2000), and drinking alcohol while driving an automobile or operating machinery at work can result in a decline in job performance, physical injury, or even death (e.g., fatal car accident) (APA, 2000). Furthermore, when an individual's functioning is impaired, they are vulnerable to additional traumatic experiences (Carruth, 2006). In isolation, either PTSD or AUD symptoms can be very distressing and impact functioning. However, when both conditions are present, PTSD and AUD symptoms can have a compounded effect and lead to further declines in mental health (Farrugia et al., 2011).

Although PTSD and AUDs are often comorbid conditions, some studies have found that being diagnosed with PTSD predicts an increased risk of alcohol dependence (Breslau, Davis, Peterson, & Schultz, 1997; Olff, Langeland, Draijer, & Gersons, 2007; Sartor et al., 2010; Turner & Gil, 2002). However, the reverse relationship – AUDs as

antecedent to PTSD – has also been found (Clark, Lesnick, & Hegedus, 1997; Deykin & Buka, 1997). PTSD symptoms can be difficult to manage, and thus individuals may use alcohol to self-medicate PTSD symptoms (Ouimette & Brown, 2003; Sharkansky, Brief, Peirce, Meehan, & Mannix, 1999; Staiger, Melville, Hides, Kambouropoulos, & Lubman, 2009). If alcohol is being used to self-medicate, this pattern may explain why PTSD has been shown to predict AUD symptoms. Overall, a greater number of research studies support of potentially traumatic events (PTEs) and PTSD as predictive of AUDs rather than AUDs as a predictor of PTSD (e.g., Breslau et al., 1997; Olff et al., 2007; Sartor et al., 2010; Turner & Gil, 2002). Yet, additional research is needed to clarify the nature of the relationships between these variables, particularly when assessed over time and for young adults.

Relationships between PTEs, PTSD, and AUDs in Young Adults

Despite the prevalence among young adults of both alcohol intoxication (Farrugia et al., 2011) and trauma (Breslau et al., 1998; World Health Organization [WHO], n.d.), which can increase the risk of developing AUDs and PTSD (Staiger et al., 2009), studies examining the relationship between PTSD and alcohol use for young adults are less common (Staiger et al., 2009). In addition, individuals in late adolescence and early adulthood are most vulnerable to being exposed to PTEs (Breslau et al., 1998; Ouimette & Brown, 2003; Turner & Lloyd, 2003) and the development of PTSD (Bonanno, Galea, Bucciarelli, & Vlahov, 2007). It is also during this developmental period when substance use disorders, such as AUDs, are more likely to emerge (Gayman, Cuddeback, & Morrissey, 2011) and increase over time (Palmer et al., 2009). Additionally, individuals who have a history of childhood trauma were found to consume alcohol at earlier ages

and develop substance use disorders (Farrugia et al., 2011). However, the literature does not often examine the separate relationships between AUDs, PTEs, and PTSD among young adults.

In one of the few studies available, Staiger et al. (2009) reported that young adults with substance use disorders, which included AUDs, often revealed high levels of prior trauma and surmised that participants' substance use may have been a way to medicate PTSD symptoms. Additional research examining PTSD symptoms and AUD symptoms among young adults is needed because experiencing childhood trauma is often related to psychiatric morbidity (e.g., PTSD) and substance use disorders (e.g., AUDs) in childhood and later in adulthood (Farrugia et al., 2011; Flores, Tschann, Dimas, Pasch, & Groat, 2010; Staiger et al., 2009; WHO, n.d.). Furthermore, individuals who experienced trauma in childhood often have a longer duration of PTSD (Breslau et al., 1998) and more severe substance use and trauma symptoms than individuals who experienced trauma in adulthood (Farrugia et al., 2011).

Gender as a Moderator of the Relationships between PTEs, PTSD Symptoms, and AUD Symptoms

The relationships between PTEs, PTSD symptoms, and AUD symptoms may differ by gender, possibly as a result of existing gender disparities in mental health (WHO, n.d.). For instance, although males have higher rates of exposure to trauma than females (Olff et al., 2007), females who are exposed to trauma are at a greater risk for developing PTSD (Breslau et al., 1998), have higher rates of PTSD (Olff et al., 2007; Turner & Gil, 2002; WHO, n.d.), and have PTSD for longer duration when compared to their male counterparts (Breslau et al., 1998). Females are more likely than males to be

sexually assaulted (WHO, n.d.), and rape, in particular, has been associated with the development of PTSD (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). In contrast, young adult males tend to have higher rates of alcohol abuse (e.g., Palmer et al., 2009; Teesson et al., 2010; Turner & Gil, 2002) and alcohol dependence compared to young adult females (e.g., Teesson et al, 2010; Turner & Gil, 2002; WHO, n.d.), although other research has found the prevalence of alcohol dependence to be almost identical for young adult males and females (e.g., Lloyd & Turner, 2008). However, greater cultural stigma is placed on females with AUD symptoms compared to males, which may result in potential underreporting of AUD symptoms by females (Grucza, Bucholz, Rice, & Bierut, 2008). In general, cultural stigma may also influence whether females or males seek treatment. For instance, females have been found to be more likely to seek mental health services when mental health issues impact social activities, whereas males are more likely to seek services when mental health issues impact physical activities (Doherty & Kartalova-O'Doherty, 2010). PTEs, PTSD symptoms, and AUD symptoms may affect people socially and physically and addressing social and physical concerns in treatment may be beneficial.

Little prior research has examined gender differences in the relationships between these three variables (i.e., PTEs, PTSD symptoms, and AUD symptoms). Olff et al. (2007) found that childhood trauma was predictive of higher rates of PTSD for females compared to males (Olff et al., 2007). However, males with a history of childhood physical trauma are at increased risk for developing AUDs compared to female participants without a history of childhood trauma (Danielson et al., 2009). Gender discrepancies between males and females at risk for developing AUDs after experiencing

a traumatic event and/or PTSD symptoms might be due to the type of trauma experienced. For example, sexual abuse has been found to increase the risk of alcohol abuse among females, whereas physical abuse and PTSD were risk factors for alcohol abuse among males (Danielson et al., 2009). However, Dube, Anda, Felitti, Edwards, and Croft (2002) found that both sexual and physical abuse were risk factors for AUDs among males. Additional research is needed in this area to examine gender differences in the relationships between PTEs, PTSD symptoms, and AUD symptoms.

Research Questions and Hypotheses

PTSD has been shown to predict AUDs (Breslau et al., 1997; Sartor et al., 2010), which may lead to comorbidity, compounded symptoms, and poor outcomes. Moreover, gender is an important variable when examining PTEs, PTSD symptoms, and AUD symptoms. Gender sensitive mental health services are needed (WHO, n.d.) in order to reduce mental health disparities (e.g., males have higher rates of exposure to trauma and females have an increased likelihood of developing PTSD comparatively; Breslau, 2009) between groups to provide effective treatment. Age, and younger age in particular, is another important characteristic to take into consideration because studies on PTEs, PTSD symptoms, and AUD symptoms among younger individuals are less common (Staiger et al., 2009) despite the likelihood of PTEs (Breslau et al., 1998; WHO, n.d.), AUD symptoms (Farrugia et al., 2011), and PTSD symptoms (Bonanno et al., 2007) among younger age groups. The current study uses data from a two-wave study conducted in 1998-2002, whereby young adults living in South Florida were interviewed twice over the course of the study on substance use and psychiatric disorders (Turner, 2011). The data were used for the following purposes: (1) to examine the relationships

between PTEs, PTSD symptoms, and AUD symptoms and (2) to examine if gender moderates these relationships among young adults. Thus, in the current study, eight research questions will be investigated, as shown below; these relationships and their hypothesized directions are also given in Figure 1.

Research Question 1: Does the frequency of childhood PTEs predict the frequency of AUD symptoms and PTSD symptoms in Wave I?

Hypothesis H_1: More childhood PTEs will significantly predict increased symptoms of AUDs and PTSD measured in Wave I.

Research Question 2: Does the frequency of AUDs symptoms in Wave I predict the frequency of AUD symptoms in Wave II? Similarly, does the frequency of PTSD symptoms in Wave I predict the frequency of PTSD symptoms in Wave II?

Hypothesis H_2: Greater frequency of AUDs in Wave I will predict increased frequency of AUDs in Wave II, and greater frequency of PTSD symptoms in Wave I will predict increased frequency of PTSD symptoms in Wave II.

Research Question 3: Does the frequency of AUDs and PTSD symptoms in Wave I predict exposure to a new PTE between Wave I and Wave II?

Hypothesis H_3: More frequent symptoms of AUDs and PTSD in Wave I will predict increased exposure to a new PTE between Wave I and Wave II.

Research Question 4: Does the number of new PTEs reported in Wave II predict the frequency of AUD and PTSD symptoms in Wave II?

Hypothesis H_4: Greater numbers of new PTEs reported in Wave II will predict increased frequency of AUDs and PTSD symptoms in Wave II.

Research Question 5: Does the frequency of PTSD symptoms in Wave I predict the frequency of AUD symptoms in Wave I and Wave II?

Hypothesis H_5: Increased frequency of PTSD symptoms in Wave I will predict an increased frequency in AUD symptoms in Wave I and Wave II.

Research Question 6: Does the frequency of PTSD symptoms in Wave II predict the frequency in AUD symptoms in Wave II?

Hypothesis H_6: More frequent PTSD symptoms in Wave II will predict an increased frequency in AUD symptoms in Wave II.

Research Question 7: Does the frequency of AUD symptoms in Wave I predict the frequency in PTSD symptoms in Wave II?

Hypothesis H_7: More frequent AUD symptoms in Wave I will predict an increased frequency in PTSD symptoms in Wave II.

Research Question 8: Does gender moderate the paths included in this model?

Hypothesis $H_{8(a)}$: It is hypothesized that males will have significantly stronger paths than females for the following relationships:

(1) Childhood PTEs as a predictor of symptoms of AUDs in Wave I,

(2) Symptoms of AUDs in Wave I as a predictor of symptoms of AUDs in Wave II,

(3) AUDs symptoms in Wave I as a predictor of exposure to a new PTE between Wave I and Wave II, and

(4) Exposure to more frequent new PTEs between Wave I and Wave II as a predictor of symptoms of AUDs in Wave II.

Hypothesis $H_{8(b)}$: It is hypothesized that females will have significantly stronger paths than males for the following relationships:

(1) Childhood PTEs as a predictor of symptoms of PTSD in Wave I,

(2) Symptoms of PTSD in Wave I as a predictor of symptoms of PTSD in Wave II,

(3) Symptoms of PTSD in Wave I as a predictor of exposure to a new PTE between Wave I and Wave II,

(4) Exposure to new PTEs between Wave I and Wave II as a predictor of symptoms of PTSD in Wave II,

(5) Symptoms of PTSD in Wave I as a predictor of symptoms of AUDs in Wave I and Wave II,

(6) Symptoms of PTSD in Wave II as a predictor of symptoms of AUDs in Wave II, and

(7) AUDs in Wave I as a predictor of symptoms of PTSD in Wave II.

Chapter II

Review of the Literature

An in-depth account of the literature serves to enhance understanding of PTEs, PTSD symptoms, and AUD symptoms among young adults and to further inform proposed study hypotheses. PTEs, PTSD symptoms, and AUD symptoms will be explored in isolation and in relation to age and gender differences. Then, a review of the existing literature pertaining to the relationships between PTEs, PTSD symptoms, and AUD symptoms and how gender might influence relationships will also be discussed and tied into research hypotheses. It is important to note that studies examining alcohol consumption often focus on AUD symptoms and/or AUDs, whereby an AUD diagnosis is determined. Similarly, studies that examine PTSD may also focus on symptoms and/or diagnostic criteria. Review of study findings are detailed as either a mental health diagnosis or mental health symptoms (e.g., AUDs versus AUD symptoms). The focus of the current study is to examine AUD symptoms and PTSD symptoms in order to include individuals that do not fully meet AUD criteria or have not been formally diagnosed with an AUD. The discrepancy in the literature between symptoms and diagnosis contributes to difficulty in evaluating broader findings and should be taken into consideration.

Potentially Traumatic Events (PTEs)

As mentioned earlier, PTEs include witnessing or experiencing one or more traumatic events, which may lead to grave injury or death of the self or others (Olff, 2012). When an event creates a sense of fear, horror (APA, 2000), and helplessness (APA, 2000; Herman, 1992), the event could be considered traumatic. Lack of control (Herman, 1992), attempts to develop meaning from an event (Altmaier, 2013; Herman, 1992), and lack of connection are also common among those exposed to trauma (Herman,

1992). Rape – an internationally acknowledged violation of human rights (Herman, 1997; Scully, 2009) – natural disasters, murder, violence, domestic abuse, childhood abuse, and vehicular accidents are all examples of PTEs. Approximately 80% of males and females in the United States have been exposed to one or more traumatic events during their lifetime (Breslau, 2009), and trauma is especially more likely to occur among younger individuals (Turner & Lloyd, 2003), whereby the likelihood of trauma peaks around the ages of 16-20 (Breslau et al., 1998). Furthermore, children are more vulnerable from a psychological standpoint. Childhood trauma can lead to the development of PTSD (Herman, 1992; McCutcheon et al., 2010) as well as other disorders, such as AUDs, which can also develop in adulthood (Khoury, Tang, Bradley, Cubells, & Ressler, 2010; Wu, Schairer, Dellor, & Grella, 2011). Overall, trauma can impact the lives of both adults and children in many ways.

An individual's immediate response to a traumatic event usually entails a state of heightened arousal (Herman, 1992; Olff, 2012) with an increase of adrenalin, attention, fear, and anger (Herman, 1992) in order to prepare for fight or flight (Amstadter, Nuguent, & Koenen, 2009; Herman, 1992). After the immediate response and after the PTE has passed, an individual can have lingering effects. An individual may experience fragmentation and changes in emotion (Dorahy & Clearwater, 2012; Herman, 1992) and memory (Amstadter et al., 2009), such as having vague memories about an incident coupled with overpowering emotion (Herman, 1992). Additional changes may also occur in cognition (Ehlers, 2010; Herman, 1992) and physiological arousal, such as being easily startled (Herman, 1992).

Trauma affects individuals on a personal level, whereby trust and assumptions about safety are often shattered (Herman, 1992). If others' reactions to an individual's traumatic experience lack support and understanding (Olff, 2012), feelings of loneliness are also common (Olff, 2012; Herman, 1992). From a developmental standpoint, adolescence often entails a period of navigation and resolution of autonomy, intimacy, and competence but an adult who is exposed to a traumatic event may revisit similar adolescent issues again (Herman, 1992). Feelings of shame, guilt (Dorahy & Clearwater, 2012; Herman, 1992), doubt, and inferiority often result (Herman, 1992). Subsequently, relationships with others, the community, and faith are often negatively impacted, resulting in disconnection. Without connection to others, people who are exposed to traumatic events may feel a lost sense of self (Herman, 1992).

Childhood trauma. Childhood trauma, in particular, can have profound effects on the individual during childhood and as the individual ages. Childhood trauma and more specifically, repeated trauma, such as with child abuse, often affects personality development in childhood and may increase impairments in self-care or in identity (Herman, 1992), which often affects attachment (Olff, 2012) and relationships in adulthood (Alexander, 2009; Herman, 1992). Furthermore, individuals who survive childhood abuse also have an increased likelihood of self-harm (Bornovalova, Tull, Gratz, Levy, & Lejuez, 2011; Herman, 1992), future victimization (Alexander, 2009; Herman, 1992), and suicide attempts (Bornovalova et al., 2011; Herman, 1992). If children have relationships with people who perpetuate traumatic events, such as with abuse or neglect by family members, children will attempt to preserve the attachments at all costs (Herman, 1992). The pathological relationships formed in childhood can lead to

subsequent unstable relationships in adulthood or risky behavior, which increases the chances of additional traumatic events and victimization (Herman, 1992).

Exposure to early trauma, such as childhood sexual assault, neglect, and physical abuse, has been shown to increase the risk of psychiatric disorders (Khoury et al., 2010) and to predict the onset of PTSD in adolescence and early adulthood (McCutcheon et al., 2010). Furthermore, when individuals have been exposed to numerous childhood traumas, the accumulation of the stress related to these traumas often leads to complex symptomatology as well as PTSD in childhood and adulthood (Cloitre et al., 2009). Not surprisingly, survivors of childhood trauma are often misdiagnosed and mistreated by mental health service providers, often due to the symptom complexity or the increased number of presenting symptoms or a client's behavior in relationships (Herman, 1992). Examining PTSD symptoms is particularly important in order to also acknowledge individuals suffering from subsyndromal PTSD who do not precisely fit a formal PTSD diagnosis. Hence, childhood and young adult exposure to trauma and subsequent effects needs additional examination (Eitle & Turner, 2002).

Resilience and protective factors. It is important to note that posttraumatic growth is not uncommon and occurs over time when a survivor struggles with a traumatic event and then experiences positive change as a result (Calhoun & Tedeschi, 1999). In fact, less than 10% of individuals in the United States who are exposed to trauma go on to develop PTSD (Breslau, 2009). People may respond differently to PTEs, and their level of resilience and either healthy or maladaptive coping styles can either lead to the protection or development of PTSD symptoms (Herman, 1992). Protective factors associated with resilience and coping with adverse situations have included: social

support (Olff, 2012), healthy relationships with peers and others that enhance trust, autonomy, and initiative; ability to communicate effectively; a healthy relationship with at least one stable adult parent figure; self-efficacy; and community relationships and support (e.g., role models; Werner, 1995). Those who do not reach out for assistance from others to deal with symptoms or who may be more disempowered or disconnected from others may lack support following a traumatic event and may be at a higher risk of developing PTSD (Herman, 1992).

Age and gender differences. Demographics, such as gender and age, also show differences in post-trauma resilience. Males have been shown to have higher rates of exposure to trauma (Breslau, 2009; Olff et al., 2007) and violent victimization, which has been more common in adolescent males compared to their female counterparts (Clark, Lesnick, et al., 1997). Interestingly and despite the prevalence of trauma among males, the male gender is also predictive of resilience compared to female counterparts post-trauma (Bonanno et al., 2007). Age also seems to contribute to resilience to trauma, whereby older adults (over the age of 65) have been shown to be at least three times more resilient than young adults (aged 18-24) and less likely to develop PTSD (Bonanno et al., 2007). Resilience and protective factors certainly help individuals to overcome PTEs and prevent the development of PTSD.

To review, most people living in the United States will experience at least one traumatic event during their lifetime (Breslau, 2009). Trauma can shake the foundation of a person to the core, whereby an individual's self-concept and interpersonal relationships come into question, among a myriad of other impairments in functioning. Trauma also increases the likelihood of future trauma, morbidity, and comorbidity.

Adolescents and young adults are at an especially vulnerable age when the likelihood of exposure to trauma is the greatest and males, in particular, have an increased risk of exposure to trauma; however, they are more likely to display resilience compared to females. Fortunately, most males and females will exhibit resilience, heal, and survive traumatic events. However and unfortunately, some will go on to develop PTSD symptoms, such as adolescents and young adults and the female gender who have been shown to be the most likely to develop PTSD symptoms.

PTSD and PTSD Symptoms

In order to have a diagnosis of PTSD, exposure to a traumatic event is necessary (APA, 2000), which makes PTSD unique from other disorders. Although a diagnosis may aid in understanding mental health, viewing PTSD as occurring along a continuum is also important. For example, an individual may have subsyndromal PTSD that could be overlooked by mental health practitioners because the symptoms do not fully fit the diagnosis (Pietrzak, Goldstein, Southwick, & Grant, 2011). Overlooking and not treating PTSD symptoms, despite not meeting full diagnostic criteria, is concerning because without effective treatment, debilitating PTSD symptoms have been reported to persevere, on average, for 10 years (Pietrzak et al., 2011).

Recently, the Diagnostic and Statistical Manual of Mental Disorders (DSM) was revised, and the fifth edition was released, which changed PTSD diagnostic criteria slightly, such as the addition of negative alterations in cognition and mood symptom (APA, 2013). However, at the time of the study, the DSM-IV-TR, was used to gather information and was therefore used for the purposes of this study. According to the DSM-IV-TR (APA, 2000), a diagnosis of PTSD is defined as:

> The essential feature of Posttraumatic Stress Disorder is the development of characteristic symptoms following exposure to an extreme traumatic stressor involving direct personal experience of an event that involves actual or threatened death or serious injury, or other threat to one's physical integrity; or witnessing an event that involves death, injury, or a threat to the physical integrity of another person; or learning about unexpected or violent death, serious harm, or threat of death of injury experienced by a family member or other close associate (Criterion A1). The person's response to the event must involve intense fear, helplessness, or horror (or in children, the response must involve disorganized or agitated behavior) (Criterion A2). The characteristic symptoms resulting from the exposure to the extreme trauma include persistent reexperiencing of the traumatic event (Criterion B), persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (Criterion C), and persistent symptoms of increased arousal (Criterion D). The full symptom picture must be present for more than 1 month (Criterion E), and the disturbance must cause clinically significant distress or impairment in social, occupational, or other important areas of functioning (Criterion F). (p. 463)

Hyperarousal (Herman, 1992; Olff, 2012), intrusion (Amstadter et al., 2009; Ehlers, 2010; Herman, 1992), and constriction are three terms that encompass many PTSD symptoms (Herman, 1992) in addition to avoidance (Olff, 2012), duration of symptoms, and impairment in functioning, which may suggest PTSD diagnosis (APA, 2000). Hyperarousal refers to a state of permanent alertness (Herman, 1992), which may result in being easily startled, having angry outbursts (APA, 2000), or difficulties with

sleep (APA, 2000; Olff, 2012). Intrusion is associated with reliving or re-experiencing the traumatic event (Amstadter et al., 2009; Ehlers, 2010; Herman, 1992), such as having flashbacks, troublesome dreams, or reacting to internal or external cues (a cue related to the trauma; APA, 2000). Children, in particular, may attempt to reenact the trauma (APA, 2000), which might also suggest that PTSD symptoms are present. Emotionally, adults and children may want to overcome feelings associated with the trauma and may attempt to change the outcome of the traumatic event they experienced by reenacting the event and changing the ending in order to make strides towards healing (Herman, 1992). For example, a child might have a tendency to play repeatedly with dolls and stage a reenactment of the trauma but might change the ending, whereby the child or survivor becomes the victor. Constriction entails feelings of powerlessness that may lead to self-defense, such as shutting down in the moment, numbing, becoming detached, being calm, becoming paralyzed, sensing things in slow motion, or feeling outside of one's physical body. People who cannot dissociate may try to numb pain (e.g., insomnia, nightmares, irritability, and rage) with alcohol or drugs (Herman, 1992). Often, trauma leads to comorbidity of PTSD with addiction (Olff, 2012). Avoidance is also common, whereby an individual with PTSD symptoms may avoid anything that might be associated with the trauma (APA, 2000; Olff, 2012) (e.g., feelings, people), display less affect, or feel detached from others. In order to meet diagnostic criteria for PTSD, symptoms must last more than one month and negatively affect areas of functioning, such as social and occupational functioning (APA, 2000). However, although some individuals may meet the full diagnostic criteria for PTSD, the mental health needs of other individuals who have PTSD symptoms should also be addressed (Pietrzak et al., 2011).

Complex PTSD. Judith Herman (1992) coined the term complex PTSD as a way to define or understand extensive PTSD symptomatology associated with repeated exposure to trauma, which encompasses symptoms associated with alterations in affect regulation, consciousness, self-perception, perception of the perpetrator, relations with others, and systems of meaning (Herman, 1992). Perpetual or numerous traumas can result in more severe PTSD symptoms (e.g., longer duration, greater intensity), such as greater levels of avoidance, a lack of physical calm, and an increase in somatic symptoms (e.g., tension headaches, choking sensations, racing heartbeat) when compared to individuals exposed to a single traumatic event (Herman, 1992). The number of PTEs and viewing PTSD on a continuum are important factors to consider in order to fully address trauma-related mental health symptoms and provide treatment for individuals who might not fully meet diagnostic criteria. Likewise, demographic variables also seem to have an impact on PTSD.

Age and gender differences. Age and gender seem to be related to the development of PTSD symptoms. As mentioned earlier, young adults seem to exhibit less resilience to trauma as compared to older adults (Bonanno et al., 2007), which may help to explain that PTSD among those in late adolescent and young adulthood are more likely to experience PTSD symptoms for a longer duration compared to their older counterparts (Breslau et al., 1998). Also, despite males having higher rates of exposure to trauma, females are more likely to develop PTSD (Breslau, 2009). Most studies have reported that females are at a higher risk of developing PTSD, have higher rates of PTSD (Breslau et al., 1998; Deykin & Buka, 1997; Olff et al., 2007; Perkonigg, Kessler, Storz, & Wittchen, 2000; Pietrzak et al., 2011; Turner & Gil, 2002; WHO, n.d.), have twice as

many PTSD symptoms (Clark, Pollock et al., 1997), and have PTSD that persists longer compared to their male counterparts (Breslau et al., 1998).

Life threatening or injury-related incidents, which may be considered PTEs, have been shown to be a risk factor for PTSD among females (Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993). Furthermore, females with a history of childhood sexual, physical, and emotional abuse (Olff et al., 2007) as well as females without a history of childhood abuse (Schneider, Baumrind, & Kimerling, 2007) have a significantly increased risk of developing PTSD compared to males. Female exposure to sexual violence is responsible for the largest group of individuals suffering from PTSD (WHO, n.d.), and the highest rates of lifetime and current PTSD are for females who had a history of physical assault followed by a history of rape (Resnick et al., 1993).

Despite these gender discrepancies in PTSD, it is important to note that both males and females can develop PTSD symptoms and that one gender is not fully immune to the development of PTSD symptoms. PTSD symptoms can be detrimental to an individual's functioning on multiple levels (e.g., social, occupational, etc.), and treatment may be needed for both genders. When PTSD is complex or subsyndromal, treatment may not be substantial or even suggested due to either the complexity of symptomatology or lack of full diagnosis, which leads to further pain and suffering. Individuals may choose to relieve PTSD symptoms by self-medicating with alcohol, and PTSD has been associated with disorders such as AUDs (Pietrzak et al., 2011).

Alcohol Use Disorder (AUD) Symptoms

In the United States, 131.3 million people (51.8% aged 12 and older) reported being current drinkers in 2010 (Substance Abuse and Mental Health Services

Administration [SAMHSA], 2011), and in 2004, the American region has been reported to have the second highest level of overall alcohol consumption (second to Europe and Russia) globally (Rehm et al., 2009). In a stress filled world, it may be easy to see why alcohol consumption is popular, because alcohol can induce feelings of disinhibition, pleasure, socialization, relaxation, reduced stress, euphoria, and reduced anxiety (Foster & Marriott, 2006; Gilman, Ramchandani, Davis, Bjork, & Hommer, 2008); however, the costs of alcohol use far outweigh the benefits.

Alcohol can lead to serious physical and mental health issues and unintentional and intentional injuries. Alcohol consumption can lead to physical health issues and disorders, such as: maternal and perinatal disorders (e.g., low birth rate), cancer (e.g., mouth, oropharynx, oesophageal, colon, rectal, liver, and breast cancer), diabetes mellitus, neuropsychiatric disorders (e.g., epilepsy), cardiovascular diseases (e.g., hypertensive and ischemic heart disease), stroke (e.g., hemorrhagic and ischemic stroke), cirrhosis of the liver (Rehm et al., 2009), smaller brain volume (Paul et al., 2008), and changes in blood flow to regions in the brain (Oscar-Berman & Marinkovic, 2007). Intentional injuries (e.g., self-inflicted injuries and violence) or unintentional injuries (e.g., traffic accidents, falls, drowning, poisoning) may also result (Rehm et al., 2009). Interpersonal problems (e.g., domestic disputes; APA, 2000) and violence (e.g., sexual assault, child abuse) have been often associated with alcohol use (APA, 2000; Boden & Fergusson, 2011; Howard, Griffin, & Boekeloo, 2008), which suggests increased likelihood of PTEs and perhaps subsequent PTSD. An increase in alcohol consumption has been reported to increase the risk of both victimization and perpetration of sexual assault (Howard et al., 2008), which increases the risk of PTSD among those exposed to sexual assault (Boden & Fergusson,

2011). Alcohol can impair judgment and coordination and lead to devastating consequences in other circumstances, such as driving while intoxicated (APA, 2000). Driving while intoxicated has been connected to vehicular accidents, especially among younger drivers (Boden & Fergusson, 2011), which can lead to physical harm or death of the individual or others. Alcohol related mortality is an unfortunate reality. In the American region alone and in 2004, 9% of males, 1.8% of females, and 5.6% of both male and female deaths were attributed to alcohol use (Rehm et al., 2009).

Age and alcohol use disorder symptoms. Age has been shown to be related to the development of AUD symptoms. Similar to the occurrence of exposure to early trauma occurring in adolescence and young adults (Breslau et al., 1998; Ouimette & Brown, 2003), substance use disorders often emerge in late adolescence and early adulthood (Gayman et al., 2011; Ouimette & Brown, 2003) and gradually increase with age (Palmer et al., 2009). In the United States in 2010, survey findings revealed current, binge, and heavy alcohol use to increase after the ages of 12-13 (SAMHSA, 2011) and peak in young adulthood for those aged 20-25 (70%; SAMHSA, 2011) (APA, 2000). Furthermore, the majority of older adolescents (78.2%; Swendsen et al., 2012) have been reported to consume alcohol, while 5.2% have met diagnostic criteria for alcohol abuse, and 1.3% met diagnostic criteria for both alcohol abuse and dependence (Swendsen et al., 2012). Despite the prevalence of substance use disorders among young individuals, studies do not often examine gender and risk for substance abuse in adolescents (Becker & Grilo, 2006) or how adolescent substance use may lead to negative outcomes in adulthood (Gil, Wagner, & Tubman, 2004). However, one study suggests that adolescent

substance use increases the likelihood of substance use disorders in young adulthood (Palmer et al., 2009).

Gender and alcohol use disorder symptoms. A gender gap, although it has narrowed in more recent years, exists with regards to AUDs (Grucza et al., 2008; Keyes, Grant, & Hasin, 2008). In the United States in 2010, 65.9% of young adult males (aged 18-25) and 57% of young adult females (aged 18-25) reported being current drinkers (SAMHSA, 2011). AUDs, in particular, are higher among males compared to females (APA, 2000; Rehm et al., 2009; Swendsen et al., 2012), though the exact ratios change depending on the age group under consideration (APA, 2000). Young adult males are diagnosed more often with AUDs (Palmer et al., 2009; Teesson et al., 2010), have a higher lifetime prevalence of AUDs (Turner & Gil, 2002; WHO, n.d.), and are twice as likely to have alcohol abuse compared to young adult females (Lloyd & Turner, 2008). Males also consume higher quantities of alcohol compared to females (Rehm et al., 2009), and male gender has been reported to be a risk factor for alcohol abuse (Lloyd & Turner, 2008; Ramchand et al., 2009).

Males may be at a greater risk compared to females when it comes to alcohol abuse, but alcohol also affects females differently from a physical standpoint. Given a particular amount of alcohol, females are more likely to have higher blood alcohol concentration because the alcohol is metabolized more slowly for females compared to males due to body composition differences (APA, 2000). This physical difference between genders contributes to an increased risk of health complications of alcohol abuse (e.g., liver damage) for females compared to males (APA, 2000).

To summarize, alcohol may provide temporary relief but also sustains PTSD symptoms. PTSD symptoms may be therefore be compounded by the negative effects of alcohol consumption and subsequent AUD symptoms. AUD symptoms can affect an individual's physical and mental health, such as when alcohol leads to victimization and perpetration of sexual assault, cirrhosis of the liver, or a fatal vehicular accident due to an intoxicated driver. AUD symptoms and adverse effects, similar to PTEs and PTSD symptoms, are most likely to develop in young adulthood. However, males are more likely to develop AUD symptoms compared to females. AUD symptoms may occur when self-medicating trauma or PTSD symptoms, which may provide reasoning to support PTSD as predictor to AUD symptoms. Conversely, some studies have reported that having AUD symptoms predicts the likelihood of trauma or PTSD; however, more research tends to support trauma and PTSD as predictor of subsequent AUD symptoms. Alcohol has many detrimental effects for both males and females, and further investigation is needed to prevent alcohol-related harm (Boden & Fergusson, 2011) and to inform and intervention efforts geared towards AUD symptom reduction and alleviation. Focusing on AUD symptoms, rather than on an AUD diagnosis, is important so that research can include individuals who might have subsyndromal AUDs who do not fully meet diagnostic criteria and provide more comprehensive findings.

Additional research is also needed to better understand the relationships between PTEs, PTSD, and AUDs because little is known overall. Examining these relationships among young adults is especially important because young adults have been shown to be most vulnerable to PTEs, PTSD, and AUDs compared to other age groups. Along with age, gender disparities in mental health exist and likely influence the relationships

between PTEs, PTSD, and AUDs. It is important to examine the role of gender among PTEs, PTSD, and AUDs in order better understand relationships and to provide implications for practice.

Relationships Between Potentially Traumatic Events, PTSD Symptoms, and Alcohol Use Disorder Symptoms and Gender as Moderator

Potentially traumatic events as a predictor of the frequency of alcohol use disorder symptoms. In the United States and in 2010 alone, 3.3 million child maltreatment reports were made to child protective services, which affected about 5.9 million children (U.S. Department of Health and Human Services, Administration for Children and Families, Administration on Children, Youth and Families, Children's Bureau, 2011). The numbers are staggering, especially because these statistics do not include maltreated children who were not reported. Unfortunately, adverse childhood experiences (e.g., physical abuse), which may be considered PTEs, are common (Dube et al., 2002).

Childhood trauma has been shown to be predictive of psychiatric morbidity and substance use disorders (Staiger et al., 2009; World Health Organization, 2012), such as PTSD (De Bellis, 2002; Staiger et al., 2009) and subsequent adolescent and adult AUDs (De Bellis, 2002). Experiencing childhood trauma has also been associated with earlier age of first alcohol intoxication (Farrugia et al., 2011) and lifetime prevalence of alcohol dependence (Khoury et al., 2010; Wu et al., 2011). Those with a history of multiple childhood adverse experiences (four or more), which can be considered PTEs, were four times more likely than those without a history of adverse childhood experiences to report alcoholism (Dube et al., 2002). Furthermore, individuals with a history of childhood

PTEs had more severe substance use and trauma related clinical profiles compared to those who experienced PTEs in adulthood (Farrugia et al., 2011).

Gender differences in the relationship between potentially traumatic events and alcohol use disorder symptoms. The literature is not clear on whether gender influences the relationship between PTEs and AUD symptoms. On the one hand, some studies have shown exposure to trauma increases the risk of developing AUDs (Clark, Lesnick et al., 1997; Breslau, 2009) and strongly predicts alcohol dependence (Sartor et al., 2010) and substance use disorders among females (Becker & Grilo, 2006; Breslau, 2009; Sartor et al., 2010) but not males (Becker & Grilo, 2006). These findings may be due to females' tendency to drink excessively after experiencing trauma (Olff et al., 2007). However, another study found no significant gender differences in the relationship between adverse childhood experiences and alcohol abuse in adulthood (Dube et al., 2002). Young-Wolff, Kendler, Ericson, and Prescott (2011) acknowledged findings on females with a history of childhood trauma followed by AUDs and therefore focused their research solely on males because less work has been done with this group. Interestingly, these researchers found that males with a history of childhood maltreatment were also at an increased risk of AUDs, which is similar to other study findings (e.g., Danielson et al., 2009; Dube et al., 2002).

Frequency of alcohol use disorder symptoms and PTSD symptoms as predictor of greater frequency of AUDs and PTSD symptoms over time. Adolescents and young adults are at an age when they are most vulnerable to trauma (Breslau et al., 1998; Ouimette & Brown, 2003; Turner & Lloyd, 2003) and the development of PTSD (Bonanno et al., 2007) and substance use disorders, such as AUDs

(Gayman et al., 2011), which can increase over time (Palmer et al., 2009). Unfortunately, younger individuals who develop mental health issues, such as AUD symptoms and/or PTSD symptoms, may endure years of distress because they have a negative attitude towards mental health services and choose to not seek help (Jagdeo, Cox, Stein, & Sareen, 2009; Rickwood, Deane, & Wilson, 2007). Some young adults do receive mental health services but they might not receive effective treatment because of symptom complexity (e.g., Jagdeo et al., 2009; Rickwood et al., 2007; Vanheusden et al., 2008; WHO, n.d.). Based on study findings, it is likely that a greater frequency of AUD symptoms in Wave I will predict increased frequency of AUD symptoms in Wave II, and greater frequency of PTSD symptoms in Wave I will predict increased frequency of PTSD symptoms on Wave II.

Gender differences in frequency of AUD symptoms and PTSD symptoms that persist over time. Mental health disparities exist with regards to AUD symptoms and PTSD symptoms. Studies indicate greater AUD symptoms for males than females (e.g., APA, 2000; Grucza et al., 2008; Keyes et al., 2008; Lloyd & Turner, 2008; Palmer et al., 2009; Ramchand et al., 2009; Rehm et al., 2009; SAMHSA, 2011; Swendsen et al., 2012; Teesson et al., 2010). However, PTSD symptoms are more common among females than males (e.g., Breslau et al., 1998; Breslau, 2009; Deykin & Buka, 1997; Olff et al., 2007; Perkonigg et al., 2000; Pietrzak et al., 2011; Resnick et al., 1993; Schneider et al., 2007; Turner & Gil, 2002; WHO, n.d.). Therefore, it is likely that males will have significantly stronger paths than females with regards to symptoms of AUD in Wave I as a predictor of symptoms of AUDs in Wave II. It is also anticipated that females will have stronger

paths than males with regards to symptoms of PTSD in Wave I as a predictor of symptoms of PTSD in Wave II.

Frequency of PTSD symptoms as a predictor of the frequency of alcohol use disorder symptoms. The need to investigate linkages between PTSD and substance use disorders is considerable, especially given that the onset of both PTSD and substance use disorders tends to occur in adolescence (Breslau et al., 1998; Gayman et al., 2011; Ouimette & Brown, 2003). Psychiatric disorders are said to precede substance use disorders (Turner & Gil, 2002), and adolescents who have reported PTSD symptoms also reported greater alcohol use (Flores et al., 2010). PTSD, in particular, was found to be a risk factor for developing alcohol dependence, more so than trauma (Sartor et al., 2010). However, other studies, which highlight the inconsistency in the literature, suggest that PTEs are a risk factor for AUDs (Becker & Grilo, 2006; Breslau, 2009; De Bellis, 2002; Dube et al., 2002; Farrugia et al., 2011; Khoury et al., 2010; Sartor et al., 2010; Staiger et al., 2009; WHO, n.d.; Wu, et al., 2011), more so than PTSD (Fetzner, Hon, McMillan, Sareen, & Asmundson, 2011). Moreover, adolescents with alcohol dependence have been found to have significantly higher rates of PTSD (Clark, Pollock et al., 1997).

PTSD as a predictor of AUDs may be supported by the self-medication hypothesis. According to the self-medication hypothesis, substances, such as alcohol, are consumed in order to medicate or alleviate PTSD symptoms (Breslau, 2009; Lipschitz et al., 2003; Ouimette & Brown, 2003; Reynolds et al., 2005; Staiger et al., 2009), such as when faced with negative emotions, interpersonal conflict, physical discomfort (Sharkansky et al., 1999), hyperarousal, insomnia, or intrusive memories (Lipschitz et al., 2003). Approximately 20% of individuals with PTSD self-medicate their symptoms

(Leeies, Pagura, Sareen & Bolton, 2010). Ironically, substances may provide temporary relief but they also tend to sustain PTSD symptoms (Reynolds et al., 2005), lead to lower levels of mental health quality of life (Leeies et al., 2010), and lead to alcohol dependence (Breslau, 2009). Overall, research tends to more often support PTSD symptoms as an antecedent to AUD symptoms (e.g., Clark, Pollock et al., 1997; Flores et al., 2010; Sartor et al., 2010; Turner & Gil, 2002); therefore it is hypothesized that the increased frequency of PTSD symptoms in Wave I will predict the frequency of AUD symptoms in Wave I and II. Similarly, it is also hypothesized that more frequent PTSD symptoms in Wave II will predict an increased frequency in AUD symptoms in Wave II.

Gender differences in the relationship between frequency of PTSD symptoms and frequency of alcohol use disorder symptoms. How gender influences the relationship between PTSD symptoms and AUD symptoms is less clear in the literature. Males have been reported to have greater comorbidity of PTSD and alcohol use compared to females (Mills, Teeson, Ross, & Peters, 2006), but females may be more likely to drink alcohol in excess after a PTE, which may lead to PTSD as a primary diagnosis in addition to continued heavy drinking (Olff et al., 2007) or AUD symptoms. However, another study suggests that AUDs increase the risk of PTEs for both males and females (Perkonigg et al., 2000). Further, although Leeies et al. (2000) found that males are more likely than females to use alcohol to relieve PTSD symptoms, a number of other studies have found the opposite, specifically that females more often self-medicated symptoms with alcohol compared to males (e.g., Breslau et al., 1997; Breslau, Davis, & Schultz, 2003; Lipschitz et al., 2003; Lopez, Turner, & Saavedra, 2005). The contradictory findings of the Leeies et al. study may have been due to the fact that their

study did not directly ask participants if they thought their self-medicating with alcohol use was triggered by PTSD symptoms. Rather, questions were asked more generally, and it is possible that life stressors rather than PTSD symptoms could explain the increase in alcohol use by males compared to females.

Adolescent females with a history of childhood trauma and PTSD were also significantly more likely use alcohol regularly (Lipschitz et al., 2003) – as many as 80% of adolescent females with PTSD had been diagnosed with PTSD either before or at the same age their substance use disorder developed (Lipschitz et al., 2003). Even females who were exposed to PTEs but who did not develop PTSD had a higher risk for AUDs but this was not the case for males – males exposed to trauma did not have a significantly increased risk for AUDs (Breslau et al., 2003), despite males having higher rates of exposure to trauma (Olff et al., 2007). The relationship between PTSD symptoms and alcohol dependence seems to be stronger for females than males (Clark, Pollock et al., 1997). PTSD was shown to predict AUDs among females (Breslau et al., 1997; Lopez et al., 2005) with a history of childhood trauma (Olff et al., 2007), rather than the reverse – AUDs as predictor of PTSD – that may be true for males. Overall, gender may influence the relationship between AUDs and PTSD. It has been suggested that AUDs may be a primary disorder that increases the likelihood of traumatic events among males while the inverse may be true for females, whereby PTSD is the primary disorder that results in subsequent substance use, which is used as self-medication to relieve PTSD symptoms and therefore leads to a secondary substance dependence disorder, or AUD (Deykin & Buka, 1997). Therefore, it is anticipated that females will have significantly stronger paths than males with regards to symptoms of PTSD in Wave I as predictor of symptoms

of AUDs in Wave I and Wave II, as well as symptoms of PTSD in Wave II as predictor of symptoms of AUDs in Wave II.

Frequency of alcohol use disorder symptoms and PTSD symptoms as predictors to exposure to a new potentially traumatic event over time. Alcohol use has been associated with an increased risk of PTEs, such as an increased risk of accidents and victimization (Clark, Pollock et al., 1997). Trauma alone has been found to increase the risk of exposure to additional traumas (Park, Frazier, Tennen, Mills, & Tomich, 2012), but when accounting for alcohol consumption, the relationship becomes stronger. Park, Frazier, Tennen, Mills, and Tomich (2012) found that young adult college students, mostly aged 18-21, who reported binge drinking after exposure to a prior trauma were shown to have an increase in the risk of exposure to an additional trauma from 11% to 16%-17% over a two-month period, indicating that drinking was predictive of experiencing additional PTEs. Other studies support the relationship of AUD symptoms as predictor to PTEs (e.g., Boden & Fergusson, 2011; Clark, Lesnick et al., 1997; Howard et al., 2008; Kingston & Raghavan, 2009; Ulman, Najdowski, & Filipas, 2009). According to the findings of these studies, it is hypothesized that more frequent symptoms of AUDs in Wave I will predict increased exposure to a new PTE between Wave I and Wave II.

PTSD symptoms are thought to predict new PTEs because, according to diagnostic criteria, PTSD includes exposure to a traumatic event (APA, 2000), and those who have been exposed to trauma were shown to be more likely to endure future traumatic events (Herman, 1992). In particular, the numbing symptoms of PTSD have been shown to predict revictimization (Ulman et al., 2009), which may also be considered

a new PTE. Therefore, is hypothesized that more frequent symptoms of PTSD in Wave I will predict increased exposure to a new PTE between Wave I and Wave II.

Gender differences in the relationship of frequency of AUD symptoms and PTSD symptoms to exposure to a new PTE. The relationship between AUD symptoms and experiencing a new PTE will likely be significantly moderated by gender, whereby the relationship will be stronger for males based on the reviewed literature reporting greater AUD symptoms (e.g., APA, 2000; Grucza et al., 2008; Keyes et al., 2008; Lloyd & Turner, 2008; Palmer et al., 2009; Ramchand et al., 2009; Rehm et al., 2009; SAMHSA, 2011; Swendsen et al., 2012; Teesson et al., 2010) as well as increased risk of exposure to traumas (e.g., Breslau, 2009; Olff et al., 2007) among males. Therefore, it is hypothesized that males will have a significantly stronger path than females with regards to AUDs symptoms in Wave I as a predictor of exposure to a new PTE between Wave I and Wave II. Gender is also anticipated to significantly moderate the relationship of PTSD symptoms as predictive to a new PTE, based on literature indicating that being female is a risk factor for developing PTSD and likelihood of additional traumas to occur following an initial trauma (e.g., Breslau et al., 1998; Breslau, 2009; Deykin & Buka, 1997; Olff et al., 2007; Perkonigg et al., 2000; Pietrzak et al., 2011; Resnick et al., 1993; Schneider et al., 2007; Turner & Gil, 2002; WHO, n.d.). Therefore, it is hypothesized that females will have a significantly stronger path than males with regards to symptoms of PTSD in Wave I as a predictor of exposure to a new PTE between Wave I and Wave II.

Frequency of alcohol use disorder symptoms as predictor of an increased frequency of PTSD symptoms. Little information is available with regards to AUD symptoms as predictor of increased PTSD symptoms. To date, only one study has been

identified (Clark, Pollock, et al., 1997) that reports a link between AUDs as a predictor of PTSD. Clark, Pollock, et al. (1997) found that AUDs occur prior to PTSD; however, the converse was also reported, where PTSD was also reported prior to AUDs. The authors also provided reasoning for their findings – that PTSD may develop as a result of a PTE, which then leads to AUDs or that risker behavior associated with alcohol dependence may lead to PTEs and PTSD – which may negate AUD as a direct predictor to PTSD. Another reason for the lack of studies that provide a direct link between AUD symptoms and PTSD symptoms may also have to do with PTSD diagnostic criteria, whereby exposure to a traumatic event is a defining characteristic of PTSD and most PTSD symptoms (APA, 2000). Based on these limited findings, it is hypothesized that more frequent AUD symptoms in Wave I will predict an increased frequency in PTSD symptoms in Wave II.

Gender as a moderator of the relationship of the frequency of alcohol use disorder symptoms as predictor to an increased frequency of PTSD symptoms. As previously mentioned, only one study was found to support the notion that AUDs predict PTSD; however, the converse was also reported in this same study (Clark, Pollock, et al., 1997). In the Clark, Pollock, et al. (1997) study, females with alcohol dependence reported almost twice as many PTSD symptoms as compared to their male counterparts. Despite the small amount of existing research on which to base a strong hypothesis, greater numbers of AUD symptoms are expected predict greater PTSD symptoms over time, and gender is expected to significantly moderate this relationship. Therefore, it is hypothesized that females will have significantly stronger paths than males with regards to AUDs in Wave I as predictor of symptoms of PTSD in Wave II.

Frequency of childhood PTEs as predictor of the frequency of PTSD and alcohol use disorders symptoms. A review of the literature reveals that exposure to early trauma has negative implications on an individual's mental health and while many will recover, some may develop PTSD symptoms. Despite that less than 10% of people exposed to a traumatic event will develop PTSD (Breslau, 2009), it is expected that PTEs will significantly predict increased PTSD symptoms (Kingston & Raghavan, 2009), especially because a traumatic event is listed as one of the qualifications for a PTSD diagnosis (APA, 2000). It is also anticipated that childhood PTEs will predict increased symptoms of AUD because at least ten studies (e.g., Becker & Grilo, 2006; Breslau, 2009; De Bellis, 2002; Dube et al., 2002; Farrugia et al., 2011; Khoury et al., 2010; Sartor et al., 2010; Staiger et al., 2009; WHO, n.d.; Wu, et al., 2011) have reported trauma to predict or increase the risk of alcohol consumption or AUDs. In sum, it is hypothesized that more childhood PTEs will significantly predict increased symptoms of AUDs and PTSD measured in Wave I. Furthermore, it is also hypothesized that greater numbers of new PTEs reported in Wave II will predict increased frequency of AUDs and PTSD symptoms in Wave II.

Gender as a moderator of the relationship of potentially traumatic events to increased symptoms of PTSD and alcohol use disorders. Gender likely moderates the relationships of PTEs to PTSD symptoms and to AUD symptoms. The relationship between PTEs and PTSD symptoms is likely to be stronger among females compared to males because PTSD symptoms were found to have a stronger link and be more prevalent among females in general (e.g., Breslau et al., 1998; Breslau, 2009; Clark, Pollock, et al., 1997; Deykin & Buka, 1997; Olff et al., 2007; Perkonigg et al., 2000; Pietrzak et al.,

2011; Resnick et al., 1993; Schneider et al., 2007; Turner & Gil, 2002; WHO, n.d.). Similarly, it is expected that childhood PTEs will predict increased PTSD symptoms over time. A new PTE that might occur at a later time will also likely predict increased PTSD symptoms for females more so than males. Therefore, it is hypothesized that females will have a significantly stronger path than males with regards to childhood PTEs as predictor of symptoms of PTSD in Wave I, as well as with exposure to new PTEs between Wave I and Wave II as a predictor of PTSD in Wave II.

Study findings tended to exhibit variability with regards to the influence of gender on the relationship between PTEs and AUD symptoms. Some studies supported AUD symptoms post-trauma as more likely to occur among females, while other studies suggested AUD symptoms to be more present among males post-trauma. Due to discrepancies in study findings and based on the reviewed research that supports AUD symptoms among males in general – ten studies found greater AUD symptoms among males compared to females (e.g., APA, 2000; Grucza et al., 2008; Keyes et al., 2008; Lloyd & Turner, 2008; Palmer et al., 2009; Ramchand et al., 2009; Rehm et al., 2009; SAMHSA, 2011; Swendsen et al., 2012; Teesson et al., 2010) – it is hypothesized that males will have significantly stronger paths than females with regards to childhood PTEs as predictor of symptoms of AUDs in Wave I, as well as with exposure to more frequent new PTEs between Wave I and Wave II as predictor of symptoms of AUDs in Wave II..

Overall, little is known about PTSD and AUDs causality (Breslau et al., 2003). More research seems to support PTSD as predictor of AUDs. However, some have suggested that there may not be a causal pathway and the development of PTSD and AUDs may be due to other variables, such as environmental or genetic factors (e.g.,

McLeod et al., 2001). More research is clearly needed in order to distinguish if directional relationships exist between PTEs, PTSD, and AUDs and if gender influences these relationships.

A better understanding of the relations between PTEs, PTSD, and AUDs will allow this study to expand on previous research and might provide important implications for practice in order to meet individuals' mental health needs. Furthermore, addressing the influence of gender on potential relationships will add to multicultural research, which tends to focus on race/ethnicity (Silverstein, 2006), and might inform multicultural competent practice, thereby reducing gender-related mental health disparities. Lastly, mental health symptoms can compound over time and by examining gender's influence on PTEs, PTSD, and AUDs among young adults, findings might also inform preventative efforts in the short- and long-term mental health trajectory of adults.

Chapter III

Method

Study Design and Procedure

This study utilized data from the Drug Use Trajectories: Ethnic/Racial Comparisons 1998-2002 (DUT) (alternate title: Transitions: A Study of Stress and Well-Being in Young Adulthood; Turner, 2011), which was a two-wave longitudinal epidemiological study that gathered data from 1998-2002 on lifetime substance use and psychiatric disorders among young adults living in South Florida. This dataset is archived and available for secondary data analysis from the Inter-University Consortium for Political and Social Research (ICPSR). Bachelor's and primarily master's level degree interviewers conducted participant interviews with computer assistance (Turner & Gil, 2002). Approximately two years later, participants were interviewed again (Clark, 2004). Prior to beginning the interview process, interviewers received a week-long training course, which often entailed observed practice before beginning interviews with participants. Interviews took place in-person at a participant's home or at the research office (Turner & Gil, 2002). Telephone interviews (30%; Turner & Gil, 2002) were conducted in circumstances when in-person interviews were not warranted (e.g., participant was not available due to being outside of catchment area) (Turner & Gil, 2002).

Overall, the DUT study gathered information pertaining to a number of areas: demographic information, family history, social support, family cohesion/pride, substance use, perceived risks of drug use, sibling substance use approval, sexual activity, discrimination, cultural mistrust, major life events, life traumas, PTSD, personal

resources, recent life events, chronic stressors, morally debatable behavior, well-being, delinquency, self attitudes, global health status, mattering, approach or avoidance motivation for underlying behavior (based on behavioral inhibition and avoidance systems, using BIS/BAS scales), coping, just world, sports involvement, parental authority, lifetime mental health and health behaviors, major depressive disorder, dysthymia, problems in childhood, and problem behaviors (Turner, 2011). Publications that have used the DUT dataset have studied a wide variety of topics, such as family structure and mental health (Barrett & Turner, 2005); exposure to community violence and young adult crime (Eitle & Turner, 2002); help-seeking behaviors with substance use disorders (Gayman, Cuddeback, & Morrissey, 2011); life adversities and alcohol dependence (Lloyd & Turner, 2008); and disordered eating practices (Sischo, Taylor, & Yancey, 2006). The current study utilized particular DUT study variables in order build upon existing research by being one of the first studies to examine the relationships between PTEs, PTSD symptoms, and AUD symptoms and to investigate whether gender moderates these relationships.

Participants

A representative sample of participants (n = 1,803) residing in South Florida were recruited for Wave I (1998-2000) of the DUT study from the sample of a previous study, South Florida Youth Development project (Vega & Gil, 2002), which included a sample of 6th and 7th grade students attending Miami-Dade Public Schools. Since the time of the former study's data collection (i.e., 1990), participants who were to be recruited for the DUT study had grown to be young adults aged 18-23 (M = 20.01 years; SD = 0.96 years) with most participants (93%) aged 19-21. In order to create a more balanced sample in

terms of gender, additional females were recruited from the public school system roster. Thus, the total sample for Wave I of the DUT study included 955 males (53%) and 848 females (47%) (Turner, 2011). The sample was also stratified by ethnicity with approximately equal percentages of Cuban (n = 435), other Hispanic (n = 453), African American (n = 434), and non-Hispanic White (n = 463) individuals.

Wave II (2000-2002) participants (n = 1,205) were recruited from the 1,803 participants in Wave I; due to attrition (e.g., moved, joined the military, or institutionalized), some of the original participants were no longer available. Although examining the relationships among PTEs, PTSD, and AUD for participants who joined the military might have been particularly interesting, data from these participants were not collected at Wave II of the original study. Thus, the findings will reflect PTEs, PTSD, and AUD symptoms and the relationships between these variables in a community sample. Similar to Wave I, the Wave II sample included approximately equal number of males (n = 660, 54.8%) and females (n = 545, 45.2%) and ethnicities: Cuban, other Hispanic, African American, and non-Hispanic White participants (approximately 25% each ethnic group) (Turner, 2011). For longitudinal analysis purposes, the sample was restricted to participants who have data available in both Wave I and Wave II (n = 1,205). The sample also included the four ethnic groups but excluded the small portion of participants that identified as "other" in order to be able to more clearly generalize these findings to the specific four ethnic groups included in this study. Ethnicity was reported in this study primarily for informational purposes in relation to generalizability of results and to describe the sample. Multicultural research has tended to focus on race and

ethnicity (Silverstein, 2006), and the current study highlights the importance of gender-related research under the umbrella of multiculturalism.

In both Wave I and Wave II, demographic and mental health care information was gathered from participants during interviews (see Table 1). Participants were asked to indicate their gender (either male or female), age (e.g., "How old are you" in Wave I or "What is your date of birth?" in Wave II; Turner, 2011), marital status (married/separated/divorced/other/never married), and educational level. Participants were also asked several questions that tap receipt of mental health care for substance use. Preliminary analysis revealed that some participants: (a) used medication more than once for substance use (Wave I, $n = 8$; Wave II, $n = 8$), (b) attended a self-help group for substance use (Wave I, $n = 43$; Wave II, $n = 42$), (c) saw a mental health specialist for substance use (Wave I, $n = 46$; Wave II, $n = 50$), or (d) saw another professional for substance use (Wave I, $n = 28$; Wave II, $n = 36$). Receiving mental health care might have improved participants' mental health, which may impact scores. Therefore, participants who answered "yes" to any of these mental health care questions were excluded. Additionally and as mentioned earlier, those who also identified as "other" were excluded, thereby reducing the sample size for the current study's analysis from 1,205 to 1,076 participants.

Measures

The DUT study interviews relied on the Michigan Composite International Diagnostic Interview (CIDI), DSM-IV version (Johnson et al., 2003) and selected modules from the National Institute of Mental Health (NIMH) Diagnostic Interview Schedule (DIS; e.g., Robins et al., 1981) as the main study measures in order to

approximate DSM-IV diagnoses (Turner, 2011). The Michigan CIDI was based on the CIDI created by the WHO and Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA) (WHO, 1990; Wittchen, 1994). The original CIDI was itself an expansion of the National Institute of Mental Health (NIMH) Diagnostic Interview Schedule (DIS; e.g., Robins et al., 1981), designed to assess mental health internationally (Kessler & Ustun, 2004) by incorporating criteria derived from both International Classification of Diseases Diagnostic Criteria for Research (ICD-10; WHO, 1993) and the Diagnostic and Statistical Manual of Mental Disorders (DSM-III revised; APA, 1987) (Kessler & Ustun, 2004; Wittchen, 1994).

The CIDI has the ability to assess mental health diagnoses (Janča, Robins, Cottler, & Early, 1992) globally – eighteen international locations displayed excellent interrater reliability (Andrews & Peters, 1998; Wittchen et al., 1991) on CIDI diagnoses (from κ = 0.80 to κ = 0.99; Wittchen et al., 1991). Fair agreement (κ = 0.40; Peters & Andrews, 1995) was also found between the computerized CIDI and clinician diagnoses – similar to the CIDI paper version and the DIS (Peters & Andrews, 1995). After review of numerous studies examining the psychometrics of the CIDI as a whole, researchers have also concluded that the CIDI has good test-retest reliability (Andrews & Peters, 1998) and good validity (Andrews & Peters, 1998), although additional studies are needed to further support validity of the CIDI (Wittchen, 1994). Because the CIDI has been modified throughout various studies over time, psychometric data are not readily available. In particular, the psychometrics for the Michigan CIDI, which are somewhat similar to older CIDI versions, and used for the DUT study, have not been reported to the author's knowledge.

The current study is a secondary data analysis using selected portions of the DUT study interviews to obtain its measures of interest. Specifically, three interview sections were selected – trauma, PTSD, and alcohol use. Each of these sections of the interview is described below.

Childhood PTEs and new PTEs. Participants were asked 26 life trauma questions (see Appendix A), which were developed specifically for the DUT study (Turner, 2011). Example items include "Did you ever have sexual intercourse when you didn't want because someone forced you or threatened to harm you if you didn't?" (item O4) and "Have you ever been shot with a gun or badly injured with another weapon?" (item O12). Participants responded to each of these 26 questions with: "yes" or "no", "frequency", "first age", and "last age". The "yes/no", "first age", and "last age" responses are not used in the path analysis but will be used for descriptive purposes. Similar to other studies that examine trauma by calculating the number of traumatic events in which participants have been exposed (e.g., Breslau, 2009; Cloitre et al., 2009; Turner & Lloyd, 2003), the frequency scores for 25 life trauma questions (Appendix A, O1 – O19, O22 - O26) and 2 life trauma sub-questions (O21a and O21b) were added to calculate the total number of childhood PTEs each participant experienced by Wave I. Two stem questions shown in Appendix A (items O20 and O21) were not included in the calculation of childhood PTE scores because frequency was not asked for those questions. Frequency scores may exceed 24 PTEs because participants may have experienced multiple types of PTEs multiple times. In Wave II, participants were asked the same set of questions shown in Appendix A. The frequency scores to the life trauma questions in Wave II were totaled. Wave I childhood PTE scores were subtracted from the Wave II

score, which gave a total for the new PTE score. Any scores over zero indicated the number of new PTEs that occurred between Wave I and Wave II. Any negative numbers associated with new PTEs were recoded to 0 to account for inaccurate participant recall or data entry errors.

PTSD symptoms. At both Wave I and Wave II, participants who responded "yes" to any of the life trauma questions in Appendix A were asked a set of 74 PTSD symptom questions derived from the DIS module (Turner, 2011). In the current study, the number of PTSD symptoms was used, rather than a yes/no diagnosis for PTSD, in order to include individuals who may not fit the full diagnostic criteria for PTSD but who are symptomatic or may have subsyndromal PTSD (Pietrzak et al., 2011). Of the 74 questions asked, a subset of 65 questions that ask about experiencing specific symptoms (Appendix B, P2 - P24b, P27 - P58b, P61 - P68) were selected; the remaining 9 questions were excluded because the type of question varies, such as asking the participant his/her age at the time of the trauma. Examples of some questions included: (a) "At the time this happened [the event], did you believe that you or someone else could be killed or seriously injured?" (item P2), (b) "Did you experience intense fear?" (item P5), or (c) "Did you avoid places or people or activities that might have reminded you of it [the event]?" (item P18). Participants had response options of "yes" or "no" to items P2-P24b and P35-P58b and response options of "not at all", "some", "a lot" to items P27-P34 and P61-P68. For the 65 PTSD symptom questions, affirmative responses (i.e., "yes", "some", and "a lot") were given one point. Zero points were given to "no" or "not at all" responses and to responses coded as missing data given that participants who answered "no" to the PTSD stem questions would have not have been asked frequency-related

follow-up questions. Points for the 65 items were totaled to give the overall PTSD symptom score for each participant at both Wave I and Wave II, with higher scores indicating higher levels of PTSD symptoms.

The original study investigators applied standard algorithms to estimate DSM-IV PTSD diagnoses (Andrews & Peters, 1998); variables related to the full PTSD diagnostic criteria were included in the archived dataset. Descriptive statistics for these variables indicated that the onset age of PTSD ranged from 5 – 23 years and that the number of individuals with a PTSD diagnosis in the past year was 85 in Wave I and 48 in Wave II. Sixty-seven individuals (6.2% of the sample) were diagnosed with PTSD at some point during the participant's lifetime, which is slightly lower than the national PTSD prevalence rate (7.8%) among adolescents and adults aged 15-54, gathered a few years prior in the United States (Kessler et al., 1995). The PTSD diagnostic data have been reported for informational purposes only, given that PTSD *symptoms* are the focus of the study in order to account for participants with subsyndromal PTSD.

Alcohol use disorder (AUD) symptoms. The Michigan CIDI (Turner, 2011) was used to assess symptoms of alcohol abuse and alcohol dependence, or AUD symptoms, in a format similar to trauma and PTSD. Specifically, the questions that were used to assess alcohol use in the current study were obtained from the section of the interview that focused on substance use, shown in Appendix C. Participants who answered "yes" to a diagnostic stem question in the alcohol section – "In any period of your entire life, did you have at least 12 drinks of any kind of alcohol beverage" (Turner, 2011) – were asked the follow-up questions in the substance use section. Substance use questions entailed asking a general question about all substances, including alcohol,

followed by detailed questions pertaining to the general question (see Appendix C). For example, "Has your use of [alcohol/(or)/drug/any of the other substances circled] often kept you from working, going to school, or taking care of children?" (item F29), can be considered a general question followed by subsequent questions: (a) "Which substances did you use?" (item F29a), (b) "How old were you the first time this happened because of using (alcohol/drug)?", (c) "When was the last time this happened because of using (alcohol/drug) – in the past month, past six months, past year, or more than a year ago?", (d) "If more than a year ago: How old were you the last time this happened [because of using (alcohol/drug)]?".

One point was given to every question where a participant answered both "yes" to the general question and "alcohol" to its subsequent follow-up question, "Which substances did you use" (Appendix C; F28-F49). Scores generated from these 22 item pairs were added together to create an overall score for Wave I (potential range = 0 – 22). Wave II alcohol use questions are identical to those used in Wave I, and scores were calculated the same way, whereby higher scores will indicate higher levels of AUD symptoms. Additionally, any missing data for AUD symptoms (Wave I and II) was recoded to 0 due to the likelihood that participants who answered "no" to AUD stem questions, would lack data on frequency-related follow-up questions, which would have automatically been coded as missing.

In addition to the AUD symptom scores that were calculated as described above for the analysis, AUD diagnostic scores were also calculated by the original study investigators using standard algorithms to estimate DSM-IV alcohol abuse and alcohol dependence diagnoses (Andrews & Peters, 1998). Thus, the onset age of AUDs (ages

ranged from 6 – 23 for combined alcohol abuse and alcohol dependence scores), AUDs in the past year (Wave I alcohol abuse, $N = 104$; Wave II alcohol abuse, $N = 85$; Wave I alcohol dependence $N = 57$; Wave II alcohol dependence, $N = 23$), and AUD diagnoses during the participant's lifetime (alcohol abuse, $N = 154$; alcohol dependence, $N = 47$) have already been determined and are included in the archived dataset. In the current sample, 154 participants (14.3%) met the diagnostic criteria for alcohol abuse, and 47 participants (4.4%) met the diagnostic criteria for alcohol dependence, which differed from a national United States sample of participants aged 15-54 included in a study that gathered the prevalence rates of lifetime alcohol abuse without dependence (9.4%) and alcohol dependence (14.1%) a few years prior to the current study's data collection (Kessler et al., 1994). Differences in findings may be attributed to the limited age range and/or geographic location of the current sample. Additionally, the current sample findings on lifetime alcohol abuse may or may not have also co-occurred with alcohol dependence, which may differ from the aforementioned study findings. However, AUD diagnostic data are not used in the path analysis model, but are reported here only for descriptive purposes in order to include participants with subsyndromal AUDs.

Statistical Analysis

Path analysis, or model testing using only indicator variables (Weston & Gore, 2006) or manifest (e.g., observed) variables (Martens, 2005), was used to examine the research hypotheses (see Figure 1). Data were inspected for irregularities prior to analyses. Skewness and kurtosis was examined, and removal of outliers and additional data transformations (e.g., logarithm, inverse; Martens, 2005; Weston & Gore, 2006) were also considered to avoid violations of normality assumptions. In order to ensure

that the path model is an accurate representation of the data, and therefore has good model fit, Pearson's chi-square test, Steiger's Root Mean Square Error of Approximation (*RMSEA*), Tucker-Lewis Index (*TLI*), and Comparative Fit Index (*CFI*) fit indices were used. A non-significant Pearson's chi-square test indicates that the model has a perfect fit with the data (Martens, 2005); however, although Pearson's chi-square test is generally reported, a perfect fit is unlikely due to the sensitive nature of the test, particularly given the large sample size in the current study, and thus, the other fit indices were used in conjunction with the chi-square test to determine model acceptability (Weston & Gore, 2006). Good model fit was defined for the remaining indices as *RMSEA* values of .08 or less (Browne & Cudeck, 1993) and *CFI* and *TLI* values of .90 or higher (Hu & Bentler, 1995). If the proposed model were not a good fit, post hoc model modifications would be made – as few as possible – by eliminating nonsignificant parameters or by adding parameters based on an examination of modification indices and rerunning analyses. Parameter estimates for the individual paths shown in Figure 1 were examined to determine whether the hypothesized paths and their directions met the hypothesized expectations.

In addition, gender was considered a moderator in the investigation of the relationships between variables over two time periods, Wave I and Wave II, among young adults. As defined by Baron and Kenny (1986), "A moderator is a qualitative (e.g., sex, race, class) or quantitative (e.g., level of reward) variable that affects the direction and/or strength of the relation between an independent or predictor variable and a dependent or criterion variable" (p. 1174). It is hypothesized that gender will significantly affect the relationship direction and/or strength and therefore moderate the

following relationships among young adults: (1) childhood PTEs as predictor of increased symptoms of AUDs and PTSD; (2) AUDs and PTSD symptoms in Wave I as predictor of increased AUDs and PTSD symptoms in Wave II; (3) AUDs and PTSD symptoms in Wave I as predictors to exposure to a new PTE between Wave I and Wave II; (4) a new PTE reported in Wave II as predictor of increased AUDs and PTSD symptoms in Wave II; (5) PTSD symptoms in Wave I as predictors to increased AUD symptoms in Wave I and Wave II; (6) PTSD symptoms in Wave II as predictor to increased AUD symptoms in Wave II; and (7) AUD symptoms as predictor to increased PTSD symptoms in Wave II (see Figure 1).

Chapter IV

Results

Evaluation of Normality of Indicators

Prior to conducting the path analysis, normality was examined for the six variables included in the model: childhood PTEs, new PTEs, PTSD symptoms at Wave I, PTSD symptoms at Wave II, AUD symptoms at Wave I, and AUD symptoms at Wave II. In addition, the normality of Wave II PTEs was examined due to its use in the calculation of the new PTEs variable. Based on Weston and Gore's (2006) recommendations of acceptable ranges of -3 to +3 for skewness and -10 to +10 for kurtosis, three of these variables violated normality assumptions: childhood PTEs (skewness = 3.430; kurtosis = 13.959), Wave II PTEs (skewness = 13.526; kurtosis = 238.295), and AUD symptoms at Wave II (skewness = 2.159; kurtosis = 6.916).

To handle outliers that seemed responsible for the non-normality, childhood PTEs, Wave II PTEs, and Wave II AUD symptoms were winsorized using Tukey's (1962) procedure. Winsorizing is a process that limits the maximum value that extreme scores can take on for certain variables. After viewing the range of values for the variables that violated normality assumptions, efforts were taken to conserve the majority of participant responses by limiting values deemed extreme relative to the rest of the values in that variable's distribution. By capturing the majority of participant responses with the winsorizing process, the results most likely portray the overall sample response and prevent skewness and kurtosis of the data, which could result in inaccuracy of the statistical results. Childhood PTE scores, as calculated in this study, ranged from 1 – 419 with 90% of the sample having responses between 1 and 90; therefore, childhood PTE

scores were winsorized to have a maximum value of 90. Similarly, Wave II PTE values originally ranged from 1 – 2001, with 90% of the sample responding between 1 and 53; therefore, Wave II PTE scores were winsorized to 53. Wave II AUD symptoms had fewer outliers and therefore more conservative winsorizing was conducted. Original AUD symptom scores, after recoding for missing data, ranged from 0 – 15. However, 99.7% of sample responses ranged from 0 – 11; therefore, scores were winsorized to 11. After winsorizing and recoding data, skewness was within the recommended -3 to +3 range, and kurtosis was within the recommended -10 to +10 range for all variables (see Table 2).

Model Fit and Path Analysis for Total Sample

The full model, used to examine the first seven hypotheses in the total sample, exhibited excellent model fit ($\chi^2(3) = 10.004$; *CFI* = .989; *TLI* = .924; *RMSEA* = .047). Therefore, *post hoc* model modifications were not necessary. Eight of the 12 hypothesized pathways were statistically significant (see Table 3), but only seven of the eight significant pathways confirmed hypotheses, as detailed below.

Hypothesis *H1*. As expected, childhood PTEs were significantly related to increased frequency of PTSD symptoms at Wave I ($p < .001$); however, contrary to this hypothesis, childhood PTEs were not predictive of AUD symptoms at Wave I.

Hypothesis *H2*. As expected, AUD symptoms in Wave I predicted increased frequency of AUD symptoms in Wave II ($p < .001$), and PTSD symptoms in Wave I predicted increased frequency of PTSD symptoms in Wave II ($p < .001$).

Hypothesis *H3*. Contrary to expectations, Wave I AUD symptoms were not predictive of the frequency of new PTEs; however, as hypothesized, greater Wave I

PTSD symptoms were significantly related to increased frequency of new PTEs (p = .017).

Hypothesis H_4. As expected, greater frequency of new PTEs was related to increased PTSD symptoms at Wave II ($p < .001$), but contrary to expectations, frequency of new PTEs was not related to increased AUD symptoms at Wave II.

Hypothesis H_5. As expected, PTSD symptoms in Wave I significantly predicted increased frequency of AUD symptoms in Wave I ($p < .001$); however, contrary to the hypothesis, Wave I PTSD was not predictive of AUD symptoms at Wave II.

Hypothesis H_6. As expected, PTSD symptoms in Wave II predicted AUD symptoms in Wave II (p = .003).

Hypothesis H_7. Unexpectedly, fewer AUD symptoms in Wave I predicted greater PTSD symptoms in Wave II (p = .036).

Moderation of Model Pathways by Gender

Two multiple-group path analysis models were specified to examine the eighth hypothesis regarding gender differences across the 12 hypothesized pathways. In the first model (i.e., the moderation model), all hypothesized pathways were allowed to differ by gender; in the second model (i.e., the null hypothesis model), the 12 hypothesized pathways were constrained to be equal across gender. The chi-square difference test that was conducted to compare the two models was statistically significant ($\Delta\chi^2(12) = 22.243$, p = .035). Therefore, the null hypothesis model was rejected, indicating that gender moderated at least one pathway. The moderation model exhibited excellent model fit ($\chi^2(6) = 17.561$, p = .007; *CFI* = .987; *TLI* = .909; *RMSEA* = .035).

Because this initial test only indicates whether at least one pathway may differ by gender, the standardized regression weights by gender from the moderation model (shown in Table 3) were examined. Nine of the 12 pathways were similar across males and females: (1) childhood PTEs to PTSD symptoms in Wave I, (2) childhood PTEs to AUD symptoms in Wave I, (3) AUD symptoms in Wave I to AUD symptoms in Wave II, (4) PTSD symptoms in Wave I to PTSD symptoms in Wave II, (5) AUD symptoms in Wave I to new PTEs, (6) new PTEs to PTSD symptoms in Wave II, (7) new PTEs to AUD symptoms in Wave II, (8) PTSD symptoms in Wave I to AUD symptoms in Wave I, and (9) PTSD symptoms in Wave II to AUD symptoms in Wave II. Therefore, a partially moderated model was specified that constrained these nine pathways to be equal across gender, while allowing the remaining three pathways to differ by gender. The chi-square difference test comparing the partially moderated model to the moderation model was non-significant ($\Delta\chi^2(9) = 7.327$, $p = .603$). Thus, the partially moderated model had excellent fit and was accepted as the best-fitting model ($\chi^2(15) = 21.374$, $p = .125$; *CFI* = .993; *TLI* = .980; *RMSEA* = .016). The remaining three pathways were significantly moderated by gender. Of these three moderated pathways, only one fully confirmed the proposed hypotheses. See Table 4 for detailed standardized regression weights by gender for the partially moderated model.

Hypothesis $H_{8(a)}$. Of the four paths hypothesized to be moderated by gender with a stronger relationship for males than for females, no hypotheses were confirmed. These four paths were found to be similar across gender.

Hypothesis $H_{8(b)}$. Of the eight paths hypothesized to be moderated by gender with a stronger relationship for females than for males, only three paths were moderated

by gender. However, of the three paths, two paths did not fully confirm hypotheses – one gender difference was in the opposite direction of the hypothesis, and one moderated path showed a negative rather than positive direction; thus, only one hypothesis was fully confirmed. First, as hypothesized, with regards to greater PTSD symptoms in Wave I as a predictor of an increased number of new PTEs reported at Wave II, females had a significant and positive path ($\beta = .155$, $p = .002$) compared to male counterparts who had a non-significant path. Second, with regards to greater PTSD symptoms in Wave I as a predictor of greater AUD symptoms at Wave II, gender was a significant moderator, but unexpectedly, males had a significant and positive path ($\beta = .110$, $p = .005$) while females had a non-significant path for this relationship. Finally, for the path with more AUD symptoms in Wave I as a predictor of increased PTSD symptoms in Wave II, gender was again a significant moderator; however, females showed a significant, but unexpectedly negative, path ($\beta = -.084$, $p = .049$) in contrast to males who had a non-significant path for this relationship.

Chapter V

Discussion

To summarize, the current study utilized data from the Drug Use Trajectories: Ethnic/Racial Comparisons 1998-2002 (DUT; Turner, 2011) – a two-wave longitudinal epidemiological study that gathered data from 1998-2002 on lifetime substance use and psychiatric disorders among young adults living in South Florida – to explore the relationships between PTEs, PTSD symptoms, and AUD symptoms and gender as a moderator of the relationships among young adults. Young adults aged 18-23 years were included within a stratified sample to include approximately equal proportions of males and females (Turner, 2011). Path analysis was utilized to answer eight research questions.

Findings

PTEs as predictor of PTSD symptoms and AUD symptoms. Exposure to trauma is listed as one of the criteria for a diagnosis of PTSD (APA, 2000) and was the primary reasoning behind this study's hypotheses that increased frequency of childhood PTEs would predict an increased frequency of PTSD symptoms at Wave I and that new PTEs would predict an increased frequency of PTSD symptoms at Wave II. The findings of this study supported both hypotheses. Similarly, based on previous research (e.g., Becker & Grilo, 2006; Breslau, 2009; De Bellis, 2002; Dube et al., 2002; Farrugia et al., 2011; Khoury et al., 2010; Sartor et al., 2010; Staiger et al., 2009; WHO, n.d.; Wu et al., 2011), it was expected that greater childhood PTEs would also predict greater AUD symptoms at Wave I and that new PTEs would predict greater AUD symptoms at Wave II. Surprisingly, these hypotheses were not supported in this study, in that childhood PTEs or new PTEs did not significantly predict AUD symptoms at Wave I or Wave II,

respectively, despite numerous studies that support the relationship between trauma and AUD symptoms.

This study's non-significant findings for the relation between PTE and AUD symptoms may be attributed to protective factors that enabled participants' resilience in the face of PTEs; conversely, PTEs may have put participants at risk for other mental health disorders. Considering the self-medication hypothesis (e.g., Breslau, 2009; Lipschitz et al., 2003; Ouimette & Brown, 2003; Reynolds et al., 2005; Staiger et al., 2009), where AUD symptoms are a result of a desire to self-medicate PTE related issues, resilience to PTEs may have prevented the emergence of AUD symptoms among participants. Some possible protective factors for PTEs could have included the type, duration, and intensity of the PTE, social resources (e.g., social support), or resilience to past stressors (Bonanno & Mancini, 2008).

Other factors may have contributed to non-significant findings between PTEs and AUD symptoms, such as with trauma being associated with other disorders or sample demographics. Prior research has found that trauma has been associated with or predictive of other mental health issues, such as depression (Suliman et al., 2009) or eating disorders (Kong & Bernstein, 2009) respectively. Therefore, it is possible is that these participants' exposure to PTEs may have been associated with other mental health disorders rather than with AUD symptoms, but this association was not examined in the current study. Demographic aspects of this particular sample might have also contributed to the current study's non-significant finding. For example, these community sample findings might differ from another study conducted with a sample of veterans. Veterans who have been deployed and have been exposed to combat have an increased risk of

AUD symptoms (Jacobson et al., 2008), which may suggest that veterans might have a positive and significant relationship between PTEs (due to combat exposure) and AUD symptoms compared to civilian or community-based samples. Ethnicity could also be another factor that might moderate the relationship between PTEs and AUDs. Bonanno et al. (2007) examined resilience factors following a PTE with a sample that included White, Asian, African, American, Hispanic, and Other participants. Asian participants were found to be almost three times more resilient than White participants after controlling for socioeconomic variables and prior trauma. It is unclear as to why resiliency was found between ethnic groups. However, another study on South Asian immigrant women who survived childhood sexual abuse found that South Asian participants used resilience strategies that included: use of silence, sense of hope, South Asian social support, social advocacy, and intentional self-care (Singh, Hays, Chung, & Watson, 2010). Perhaps resilience strategies differ between ethnic groups and some ethnic groups display more resilience following a PTE, whereas some ethnic groups may be more likely to develop AUD symptoms following a PTE. More research on ethnicity in relation to a potential relationship between PTEs and AUD symptoms would be worth exploring.

Gender as moderator of PTEs as predictor of PTSD symptoms and AUD symptoms. When considering gender as a potential moderator of the relationship between PTEs and PTSD, it was hypothesized that females would have a significantly stronger path between these variables compared to their male counterparts based on numerous research studies supporting the link between trauma and PTSD among females (e.g., Breslau et al., 1998; Breslau, 2009; Clark, Pollock, et al., 1997; Deykin & Buka,

1997; Olff et al., 2007; Perkonigg et al., 2000; Pietrzak et al., 2011; Resnick et al., 1993; Schneider et al., 2007; Turner & Gil, 2002; WHO, n.d.). Unexpectedly, results revealed that gender did not significantly moderate this relationship. In other words, although more childhood PTEs predicted increased PTSD symptoms at Wave I and new PTEs predicted increased PTSD symptoms at Wave II, the strength of these relationships was equal for both males and females.

In this study, participants' gender was identified by one question with two response options that referred to the participant as either the male or female biological sex. However, the term "gender" could also be more broadly defined to include those who do not fit within binary male and female constructs, such as with participants who might identify as transgender (Shipherd, Maguen, Skidmore, & Abramovitz, 2011). With a broader definition of gender, results might have differed, and perhaps gender would have moderated relationships between variables more often in the model. For example, Shipherd et al. (2011) found a large percentage of transgender participants (42% of the 98% that reported exposure to a PTE), who were considered male at birth, to have experienced at least one PTE to be transgender bias-related. PTSD symptoms associated with PTEs were greater among the sample compared to the general population, as well as compared to males within the general population. However, PTSD symptoms among the study sample were similar to females in the general population. Therefore, a gender scale versus a question with two possible responses may help in understanding how variations in gender may influence the current study's findings. Other gender-related variables might be important to measure in relation to the aforementioned relationships in future studies, such as stigma associated with different gender classifications. As in the

example mentioned above, some of the PTEs experienced by participants may have been hate crime-related PTEs due to stigma associated with identifying as transgender, which might have increased the likelihood of transgender individuals being exposed to PTEs and subsequent mental health issues overall. Therefore, results of the current study may differ with a broader definition of gender.

Although previous research supports the likelihood of females having an increased risk of developing PTSD as a result of PTEs, other factors may impact each gender's susceptibility to developing PTSD symptoms (Olff et al., 2007). For example, females who are exposed to interpersonal assault, as one type of trauma, have an increased likelihood of developing PTSD compared to males (Breslau, Wilcox, Storr, Lucia, & Anthony, 2004; Olff et al., 2007), whereas males who are exposed to military conflict, a different type of trauma, may be more likely to develop PTSD compared to females (Yasan, Saka, Ozkan, & Ertem, 2009). It is unknown whether participants in the current sample were exposed to military conflict but the aforementioned example is intended to highlight that the type of trauma to which the participants were exposed might have influenced results. It is possible that both males and females in this particular sample were exposed to the certain types of trauma to which they were most susceptible, resulting in similar levels of PTEs and PTSD symptoms, which may have been the reason why gender was not found to moderate the relationship between PTEs and PTSD symptoms. However, one study suggested that the type of trauma, as well as other factors, such as exposure rate and subjective level of distress, may lead to the development of PTSD and that gender does not necessarily influence the development of PTSD but the literature varies with this regard (Frans, Rimmo, Alberg, & Fedrikson,

2005). Overall, little is known about the relationship between gender, the types of trauma, and the development of PTSD (Yasan et al., 2009), and more research is needed in this area.

Additionally, it was hypothesized that gender would moderate the relationship between childhood PTEs and new PTEs to AUD symptoms in Wave I and Wave II, respectively, with males expected to show stronger relations compared to females for both paths. The literature has varied with regards to gender differences in the relationship between PTEs and AUD symptoms, and this study's hypothesis was based on more general findings that suggest that males have an increased likelihood developing AUD symptoms compared to females (e.g., APA, 2000; Grucza et al., 2008; Keyes et al., 2008; Lloyd & Turner, 2008; Palmer et al., 2009; Ramchand et al., 2009; Rehm et al., 2009; SAMHSA, 2011; Swendsen et al., 2012; Teesson et al., 2010). However, the study's findings did not support gender as a moderator, indicating that the relationship between trauma and AUD symptoms was similar for males and females. One reason that results did not support these hypotheses could be because the male gender has also been reported to be a protective factor when exposed to PTEs (Bonanno & Mancini, 2008), which may have cancelled out the likelihood of males developing AUD symptoms after exposure to PTEs.

PTSD symptoms as predictor of AUD symptoms. Findings supported the hypotheses that increased frequency in PTSD symptoms in Wave I would significantly predict increased frequency of AUD symptoms in Wave I. A similar link between PTSD and AUD symptoms was found at Wave II. These findings are also in line with previous research suggesting that psychiatric disorders often precede substance use disorders

(Turner & Gil, 2002) and, in particular, PTSD precedes alcohol dependence (Sartor et al., 2010). PTSD symptoms as related to AUD symptoms may be due to the self-medication hypothesis, whereby alcohol consumption occurs in an attempt to alleviate PTSD symptoms (Breslau, 2009; Lipschitz et al., 2003; Ouimette & Brown, 2003; Reynolds et al., 2005; Staiger et al., 2009).

Unexpectedly, increased frequency of PTSD symptoms in Wave I did not significantly predict increased frequency of AUD symptoms in Wave II. Overall, prior research on PTSD and AUDs were found to be less clear, and findings from one study often contradicted another study's findings (e.g., Breslau et al., 1997; Breslau et al., 2003; Leeies et al., 2000; Lipschitz et al., 2003; Lopez et al., 2005), which could be similar to the current study findings when comparing data at two different periods of time versus in the same period of time as results from the prior paragraph suggest. Thus, it appears that this study has stronger support for a within-time link between PTSD symptoms and AUD symptoms than for using PTSD symptoms as a predictor of later AUD symptoms.

Gender as moderator of PTSD symptoms as predictor of AUD symptoms. Gender did not moderate the relationship between PTSD symptoms in Wave I to AUD symptoms in Wave I or the relationship between PTSD symptoms in Wave II to AUD symptoms in Wave II. This finding indicates that males and females had similar relationships between these variables at each wave of data collection, with more AUD symptoms predicted by more PTSD symptoms. However, gender did moderate the relationship between PTSD symptoms in Wave I to AUD symptoms in Wave II, although this path was not statistically significant when examined in the total sample. It was hypothesized that females would show a stronger positive relationship between earlier

PTSD symptoms and later AUD symptoms than would be found for males, but the opposite was found – males had a significant positive path and the path was not statistically significant for females. These findings may suggest that AUD symptoms may be more likely to be followed by PTSD symptoms for males as compared to females, which is consistent with other research showing that males are more likely to be diagnosed with AUDs (Palmer et al., 2009; Teesson et al., 2010) after developing PTSD symptoms.

Relationships between AUD symptoms, PTSD symptoms, and new PTEs. It was hypothesized that a greater frequency of AUDs in Wave I would predict increased frequency of AUDs in Wave II and that a greater frequency of PTSD symptoms in Wave I would predict increased frequency of PTSD symptoms in Wave II. In both cases, significant findings supported these hypotheses and confirmed previous research (e.g., Cloitre et al., 2009; Palmer et al., 2009), which indicates that when individuals have AUD and PTSD symptoms, these symptoms are likely to persist over time. Because young adults often have a negative attitude towards mental health services and do not seek mental health treatment (Jagdeo et al., 2009; Rickwood et al., 2007), these significant positive relationships between AUD symptoms over time and PTSD symptoms over time may reflect a lack of treatment. Receiving mental health services might serve to influence the AUD relationship and the PTSD relationship, whereby symptoms may not endure or increase over time with effective treatment.

As hypothesized, more frequent PTSD symptoms in Wave I also predicted greater exposure to new PTEs in Wave II; however, more frequent AUD symptoms did not significantly predict increased exposure to new PTEs in Wave II. In other words,

participants who reported increased PTSD symptoms at Wave I reported greater amounts of additional PTEs experienced since Wave I. This finding and prior research support the notion that the recurrence of PTEs can result from increased PTSD symptoms. Because the numbing (Ulman et al., 2009) and hyperarousal (Risser, Hetzel-Riggen, Thomsen, & McCanne, 2006) symptoms of PTSD have been shown to predict revictimization, it makes sense that increased PTSD symptoms predict an increased likelihood of additional PTEs.

Similarly, AUD symptoms and alcohol consumption in general have been shown to lead to adverse consequences, such as an increased risk of victimization (Howard et al., 2008), which can be considered a PTE. Therefore, it was surprising that an increased frequency of AUD symptoms as predictor to an increase in new PTEs was not supported. One explanation for the non-significant findings may have to do with the participant age. The age of both male and female participants might have decreased the likelihood of subsequent PTEs simply because participants might not have had AUD symptoms long enough to experience AUD symptom-related PTEs.

AUD symptoms in Wave I had a significant relationship to PTSD symptoms in Wave II, but surprisingly this path was negative despite having been hypothesized to be significant and positive. Thus, in contrast to the expectation that greater AUD symptoms in Wave I would be related to greater PTSD symptoms in Wave II, greater AUD symptoms were significantly related to fewer PTSD symptoms (or alternatively, fewer AUD symptoms were significantly related to more PTSD symptoms). Overall, very little prior research exists in this area, and this hypothesis was based on one older study that used an adolescent aged sample comprised of predominantly male European-American

participants (Clark, Pollock, et al., 1997), which made it difficult to anticipate findings in this more ethnically diverse sample. However, one reason that more AUD symptoms in Wave I significantly predicted fewer PTSD symptoms in Wave II may have to do with the self-medication hypothesis. The alcohol consumption that corresponds to the reported level of AUD symptoms might give individuals temporary relief of PTSD symptoms; conversely, without alcohol consumption to alleviate pain, there could be more PTSD symptoms. However, although alcohol may provide short-term relief, the long-term consequences can be devastating, such as irreparable alcohol-related damage (e.g., vehicle accidents, mortality, etc.) (Boden & Fergusson, 2011; Rehm et al., 2009) or sustained PTSD symptoms (Reynolds et al., 2005).

Gender as moderator of the relationships between AUD symptoms, PTSD symptoms, and new PTEs. Gender was not found to be a moderator of the relation between AUDs in Wave I to AUDs in Wave II nor of the relation between PTSD symptoms in Wave I and PTSD symptoms in Wave II. These findings suggest that both males and females experience similar mental health trajectories when it comes to experiencing AUD symptoms and PTSD symptoms over two time periods. Results did not support hypotheses or previous research of greater AUD symptoms among males (e.g., APA, 2000; Grucza et al., 2008; Keyes et al., 2008; Lloyd & Turner, 2008; Palmer et al., 2009; Ramchand et al., 2009; Rehm et al., 2009; SAMHSA, 2011; Swendsen et al., 2012; Teesson et al., 2010) and greater PTSD symptoms among females (e.g., Breslau et al., 1998; Breslau, 2009; Deykin & Buka, 1997; Olff et al., 2007; Perkonigg et al., 2000; Pietrzak et al., 2011; Resnick et al., 1993; Schneider et al., 2007; Turner & Gil, 2002; WHO, n.d.). The discrepancy between this study's lack of gender differences in the

relationship of PTSD and AUD symptoms over time and previous research may also be attributed to the influence of other factors, such as the longitudinal nature of the current study or stratification of gender groups within the sample, as described next.

First, the current study was a longitudinal study. However, almost half of the reviewed literature regarding gender differences in PTSD and AUD symptoms over time were cross-sectional studies (e.g., Keyes et al., 2008; Rehm et al., 2009; Swendsen et al., 2012; Teesson et al., 2010), thereby making it difficult to predict gender differences in AUD and PTSD symptoms among males and females over time. Second, the sample was stratified by gender, with approximately equal proportion of the male and female genders represented. This stratification is unique, because in past studies, alcohol dependence research typically focused on male participants or mixed samples with an underrepresentation of females, whereby findings were then generalized to both genders (Greenfield, 2002). It might also be likely that with the gender gap narrowing with AUDs, males and females might be becoming more similar with regards to developing AUD symptoms over time. With regards to PTSD, as mentioned previously, the *type* of trauma experienced among the sample might have also influenced the ability to find gender as moderator, such as females having a greater likelihood of developing PTSD as a result of interpersonal assault type of trauma compared to males (Breslau et al., 2004; Olff et al., 2007) and males being more likely to develop PTSD compared to females after exposure to military combat type of trauma (Yasan et al., 2009).

In contrast to the hypotheses for PTSD symptoms over time and AUD symptoms over time, gender was found to significantly moderate the relationship between PTSD and new PTEs as hypothesized, whereby more PTSD symptoms predicted a greater

number of reported additional PTEs at a later time for females, while these variables were not significantly related for males. It is fitting that the relationship is significantly stronger for females compared to males because numerous research studies have reported that females have a greater likelihood for developing PTSD and for being exposed to additional traumas following an initial trauma (e.g., Breslau et al., 1998; Breslau, 2009; Deykin & Buka, 1997; Olff et al., 2007; Perkonigg et al., 2000; Pietrzak et al., 2011; Resnick et al., 1993; Schneider et al., 2007; Turner & Gil, 2002; WHO, n.d.). Gender role socialization may influence likelihood of PTSD symptoms following additional PTEs. For example, according to social expectations, males are expected to problem-solve and gain control over their emotions, which may prevent mental health issues from developing. However, females are often socialized to depend on others for protection and emotional needs, which can foster avoidance behavior (McLean & Anderson, 2009) and may increase the likelihood of PTEs.

In regards to AUD symptoms as predictor of new PTEs, gender did not moderate this relationship. The literature supports that untreated AUD symptoms can lead to alcohol-related PTEs, such as interpersonal problems (e.g., interpersonal violence when intoxicated) or drinking alcohol while driving an automobile (e.g., vehicular accident) (APA, 2000; Brown et al., 2008), among young adults in particular (Brown et al., 2008). However, it is interesting that, in this study, an increased frequency of AUD symptoms did not predict greater numbers of new PTEs. It is also surprising that gender did not moderate this relationship. Gender differences in the relationship between AUD symptoms and new PTEs has not been explored in existing research, but it was anticipated that gender might moderate this relationship because greater AUD symptoms

(e.g., APA, 2000; Grucza et al., 2008; Keyes et al., 2008; Lloyd & Turner, 2008; Palmer et al., 2009; Ramchand et al., 2009; Rehm et al., 2009; SAMHSA, 2011; Swendsen et al., 2012; Teesson et al., 2010) as well as increased risk of exposure to traumas (e.g., Breslau, 2009; Olff et al., 2007) more often occur among males.

Thus, it is possible that although gender differences in the mean level of AUD symptoms and PTEs exist, the relationship between these two variables is similar across gender. In addition, the type of trauma that individuals of the two genders studied here had experienced could have an influence on this relationship as well. The current study identified PTEs that were self-reported by the sample, but it may be likely that the PTEs that occurred were not necessarily related to the alcohol use symptoms they reported. For example, if someone was exposed to a vehicular accident, which could be considered a PTE, alcohol might not have been involved. More research is needed in this area, especially with regards to the type of trauma (Yasan et al., 2009) and its potential role with PTEs and other mental health issues.

Finally, gender did moderate the relationship between AUD symptoms in Wave I as predictor to PTSD symptoms in Wave II, whereby females had a stronger path and males had a non-significant path. However, the hypothesis was only partially confirmed because the significant path for females was found to be in the negative, as opposed to the expected positive, direction. In other words, females who reported fewer AUD symptoms at Wave I reported greater numbers of PTSD symptoms at Wave II. Due to limited research exploring the relationship between AUD symptoms as predictor to PTSD symptoms and gender as a moderator, the hypothesis was based on one study's findings. Clark, Pollock, et al. (1997) had reported that PTSD preceded and followed AUDs and

that females with PTSD symptoms had approximately twice as many AUD symptoms compared to males. It is also important to note that, although the study referenced had recruited some of its participants from the community, most of their sample was from a hospital-based program where more severe mental health issues were prevalent. In the current study, it was expected that females would have a stronger path; however, the negative direction may have been the result of other factors, such as the current study's focus on *symptoms* to account for subsyndromal PTSD and AUDs, whereas Clark, Pollock, et al.'s sample included participants who more often met diagnostic criteria. Therefore, the severity of AUDs and PTSD among females, in particular, may influence the relationship between AUD symptoms and PTSD symptoms.

Limitations and Threats to Validity

Some threats to internal, external, construct, and statistical conclusion validity may be present in the current study. An internal validity threat could include ambiguous temporal precedence (Heppner et al., 2008), particularly for pathways within a particular time frame (e.g., Wave I). For example, increased frequency PTSD symptoms in Wave I significantly predicted increased frequency of AUD symptoms in Wave I. It might be easy to assume that participants developed PTSD symptoms initially and that they then developed AUD symptoms later; however, this study is unable to determine which mental health variable occurred first, and therefore cause and effect cannot be established.

Three threats to external validity include the limited age range, geographic location – Miami-Dade County in South Florida – of the participants, and gender being narrowly defined; as a result, generalizability to other age groups, geographic locations, and genders may be compromised (Lloyd & Turner, 2008). For instance, previous

research has found that older adults exhibit more resiliency to trauma and are less likely to develop PTSD (Bonanno et al., 2007) yet also that older adult brains may be more vulnerable to the effects of alcohol (Oscar-Berman & Marinkovic, 2007), which may affect the development of PTSD and AUD symptoms among individuals of different ages. Miami-Dade County in South Florida might have also had community of members that were either more or less likely to be exposed to PTEs or develop PTSD symptoms and/or AUD symptoms compared to other areas, such as with geographical locations that were exposed to traumatic events. For example, the 9/11 PTE in New York City or the Kansas City bombing PTE might have influenced the development of PTSD symptoms or AUD symptoms among those who were visiting or reside in those areas at the time of the PTE, which could have resulted in different findings for those groups than what was found in the current study.

A threat to construct validity may include mono-method bias (Heppner et al., 2008). PTEs, PTSD symptoms, and AUD symptoms were all assessed with measures that depended on participants' self-report and retrospective recall (Lloyd & Turner, 2008). Participants may have wanted to answer in a socially desirable way, which could have impacted data accuracy. For example, males may have been less likely to report trauma and females may have been less likely to report AUD symptoms because of the social stigma associated with gender and mental health issues. Finally, statistical conclusion validity may have been affected in some ways due to extraneous variance in the research setting, whereby participants were interviewed in their home, the research office, or by phone (Heppner et al., 2008; Turner & Gil, 2002). However, other types of statistical conclusion validity do not appear to be an issue. For example, the study is likely to have

high statistical power due to the large sample size in Wave I and Wave II, and treatment implementation should also be reliable since researchers were trained on interview administration (Turner & Gil, 2002).

Implications for Practice

The results of this study provide important implications for clinical practice with community dwelling young adults. For clinicians working with young adults, these findings highlight the need for ongoing screening and assessment for PTEs, PTSD symptoms, and AUD symptoms, in order to provide effective services to reduce the likelihood of increased symptomatology compounded over time. For instance, findings suggest that experiencing more PTEs predicts increased PTSD symptoms and that PTSD symptoms and AUD symptoms may persist over time for both male and females who have not received mental health services, despite whether or not participants met full diagnostic criteria. Thus, it may be advisable that individuals seeking mental health services who present with PTSD symptoms and/or AUD symptoms should be treated for those symptoms even if they have subsyndromal PTSD and/or AUD. This study underscores the importance of screening for PTEs, PTSD symptoms, and AUD symptoms, especially for males with PTSD symptoms in particular, because these results showed that AUD symptoms persisted over time to a greater degree for males as compared to females.

Furthermore, findings also suggested that fewer AUD symptoms predicted greater PTSD symptoms among females, but these variables were not significantly related for males. Thus, for females, this finding could also be viewed as more AUD symptoms being predictive of fewer PTSD symptoms, which from a clinical perspective, could

indicate that if a female client presented with AUD symptoms, it may be possible that she is using alcohol as self-medication for PTSD symptoms, resulting in the decreased number of PTSD symptoms reported. Therefore, it is imperative to screen for PTEs and PTSD symptoms, in addition to AUD symptoms, which might appear more prevalent initially. While the study was conducted with a community sample, screening for PTEs, PTSD, and AUD symptoms in other settings may also be beneficial to provide most effective services and prevent an increase in mental health issues, such as in a college counseling center (Elhai & Simons, 2007; Hunt & Eisenberg, 2010) or at a Veteran Affairs (VA) facility (Rosen et al., 2004; Santiago et al., 2010).

Transitioning into college or military service can be a life altering experience in different ways. Those transitioning into college are more likely to face changes that they anticipate (e.g., deciding on a career) compared to those in the military who may face more unexpected changes, such as with changes in assignment, being sent home, physical injury, or encountering a traumatic experience outside the realm of training (DiRamio, Ackerman, & Mitchell, 2008). Therefore, although many therapeutic approaches may be similar for clients in both college counseling centers and VA facilities, as well as for those in the community, some flexibility in approach may be needed.

For example, mental health concerns may be on the rise for college students, and although help-seeking behavior is increasing in general, some students may not know about mental health services or may not believe that mental health services can help (Hunt & Eisenberg, 2010). Campus outreach and normalizing mental health concerns may help in a college campus counseling setting. By increasing availability and knowledge of services, screening and interventions for PTEs, PTSD symptoms, and AUD

symptoms may help to prevent untreated and compounded symptoms over time for students.

Veterans may encounter other unique stressors. For instance, a veteran who has been deployed into a combat zone may have been exposed to multiple traumas and may present with more complex mental health issues. Veterans might have also been physically injured in combat, which may also add additional stressors. Moreover, a veteran's military service and move away from family and friends may have negatively impacted relationships, thereby weakening or dissolving support networks. Veterans may benefit from more holistic care, such as coordination of services that address other stressors (e.g., housing, physical limitations) that may also be impacting the likelihood of PTEs, PTSD, and/or AUD symptoms.

Similarly, individuals in the community may also have a unique set of stressors. Community dwelling individuals may have limited access to mental health services due to lack of insurance or language barriers (Sentell, Shumway, & Snowden, 2007). Students in the United States are often insured, English speaking, and may be frequently on campus with nearby mental health services. Comparatively, veterans may have service connection that can pay for transportation and VA mental health services. Therefore, affordable mental health services and availability of interpreters may help in treating and screening for PTEs, PTSD symptoms, and AUD symptoms among community residents.

Although the current study focused on PTEs, PTSD symptoms, and AUD symptoms, screening for other mental health issues (e.g., anxiety, depression, other types of drug use, etc.) would also be beneficial because other mental health issues have also

been shown to be related to PTEs, PTSD symptoms, and AUD symptoms. For example, PTEs have also been associated with or predicted other mental health issues, such as depression (Suliman et al., 2009) or eating disorders (Kong & Bernstein, 2009), respectively. The current research study was unable to determine whether other unhealthy conditions may have been present for participants, but clinicians should be aware of the potential for these conditions to also have an influence on AUD and PTSD symptoms. Additionally, though research has been limited with regards to gender and trauma as it relates to the development of PTSD (Yasan et al., 2009), exploring the type of PTE (e.g., PTE in a neighborhood versus a PTE experienced during combat), level of subjective distress following a PTE, and exposure rate of a PTE may provide useful information to explore with both male and female clients in relation to other mental health symptoms that may have risen in the wake of a traumatic experience. Therefore, in-depth screening measures are needed when providing services to young adults.

Psychosocial resources are another important factor to consider when screening for mental health issues and in providing treatment overall. Protective factors associated with resilience and coping with adverse situations have included: social support (Olff, 2012); healthy relationships with peers and others that enhance trust, autonomy, and initiative (Werner, 1995); ability to communicate effectively (Werner, 1995); a healthy relationship with at least one stable adult parent figure; self-efficacy (Werner, 1995); and community relationships and support (e.g., role models; Werner, 1995). Gathering information on psychosocial resources during clinical interviews may help to inform treatment by highlighting the need to increase psychological resources or to focus on what the client has in terms of psychological resources to promote mental health and

well-being outside of the therapeutic relationship. For example, if an individual has been exposed to a PTE and also has healthy, trustworthy, and supportive relationships with at least one other person, if deemed appropriate, the client could seek support from the person or people in their lives that they can trust when needed, outside of the therapeutic relationship.

Socioeconomic status, which can also be considered a psychosocial resource, could also contribute to access to mental health services and may differ between males and females. Those within a lower socioeconomic status have been shown to report finances as a barrier to mental health treatment (Sareen et al., 2007). When taking gender into account, males are more likely to earn more income, on average, compared to females (Bobbitt-Zeher, 2007), which would positively influence males' socioeconomic status. Therefore, those with lower socioeconomic statuses may not have access to mental health services, which underscores the importance of outreach efforts on behalf of the mental health providers and/or mental health facility. Outreach services are also especially important for young adults because are less likely to seek mental health services than their older counterparts (Jagdeo et al., 2009; Rickwood et al., 2007; Vanheusden et al., 2008).

Future Directions for Research and Practice

The current study is one of the only studies to examine gender as moderator of the relationships between trauma, PTSD symptoms, and AUD symptoms among young adults. Findings provide important implications for practice and research. To summarize, increased exposure to PTEs – both childhood PTEs and new PTEs – predicted increased frequency of PTSD symptoms (within Wave I and II, respectively). Increased frequency

of PTSD symptoms (Wave I) predicted not only increased exposure to new PTEs among females but also predicted an increased frequency of PTSD symptoms at a later time (Wave II) for all participants. Moreover, increased frequency of PTSD symptoms (Wave I) also predicted an increased frequency of AUD symptoms in the same assessment time (Wave I) for all participants, as well as over a longer period of time (Wave II) for males in particular. Lastly, an increased frequency of AUD symptoms (Wave I) predicted increased frequency of AUD symptoms over time (Wave II) but a fewer AUD symptoms (Wave I) predicted an increased frequency of PTSD symptoms at a later time (Wave II) and among females in particular.

Mental health issues can inhibit functioning and lead to human suffering. Without treatment, mental health concerns that result from trauma or are associated with experiencing trauma, such as with PTSD symptoms, can compound over time and increase the risk of developing additional mental health disorders (Farrugia et al., 2011; Khoury et al., 2010; McCutcheon et al., 2010). Therefore, screening for PTEs among young adults is needed (Dube et al., 2002; Jagdeo et al., 2009), and particularly given this study's findings of significant links between PTSD symptoms as a predictor of concurrent AUD symptoms, those presenting with PTSD symptoms should also be screened for substance use disorders, such as AUDs (Danielson et al., 2009; Giaconi et al., 2000) in order to provide effective treatment when needed. Furthermore, understanding the relationships between PTEs, PTSD symptoms, and AUD symptoms in young adults can also be informative for early intervention efforts aimed at treating primary mental health symptoms among younger individuals in order to prevent developing secondary mental health disorder symptoms (Farrugia et al., 2011).

Through research, we know that exposure to trauma and the development of substance use disorders, such as with AUDs, often occurs in adolescence and young adulthood (Breslau et al., 1998; Gayman et al., 2011; Ouimette & Brown, 2003). Further, childhood trauma predicts PTSD in adolescence and young adulthood (McCutcheon et al., 2010), perhaps because young adults are less resilient to trauma compared to older adults (Bonanno et al., 2007). According to the current study results, females with PTSD symptoms, in particular, may also be at a greater risk for exposure to additional PTEs. These findings highlight the need not only for early identification and treatment of PTSD to alleviate symptoms but to also prevent additional exposure to PTEs. Early identification and outreach services are especially important since young adults are less likely to seek mental health services than their older counterparts (Jagdeo et al., 2009; Rickwood et al., 2007; Vanheusden et al., 2008).

Given the relationships found between PTSD and AUD symptoms – namely an increased frequency in PTSD symptoms as a predictor of greater AUD symptoms within the same time frame; an increased frequency of AUD symptoms as a predictor of more AUD symptoms at a later time; a decreased frequency of AUD symptoms predicting greater frequency of PTSD symptoms over time for females; and an increased frequency of PTSD symptoms as predictor of an increased frequency of AUD symptoms over time for males – it is essential to provide treatment and preventive measures for AUDs (Grucza et al., 2008) and PTSD (Lopez et al., 2005). PTSD treatment, in particular, that includes incorporating healthy and effective coping skills would likely reduce subsequent AUD symptoms (White & Widom, 2008). It has also been suggested that if psychiatric disorders precede substance disorders, then the focus of treatment should be on the

psychiatric disorder among young adults (Turner & Gil, 2002). Taking the current study findings into account and applying this logic with regards to symptoms, it may be helpful to focus on treating PTSD symptoms over AUD symptoms, particularly for males. Although, research examining the incorporation of effective trauma interventions within established substance use disorder programs would also be beneficial (Reynolds et al., 2005).

Additional research further exploring gender as a moderator and the aforementioned relationships in more depth, as well as incorporating other variables, would be beneficial. For instance, exploring the type of PTE, the level of subjective distress following a PTE, or the exposure rate of PTE as it relates to the development of PTSD symptoms and how gender plays a role would help inform future research and practice, especially because little research has been conducted in this area (Yasan et al., 2009). The relationship between childhood PTEs and AUD symptoms in the current study was non-significant. Exploring how additional variables, such as protective factors (Bonanno & Mancini, 2008), or psychosocial resources (e.g., socioeconomic status) relate to gender differences in the relationships among PTEs, PTSD symptoms and AUD symptoms could also add value to research, as well as inform gender-sensitive clinical interventions. For example, research could examine social support (e.g., family, friend, or professional relationships or lack thereof) as a type of protective factor and if it moderates the relationships between PTEs, PTSD symptoms, and AUD symptoms and also explore if there are group differences between males and females with regards to the types of social support (or lack thereof) they tend to have in their lives. Using this example, from a clinical standpoint, these research findings could provide implications

for practice by fostering an environment where social support is explored as it relates to males and females to ultimately increase social support or certain types of social support (if results suggest social support to be protective) to increase treatment efficacy and preventative efforts.

Furthermore, the study is unique because the sample was composed of young adults from a restricted geographical location and was stratified by gender and ethnicity. Additional research examining ethnicity, location, and age disparities in mental health, such as with PTEs, PTSD symptoms, and AUD symptoms may also be beneficial. The archival dataset used for the current study did not include other geographical locations or other age ranges, however, the sample is not homogenous with regards to ethnicity (with approximately equal proportion of Non-Hispanic White, Cuban, Other Hispanic, and African American participants) and thus could be used by others to explore questions related to ethnicity. Future research could shed light on ethnicity as a multicultural variable of interest in relation to exposure to PTEs and the development of PTSD symptoms and AUD symptoms among young adults residing in South Florida. Findings could provide important implications for practice to enhance not only gender-sensitive services but also ethnicity-sensitive services as well. Related findings could contribute to the field by providing important implications for multiculturally-sensitive practice in order to meet individual needs for those of differing ethnicities, ages, and for those living throughout the United States and internationally.

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Table 1

Demographic characteristics of the full sample and by ethnicity at both Wave I and Wave II

Demographic Characteristic	Full Sample (N = 1,076)	By Ethnicity			
		Non-Hispanic White (n = 268)	Cuban (n = 261)	Other Hispanic (n = 267)	African American (n = 280)
Age (M yrs)					
Wave I	19.89	19.77	19.87	20.06	19.87
Wave II	22.66	22.57	22.65	22.77	22.65
% female	46.10	45.10	45.60	47.60	46.10
% never married					
Wave I	90.80	96.30	82.80	88.00	96.40
Wave II	85.10	90.30	75.90	80.90	93.20
Education level (%)					
6th grade	0.00	0.0	0.0	0.0	0.0
7th grade	0.00	0.0	0.0	0.0	0.0
8th grade	0.70	0.7	1.1	0.7	0.0
9th grade	2.40	1.1	1.9	4.1	2.5
10th grade	4.90	1.1	6.5	7.5	4.6
11th grade	8.10	3.0	10.3	8.6	10.4
12th grade	81.90	91.8	78.2	77.2	80.4
Other	2.00	2.2	1.9	1.9	2.1

Note. The values tabled reflect the analysis sample with data at both Wave I and Wave II.

Table 2

Correlation matrix and descriptive statistics for analysis variables

	1	2	3	4	5	6
1. Childhood PTEs	1.000					
2. AUD Symptoms Wave 1	.074*	1.000				
3. PTSD Symptoms Wave 1	.300***	.145***	1.000			
4. New PTEs	-.008	-.055	.069*	1.000		
5. AUD Symptoms Wave 2	.049	.458***	.111***	-.053	1.000	
6. PTSD Symptoms Wave 2	.220***	.005	.477***	.157***	.091*	1.000
M	20.506	1.083	9.835	2.362	0.876	7.988
SD	27.409	2.057	8.869	4.526	1.728	8.075
Skewness	1.778	2.624	.899	1.867	2.815	1.028
Kurtosis	1.760	8.385	-.005	1.936	9.573	.366

* $p < .05$; ** $p < .01$; *** $p < .001$.

Table 3

Standardized Regression Weights for the Full Model in the Total Sample and by Gender

Path	Total Sample (N = 1076)	Males (n = 580)	Females (n = 496)
CPTE → PTSD1	.299***	.291***	.297***
CPTE → AUD1	.036	.048	.015
AUD1 → AUD2	.456***	.459***	.398***
PTSD1 → PTSD2	.476***	.424***	.438***
AUD1 → NPTE	-.062	-.069	-.053
PTSD1 → NPTE	.081*	.012	.155**
NPTE → PTSD2	.120***	.135***	.125**
NPTE → AUD2	-.040	-.039	-.048
PTSD1 → AUD1	.132***	.169***	.165***
PTSD1 → AUD2	-.002	.085*	-.015
PTSD2 → AUD2	.097**	.123**	.121*
AUD1 → PTSD2	-.059*	-.008	-.084*

Note: CPTE = Childhood PTEs; PTSD1 = PTSD Symptoms Wave 1; PTSD2 = PTSD Symptoms Wave 2; AUD1 = Alcohol Use Disorder Symptoms Wave 1; AUD2 = Alcohol Use Disorders Wave 2; NPTE = New Potentially Traumatic Events
* $p < .05$; ** $p < .01$; *** $p < .001$.

Table 4

Standardized Regression Weights by Gender – Partially Moderated Model

Path	Males (n = 580)	Females (n = 496)	Hypothesis	Confirmed?
CPTE → PTSD1	.295***	.293***	F > M	No
CPTE → AUD1	.024	.035	M > F	No
AUD1 → AUD2	.421***	.446***	M > F	No
PTSD1 → PTSD2	.436***	.425***	F > M	No
AUD1 → NPTE	-.067	-.055	M > F	No
PTSD1 → NPTE	**.011**	**.155****	F > M	**Yes**
NPTE → PTSD2	.143***	.115***	F > M	No
NPTE → AUD2	-.038	-.049	M > F	No
PTSD1 → AUD1	.132***	.195***	F > M	No
PTSD1 → AUD2	**.110****	**-.038**	F > M	**Partially**
PTSD2 → AUD2	.092***	.148***	F > M	No
AUD1 → PTSD2	**-.009**	**-.084***	F > M	**Partially**

Note: CPTE = Childhood PTEs; PTSD1 = PTSD Symptoms Wave 1; PTSD2 = PTSD Symptoms Wave 2; AUD1 = Alcohol Use Disorder Symptoms Wave 1; AUD2 = Alcohol Use Disorders Wave 2; NPTE = New Potentially Traumatic Events. Moderated paths are shown in bold type.
* $p < .05$; ** $p < .01$; *** $p < .001$.

Appendix A

Life Trauma Questions

O1. Did you ever lose your home because of a natural disaster?
O2. Have you ever had a serious accident, injury or illness that was life threatening or caused long-term disability?
O3. Have you ever witnessed a serious accident or disaster where someone else was hurt very badly or killed?
O4. Did you ever have sexual intercourse when you didn't want to because someone forced you or threatened to harm you if you didn't?
O5. Were you ever touched or made to touch someone else in a sexual way because they forced you in some way, or threatened to harm you if you didn't?
O6. Were you regularly physically abused by one of your parents, stepparents, grandparents, or guardians?
O7. Were you regularly emotionally abused by one of your caretakers?
O8. Were you ever physically abused or injured by a spouse/boyfriend/girlfriend?
O9. Were you ever physically abused or injured by a spouse/boyfriend/girlfriend?
O10. Did you witness your mother or another close female relative being regularly physically or emotionally abused?
O11. Have you ever been shot at with a gun or threatened with another weapon but not injured?
O12. Have you ever been shot with a gun or badly injured with another weapon?
O13. Have you ever been chased by not caught when you thought you could really get hurt?
O14. Have you ever been physically assaulted or mugged?
O15. Have you seen someone chased but not caught or threatened with serious harm?
O16. Have you ever seen someone else get shot at or attacked with another weapon?
O17. Have you ever seen someone seriously injured by gunshot or some other weapon?
O18. Have you ever actually seen someone get killed by being shot, stabbed, or beaten?

(Appendix A continues)

O19. Have you ever been in a car crash in which someone was killed or badly injured?
†O20. Has anyone close to you ever died?
†O21. Are there any other traumatic events that have happened to you that we haven't talked about?
O21a. Please briefly describe this/these other traumatic event(s).
O22. Have you ever been told that someone you knew had been killed with a gun or another weapon?
O23. Have you ever been told that someone you knew had been killed with a gun or other weapon?
O24. Has anyone else you knew died suddenly or been seriously hurt?
O25. Have you ever been told that someone you knew killed him- or herself?
O26. Have you ever been told that someone you knew had been raped?

Turner, 2011
Note: Item numbers were taken directly from the Wave I questionnaire and are different from Wave II item numbers; however, the questions remain the same in both waves. Frequency of these life trauma events were summed to create the PTE score.
† Items O20 and O21 are included here to show the full context of the interview, but were not used to calculate the frequency of PTE because participants were not asked to report frequency for these two items.

Appendix B

Posttraumatic Stress Disorder Questions

P2. At the time this happened, did you believe that you or someone else could be killed or seriously injured?
P3. At the time, were you seriously harmed or was anyone else killed or seriously harmed?
P4. When this happened, did you experience feelings of intense helplessness?
P5. Did you experience intense fear?
P6. At the time, did you feel horrified?
P7. Did you keep remembering (event) even when you didn't want to?
P8. After it did you keep having bad dreams or nightmares about it?
P9. Did you suddenly act or feel as though (event) was happening again even though it wasn't?
P10. Did you get very upset when you saw, heard, or felt something that reminded you of it?
P11. Did you sweat or did your heart beat fast or did you tremble when you were reminded of (event)?
P12. After (event) did you have trouble sleeping?
P13. After it did you feel unusually irritable or lose your temper a lot more than is usual for you?
P14. After it did you have difficulty concentrating?
P15. After (event) did you become very much more concerned or more on guard about potential danger?
P16. After (event) did you become jumpy or easily startled by ordinary noises or movement?
P17. Did you deliberately try not to think or talk about (event)?

(Appendix B continues)

P18. Did you avoid places or people or activities that might have reminded you of it?
P19. After (event) did you lose interest in doing things that were once important or enjoyable for you?
P20. After (event) did you feel more isolated or distant from other people?
P21. After (event) did you find you had more difficulty experiencing normal feelings such as love or affection toward other people?
P22. After (event) did you begin to feel that there was no point in thinking about the future anymore?
P23. After (event) was your memory blank for all or part of (event)?
P24a. Did you suffer a head injury as a result of (event)?
P24b. Were you unconscious for more than ten minutes?
P27. How much did these problems ever bother or upset you? Would you say not at all, or a lot?
P28. How much did these problems ever interfere with your life or activities?
P29. How much did they interfere with work or school?
P30. How much did these problems cause you difficulty with your relatives?
P31. How much did they cause you difficulty with your friends?
P32. How much did they interfere with how you took care of yourself?
P33. Now, just thinking over the past 12 months, how much were you bothered or upset by these problems?

(Appendix B continues)

P34. How much did these problems interfere with your life activities in the past 12 months?
P35. Have you had any of these experiences or feelings in relation to any other severe event?
P36. At the time this happened, did you believe that you or someone else could be killed or seriously injured?
P37. At the time, were you seriously harmed or was anyone else killed or seriously harmed?
P38. When this happened, did you experience feelings of intense helplessness?
P39. Did you experience intense fear?
P40. At the time, did you feel horrified?
P41. Did you keep remembering (event) even when you didn't want to?
P42. After it did you keep having bad dreams or nightmares about it?
P43. Did you suddenly act or feel as though (event) was happening again even though it wasn't?
P44. Did you get very upset when you saw, heard or felt something that reminded you of it?
P45. Did you sweat or did your heart beat fast or did you tremble when you were reminded of (event)?
P46. After (event) did you have trouble sleeping?
P47. After it did you feel unusually irritable or lose your temper a lot more than is usual for you?
P48. After it did you have difficulty concentrating?
P49. After (event) did you become very much more concerned or more on guard about potential danger?
P50. After (event) did you become jumpy or easily startled by ordinary noises or movement?
P51. Did you deliberately try not to think or talk about (event)?
P52. Did you avoid places or people or activities that might have reminded you of it?

(Appendix B continues)

P53. After (event) did you lose interest in doing things that were once important or enjoyable for you?

P54. After (event) did you feel more isolated or distant from other people?

P55. After (event) did you find you had more difficulty experiencing normal feelings such as love or affection toward other people?

P56. After (event) did you begin to feel that there was no point in thinking about the future anymore?

P57. After (event) was your memory blank for all or part of (event)?

P58a. Did you suffer a head injury as a result of (event)?

P58b. Were you unconscious for more than ten minutes?

P61. How much did these problems ever bother or upset you? Would you say not at all, some or a lot?

P62. How much did these problems ever interfere with your life or activities?

P63. How much did they interfere with work or school?

P64. How much did these problems cause you difficulty with your relatives?

P65. How much did they cause you difficulty with your friends?

P66. How much did they interfere with how you took care of yourself?

P67. Now just thinking over the past 12 months; How much were you bothered or upset by these problems?

P68. How much did these problems interfere with your life or activities in the past 12 months?

Turner, 2011
Note: Item numbers were taken directly from the Wave I questionnaire and are different from Wave II item numbers; however, the questions remain the same in both waves.

Appendix C

Substance Use Questions

F28. In answering the next questions, please think about all of the substances just circled. Have you often been under the effects of [alcohol/(or)/drug/any of the other substances circled] or suffering its after-effects while at work or school or taking care of children?
F28a. Which substances did you use?
F29. Has your use of [alcohol/(or)/drug/any of the other substances circled] often kept you from working, going to school, or taking care of children?
F29a. Which substances did you use?
F30. Did [alcohol/(or)/drug/any of the other substances circled] ever cause you problems with your family, friends, at work or at school?
F30a. Which substances caused these problems?
F31. Did your use of [alcohol/(or)/drug/any of the other substances circled] ever cause you to be expelled from school, or to be demoted or fired from work?
F31a. Which substances did you use?
F32. Have you often been under the effects of [alcohol/(or)/drug/any of the other substances circled] or suffering its after-effects in a situation which increased your chances of getting hurt – like when driving a car or boat, using knives or guns or machinery, crossing against the traffic, climbing or swimming?
F32a. Which substances were you using?
F33. Did you accidently injure yourself when you have been under the influence of [alcohol/(or)/drug/any of the other substances circled] – like had a bad fall or cut yourself badly, been hurt in a traffic accident, or anything like that?
F33a. Which substances did you continue to use?
F34. Have you ever had any health problems as a result of using [alcohol/(or)/drug/any of the other substances circled] – such as liver disease, stomach disease, pancreatitis, feet tingling, numbness, memory problems, an accidental overdose, a persistent cough, a seizure or fit, hepatitis, or abscesses?
F34a. Which substances caused these problems?
F35. Have you ever had any emotional or psychological problems from using [alcohol/(or)/drug/any of the other substances circled] such as feeling uninterested in things, feeling depressed, suspicious of people, paranoid, or having strange ideas?
F35a. Which substances caused these problems?

(Appendix C continues)

F36. Did you ever continue to use [alcohol/(or)/drug/any of the other substances circled] after you realized it was causing problems with your physical or mental health?

F36a. Which substances did you continue to use?

F37. Did you ever continue to use [alcohol/(or)/drug/any of the other substances circled] while taking medicine you knew was dangerous to mix with alcohol or drugs, or when you had a serious health problem that could be made worse by alcohol or drugs?

F37a. Which substances did you continue to use?

F38. Have you ever felt such a strong desire or urge to use [alcohol/(or)/drug/any of the other substances circled] that you could not resist it or could not think of anything else?

F38a. Which substances did you use?

F39. Did your use of [alcohol/(or)/drug/any of the other substances circled] ever become regular that you would not change when, or how much you took it, no matter what you were doing or where you were?

F39a. Which substances did you use?

F40. Have you ever tried to stop or cut down on [alcohol/(or)/drug/any of the other substances circled] but found you could not?

F40a. Which substances did you use?

F41. Have you ever wanted to quit or cut down on [alcohol/(or)/drug/any of the other substances circled]?

F41a. Which substances did you use?

F42. Did you ever have a period of a month or more when you spent a great deal of time using [alcohol/(or)/drug/any of the other substances circled], getting it, or getting over its effects?

F42a. Which substances did you use?

F43. Did you often use much larger amounts of [alcohol/(or)/drug/any of the other substances circled] than you intended to when you began, or did you use (it/them) for a longer period of time than you intended to?

F43a. Which substances did you use?

F44. Did you often start using [alcohol/(or)/drug/any of the other substances circled] and find it difficult to stop before you became completely intoxicated or high?

F44a. Which substances did you use?

F45. Did you ever find that you had to use more of [alcohol/(or)/drug/any of the other substances circled] than usual to get the same effect or that the same amount had less effect on you than before?

F45a. Which substances did you use?

F46. Did stopping or cutting down on [alcohol/(or)/drug/any of the other substances circled] ever make you sick or cause you problems like those listed on page 26?

F46a. Which substances did you use?

F47. Did you ever use [alcohol/(or)/drug/any of the other substances circled] to make these withdrawal symptoms go away or to keep from having them?

F47a. Which substances did you continue to use?

F48. Have you ever given up or greatly reduced important activities in order to get, or to use [alcohol/(or)/drug/any of the other substances circled], like sports, work, or seeing family and friends?

F48a. Which substances?

F49. Did [alcohol/(or)/drug/any of the other substances circled] ever cause you recurrent problems with the police or other law enforcement (by recurrent we mean more than one occasion when you were encountered by the police, even if it did not result in an arrest)?

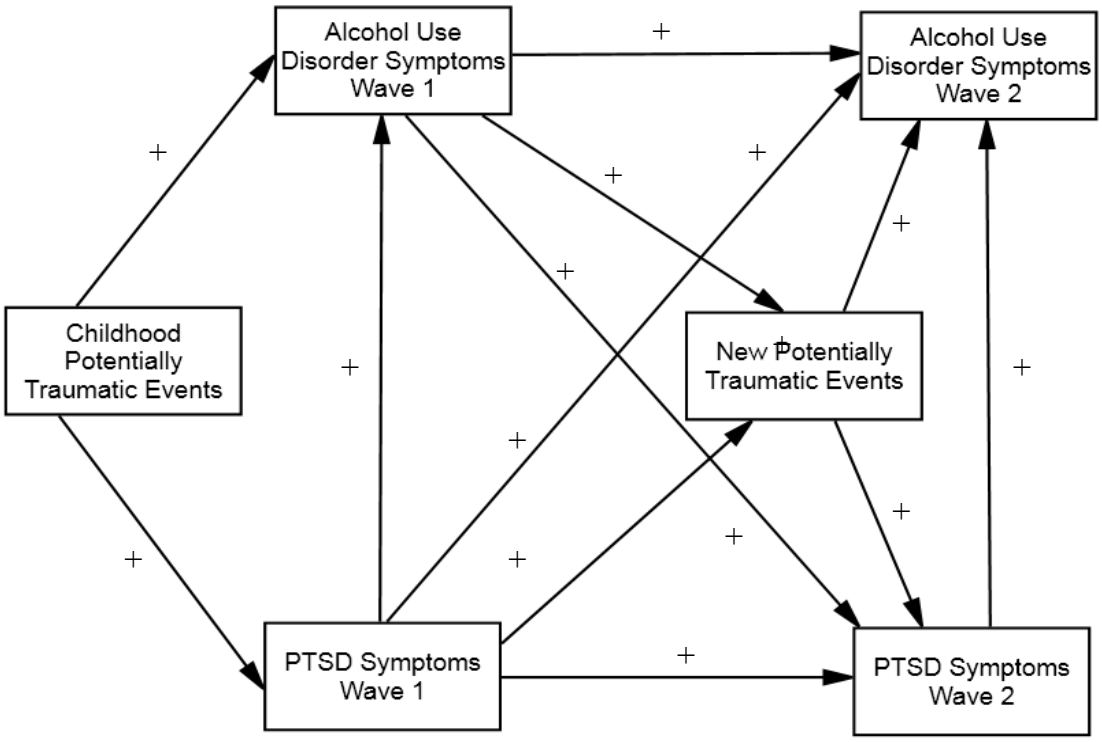
F49a. Which substances did you use?

Turner, 2011

Note: Item numbers were taken directly from the Wave I questionnaire and are different from Wave II item numbers; however, the questions remain the same in both waves. These questions were asked of participants who responded "yes" to a diagnostic stem item "In any period of your entire life, did you have at least 12 drinks of any kind of alcohol beverage?".

Figure 1.

Conceptual Depiction of the Hypothesized Path Model



JODI D. BREMER-LANDAU

EDUCATION

Doctor of Philosophy in Counseling Psychology Anticipated July 2015
Lehigh University, Bethlehem, PA
American Psychological Association (APA) accredited

Master of Arts in Clinical Psychology May 2007
Teachers College, Columbia University, New York, NY
APA accredited

Bachelor of Fine Arts May 2002
The School of the Art Institute of Chicago, Chicago, IL

CURRENT EXPERIENCE

Assistant Editor for Trauma Psychology Newsletter February 2014 – Present
APA Division 56 Trauma Psychology
- Edits Member News, Division News, Convention News, Early Career Practitioners, Student Spotlight, New Fellows, Awards, Who's Who, and Editorial Listing sections
- Tracks articles and sets up Table of Contents grid for each issue
- Maintains and updates editorial listing, executive committee manifest, and editorial manual
- Coordinates advertisements

Student Representative August 2013 – Present
APA Division 18 Public Service, VA Section
- Attends monthly conference meetings
- Acquires knowledge of mentoring, education, diversity, and planning for the annual VA Psychology Leadership conference on behalf of trainees and early career psychologists
- Creates and maintains VA Section Facebook, Twitter, and LinkedIn social media accounts

CLINICAL EXPERIENCE

Psychology Extern June 2013 – October 2013
Durham VA Medical Center, Raleigh II Community Based Outpatient Clinic, Raleigh, NC
APA accredited
Supervisor: Brad Rappaport, Psy.D.
Supervised Hours: 147
- Delivered empirically supported therapeutic interventions with a diverse (e.g., gender, race/ethnicity, socioeconomic status, sexual orientation) veteran population
- Provided individual therapy
- Co-facilitated mindfulness and pain management therapy groups
- Co-facilitated Intensive Outpatient Program's (IOP) Substance Use Disorders (SUDs) group therapy
- Conducted assessments in individual and group therapy modalities

Mental Health Consultant and Research Assistant February 2011 – July 2012
CARS Grant, Bethlehem, PA
Supervisors: Steve Evans, Ph.D., and Talida State, Ph.D.
Supervised hours: 996

- Implemented manualized cognitive-behavioral group therapy for clients with anxiety and depressive symptoms and difficulty with interpersonal skills
- Provided consultation to mental health professionals on delivering manualized empirically supported interventions
- Developed program-wide suicidal ideation protocol to ensure safety, risk reduction, and intervention
- Recruited participants and conducted assessment batteries

Psychology Extern August 2011 – May 2012
Friends Hospital, Philadelphia, PA
APA Accredited
Supervisor: Cindy Takacs, Psy.D.
Supervised hours: 484

- Conducted intake interviews and facilitated acute inpatient psychiatric short- and long-term individual and group therapy for a diverse patient population with severe mental health issues
- Utilized a multicultural focus and strengths-based approach with a trauma informed recovery care model in conjunction with empirically supported therapeutic interventions including, cognitive-behavioral therapy, interpersonal process therapy, and mindfulness
- Collaborated as part of a multidisciplinary treatment team to fully meet patient needs
- Provided crisis intervention and conflict resolution
- Routinely assessed for suicidal/homicidal ideation, abuse/neglect, and self-injurious behavior
- Administered and interpreted assessments and created reports

Practicum Counselor January 2010 – June 2011
Lehigh University Counseling and Psychological Services, Bethlehem, PA
Association of Psychology Postdoctoral and Internship Centers (APPIC) Approved
Supervisor: Eric Klein, Ph.D.
Supervised hours: 754

- Conducted intake interviews and provided short- and long-term individual, couples, group, and career counseling with undergraduate students
- Utilized empirically supported interventions, including: cognitive-behavioral therapy, interpersonal process therapy, and mindfulness, with a multicultural focus and strengths-based approach
- Counseled clients mandated for individual therapy due to drug and/or alcohol violations
- Co-facilitated outreach and consultation on body image and eating concerns
- Co-facilitated Alcohol and Other Drug groups and interpersonal groups
- Co-developed Study Abroad Student Reentry Adjustment program
- Routinely assessed for suicidal and homicidal ideation and self-injurious behavior
- Administered, interpreted, and developed assessment reports

Graduate Health Counselor and Research Assistant August 2006 – June 2007
St. Luke's-Roosevelt Hospital, New York, NY
APA Accredited
Supervisor: Allan Geliebter, Ph.D.
Supervised hours: 143

- Utilized cognitive-behavioral therapy and health psychology with overweight patients to promote a healthy lifestyle
- Recruited bariatric surgery research participants and collected, scored, and analyzed data for eating disorder related research
- Administered and scored assessments

Military and Civilian Family Therapist July 2003 – August 2006
HeartShare Human Services of New York, New York, NY
Supervisor: Sherry Panek, LCSW
Supervised hours: 5,920

- Provided individual, couples, and family therapy to a diverse 15 family caseload
- Utilized a multicultural focus and strengths-based approach with family systems and cognitive-behavioral therapy
- Collaborated with schools, mental health clinics, substance abuse treatment facilities, hospitals, Administration for Children Services, and legal services to provide holistic treatment and care
- Created and maintained client progress notes, psychosocial reports, Family Assessment Service Plan, genograms, home safety evaluations, school and medical records
- Conducted intake interviews and assessed for suicidal/homicidal ideation and child abuse/neglect
- Facilitated 12-week parenting skills workshops for clients and court-mandated participants

Teresa's Program Staff and Culinary Arts Instructor July 2001 – December 2002
Deborah's Place, Chicago IL
Supervisor: Julie Nelson, M.P.H.
Supervised hours: 1,360

- Employed Life Skills Training to support and empower homeless women in transition
- Specialized in crisis intervention and conflict resolution
- Developed curriculum and taught bi-weekly culinary classes

PROVISION OF SUPERVISION EXPERIENCE

Clinical Supervisor August 2010 – June 2011
Lehigh University, Bethlehem, PA
APA Accredited
Supervisor: Arpana Inman, Ph.D.
Supervised hours: 102

- Provided weekly individual and group supervision for one local and three international graduate-level counselor trainees working in community mental health and school settings
- Utilized a supervisory approach incorporating constructionism and the discrimination model in conjunction with an emphasis on multiculturalism and the supervisory alliance
- Recorded (audio and video) and reviewed supervision sessions
- Reviewed supervisees' recorded clinical work, provided feedback weekly, and provided formal evaluation twice per academic semester

Program Director March 2008 – August 2008
Graham Windham, New York, NY
Supervisor: Diego Valdez-Torres, LCSW
Supervised hours: 800

- Promoted from Program Supervisor to Program Director after 8 months of employment
- Achieved highest evaluation rating and received a merit award for outstanding performance
- Provided clinical supervision for all 12 employees
- Designed and facilitated employee training and development workshops for all prevention programs
- Managed financial and physical resources effectively to achieve organization objectives
- Ensured program preparedness for numerous audits
- Responsible for overall programmatic and administrative management

Program Supervisor August 2007 – March 2008
Graham Windham, New York, NY
Supervisor: Diego Valdez-Torres, LCSW
Supervised hours: 1,120

- Promoted from Social Worker Supervisor to Program Supervisor after 3 months of employment
- Provided clinical supervision, management, and training to 12 employees and 2 interns
- Ensured effective therapeutic service delivery and case management to over 90 families
- Conducted intake and clinical assessments
- Designed and established a female interpersonal process group to meet community needs

ASSESSMENT EXPERIENCE

ADULT ASSESSMENT INSTRUMENTS

Symptom Inventories

- Alcohol Use Disorders Identification Test (AUDIT)
- Beck Depression Inventory-II (BDI-II)
- Brief Addiction Monitor (BAM)
- Dutch Eating Behavior Questionnaire External Eating Subscale (DEBQ)
- Emotional Appetite Questionnaire (EMAQ)
- Impact of Weight on Quality of Life (IQWOL)
- Liebowitz Social Anxiety Scale Test (LSAS)
- Mindfulness Awareness Attention Scale (MAAS)
- Night Eating Diagnostic Questionnaire (NEDQ)
- Rosenberg Self Esteem Scale (RSES)
- Trauma Symptom Inventory-II (TSI-2)
- Zung Self-Rating Depression Scale (ZSDS)

Diagnostic Interview Protocols

- PTSD Checklist – Stressor Specific Version (PCL-S)
- Questionnaire on Eating and Weight Patterns – Revised (QEWP-R)
- Substance Abuse Subtle Screening Inventory-III (SASSI-3)

Behavioral/Personality Measures

- Million Clinical Multiaxial Inventory-III (MCMI-III)
- Myers Briggs Type Indicator (MBTI)
- NEO Personality Inventory – Revised (NEO PI-R)
- Self-Directed Search (SDS)

CHILD AND ADOLESCENT ASSESSMENT INSTRUMENTS

Parent/Youth-Report Measures

- Alabama Parenting Questionnaire (APQ)
- Behavioral Assessment System for Children – Parent Rating Scales (BASC)
- Disruptive Behavior Rating Scale – Parent Form
- Impairment Rating Scale – Parent (IRS)
- Index of Family Relations (IFR)
- School Intervention Rating Form (SIR)
- Services Assessment for Children and Adolescents (SACA)
- Services for Children and Adolescents – Parent Interview (SCAPI)
- Stress Index for Parents of Adolescents (SIPA)

Symptom Inventories

- Brief Multidimensional Students' Life Satisfaction Scale (BMSLSS)
- Multidimensional Anxiety Scale for Children (MASC)
- Reynolds Adolescent Depression Scales-II (RADS)
- Trauma Symptom Checklist for Children (TSCC)

General Cognitive Assessment

- Wechsler Abbreviated Scale of Intelligence (WASI)
- Woodcock-Johnson III Tests of Achievement (WJ III)

Academic Functioning

- School Intervention Rating Form (SIR)
- Student Engagement Instrument (SEI)

Behavioral/Personality Measures

- Behavior Assessment System for Children-II (BASC)
- Index of Family Relations (IFR)
- Youth Risk Behavior Survey (YRBS)

RESEARCH EXPERIENCE

Principal Researcher January 2012 – Present
Lehigh University, Bethlehem, PA
Dissertation Chair: Grace Caskie, Ph.D.
Dissertation Committee: Eric Klein, Ph.D.; Robin Hojnoski, Ph.D.; and Susan Woodhouse, Ph.D.
Dissertation proposal approved: October 2012
Dissertation defense anticipated: February 2014

- Utilizes data from the Drug Use Trajectories – Racial/Ethnic Comparisons study to examine: *Gender as a Moderator of the Relations Between Potentially Traumatic Events, PTSD Symptoms, and Alcohol Use Disorder Symptoms Among Young Adults*

Graduate Research Assistant August 2010 – December 2013
Lehigh University, Bethlehem, PA
Supervisor: Arpana Inman, Ph.D.

- Recruited participants, performed data analysis, and presented research on gender related events that occur in supervision
- Co-author of manuscript in press: *Evaluation of the Critical Events in Supervision Model Using Gender Related Events*

Principal Researcher August 2011 – February 2012
Lehigh University, Bethlehem, PA
Supervisor: Grace Caskie, Ph.D.

- Utilized data from Project REACH, performed secondary data analysis, and created a manuscript investigating racial differences and personal adjustment following implementation of culturally sensitive interventions delivered to adolescents with social, emotional, or behavioral concerns

Principal Researcher July 2011 – February 2012
Lehigh University, Bethlehem, PA
Supervisor: Grace Caskie, Ph.D.

- Utilized data from the Hispanic Established Populations for the Epidemiologic Study of the Elderly, performed secondary data analysis, and created a manuscript and presentation: *Age and Gender Differences in Depression Among Mexican-American Older Adults*

Principal Researcher October 2009 – October 2011
Lehigh University, Bethlehem, PA
Supervisor: Grace Caskie, Ph.D.

- Utilized data from the Hispanic Established Populations for the Epidemiologic Study of the Elderly, performed secondary data analysis, and completed qualifying project and presentation: *Gender as a Moderator in the Relations Between Depressive Symptoms, Life Satisfaction, and Alcohol Consumption Among Mexican-American Older Adults*

Graduate Research Assistant August 2010 – December 2011
Lehigh University, Bethlehem, PA
Supervisor: Arnold Spokane, Ph.D.

- Collaborated with research team on disaster mental health related research projects

Graduate Research Apprentice January 2009 – May 2009
Lehigh University, Bethlehem, PA
Supervisor: Grace Caskie, Ph.D.

- Collaborated with Principal Investigator on Hispanic geriatric health research, resulting in a presentation: *Objective and Subjective Health as Predictors of Daily Functioning of Hispanic Elders*

Graduate Assistant August 2008 – May 2009
Lehigh University, Bethlehem, PA
Supervisor: Margaret Barber, Ed.D.

- Marshaled literature, compiled resources, and provided peer review for journal article

Graduate Research Assistant August 2006 – August 2007
Teachers College, Columbia University, New York, NY
Supervisor: George Bonanno, Ph.D.

- Provided data entry and management for trauma-related research

Principal Researcher January 2007 – May 2007
Teachers College, Columbia University, New York, NY
Supervisors: George Bonanno, Ph.D., and Elizabeth Midlarsky, Ph.D.

- Completed master's thesis, *Mental Health and Psychosocial Response to the Tsunami of 2004*

PUBLICATIONS

Bertsch, K., **Bremer-Landau, J. D.,** Inman, A. G., DeBoer Kreider, E., Price, T., & DeCarlo, A. (in press). Evaluation of the Critical Events in Supervision Model using gender related events. *Training and Education in Professional Psychology*.

PROFESSIONAL PRESENTATIONS

Bremer-Landau, J., & Caskie, G. I. L. (2012, August). *Gender Moderation of Mental Health - Alcohol Consumption Relationship in Mexican-Origin Elders.* Poster presented at the 120th Annual Convention of the American Psychological Association, Orlando, FL.

Bremer-Landau, J., & Caskie, G. I. L. (2012, August). *Age and Gender Differences in Depression Among Mexican-American Older Adults.* Poster presented at the 120th Annual Convention of the American Psychological Association, Orlando, FL.

Bertsch, K., **Bremer-Landau, J.**, DeCarlo, A., Kreider, E., Price, Terrina, & Inman, A. (2012, February). *Evaluation of the critical events in supervision model using gender related events.* Symposium presented at the 29th Annual Winter Roundtable at Teachers College, New York, NY.

Kreider, E., Price, T., & **Bremer, J.** (2011, August). *Discussing dreams about clients in clinical supervision: Trainees' perspectives.* Roundtable discussion presented at the 119th Annual Convention of the American Psychological Association, Washington, DC.

Bertsch, K., Kreider, E., & **Bremer, J.** (2011, March). *Empowering bisexual women across generations*. Structured discussion presented at the 36th Annual Conference of The Association for Women in Psychology, Philadelphia, PA.

Bremer, J. (2010, December). *Sexual attraction, culture, and parallel process in clinical supervision.* Presentation given to Lehigh University Counseling and Psychological Services employees and trainees, Bethlehem, PA.

Caskie, G. I. L., Margrett, J. A., **Bremer, J**., & Perkins B. L. (2009, November). *Objective and subjective health as predictors of daily functioning of Hispanic elders*. Poster presented at the annual meeting of the Gerontological Society of America, Atlanta, GA.

Baldinger, M., **Bremer, J**., Ungredda, T., Weltsch, M., Hongchan, L., Teixeira, J., & Geliebter, A. (2007, October). *Binge eating disorder and psychopathology in patients undergoing bariatric surgery.* Poster presented at the 2007 Annual Scientific Meeting of the North American Association for the Study of Obesity, New Orleans, LA.

TEACHING EXPERIENCE

Military Transition Assistance Program Facilitator December 2012 – December 2013
GBX Consultants, Inc., Fort Bragg, NC
Supervisor: Erica Jackson, M.Ed.

- Facilitated 3-day Department of Labor Employment Workshops weekly to separating and retiring military personnel and spouses transitioning into the civilian workforce
- Instructed up to 150 participants per class on topics, such as career exploration, resume writing, cover letter composition, and interview skills, assuring 100% compliance to core curriculum
- Demonstrated practical usage of online professional networking sites and job boards
- Reviewed, edited, and critiqued 20+ resumes and cover letters weekly
- Incorporated didactic and experiential components into workshops, including humor, icebreakers, video clips, and mock interviews, to promote focus, interest, and learning
- Provided individual consultation as needed
- Collaborated with other professionals within the Solider Support Center to ensure effective service delivery
- Located and distributed referrals and career-related resources

Graduate Teaching Apprentice June 2010
Lehigh University, Bethlehem, PA
Supervisor: Nicholas Ladany, Ph.D.

- Provided instruction and international human rights lectures for a graduate level social justice course
- Evaluated students and provided feedback on course assignments

PUBLIC SERVICE

First Response Volunteer November 2012 – February 2013
Compass Center for Women and Families, Chapel Hill, NC

- Assisted clients with utilizing domestic violence services, legal services, financial counseling, and career advisement
- Provided referrals when needed

Women's Center of Montgomery County Supporter September 2012
Women's Center of Montgomery County, Blue Bell, PA

- Implemented fundraiser and completed a 5 kilometer run to generate financial support for counseling, legal advocacy, outreach, education, and support services to over 4,000 survivors of domestic violence annually

Disaster Action Team Volunteer June 2010 – July 2012
American Red Cross, Philadelphia, PA

- Provided on-call immediate emergency services to disaster victims and relief workers

Allentown Women's Center Volunteer April 2010 – July 2012
Allentown Women's Center, Allentown, PA

- Ensured patient safety to scheduled appointments to ensure access to health care services

United Nations Delegate May 2010 – May 2011
Center for Women Studies and Intervention, Garki-Abuja, Nigeria
- Served as United Nations Delegate for the Centre for Women Studies and Intervention (CWSI) in an effort to support CWSI's mission of promoting female empowerment with human and gender rights education, counseling, health services, economic and political advocacy and self-help initiatives for both males and females in Nigeria
- Attended United Nations briefings and conferences and lobbied for CWSI

WE CARE Campaign Member November 2011
Lehigh University, Bethlehem, PA
- Co-developed, initiated, and distributed information as part of the Warmth Empathy Compassion Acceptance Respect Equity (WE CARE) Campaign in an effort to build cohesion, support, acceptance, and respect for cultural diversity on Lehigh University's campus

Women's Center Take Back The Night Supporter September 2011
Lehigh University, Bethlehem, PA
- Participated in a silent march, Points of Light candle vigil, and a speak out meeting in an effort to end sexual assault, domestic abuse, dating violence, and all other forms of sexual violence

Domestic Abuse Services Volunteer July 2009 – August 2009
Life Beyond Abuse, Media, PA
- Compiled domestic abuse survivor data for research endeavors
- Supervised visitation between children and non-custodial adults

Teen Central.Net Counselor January 2009 – May 2009
KidsPeace, Schnecksville, PA
- Composed and submitted therapeutic written responses online to address adolescent concerns, such as with regards to relationships, suicidal ideation, depression, eating concerns, and substance use

Action for Brazil's Children Supporter August 2008 –October 2008
Action for Brazil's Children Trust, London, United Kingdom
- Implemented fundraiser and completed the Bank of Chicago Marathon to generate financial support for Action for Brazil's Children's humanitarian efforts geared towards educating, supporting, and inspiring Brazil's vulnerable children to overcome poverty, abuse, and other hurdles to achieve life aspirations and goals

New York Cares Volunteer August 2003 – August 2004
New York Cares, New York, NY
- Chaperoned an adolescent sporting event and provided coat drive event assistance in an effort to address New York City's social and community issues

Activity Coordinator and Entrepreneurial Group Instructor January 2003 – May 2003
Cross Cultural Solutions Brazil, Salvador, Brazil
- Coordinated activities for Mother Teresa's Orphanage, Elderly Home, and Daycare
- Organized and constructed a house for a family in need
- Worked with micro-grants organization and instructed women how to make and sell soap for profit

PROFESSIONAL AFFILIATIONS

American Psychological Association (APA)

- APA of Graduate Students
- APA Society of Counseling Psychology Division 17
- APA Trauma Psychology Division 56
- APA Psychologists in Public Service Division 18
  - VA Affairs Section
  - Serious Mental Illness Section
- APA Society of Clinical Psychology Division 12
- APA Society for the Psychology of Women Division 35
- APA Society for the Study of Men and Masculinity Division 51

The Association for Women in Psychology

SELECTED PROFESSIONAL DEVELOPMENT TRAININGS

- Cognitive Processing Therapy (CPT) for PTSD in Veterans and Military Personnel
- Prolonged Exposure (PE) Therapy of PTSD in Veterans and Military Personnel
- Mindfulness-Based Stress Reduction (MBSR) (modeled after work by Jon Kabat-Zinn)
- Assault and Crisis Management
- Human Trafficking for Sexual Exploitation: Counseling, Advocacy, and Prevention
- American Red Cross Disaster Services Basic Training

CERTIFICATION

National Institute of Health Certification in the Protection of Human Subjects

GRANTS

College of Education Dean's Endowed Student Travel Grant August 2012
Lehigh University College of Education

Graduate Student Senate Travel Grant January 2011 & August 2012
Lehigh University Graduate Student Life Office