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The Relationships among Trauma Exposure, Emotion Regulation, and DSM-5 PTSD
Symptomatology in Incarcerated Women

by

Emily M. V. Konecky, M.S.

A dissertation

submitted in partial fulfillment

of the requirements for the degree of

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December 20, 2013

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RE: Your application dated 12/11/2013 regarding study number 4023: An Exploration of Emotion Regulation, Dissociation, and Physical Health as Predictors of Post-traumatic Stress Disorder in Sample of Female Inmates

Dear Ms. Van Ness:

Your request for approval of the new protocol listed above was reviewed at the 12/20/2013, meeting of the Idaho State University IRB. This is to confirm that your protocol was approved. Your protocol number is 4023.

You are free to proceed with your study as described in your protocol effective immediately.

The study is subject to renewal on or before 12/20/2014, unless closed before that date.

Please note that any changes to the protocol as approved must be immediately reported and approved. Contact Thomas Bailey (208-282-2179; fax 208-282-4723; email: humsubj@isu.edu) if you have any questions or require further information.

Sincerely,

Ralph Baergen, PhD, MPH, CIP
Human Subjects Chair

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Abstract

Incarcerated women experience significantly higher rates of trauma exposure and posttraumatic stress disorder (PTSD) than non-incarcerated women. Existing literature demonstrates that mental health mediates the relationship between trauma exposure and offending, which highlights the need to better understand mental health problems to inform treatment interventions. Both theory and empirical findings suggest that emotion regulation may be a key factor linking trauma to expression of PTSD. The present study expanded upon current literature by comprehensively evaluating the relationships among trauma exposure, emotion regulation abilities, and PTSD in incarcerated women ($n = 152$). PTSD was measured utilizing DSM-5 symptom criteria. Consistent with prior research on community samples, incarcerated women diagnosed with current PTSD had significantly worse emotion regulation abilities compared to women who did not meet criteria for PTSD. As hypothesized, age of trauma onset was a significant predictor of emotion regulation and experiential avoidance. Furthermore, age of trauma onset and chronicity of trauma were significant predictors of PTSD symptom severity. Lastly, utilizing structural equation modeling (SEM), trauma chronicity, including interpersonal and non-interpersonal traumas, and age of onset for interpersonal trauma exerted direct effects on PTSD symptom severity as well as significant indirect effects through emotion regulation difficulties. Implications for the treatment of incarcerated women with posttraumatic stress disorder are discussed.

Keywords: trauma exposure, interpersonal violence, emotion regulation, PTSD, incarcerated women.

Chapter 1: Introduction

Trauma exposure involves one directly or indirectly experiencing an event that places themselves or another person at risk for actual or threatened serious injury, sexual violence, or death (American Psychiatric Association, 2013a). Traumatic events include experiences such as being robbed, losing a home in a fire, surviving a car accident or serious illness, unexpectedly losing a loved one, being physically assaulted, or experiencing sexual abuse. Trauma exposure is not only a risk factor, but is also a criterion for the development of posttraumatic stress disorder according to the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (DSM-5). Posttraumatic stress disorder (PTSD) is characterized by intrusion symptoms, negative alterations in cognition and mood, avoidance, and alterations in arousal or reactivity that result in impairment across multiple life domains (APA, 2013a). Individuals suffering from PTSD frequently experience difficulties with intimate relationships, parenting, socializing, work, and academic performance. They also report an overall lower quality of life (Rodriguez, Holowka, & Marx, 2012). In the general population, nearly 12% of women meet lifetime criteria for PTSD (Kessler, Petukhova, Sampson, Zaslavsky, & Wittchen, 2012). In contrast, over half (53%) of the women who are incarcerated meet lifetime criteria for PTSD (Lynch, DeHart, Belknap, & Green, 2013). The disparity for rates of PTSD between incarcerated women and women in the community is dramatic. This highlights a significant problem among incarcerated females. Research suggests that mental health plays an important role in offending (Lynch et al., 2013; Salisbury & Van Voorhis, 2009), which calls for a better understanding of mental health needs specific to incarcerated women.

Exposure to traumatic events is nearly twice as high in incarcerated women compared to non-incarcerated women (Battel, Zlotnick, Najavits, Gutierrez, & Winsor, 2003; Kessler et al., 2012). In terms of trauma characteristics, incarcerated females most commonly report experiencing a history of sexual and physical violence, often beginning in childhood (Carlson & Safer, 2010; Green, Miranda, Daroowalla, & Siddique, 2005; Lynch, Fritch, & Heath, 2012). Although understanding that incarcerated women have high rates of trauma exposure and PTSD, it does not inform us of mechanisms by which trauma contributes to the development of PTSD. Identification of underlying mechanisms is essential for guiding intervention strategies. Emotion regulation is one candidate mechanism connecting trauma to PTSD. Research with community samples demonstrates that trauma onset, revictimization, and polyvictimization are associated with emotion regulation difficulties (Cloitre, Stovall-McClough, Zorbas, & Charuvastra, 2008; Kim & Cicchetti, 2010; Walsh, DiLillo, & Scalora, 2011). Relatedly, emotion regulation deficits are commonly found in individuals diagnosed with PTSD. Despite these findings in community samples, less is known about the associations among trauma exposure, emotion regulation, and PTSD in incarcerated women. Identifying underlying mechanisms between trauma exposure and PTSD would be a key first step in improving treatment outcomes and potentially decreasing recidivism among incarcerated women.

In the following review, literature highlighting our understanding of incarcerated women's exposure to trauma, mental health, and offending will be provided. Then research pertaining to PTSD and emotion regulation will be discussed. Finally, based on the literature review, the aims of the current study are outlined.

Incarcerated Women

In 2012, over one-hundred-thousand women were incarcerated in state and federal prisons, and 98,100 women were incarcerated in local jails. This represents a 26.2% increase since 2000 (Carson & Golinelli, 2013; Minton, 2013). Consequently, research has begun focusing on understanding female inmates' mental health, treatment needs, and pathways to crime (e.g., Belknap & Holsinger, 2006; James & Glaze, 2006; Lynch et al., 2012; Salisbury & Van Voorhis, 2009). Knowledge of these factors is essential as they provide insight into appropriate interventions, which could serve to improve the women's mental health and decrease recidivism. Thus far, research has established that incarcerated women have disproportionately higher rates of victimization, mental health problems, and illicit substance use than non-incarcerated adults (e.g., Green, Miranda et al., 2005; Kessler, Burgland et al., 2005; Lynch et al., 2013).

Trauma exposure and incarcerated women. It is well established that female inmates have high rates of trauma exposure. For example, a recent review estimated that 77% to 90% of incarcerated women have been exposed to trauma (Battel et al., 2003), whereas approximately 60% of men and 51% of women in the general community report being exposed to trauma (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Furthermore, nearly three times as many female inmates report a history of physical or sexual abuse compared to the general population (Harlow, 1999). Although both incarcerated men and women report high rates of trauma, the type of trauma experienced varies by gender. For example, when comparing trauma exposure between incarcerated men and women in a large sample ($n = 2279$), Carlson and Safer (2010) found that women were significantly more likely to experience physical violence by a family

member, and sexual abuse by someone they knew or a stranger. In contrast, men were significantly more likely to experience serious disasters, life threatening accidents, and physical assault by a stranger.

While evaluating trauma exposure, mental health, and treatment needs among 100 female jail inmates, Green and colleagues (2005) found that 98% of incarcerated women had been exposed to at least one form of trauma in their lifetime and 62% had experienced trauma during childhood. Of various trauma categories, the most frequently experienced trauma types by these incarcerated women were domestic abuse (71%), forced sexual intercourse (58%), witnessing someone being killed or injured (58%), physical threat with weapon (55%), and childhood sexual abuse (CSA; 48%). Likewise, Lynch and colleagues (2012) found high rates of interpersonal violence (IPV) when interviewing incarcerated women ($n = 102$) in a state prison. Specifically, these women reported high rates of forced intercourse (70%) and unwanted sexual contact (55%), as well as physical attack without a weapon (79%) and with a weapon (43%). Notably, approximately half of the women indicated that the abuse was chronic and often began in childhood. Nearly all of these women (90%) experienced physical or sexual violence in the year prior to being incarcerated. These findings are consistent with a large body of research demonstrating that incarcerated women experience high rates of interpersonal violence (IPV; Browne, Miller, & Maguin, 1999; Drapalski, Youman, Stuewig, & Tangney, 2009; McDaniels-Wilson & Belknap, 2008; Messina, Grella, Burdon, & Prendergast, 2007).

Mental health and incarcerated women. For decades, data has shown that a significant portion of incarcerated individuals suffer from mental illness (Guy, Platt, Zwerling, & Bullock, 1985; Teplin, Abram, & McClelland, 1996; James & Glaze, 2006). The prevalence rate of mental illness among incarcerated individuals is much higher compared to the general population. Specifically, the prevalence rates in the general population are 26% (12-month) and 46% (lifetime) for any mental health disorder (Kessler, Berglund, et al., 2005; Kessler, Chiu, Demler, & Walters, 2005). In comparison, according to the Bureau of Justice Statistics report, approximately 45% of Federal prisoners, 56% of State prisoners, and 64% of jail inmates have a current mental health problem (James & Glaze, 2006). Similarly, Trestman, Ford, Zhang, and Wiesbrock (2007) determined that 69.7% of inmates met criteria for a lifetime psychiatric diagnosis (e.g., mood, anxiety, personality disorders, substance abuse) across five jail sites in Connecticut.

When comparing mental health differences across gender, female inmates consistently report more psychiatric symptoms than incarcerated males (James & Glaze, 2006; Trestman et al., 2007; Steadman, Osher, Robbins, Case, & Samuels, 2009). Not only do female inmates report more symptoms, but they are also significantly more likely to meet lifetime and 12-month current criteria for Axis I disorders (Trestman et al., 2007). In a large (n = 822), multi-site study, the prevalence of serious mental illness (SMI; e.g., major depression, bipolar, psychotic spectrum disorders) was twice as high in female inmates (31%) when compared to male inmates (14.5%; Steadman et al., 2009). In terms of psychopathology, it appears that female inmates also have different mental health symptoms than male inmates. Drapalski and colleagues (2009) found that female

jail inmates were significantly more likely to have clinically elevated somatic, anxiety, and traumatic stress symptoms, while men were more likely to have clinically elevated symptoms of mania, antisocial features, and alcohol problems.

Other research suggests that substance use disorders (SUD), serious mental illness (SMI), and PTSD are highly prevalent among incarcerated females. In a multi-site study, consisting of 491 randomly selected women from five states, structured clinical interviews were used to evaluate the prevalence of mental health disorders. Findings from these interviews revealed that four out of five incarcerated females met lifetime criteria for SUD, one third met criteria for current SMI, and almost half met lifetime criteria for SMI. Not surprisingly, given the high rates of trauma exposure, over half of the women (53%) met criteria for lifetime PTSD (Lynch et al., 2013). In a smaller study, consisting of 100 female jail inmates, three out of four women reported having alcohol or drug related problems during the six months prior to their incarceration. Twenty five percent of the women met criteria for current major depressive disorder, 13% likely met criteria for bipolar disorder, and 22% met criteria for PTSD (Green, Miranda et al., 2005). Similar to these findings, in a Northwestern women's prison, 87% of the female inmates endorsed recent substance use, 51% were above the clinical cutoff for depression, and one in five were above the clinical cutoff for PTSD (Lynch et al., 2012).

Research supports a strong association between trauma exposure and mental health. In a longitudinal study, Hedtke and colleagues (2008) interviewed women (n = 4,008) regarding their experiences of interpersonal violence and mental health functioning across three time points. Lifetime violence exposure was associated with a greater risk of PTSD, substance use issues, and depression. Multiple forms of violent

exposure were associated with the greatest odds of having a mental health problem.

Individuals who had experienced both sexual and physical assault were 5.8 times more likely to be diagnosed with PTSD, five times more likely to have substance use issues, and 3.3 times more likely to meet criteria for depression. These findings are consistent with other research using community samples which have found that trauma exposure is highly correlated with mental health problems (e.g., Arata, Langhinrichsen-Rohling, Bowers, & O’Farrill-Swails, 2005; Briere, Kaltman, & Green, 2008; Kilpatrick et al., 2003).

With regard to incarcerated individuals, research has found that prison and jail inmates with mental health issues are three times more likely to have a history of sexual and physical abuse (James & Glaze, 2006). Tripodi & Pettus-Davis (2013) explored the relationship between childhood victimization, adult victimization, mental health, and substance use among 125 female prisoners. They found that women who experienced both childhood sexual and physical victimization were almost 4 times more likely to be hospitalized for mental illness, 21.6 times more likely to attempt suicide, 3.2 times more likely to have a SUD, and 12.8 times more likely to be sexually victimized as an adult, compared to their non-victimized counterparts. Similarly, in a sample of 97 female inmates self-referred for treatment, Wolff and colleagues (2010) found that the majority of women had experienced at least one traumatic event in their lifetime and evidenced high rates of mental health disorders (approximately 85% SUD, 78% PTSD, 53% MDD, 58% anxiety, 22% bipolar). Furthermore, women with histories of childhood and adult victimization were significantly more likely to have a mental health disorder, compared to women with only childhood or adulthood victimization.

Further supporting the link between trauma and mental health, the type, chronicity, and recency of IPV have been identified as risk factors for poor mental health. Lynch and colleagues (2012) found that incarcerated women who experienced multiple types of IPV had more general distress, substance use, and symptoms of PTSD and depression. These women were also more likely to have depression and general distress if they were victims of partner violence within the 12 months preceding their incarceration. Notably, chronicity of IPV was a significant predictor of PTSD and general distress. Collaboratively, these studies demonstrate that incarcerated women experience high rates of mental health problems, and that victimization greatly increases one's risk for mental health issues.

Trauma exposure and offending. Experiences of victimization also appear to increase risk of offending. Using a prospective cohorts design, English, Windom, and Brandford (2001) evaluated the relationship between childhood victimization and neglect, and juvenile and adult criminal arrests. Their sample consisted of abused and neglected children in state custody ($n = 877$), and matched controls (non-abused or neglected children, as identified by birth records; $n = 877$). In support of the victimization-offender link, they found that individuals who were abused or neglected as children were 4.8 times more likely to be arrested as a juvenile and two times more likely to be arrested as an adult, compared to controls. Physical, sexual, and emotional abuse were significant predictors of violent crimes. Furthermore, women with childhood abuse histories were almost seven times more likely than matched controls to be arrested for violent crimes. Notably, English and colleagues' study was a replication and produced results similar to prior research (Widom, 1989; Maxfield & Widom, 1996).

In another prospective cohorts study, looking specifically at childhood sexual abuse, similar evidence was found indicating that victimization increases risk for offending. Siegel and Williams (2003) obtained hospital records for female youth presenting for medical treatment subsequent to being sexually abused ($n = 206$) and then garnered matched controls ($n = 205$), without a history of abuse from hospital records. Arrest records for all subjects were obtained from city courts approximately 20 years after the subjects originally presented to the hospital as children. Findings revealed abused girls, as adolescents, were significantly more likely to have run away, been adjudicated, sent to a juvenile detention center, and become dependents of the state, compared to controls. Dependency status, as well as race were found to be significant risk factors for offending; therefore, Siegel and Williams used logistic regression to predict offending, while controlling for dependency status and race. Results demonstrated that sexual abuse continued to independently contribute to increased likelihood of being arrested for any crime after controlling for dependency status. In fact, as adults, abuse victims were twice as likely to be arrested for any crime and committed twice as many violent crimes as controls. Taken together, findings consistently demonstrate that childhood victimization, whether it be physical/sexual abuse or neglect, increases females' risk for offending during both adolescence and adulthood (English et al., 2001; Maxfield & Widom, 1996; Siegel & Williams, 2003; Widom, 1989).

Trauma exposure, mental health, and offending. Alternative research models have considered the mediating role of mental health as it relates to victimization and offending. Results implicating that mental health links victimization to offending are yielded from several pathway studies. For example, in a multi-state study, consisting of

491 female inmates, Lynch and colleagues (2013) found that mental health functioning fully mediated the relationship between victimization and offending. Specifically, their findings indicated that both childhood and adult trauma significantly predicted severity of mental health, which in turn significantly predicted offending. Results similar to this have also been found when considering recidivism. Salisbury and Van Voorhis (2009) interviewed women probationers ($n = 313$) regarding their history of childhood victimization, mental health, and substance use, as well as their current mental health and substance use statuses. The specific outcome variable for this study was re-offending; namely, being arrested within 2 years from the onset of probation. In this study, women's early abuse experiences contributed to maladaptive psychological and behavioral tendencies, which in turn led to re-offending. These key studies highlight the importance of mental health as a key factor in offending.

Theories of offending. Criminology theorists have argued, and demonstrated empirically, that self-control is related to both victimization and offending. This research is based on Gottfredson and Hirschi's (1990) *General Theory of Crime*, which postulates that people who lack self-control are impulsive, that is they minimize future consequences and behave to obtain immediate gratification. Often, gratifying behaviors (e.g., illicit substance use, gambling, risky sexual behavior) are analogous to criminal acts (Pratt & Cullen, 2000). The construct self-control has been defined as the ability to inhibit behavior that is associated with negative outcomes and direct behavior towards goals; in other words, self-control appears to be very similar in nature to the psychological construct of self-regulation (Jones & Lynam, 2009). Self-regulation is a multi-faceted construct. Successful self-regulation requires one to be aware of their goals,

as well as monitor and manage their behavior, cognitions, emotions, and external environment (Kuhl & Fuhrmann, 1998).

Low self-control or self-regulation has been associated with offending, victimization, and mental health. Burton and colleagues (1998), found that low self-control predicted offending in a sample of 555 men and women. The relationship between low self-control and crime is well supported (see Pratt & Cullen, 2000 for review). Perkins and colleagues (2012) evaluated the mediating role of self-regulation in trauma exposure and mental health in an incarcerated sample of male adolescents ($n = 115$). These authors found that self-regulation fully mediated the relationship between violence exposure and mental health functioning; high levels of interfamilial violence were negatively associated with self-regulation while lower self-regulation predicted poorer mental health functioning.

An important facet of self-regulation is the ability to regulate emotions. Emotion regulation difficulties have been associated with victimization, and are implicated in the development and maintenance of PTSD (discussed below). Incarcerated women have both high rates of victimization and mental health problems. Mental health has been found to play an integral role in offending; in fact, mental health fully mediates the relationship between victimization and offending (Lynch et al., 2013; Salisbury & Van Voorhis, 2009). Therefore, targeting mental health problems is a promising avenue for facilitating women's adaptive re-entry to society and to decrease recidivism. One of the most common disorders among incarcerated women is PTSD. Literature, from community samples, suggests that trauma characteristics and emotion regulation interact

with the development and maintenance of PTSD. Yet, a paucity of research exists evaluating these variables with incarcerated samples.

Posttraumatic Stress Disorder

It has long been documented in the literature that exposure to shocking or overwhelming events can lead to hyperarousal, disturbing memories, avoidance, or dissociation (Friedman, Resick, & Keane 2007). Since the late 19th century, a number of labels (e.g., “traumatic neurosis,” “shell-shock,” “physioneurosis”) have been used to describe this phenomenon (Kardiner, 1941; Merskey, 1991). It was not until 1980 that posttraumatic stress disorder (PTSD) was formally recognized as a clinical disorder. This nosological delineation occurred with the publication of the *Diagnostic Statistical Manual of Mental Disorders, Third Edition* (DSM-III, American Psychiatric Association, 1980). PTSD is a diagnostic category, in other words, a construct used as a labeling device to operationalize a set of symptoms experienced by individuals. PTSD is characterized by cognitive, emotional, physiological, and behavioral changes following the aftermath of one (or more) traumatic events. This classification serves several purposes, such as facilitating communication amongst professionals, permitting research efforts, and guiding clinical decisions relevant to treatment. Given the function of a diagnosis, it is essential that it be valid and reliable. Research assessing and evaluating the reliability and validity of PTSD has guided modifications to the diagnosis overtime (Regier et al., 2013). PTSD was first conceptualized as an anxiety disorder and consisted of four criteria: (1) an identifiable traumatic stressor, (2) one or more symptoms of re-experiencing, (3) at least one symptom of numbing, and (4) at least two other symptoms (e.g., hyperarousal, sleep difficulties, avoidance, guilt; APA, 1980). When the DSM-III

was revised in 1987 avoidance symptoms were separated into a distinct cluster and combined with numbing symptoms. Furthermore, a duration criterion (of one month) was added to the criteria (American Psychiatric Association, 1987).

In 1994, the DSM-IV was released and then in 2000 it was modified as a text revision. The new criteria according to the DSM-IV-TR necessitated that: (A) the individual experienced or witnessed a traumatic event that involved actual or threatened death or injury to self or others; (A2) the person responded with intense helplessness, fear, or horror; (B) re-experiencing symptoms (at least one) were present; (C) the person experienced avoidance and numbing symptoms (at least three); (D) arousal symptoms (at least one) occurred; (E) duration of symptoms from criteria B, C, and D exceed one month; and (F) symptoms resulted in impairment across multiple life domains (American Psychiatric Association, 2000)

Since the publication of the DSM-IV-TR, empirical findings have continued to guide changes to our conceptualization of PTSD. In the *Diagnostic and Statistical Manual, Fifth Edition*, PTSD is no longer considered to be an anxiety disorder instead it is categorized under Trauma and Stressor-Related Disorders. Other changes involve alterations to the individual symptoms and symptom clusters. Namely, the definition of a traumatic event is clarified, criterion A2 (response to trauma is characterized by helplessness, horror, or fear) is removed, the descriptions of existing symptoms are modified, and a fourth symptom cluster is added to capture negative alterations in mood and cognitions (American Psychiatric Association, 2013b).

The diagnostic criteria for PTSD, according to the DSM-5 now require that the individual be exposed to trauma (actual or threatened death, physical injury, or sexual

violence) either directly or indirectly (Criterion A). This differs from previous criteria as it explicitly includes sexual assault and states that trauma can occur indirectly (e.g., recurrent exposure, such as in the case of a first responder). Following exposure to trauma the individual is now required to meet the criteria across four symptom clusters (instead of three): (1) intrusions (e.g., involuntary, repetitive memories of event, flashbacks, nightmares; Criterion B), (2) avoidance (e.g., intentional efforts to escape internal and external reminders of the event; Criterion C), (3) negative alterations in mood and cognitions (e.g., recurrent negative emotions, negative beliefs of self and others, anhedonia, isolation; Criterion D), and (4) alterations in arousal and reactivity (e.g., hypervigilance, impulsive behavior, irritability, sleep disturbance; Criterion E). Symptoms across the four criteria are required to be persistent for more than one month and result in significant distress or functional impairment. In addition to changes regarding the overall factor structure and addition of symptoms, the DSM-5 now allows one to specify if the individual experiences dissociative symptoms (i.e., derealization and depersonalization; APA, 2013a).

Extant research on PTSD according to the DSM-5 criteria has primarily been concerned with prevalence and the latent structure of symptoms. For example, in a nonclinical college sample, Elhai and colleagues (2012) evaluated the prevalence and symptom structure of PTSD according to DSM-5 criteria. To assess exposure to trauma, per Criterion A1, they used the Stressful Life Events Screening Questionnaire (SLEQ). Minor modifications were made to the SLEQ in order to account for DSM-5 changes. To measure PTSD symptoms, they used the PTSD Symptom Scale-Self Report (PSS), which was also modified by adding symptoms and altering symptom phrasing to meet the new

criteria. They found that the prevalence rates did not differ significantly between the DSM-IV and DSM-5 PTSD criteria. Furthermore, their confirmatory factor analysis revealed that the DSM-5 four factor model (i.e., intrusion, avoidance, negative alterations in mood and cognition, and hyperarousal) fit the data well.

A similar study was conducted with a nationally representative sample of U.S. adults ($n = 2,953$) and a clinical sample of U.S. military veterans ($n = 345$) by Miller and colleagues (2012). They utilized the National Stressful Events Survey (NSES), which was designed specifically for their study to assess exposure to trauma, and the presence and severity of PTSD symptoms according to the DSM-5. Findings related to the nationally representative sample revealed that 88% of individuals had been exposed to trauma as defined by DSM-5 Criterion A1. Prevalence rates were greater for women (23.1% lifetime; 12.4% past 12-month) than men (9.7% lifetime; 5.4% past 12-month). Both DSM-5 lifetime and past 12-month prevalence rates did not differ significantly from DSM-IV prevalence rates in this sample. According to confirmatory factor analysis the DSM-5 model provided modest improvements over the DSM-IV model, and evidenced an acceptable fit to the data.

Within the military veteran sample, all participants endorsed exposure to at least one traumatic event. The prevalence of PTSD amongst veterans using DSM-5 criteria (75.2% lifetime; 38.7% current) was higher than in the general population (16.6% lifetime; 9.1% current; Miller et al., 2012). In conclusion, the prevalence estimates for DSM-5 PTSD across these studies are slightly higher than prior prevalence estimates in both community and clinical samples (Kessler et al., 1995; Kessler et al., 2005). It is possible that these differences can be attributed to methodology (e.g., self-report versus

clinical interview; format of assessment tool). Of importance, in both studies across community and clinical populations these researchers found that the DSM-5 PTSD factor structure provided a better fit to the data compared to the factor structure of DSM-IV PTSD; thus supporting the new DSM-5 criteria. To date, no studies have evaluated the prevalence of PTSD according to the DSM-5 criteria with incarcerated females.

Furthermore, studies evaluating the relationship between trauma, emotion regulation, and the DSM-5 conceptualization of PTSD simply do not exist.

Trauma and PTSD. The DSM-5 defines trauma as direct or indirect exposure to an event that places one at risk for actual or threatened serious injury, sexual violence, or death (APA, 2013a). When measuring the relationship between trauma and PTSD in research, trauma is typically classified by type of event, severity, and/or onset. Examples of traumatic events include sexual assault, physical assault, military combat, torture, terrorist attack, natural disaster, car accident, and robbery. These types can be classified as interpersonal, non-interpersonal, intentional or non-intentional. Severity is more complicated to operationalize, it can be subjective (e.g., fear, anger, guilt or distress caused by the event) or objective (e.g., number of people affected, physical injury, days or times exposed to event; Brewin, 2003). Lastly, onset refers to the age at which the trauma first occurred. Onset is often classified as early (e.g., prior to age 14 or 18) or late (after age 14 or 18), but can vary by study (e.g., Cloitre, Miranda, Stovall-McClough, & Han, 2005; Ehrling & Quack, 2010; Kulkarni, Pole, & Timko, 2013; Walsh et al., 2011).

Conditional risk refers to the probability that an individual will develop PTSD after being exposed to trauma (Norris & Slone, 2007). According to the National Comorbidity Study, 20% of women and 8% of men exposed to trauma develop PTSD

(Kessler et al., 1995). This is consistent with other research that demonstrates women are at a higher risk of developing PTSD compared to men (e.g., Breslau et al., 1998).

Notably, not everyone who experiences trauma develops PTSD. Therefore, it is important to identify mechanisms that underlie the relationship between trauma and PTSD as they may serve as potential treatment targets. One possible mechanism linking trauma to PTSD is emotion regulation.

Emotion Regulation

In order to conceptualize emotion regulation, it is imperative to first define emotion. Generally, emotions are understood to be biologically-based reactions that guide an individual's response to external or internal stimuli. Emotions consist of cognitions, physiological responses, and expressive behaviors that are malleable and typically brief in duration (Gross & Levenson, 1993). Emotions are generated when one attends to an internal or external stimulus and perceives it to be relevant to their goals (e.g., survival). In current conceptualizations used to define emotion regulation, some researchers focus on specific strategies used to regulate the experience of emotion (Gross, 1998), whereas others have taken an integrative approach and include awareness, acceptance, and knowledge of emotions, as well as an ability to engage in goal directed behavior despite emotional arousal (Gratz & Roemer, 2004). Unfortunately, an agreed upon definition is lacking and this raises issues of construct validity, measurement, and generalizability of research findings.

Gross (1998), an expert in the field, defines emotion regulation as the processes individuals use to control their emotional experiences; specifically, strategies used to alter aspects of emotion, such as “the latency, rise time, magnitude, duration, and offset of

response in behavioral, experiential, and physiological domains” (Gross & Thompson, 2007, p. 8). This model is limited by its specific focus on the modulation of emotions, which ignores the functional purpose of emotions. An additional shortcoming of the Gross model is that an emerging literature indicates efforts to control or avoid emotions are actually associated with increased arousal and subsequently make emotions more challenging to regulate (Campbell-Sills, Barlow, Brown, & Hofmann, 2006; Gross, 2002; Gross & Levenson, 1997; Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). These findings suggest that emotion control strategies are insufficient for conceptualizing adaptive regulation of emotions.

A large body of literature suggests that adaptive emotion regulation encompasses being able to experience and respond to a full range of emotions in a situationally appropriate manner (see review Gratz and Roemer, 2004). Therefore, Gratz and Roemer (2004) define adaptive emotion regulation as a set of multi-faceted skills. First, an individual must have awareness and understanding of emotions as well as a willingness to experience diverse emotions. Second, an ability to inhibit impulsive behavioral tendencies and act in accordance with one’s values, despite emotional arousal, must be present. Lastly, one must be able to choose and implement strategies to modulate the experience of emotion in order to obtain desired goals. Gratz and Roemer (2004) argued that deficits in any of these skills would result in difficulties with emotion regulation. Their integrated conceptualization of emotion regulation has been linked to several psychological disorders through research (e.g., substance use disorder, generalized anxiety disorder, PTSD; Fox, Axelrod, Paliwal, Sleeper, & Sinha, 2007; Salters-Pedneault, Roemer, Tull, Rucker, & Mennin, 2006; Tull, Barrett, McMillan, & Roemer,

2007). Given that Gratz and Roemer's (2004) conceptualization of emotion regulation is supported empirically and takes a holistic approach to understand emotional functioning, their definition will be utilized in this proposed study.

Trauma exposure and emotion regulation. Difficulties with emotion regulation have been associated with prior trauma exposure. A broad research base has emerged investigating emotion dysregulation in response to childhood abuse. Developmental psychology studies provide a basis for understanding the development of emotion regulation strategies; a child's ability to monitor and modulate emotions develops through a bi-directional relationship with their primary caregivers. In the absence of these nurturing relationships, such as in cases of abuse or neglect, the child's ability to regulate their emotions is compromised (Cole, Michel, & Teti, 1994; van der Kolk, 2005). For example, children who experience an invalidating environment (e.g., negative emotions are minimized or punished) are more likely to suppress or avoid emotions. These maladaptive emotional inhibition strategies have been found to fully mediate the relationship between childhood emotional invalidation and adult psychological distress (Krause, Mendelson, & Lynch, 2003). Consistent with developmental theory, studies have widely supported the relationship between early-onset interpersonal trauma (e.g., childhood sexual and physical abuse) and subsequent emotion regulation difficulties, which often persist into adulthood (Cloitre et al., 2008; Shipman, Edwards, Brown, Swisher, & Jennings, 2005; van der Kolk, Roth, Pelcovitz, Sunday, & Spinazzola, 2005).

In a longitudinal study, Kim and Cicchetti (2010) evaluated childhood maltreatment (i.e., onset, type, and chronicity), emotion regulation, peer relations, and psychopathology. They found that experiencing multiple types of maltreatment early in

life predicted poor emotion regulation, which was associated with poor social relationships and higher levels of pathology. Experiencing victimization early in life has also been associated with an increased risk for victimization in adulthood (Arata, 2000; Cloitre & Rosenberg, 2006). In a study of 160 incarcerated women, Walsh, DiLillo, and Scalora (2011) evaluated the cumulative effects of victimization on emotion regulation. Women were separated into groups based on victimization experiences: non-victims, childhood sexual abuse (CSA) only, adolescent/adult rape, or revictimized (CSA and adult rape). Revictimized women evidenced significantly worse emotion regulation skills compared to non-victimized or singly victimized women. Specifically, they had greater difficulties with impulse control, awareness, clarity, and acceptance of emotions. Notably, women with a history of only CSA or adolescent/adult rape reported statistically similar emotion regulation abilities. These findings highlight the severity of emotion dysregulation that women with multiple sexual traumas experience. This study, in conjunction with others previously reviewed support the theory that early victimization, polyvictimization, and revictimization are associated with more difficulties regulating emotions. Although limited, other research suggests that adult-onset (e.g., combat exposure) or single event (e.g., rape) traumas can disrupt emotion regulation as well (Boeschen, Koss, Figueredo, & Coan, 2001; Roemer, Litz, Orsillo, & Wagner, 2001).

PTSD and emotion regulation. Deficits in emotion regulation have been implicated as a possible risk factor for the development and maintenance of symptoms related to posttraumatic distress. As discussed above, prior to implementing an adaptive emotion regulation strategy one must monitor and understand emotions. Research suggests that alexithymia (i.e., inability to identify and label emotions) is commonly

found among individuals diagnosed with PTSD (e.g., Monson, Price, Rodriguez, Ripley, & Warner 2004; Yehuda et al., 1997). Specifically, symptoms of alexithymia are highly correlated with PTSD symptoms of emotional numbing, hyperarousal, and re-experiencing (Frewen et al., 2008).

Nonacceptance (e.g., suppression or avoidance) of emotions has also been related to PTSD symptoms. Moore, Zoellner, and Mollenholt (2008) found that expressive suppression (i.e., effort to suppress the overt expression of emotional states) was associated with significantly higher symptoms of avoidance and hyperarousal in a sample of trauma-exposed women. Similarly, Roemer and colleagues (2001) discovered that the frequency and intensity of strategic withholding of emotions was positively correlated with symptoms of numbing, hyperarousal, re-experiencing, and avoidance in veterans diagnosed with PTSD.

Furthermore, research on experiential avoidance supports the link between non-acceptance of emotions and PTSD. Experiential avoidance is conceptualized as unwillingness to experience and behavioral efforts to avoid unwanted thoughts or feelings (Hayes et al., 1996). Cumulative evidence has emerged suggesting that experiential avoidance is highly associated with increased PTSD symptoms, impaired functioning, and decreased subjective quality of life (e.g., Morina, 2007; Morina, Stangier, & Risch, 2008; Plumb, Orsillo & Luterek, 2004). A recent study found that after controlling for avoidance symptoms, experiential avoidance accounted for unique variance in PTSD symptom severity (Meyer, Morissette, Kimbrel, Kruse, & Gulliver, 2013). Cumulatively, these findings suggest that individuals with emotion regulation

difficulties specific to awareness, identification, and acceptance experience heightened levels of PTSD symptom severity.

Behavioral components of emotion regulation, such as inhibiting impulsive tendencies and behaving in accordance with goals are also common among individuals diagnosed with PTSD. Cross-sectional studies provide evidence that individuals with PTSD are more likely to engage in impulsive behaviors such as substance use (Jakupcak et al., 2010), aggression (Orcutt, King, & King, 2003), risky sexual behavior (Green, Krupnick et al., 2005) and self-harm (Dyer et al., 2009). PTSD has a strong correlation with functional impairment across work, interpersonal, and leisure domains (Breslau, Lucia, & Davis, 2004; Cloitre et al., 2005). These findings suggest that individuals with PTSD struggle to engage in goal-directed behavior, such as attending work and engaging in social events. This inability to engage in goal-directed behavior likely results in an individual's lower quality of life, which has been shown in numerous studies (Rodriguez et al., 2012). Extant literature has also demonstrated that individuals who report difficulties employing situationally appropriate emotion regulation strategies display higher levels of posttraumatic symptoms (Tull et al., 2007).

Although, studies reviewed thus far demonstrate that emotion regulation difficulties are associated with PTSD, these studies contain a number of limitations that preclude a comprehensive understanding of the way in which these variables interact. Extant literature is not only limited in regards to the quantity of studies, but it is also difficult to generalize due to varying methodology and inconsistent definitions of emotion regulation. It will be important to comprehensively evaluate emotion regulation and PTSD based on the DSM-5 criteria to clarify these relationships.

The relationships among trauma, emotion regulation, and PTSD. Literature to date has not differentiated the temporal relationship between trauma, emotion regulation, and PTSD (i.e., do emotion regulation difficulties precede PTSD, or does PTSD precede emotion regulation difficulties). It is conceivable that trauma disrupts components of emotion regulation and difficulties regulating emotion place one at risk for developing PTSD. However, it is also possible that emotion dysregulation occurs subsequent to PTSD, regardless of trauma characteristics. Two known studies have explicitly sought to elucidate the relationships among these variables. Ehring and Quack (2010) evaluated the effects of trauma type and PTSD symptom severity on emotion regulation difficulties through a web-based survey with male and female trauma survivors (n = 616). Participants were separated into four groups: early-onset interpersonal, early-onset chronic interpersonal (lasting more than one year), late-onset interpersonal, and non-interpersonal.

Findings revealed that emotion regulation difficulties were significantly correlated with PTSD symptom severity. When considering trauma type, survivors of early-onset chronic trauma evidenced significantly more difficulties with emotion regulation (as measured by the Difficulties with Emotion Regulation Scale-DERS, Emotion Regulation Questionnaire-ERQ, and Acceptance and Action Questionnaire-AAQ) compared to other trauma groups. However, when controlling for PTSD symptom severity, only two components of emotion regulation (emotional clarity and difficulties engaging in goal directed behavior) remained significantly worse in the early-onset chronic trauma group compared to other groups. The authors argued that the later finding could be interpreted in several ways. Emotion regulation difficulties may not be specific to chronic early-

onset interpersonal trauma. However, the early-onset chronic group evidenced the greatest difficulties with emotion regulation and endorsed more severe PTSD symptoms than other groups. This pattern could suggest that early-onset chronic trauma predicts emotion dysregulation which in turn predicts more severe PTSD. It is also possible that emotion regulation difficulties associated with PTSD are common across trauma types (Ehring & Quack, 2010). Methodological limitations (e.g., lack of non-traumatized control group, nonclinical sample, use of self-report PTSD symptom checklist, cross sectional design) restrict the extent to which these findings can be interpreted and generalized.

Stevens and colleagues (2013) evaluated the mediating role of emotion regulation in the relationship between childhood abuse and posttraumatic stress symptoms in a sample of 139 community women. Emotion regulation (as measured by the DERS) mediated the relationship between childhood abuse and current symptoms of posttraumatic stress. While this demonstrates that difficulties regulating emotions explains the relationship between early abuse and current posttraumatic stress, the study had a number of limitations. First, trauma type was limited to childhood abuse, yet other forms of trauma have been linked to emotion regulation difficulties and posttraumatic stress. Second, the outcome was posttraumatic stress symptoms as measured by the PTSD Symptom Scale–Self Reported (PSS-SR) using DSM-IV criteria. Thus, the relationship between other forms of trauma, emotion regulation, and a formal diagnosis of PTSD according to the DMS-5 remains unknown.

Present Study

Understanding the relationship among trauma, emotion regulation, and PTSD is not only of theoretical interest, but can inform specific intervention strategies. In the general population, characteristics of trauma exposure (e.g., early-onset, revictimization, polyvictimization) have been associated with heightened emotion regulation difficulties (Cloitre et al., 2008; Kim & Cicchetti, 2010; Walsh et al., 2011). Furthermore, individuals who have difficulties regulating emotions have greater PTSD symptom severity (Moore et al., 2008; Roemer et al., 2001; Tull et al., 2007). A vulnerable population that has received less attention in research is that of incarcerated women. Notably, incarcerated women have high rates of both victimization and PTSD. Research suggests that mental health difficulties play an integral role in offending. In fact, some studies have found that mental health problems mediate the relationship between victimization and offending (Lynch et al., 2013; Salisbury & Van Voorhis, 2009). Therefore, targeting mental health problems, specifically PTSD, is a promising avenue for improving incarcerated women's mental health and overall quality of life, as well as decreasing recidivism. However, in order to accomplish this goal, a better understanding of trauma exposure, emotion regulation, and PTSD in incarcerated women is necessitated.

The purpose of this study was to investigate the relationships among trauma exposure, emotion regulation, and posttraumatic stress disorder in incarcerated females. This study aimed to expand upon extant literature in several ways. First, trauma was measured in regards to onset, type, and chronicity. This went beyond the typical assessment of presence versus absence of traumatic events in many studies. These trauma

characteristics were then systematically evaluated to determine how they were associated with specific emotion regulation difficulties in incarcerated women and how subsequent PTSD diagnoses emerged. This approach also built upon limited research that assesses trauma and emotion regulation difficulties to inform interventions specific to the needs of incarcerated women. Second, emotion regulation abilities were assessed using multiple measures to represent a more comprehensive assessment of emotion regulation, which included clarity and awareness of emotions, acceptance of emotions, ability to engage in goal directed behavior, beliefs regarding access to situationally-appropriate emotion regulatory strategies, specific use of strategies, impulse-control and experiential avoidance. Existing studies often measure specific facets of emotion regulation (e.g., strategy use, acceptance of emotions), failing to consider emotion regulation as an overarching construct. Few studies on emotion regulation have utilized incarcerated individuals; therefore, our understanding of emotion regulation difficulties in incarcerated females is limited.

Third, the prevalence of PTSD in incarcerated women was assessed using a structured diagnostic interview that incorporated DSM-5 criteria. Previous studies typically have relied on self-report symptom checklists concerning DSM-IV criteria. Structured diagnostic interviews are advantageous because they allow the interviewer to assess the respondent's understanding of the question and solicit detail regarding the respondent's experiences. Lastly, confirmatory factor analysis (CFA) and structural equation modeling (SEM) were used to test the relationships between multiple factors (i.e., trauma exposure, emotion regulation difficulties, and PTSD) and observed variables (e.g., trauma type and chronicity, emotion regulation strategy use, symptoms of intrusion)

simultaneously, while accounting for measurement error. Based upon existing literature and the goals of this study, the following hypotheses were made.

Hypothesis One. Trauma characteristics would predict current emotion regulation difficulties. Specifically, earlier onset, greater chronicity, and experiencing multiple forms of trauma would predict greater emotion regulation difficulties.

Hypothesis Two. Trauma characteristics would predict current PTSD symptom severity. Specifically, earlier onset, greater chronicity, and experiencing multiple forms of trauma would predict greater severity of PTSD symptoms.

Hypothesis Three. Childhood sexual abuse, childhood physical abuse, adult sexual abuse, adult physical abuse, crime-related events, and non-interpersonal traumas would load onto a common *Trauma Exposure* factor.

Hypothesis Four. Difficulties in emotion regulation (DERS), cognitive reappraisal (ERQ), expressive suppression (ERQ), and experiential avoidance (AAQ-II) would load onto a common *Emotion Regulation Difficulties* factor.

Hypothesis Five. Symptoms of intrusion, avoidance, negative alterations in mood and cognition, and alterations in arousal and reactivity would load onto a common *Posttraumatic Stress Disorder Severity* factor.

Hypothesis Six. *Emotion Regulation Difficulties* would mediate the relationship between *Trauma Exposure* and *Posttraumatic Stress Disorder Severity*. *Trauma Exposure* severity would be positively associated with *Emotion Regulation Difficulties*, which in turn would predict increased *Posttraumatic Stress Disorder Severity* (see Figure 1).

Chapter 2: Methods

Participants

Participants for this study consisted of 152 incarcerated women recruited from the Pocatello Women's Correctional Center (PWCC). The sample size was determined based on a literature review of studies utilizing structural equation modeling and by conducting a power analysis. In a similar study, using an incarcerated sample ($n=119$), Rowland (2013) employed SEM to evaluate the relationships among childhood victimization and adversity, victimization in the year prior to offending, social support, coping, emotion regulation, and severity of offending. Rowland's model consisted of 13 observed variables and 2 latent constructs; 58 degrees of freedom were identified and significant path coefficients ranged from .218 to .584. The model proposed in the present study was slightly more complex with 12 observed variables and 3 latent constructs warranting a sample size greater than 119.

To determine sample size and conduct a power analysis for structural modeling, MacCallum, Browne, and Sugawara (1996) recommend utilizing the fit index, Root Mean Square Error of Approximation (RMSEA). Their power analysis model is based on hypothesis testing which compares the degree of fit between the proposed structural model and the data. RMSEA is a fit index where values less than .06 are acceptable as they represent a close fit. To determine power, MacCallum and colleagues (1996) compare the null (e.g., .05, close fit) and alternative (e.g., .08, not close fit) RMSEA values while accounting for degrees of freedom, sample size, and alpha level. Their approach is advantageous as it is simple and more easily applied compared to other approaches. For instance, it is not model specific beyond accounting for degrees of freedom, it is not limited to tests of exact fit, and is capable of determining minimal

sample size needed to achieve a specific power level. Consequently, minimum sample size for this study was calculated using RMSEA online software provided by Preacher and Coffman (2006). Given 58 degrees of freedom, alpha level of .05, null RMSEA set at .05, and alternative RMSEA set at .08, approximately 191 participants would be required to for a .8 level of power. In conclusion, evidence from existing research suggested a sample size of at least 119. On the other hand, based upon a power analysis, 191 participants would be optimal to achieve power at .8. When considering these factors, as well as other limiting factors (e.g., the prison population being 300, research design consisting of random selection, potential decline rate) a sample size of 150 was proposed and accepted by the committee.

Participants ranged in age from 20 to 64 ($M = 37$, $SD = 10.5$). See Table 1 for demographics of the study sample. Women indicated the following ethnic identities: White/Caucasian (58.6%), Multi-ethnic (22.4%), Hispanic (9.2%), Native American (7.2%), African American (0.7%), and other (2.0%). One-third of the sample completed high school or their GED (37.5%). Another third had completed some college (33.6%). Several had some high school (11.8%) or less than an 8th grade education (7.3%). Others had a technical (2.0%), college (7.2%) or graduate (0.7%) degrees. Most of the women were divorced (35.5%) or single (32.9%). Others had a long-term partner (14.8%), were married (14.5%) or widowed (3.3%). In regard to employment status prior to being incarcerated, over two-thirds were employed full-time (66.4%) and approximately one-fourth were part-time (25%). Other women had occasional work (2.6%), were on disability (2.0%) or had no income (3.9%). Their average annual income prior to incarceration was \$19,245 ($SD = \$26,108$).

Statistics regarding crime can be found in Table 2. Participants were most commonly incarcerated for illegal drug charges (30.9%) or property crimes (21.7%; e.g., larceny, theft, robbery, burglary, fraud). Fifteen percent endorsed violent crimes: murder, manslaughter or homicide (6.6%) and/or assault (8.6%). 8.6% were incarcerated for sex crimes. Few reported alcohol related crimes (3.6%; public drunkenness, DUI). The average sentence length was 10.43 years ($SD = 10.32$). One third of the women were incarcerated for their first offense (32.9%). They reported being charged with an average 3.62 ($SD = 4$) crimes across their lifetime.

Measures

Demographics questionnaire. The demographics questionnaire was used to elicit information about age, ethnicity, marital status, educational/occupational history, criminal history, and length of incarceration of each participant (see Appendix A).

Trauma history questionnaire. The Trauma History Questionnaire (THQ; Green, 1996; see Appendix B) was used to evaluate exposure to traumatic experiences such as natural disasters, crime, sexual violence, and physical assault. The 24 questions were listed in yes/no format. For example, “Has anyone, including family members or friends, ever attacked you with a gun, knife, or some other weapon?” If an individual indicated having an experience, they were asked what age they were at the time of exposure and how often the event occurred (Green, 1996). The original measure’s frequency item was modified. The frequency of occurrence was rated on a 4-point Likert-type scale (i.e., 0 = *none*, 1 = *1 to 2 times*, 2 = *3 to 4 times*, 3 = *5 or more than 5 times*) rather than asking participants to recall or estimate a specific number of times they experienced the event. The test-retest reliability of the THQ has been reported to range

from fair to excellent across several studies. The THQ has also demonstrated high face and content validity, as well as strong predictive validity (Hooper, Stockton, Krupnick, & Green, 2011).

For the purpose of this study trauma was categorized in several ways. First, trauma was separated in categories based on type. Sexual traumas included sexual touching, forced intercourse, or any other unwanted sexual contact. Physical traumas consisted of being attacked with or without a weapon by a partner, spouse or friend, and being beaten, spanked, or pushed hard enough to cause injury. Crime traumas referred to having something stolen, being robbed, or experiencing someone attempt to or successfully break into your home. General traumas included serious accident (e.g., car wreck), natural disaster (e.g., tornado, earthquake), manmade disaster (e.g., fire, bank robbery), exposure to dangerous chemicals, being in a situation in which you feared you might be seriously injured, witnessing another person being injured, seeing dead bodies, having a close friend or family member killed, losing a romantic partner or child due to death, being diagnosed with life-threatening illness, receiving news of serious-injury or unexpected death of someone close to you, and engaging in combat. Interpersonal trauma consisted of both sexual and physical traumas, whereas non-interpersonal trauma referred to crime and general traumas. Second, trauma was considered based on age of onset. Age of onset was classified as a continuous variable representing the earliest age in which the trauma occurred. It was also categorized as early onset (childhood; prior to age 14) or late onset (adulthood; age 14 or older), which is consistent with prior literature (Walsh et al., 2010). Chronicity was calculated by summing the endorsed frequency (i.e., 0 = *none*, 1 = *1 to 2 times*, 2 = *3 to 4 times*, 3 = *5 or more times*) of each trauma type. To determine

total number of trauma types, each trauma type was coded as absent or present, and then summed by category (e.g., sexual, crime) and overall. See Table 3 for means, standard deviations, and minimum and maximum values related to age of onset, chronicity, and total trauma types of participants' trauma histories.

Clinician-administered PTSD scale for DSM-5. The Clinician-Administered PTSD Scale for DSM-5 (CAPS-5; Weathers et al., 2013; see Appendix C for sample items), a 30-item structured interview, was used to assess the severity of current PTSD symptoms. Current symptoms were defined as occurring in the past 30 days. The CAPS-5 is a version of the original CAPS, a gold standard PTSD assessment measure, modified to correspond with the DSM-5 criteria. The assessment began by determining if the participant met Criterion A (exposure to traumatic event) using the THQ. If the participant had been exposed to more than one traumatic event they were asked to identify the worst event(s) and then answer the CAPS-5 questions in reference to their "worst event(s)." Items 1-20 assessed the presence/absence (yes/no), intensity (four-point ordinal scale: *minimal*, *present*, *pronounced*, and *extreme*), and frequency (number of occurrences or percent of time) of symptoms across clusters B, C, D, and E. For each item, a severity rating was made by the interviewer on a 5-point scale (0-*absent*, 1-*mild/subthreshold*, 2-*moderate/threshold*, 3-*severe/markedly elevated*, 4-*extreme/incapacitating*) based on the respondents reported frequency and intensity of the symptom. Items 21-30 assessed onset and duration of symptoms, related impairment, subjective distress, and dissociative symptoms. Several scores were yielded from the CAPS-5: total symptom severity (sum of severity scores across items 1-20), symptom cluster severity (sum of item severity scores within each DSM-5 cluster- intrusion,

avoidance, negative alteration in cognition and mood, and alteration in arousal and reactivity), and PTSD diagnostic status (Weathers et al., 2013).

The CAPS-5 is undergoing psychometric evaluation; therefore, reliability and validity data are not yet available (F. Weathers, personal communication, June 18, 2013). However, this measure is an updated version of the CAPS, which demonstrated good psychometric properties: high inter-rater reliability (ranging from .89 to 1.00; Hovens et al., 1994); high test-retest reliability (ranging from .77 to .96; Blake et al., 1995); and strong convergent validity ($r = .83$ with the Structured Clinical Interview for DSM-IV PTSD Module; Foa & Tolin, 2000).

For this study, prior to collecting data, interviewers (i.e., doctoral Clinical Psychology students) were trained to administer the CAPS-5 and inter-rater reliability statistics were obtained. Specifically, the six interviewers read the CAPS-5 administration manual, then watched and coded four prerecorded CAPS-5 diagnostic interviews. The inter-rater reliability for coding severity ratings was excellent (intra-class correlation range = .96 – .99, $\bar{x} = .97$). Similarly, the inter-rater reliability for assessing absence/presence of each symptom ranged from substantial to almost perfect (kappa coefficient range = .77 – .98, $\bar{x} = .97$). Diagnostic agreement was 100% across the six interviewers. The internal consistency of the CAPS-5 with the present sample was excellent ($\alpha = .95$).

Difficulties in emotion regulation scale. The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004; see Appendix D), a 36-item self-report measure, was used to assess clinically relevant difficulties one might have with emotion regulation. Specifically, items on the DERS address awareness and knowledge of emotions;

acceptance of emotions; the ability to inhibit impulsive behavior and engage in goal-directed behavior, when distressed; and the ability to access and implement effective regulation strategies. Participants were asked to respond to each item using a 5-point scale, ranging from 1- *almost never* (0-10%) to 5- *almost always* (91-100%). For this study, the scoring was coded such that higher scores indicate greater difficulties with emotion regulation. The DERS yielded a total score and six subscale scores (i.e., awareness, clarity, nonacceptance, goals, impulse-control, and strategies). Research evaluating the psychometric properties of the DERS demonstrated high internal consistency ($\alpha = .93$) and test-retest reliability ($r = .88$), as well as good construct validity (it was correlated with other measures reported to assess emotion regulation constructs, such as emotion expressivity, mood modulation, and experiential avoidance; Gratz & Roemer, 2004). Internal consistency in the current study was excellent ($\alpha = .88$).

Emotion regulation questionnaire. The Emotion Regulation Questionnaire (ERQ; Gross & John, 2003; see Appendix E), a 10-item self-report scale, was utilized to assess the participants use of two emotion regulation strategies: expressive suppression (e.g., “I keep my emotions to myself”, “I control my emotions by not expressing them”) and cognitive reappraisal (e.g., “When I want to feel less negative emotion, I change the way I am thinking about the situation”). Participants were asked to rate each item on a scale of 1 (*strongly disagree*) to 7 (*strongly agree*). High scores on the expressive suppression scale reflect worse emotion regulation, whereas on the cognitive reappraisal higher scores indicate better or more adaptive emotion regulation. This scale has demonstrated good psychometric properties. Specifically, internal consistencies were good (expressive suppression: $\alpha = .73$; cognitive reappraisal $\alpha = .79$) and test-retest

reliability 3-month estimates were adequate ($r = .69$ for both scales). Confirmatory factor analyses provide evidence that the two scales are independent of one another ($r = .01$). Relatedly, experimental and correlational data suggest that reappraisal is an adaptive emotion regulation strategy and suppression is a maladaptive emotion regulation strategy (Gross, 2002; Gross & John, 2003). In the present study, internal consistencies were good (expressive suppression: $\alpha = .74$; cognitive reappraisal $\alpha = .86$).

Acceptance and action questionnaire-II. Acceptance and Action Questionnaire (AAQ-II; Bond et al., 2011; see Appendix F), a 7-item self-report scale, was used to measure experiential avoidance, or the tendency to avoid unwanted internal experiences (e.g., thoughts, emotions, and physical sensations) even if it results in actions incongruent with goals and values (Bond et al., 2011). Sample items include “Worries get in the way of my success” and “I’m afraid of my feelings.” Participants were asked to respond to each item on a 7-point scale ranging from *never true* to *always true*. The AAQ-II yielded a total score with higher values indicative of more experiential avoidance. Psychometric properties are strong: internal consistency ranged from .78-.88 across six samples ($n=2,816$), and test-retest reliability was .81 at 3-months and .79 at 12-month follow-ups (Bond et al., 2011). Experiential avoidance is a theoretical construct related to theoretical constructs such as emotion regulation ($r = .78$ with the DERS; Johnson, 2013), and thought suppression ($r = .78$ with the White Bear Suppression Task; Bond et al., 2011).

With data from the current study sample an item analysis was conducted on the AAQ-II to evaluate if each of the seven items contributed meaningfully to the overall score. Results indicated that the AAQ-II had high internal consistency ($\alpha = .93$). Corrected item-total correlations ranged from $r = .71$ to $r = .82$ (see Table 4). Given the

high internal consistency on the AAQ-II, all items were retained, included in the AAQ-II total score, and utilized in further analyses.

Procedures

All procedures were reviewed and approved by the Idaho State University Human Subjects Committee. Participants were recruited through random selection. First, researchers visited each prison tier to describe the purpose of the study to the women, as well as inform them that they would be randomly selected and invited to participate in a study about women's physical and mental health as well as their experiences of emotion. Then, across an eight month period, researchers returned to each tier and invited women to participate based on a randomly generated list of bed numbers. Women were given the option to participate, refuse, or be called again if they were interested but currently unavailable (e.g., had to work). Participants were interviewed in a private room on the unit (e.g., multipurpose room or staff office). At the beginning of the evaluation, the purpose of the study and procedures (e.g., voluntary participation, estimated length of evaluation, nature of questions asked) were provided.

After obtaining the written and signed informed consent, the participant was interviewed. To facilitate their understanding of questions and associated response options they were given a packet of the measures. However, the interviewer read each question aloud to address potential issues in reading level and recorded the participant's responses. The order of measures was counter-balanced to control for response-bias and fatigue.

Following the completion of all measures, participants were thanked for their time and debriefed. They had the opportunity to ask questions and share concerns.

Furthermore, they were provided information to access support in the event they later experienced distress related to the study. Interviews lasted approximately 2 hours.

Participants were compensated with a candy bar or fruit snack. A total of 224 women were invited to participate in this study. Seventy-two of these women declined stating they were not interested. Overall, 32% of the women invited to participate declined. No one was excluded from participating in the study.

Chapter 3: Results

Preliminary Analyses

Prior to evaluating the stated hypotheses the data were assessed for missing data, skewness, kurtosis, distribution normality, and outliers. On the THQ, frequency for a single trauma was missing for four participants; however, these participants reported an age of onset for the trauma indicating that they had experienced the trauma. Consequently, a value of one was substituted for frequency. Furthermore, on the THQ four other participants refused to answer if they had witnessed a dead body or seen someone seriously injured/killed, and one of these participants also refused to answer information related to sexual traumas. Frequency and age of onset for the four participants who refused to answer 1-3 trauma questions were not imputed due to the data being events and ages that are not necessarily related to other experiences. Chronicity and total types of trauma experienced for these four participants were made by summing their available trauma data. Listwise deletion was used for missing age of onset.

On the CAPS-5, one symptom severity rating was missing for one participant on one item for an unknown reason. Other CAPS-5 data was missing due to refusal. Specifically, participants were informed that they had the right to skip questions or discontinue at any time at the onset of the interview. Five women declined to answer CAPS-5 questions. Three women partially completed the CAPS-5 and then discontinued after answering approximately two-thirds of the questions stating they were too overwhelmed and wished to stop. An additional four women were unable to identify an index trauma or only had minor traumas and stated they were psychologically unaffected. In these cases, interviewers did not administer the CAPS-5. For these reasons, 12 cases

had partial or full missing data on the CAPS-5. On the DERS, a single item rating was missing on different variables for four participants. Missing data was addressed differently depending on what data was missing. For the missing CAPS-5 item severity score for one participant, and DERS single item score for four participants, the data was pro-rated because subscale totals were used in analyses not the individual items. Pro-rating data is theoretically justified because the items on the subscale are assessing the same construct, in other words they are related. In the case of missing one item on a seven-item scale, pro-rating would entail adding the available six items and dividing the total by six and then multiplying by seven. This calculation yields the pro-rated subscale score and is how pro-rating was conducted in this study. Full Information Maximum Likelihood (FIML) was utilized during structural equation modeling to address the 12 cases that had partial or full missing data on CAPS-5. FIML is a model estimation method which includes all available data when calculating parameters. It is beneficial as it allows estimation of the model without deleting cases due to missing variables (Shumacker & Lomax, 2010).

Outliers were screened for by plotting and visually scanning the data, evaluating the frequency of each value, and comparing item ranges to plausible ranges based on the assessment scales. No outliers were found. Skewness and kurtosis statistics, as well as histograms with normal curve overlays were used to evaluate the univariate normality of distribution of the variables. All variables appeared to be normally distributed except for the THQ age of onset for sexual trauma and age onset for all trauma types which were above the cutoff of 1.96. Age of onset for sexual trauma (skewness = 2.293, kurtosis = 6.892) and all trauma types (skewness = 2.235, kurtosis = 7.343) were both positively

skewed with high kurtosis. Square-root transformations were employed and adequately corrected skewness and kurtosis of age of onset for sexual trauma (skewness = 1.563, kurtosis = .448) and all trauma types (skewness = .541, kurtosis = 1.304) variables. The transformed age of onset variables were then used in all further analyses.

In addition to univariate normality, multivariate normality was also considered in this study as it is an assumption of structural equation modeling. Multivariate normality is when each variable is normally distributed and all linear combinations of variables of interest are normally distributed with respect to each other variable. Multivariate normality is important because violations can affect the accuracy of the chi-square value. Despite the availability of a few statistical tests that assess aspects of multivariate normality, these tests are limited by their sensitivity (Kline, 2011; Tabachnick & Fidell, 2013) and are only available in certain statistical software. When using non-normality robust estimation techniques, such as maximum-likelihood in *Mplus*, which was used in this study, multivariate normality is generally less of a concern. Maximum-likelihood in *Mplus* is considered to provide strong estimates of standard errors and the chi-square test of model fit (Muthen, 2008). Consequently, multivariate normality was not explicitly tested in this study.

Analyses were also performed to identify potential covariates (i.e., age, ethnicity, and income) for subsequent analyses. No demographic variables were significantly correlated with any emotion regulation or PTSD variable.

Rates of Trauma Exposure and PTSD

Descriptive data for all variables of interest can be found in Tables 5 – 8. The majority of women indicated experiencing at least one trauma (interpersonal trauma =

95% and non-interpersonal traumas = 98%). The five most commonly experienced traumas were news of serious injury or unexpected death of someone close (74%), forced intercourse (71%), attacked without a weapon (69%), life-threatening accident (59%), and witnessing another person being injured (56%). When traumatic exposure was assessed across categories, nearly 80% of the women were survivors of sexual trauma and 87% reported experiencing physical abuse. Most sexual traumas began in childhood (76%), whereas half of physical traumas began in childhood (47%). Crime (74%) and general (97%) traumas also were quite common. In regard to chronicity, women reported experiencing the following types of trauma five or more times: general (82%), physical (72%), sexual (56%), and crime (38%). Almost three-fourths of women experienced both sexual and physical trauma (72%). With regard to total types of trauma, 41% of women experienced four or more types of interpersonal trauma and 75% experienced four or more types of non-interpersonal trauma. On average, women experienced almost nine different types of trauma across their lifetime. Chronicity of trauma and number of types of trauma differed significantly based on ethnicity. Specifically, women who identified as an ethnic minority or multi-ethnic reported experiencing significantly more trauma types ($M = 9.95$, $SD = 4.56$, vs. $M = 7.81$, $SD = 3.22$), $t(145) = 3.34$, $p = .001$, and trauma at a higher frequency ($M = 17.25$, $SD = 9.66$, vs. $M = 13.40$, $SD = 6.66$), $t(145) = 2.87$, $p = .005$, than women who identified as Caucasian.

Fifty-five (39%) of the 152 women met current diagnostic criteria for PTSD according to the DSM-5. Similarly, 53 (38%) met diagnostic criteria for current PTSD according to the DSM-IV. Thus, DSM-5 prevalence did not differ significantly from DSM-IV criteria according to the McNemar Chi-square test ($p = .50$). The average

symptom severity score of those diagnosed with PTSD, according to DSM-5, was 27.7 (SD = 11.84) on a scale with a total possible range of 0 to 57.

Relationships among Trauma, Emotional Regulation, and PTSD Variables

Prior to conducting structural equation modeling, bivariate correlations were calculated to evaluate the relationships between self-report measures of trauma, emotion regulation (i.e., difficulties with emotion regulation, DERS; expressive suppression, ERQ; cognitive reappraisal, ERQ; experiential avoidance, AAQ-II), and PTSD (Table 9). Results indicate that variables correlated with one another in the expected directions. For example, all of the emotion regulation questionnaires were significantly correlated with one another. Specifically, difficulties with emotion regulation (DERS) was positively correlated with the expressive suppression (ERQ; $r = .400, p < .01$) and experiential avoidance (AAQ-II; $r = .702, p < .01$), whereas it was negatively correlated with cognitive reappraisal (ERQ; $r = -.325, p < .01$). Women with greater difficulty regulating emotion were more likely to use maladaptive coping (i.e., expressive suppression and experiential avoidance) and less likely to employ adaptive coping, such as cognitive reappraisal. Of the trauma variables, age of onset was significantly related to emotion regulation difficulties (DERS; $r = -.171, p < .05$) and experiential avoidance (AAQ-II; $r = -.211, p < .01$). Similarly, trauma chronicity was significantly associated with emotion regulation difficulties (DERS; $r = .177, p < .05$) and experiential avoidance (AAQ-II; $r = .173, p < .05$). Women who experienced trauma earlier in life and more chronic trauma had greater difficulty regulating emotions and more experiential avoidance. In addition, PTSD symptom severity was significantly positively correlated with difficulties with emotion regulation (DERS; $r = .321, p < .01$), experiential avoidance (AAQ-II; $r = .430$,

$p < .01$), and expressive suppression (ERQ; $r = .178, p < .05$), indicating that women with greater PTSD severity had poorer emotion regulation skills. PTSD symptom severity was not significantly related to cognitive reappraisal (ERQ; $r = -.106, p = .213$). PTSD symptom severity was also significantly associated with trauma age of onset ($r = -.347, p < .01$), total trauma types ($r = .333, p < .01$), and chronicity ($r = .358, p < .01$).

Although there was not a stated hypothesis in regards to PTSD diagnosis and emotion regulation, a post hoc analyses was included to explore if emotion regulation abilities were significantly worse in women with PTSD compared to those without PTSD. This was tested with a multivariate analysis of variance (MANOVA). DERS subscales were entered as the dependent variables and a dichotomous PTSD variable (above diagnostic cutoff, $n = 55$ versus below the cutoff, $n = 85$) was utilized as the independent variable. The overall model was significant, Wilkes $\lambda = .909, F(6,133) = 2.210, p = .046, \eta^2 = .09$. Post hoc ANOVAs demonstrated that women meeting criteria for PTSD had significantly greater scores on all subscales, except impulse control. Specifically, incarcerated women with PTSD, reported significantly greater nonacceptance of emotions, $F(1,138) = 6.985, p = .009, \eta^2 = .05$, problems engaging in goal-directed behavior when upset, $F(1,138) = 10.517, p = .001, \eta^2 = .07$, lack of access to effective strategies, $F(1,138) = 8.513, p = .004, \eta^2 = .06$, and lack of awareness, $F(1,138) = 6.117, p = .015, \eta^2 = .04$, and clarity, $F(1,138) = 4.452, p = .037, \eta^2 = .03$, of their emotions, compared to women without PTSD. There was a trend reflecting that women with PTSD had greater impulse control difficulties, $F(1,138) = 3.833, p = .052$.

Multivariate multiple regression analyses. Multivariate multiple regression was utilized to evaluate the relationship between trauma characteristics and emotion regulation because it permits simultaneous evaluation of multiple predictor and outcome variables without inflating the type 1 error rate. Hypothesis one predicted that trauma characteristics (i.e., earlier onset, greater chronicity, and experiencing multiple types of trauma) would predict greater emotion regulation problems (i.e., difficulties in emotion regulation, expressive suppression, cognitive reappraisal and experiential avoidance). However, it was determined that trauma chronicity and multiple types of trauma were highly correlated ($r = .935, p < .01$) which violates the multicollinearity assumption of multiple regression. Variables which are collinear share a significant amount of variance and thus no additive benefit is gained by including both in a model. Moreover, it can be problematic to do so as it influences the stability of the beta weights. To address this issue of multicollinearity, the multiple types of trauma experienced variable was excluded from the regression models. Bivariate regressions demonstrated that age of trauma onset and trauma chronicity were not significantly related to expressive suppression (ERQ) or cognitive reappraisal (ERQ); therefore, expressive suppression and cognitive reappraisal were not included in the model as predictors.

The final multivariate analysis consisted of two predictors, age of trauma onset and trauma chronicity, and two dependent variables, difficulties with emotion regulation (DERS total score) and experiential avoidance (AAQ-II; Table 10). At the multivariate level, only age of trauma onset was significant $F(2, 145) = 3.398, p = .036, \eta^2 = .05$. At the univariate level, age of onset was significantly associated with increased difficulties with emotion regulation $F(1, 148) = 6.573, p = .011, \eta^2 = .03$ and experiential avoidance

$F(1, 148) = 4.486, p = .036, \eta^2 = .04$; suggesting that women who experience trauma at a younger age have greater difficulty regulating emotion, and engage in more experiential avoidance.

Confirmatory factor analysis and structural equation modeling. Hypotheses two through six were evaluated with confirmatory factor analyses (CFA) and structural equation modeling (SEM). To evaluate the proposed measurement and structural equation models *Mplus* statistical software version 7 was used (Muthén & Muthén, 2012). To determine the fit of measurement and structural models several indices were utilized. First, the chi-square value (χ^2) which assesses the discrepancy between the population variance-covariance matrix and sample variance-covariance matrix was examined. A non-significant χ^2 is indicative of a good model. The Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI), which both assess the degree of congruence between the model and the data (model fit is considered to be good when CFI and TLI are above .95), were also evaluated. Lastly, the Root Mean Square Error of Approximation (RMSEA), which estimates lack of fit in a model compared to the saturated model, was examined. RMSEA values less than .06 suggest good model fit (Hu & Bentler, 1999; Tabachnick & Fidell, 2013).

Modification indices were used to modify measurement and structural models if fit was inadequate and the modifications were theoretically justifiable (e.g., intrusion symptoms are related to avoidance symptoms; therefore, allowing them to correlate would be reasonable). Specifically, the modification index (MI), which reflects the expected decrease in the χ^2 value if the variables are allowed to correlate, was used. Model identification was considered for each of the tested models. All measurement and

structural models were over-identified, meaning that the number of data points exceeded the number of parameters resulting in positive degrees of freedom; this is important as it permits testing of model fit. Structural equation modeling was conducted in accordance with Muliak and Millsap's (2000) two-step approach. The first step entails evaluating the measurement model(s). Specifically, it consists of confirmatory factor analysis to test how well observed variables correspond with the latent variable. If the measurement models are supported by the data, the structural model is then specified (step two).

Hypothesis two stated that trauma characteristics when including all trauma types (i.e., earlier onset, greater chronicity, and experiencing multiple types) would predict PTSD symptom severity. Due to multicollinearity issues (as described above), number of trauma types experienced was not included in the model. A multiple regression analysis was performed to evaluate the amount of variance accounted for in PTSD symptom severity by trauma factors. To account for missing data on the CAPS-5, this analysis was conducted in *Mplus* utilizing FIML. First the PTSD measurement model was evaluated. Specifically, intrusion, avoidance, negative alterations in mood and cognition, and alterations in arousal and reactivity loaded onto a posttraumatic stress disorder severity factor (as predicted in hypothesis five). The initial model reflected an inadequate fit, $\chi^2(2) = 11.020, p = 0.004$; RMSEA = 0.178; TLI = .855; CFI = .952. Examination of the modification indices suggested that allowing the intrusion symptoms to correlate with the avoidance symptoms would improve the model (MI = 11.5). Intrusion symptoms were allowed to correlate with the avoidance symptoms ($r = .375, p < .001$) and the resulting model had adequate fit, $\chi^2(1) = 0.423, p = 0.516$; RMSEA = 0.000; TLI = 1.019; CFI = 1.000. All four observed variables significantly loaded onto posttraumatic stress disorder

severity, with factor loadings ranging from .56 to .84 (see Figure 2). Then age of trauma onset and chronicity were entered as predictors of the latent variable PTSD symptom severity. This structural model demonstrated good fit $\chi^2(7) = 6.667, p = 0.464$; RMSEA = 0.000; TLI = 1.003; CFI = 1.000. PTSD factor loadings were all significant and ranged from .593 to .817. Both chronicity ($\beta = .301, p = .001$) and age of onset ($\beta = -.253, p = .006$) were significant predictors and accounted for 23% of the variance in PTSD symptom severity. In conclusion, hypothesis two was supported as trauma experienced at an earlier age and higher frequency predicted more severe PTSD symptoms.

Hypothesis three predicted that childhood sexual abuse, childhood physical abuse, adult sexual abuse, adult physical abuse, crime-related events, and non-interpersonal traumas would load onto a common trauma exposure factor. However, during data collection the frequency of each trauma was assessed for lifetime exposure, rather than by age-categories thus making frequency by age undeterminable. Therefore, hypothesis three was modified to predict that the frequency of lifetime sexual abuse, physical abuse, crime-related trauma and general trauma would load onto a common trauma exposure factor. This measurement model reflected good fit across all indices, $\chi^2(2) = 1.021, p = 0.60$; RMSEA = 0.00; TLI = 1.035; CFI = 1.000. The four indicator variables representing lifetime trauma (e.g., sexual abuse, physical abuse, crime-related trauma and general trauma), loaded significantly to the latent factor trauma exposure, with factor loadings ranging from .342 to .716 (see Figure 3). Another measurement model was assessed investigating how well difficulties with emotion regulation (i.e., total score as

measured by the DERS¹), expressive suppression (ERQ), cognitive reappraisal (ERQ), and experiential avoidance (AAQ-II) loaded onto the latent variable emotion regulation difficulties (hypothesis four). Analysis of this model reflected good fit indices, $\chi^2(2) = 0.134$, $p = 0.935$; RMSEA = 0.000; TLI = 1.037; CFI = 1.00. All observed variables significantly loaded to emotion regulation difficulties (all variables $p < .001$), with

¹ An additional measurement model evaluated how well the DERS subscales – awareness of emotion, acceptance of emotion, emotional clarity, ability to engage in goal directed behavior when upset, impulse control, and ability to implement effective emotion regulation strategies – loaded onto the latent construct emotion regulation. Initial evaluation of fit indices reflected poor model fit, $\chi^2(9) = 69.663$, $p = 0.00$; RMSEA = 0.219; TLI = 0.755; CFI = 0.853. However, review of the modification indices suggested the model would be improved by allowing several variables to correlate (i.e., emotional clarity with awareness of emotion (MI = 45.4) and strategy use with acceptance of emotion (MI = 16.2)). Emotional clarity was allowed to correlate with awareness of emotion ($r = .527$, $p < .001$) and strategy use was allowed to correlate with acceptance of emotion ($r = .377$, $p < .001$), sequentially. Following these changes, the data reflected good model fit, $\chi^2(7) = 11.270$, $p = 0.127$; RMSEA = 0.060; TLI = 0.978; CFI = 0.990. As seen in Figure 4, all observed variables significantly loaded to emotion regulation (all variables $p < .001$), with standardized coefficients ranging from .53 to .88. Given that these subscales loaded onto one factor, the total DERS score was used as an observed variable in further analyses.

standardized coefficients ranging from -.404 to .848. See Figure 5 for all factor loadings on the emotion regulation difficulties measurement model.

Overall, measurement models for trauma exposure, emotion regulation difficulties and PTSD symptom severity were supported. With all measurement models fitting the data, a structural model was then specified according to hypothesis six and depicted in Figure 6. It was hypothesized that greater trauma exposure would predict emotion regulation difficulties and higher posttraumatic stress disorder severity. Furthermore, it was expected that emotion regulation difficulties would mediate the relationship between trauma exposure and posttraumatic stress disorder severity. The structural model reflected less than adequate fit on several fit indices, $\chi^2(50) = 75.585$, $p = 0.011$; RMSEA = 0.058; TLI = 0.947; CFI = 0.930. Modification indices were considered and two changes were made to the model, sequentially. General traumas were allowed to correlate with crime traumas (MI = 7.9, $r = .330$, $p < .001$) which slightly improved the model fit, $\chi^2(49) = 68.290$, $p = 0.037$; RMSEA = 0.051; TLI = 0.960; CFI = 0.947. Then sexual traumas were allowed to correlate with physical traumas (MI = 5.4, $r = -.760$, $p = .300$); the resultant model fit indices reflected good fit, $\chi^2(48) = 61.634$, $p = 0.089$; RMSEA = 0.043; TLI = 0.972; CFI = 0.961. Trauma exposure was a significant predictor of emotion regulation ($\beta = .308$, $p = .001$) and posttraumatic stress disorder severity ($\beta = .396$, $p = .001$). Furthermore, emotion regulation significantly predicted posttraumatic stress disorder severity ($\beta = .354$, $p = .000$).

The product of coefficients approach, bootstrapping, and 95% asymmetric confidence intervals were employed to test mediation. The product of coefficients approach entails evaluating significance by dividing the product of α and β paths by the

standard error of $\alpha\beta$ and comparing the effect to a standard normal distribution. However, researchers have demonstrated that the distribution of the mediated effect is often not normal and therefore, if we treat the mediated effect as a normally distributed variable (e.g., Sobel test), this approach alone reduces power. Bootstrapping is a resampling technique that randomly samples obtained observations with replacement to estimate a more accurate mediated effect. Bootstrapping has been found to be more accurate than the Sobel Z and other traditional tests because it does not assume normal distribution of the mediated effect and has a more accurate type I error rate. It is also superior because it yields 95% asymmetric confidence intervals that provide a range of possible values, which provides higher power (Cheung & Lau, 2007; MacKinnon, 2008; MacKinnon, Lockwood, Hoffman, West & Sheets, 2002). The mediation is considered to be significant when the 95% asymmetric confidence interval, derived from bootstrapping conducted in *Mplus*, does not contain zero.

Product of coefficient mediation analyses with the bootstrapping method (5000 replications) demonstrated that emotion regulation difficulties significantly mediated the relationship between trauma exposure and posttraumatic stress disorder severity (indirect effect = .109, $z = 2.439$, $p = .015$; 95% asymmetric confidence interval = .018 – .437, $R^2 = .37$). Overall, this model accounted for 37% of the variance in PTSD.

To test the effect of age of onset for interpersonal trauma on emotion regulation difficulties and posttraumatic stress disorder severity another structural model was evaluated. Although this model was not initially proposed, due to issue with data collection (i.e., frequency was collected by lifetime not age category), as described above, it became necessary to create a second model to assess the age of onset component

of hypothesis six. Age of onset for interpersonal trauma was included in the model as a continuous observed variable predicting to emotion regulation difficulties and posttraumatic stress disorder severity, and emotion regulation difficulties was allowed to predict posttraumatic stress disorder severity (see Figure 7). This model demonstrated good fit to the data, $\chi^2(24) = 33.813$, $p = .088$, RMSEA = .052, CFI = .963, TLI = .975. Age of onset for interpersonal trauma significantly predicted of emotion regulation ($\beta = -.240$, $p = .005$) and posttraumatic stress disorder severity ($\beta = -.262$, $p = .004$). Furthermore, emotion regulation significantly predicted posttraumatic stress disorder severity ($\beta = .405$, $p = .000$). Employing the product of coefficient mediation analyses with the bootstrapping method (5000 replications), emotion regulation difficulties significantly mediated the relationship between age of onset of interpersonal trauma and posttraumatic stress disorder severity (indirect effect = -0.097, $z = -2.041$, $p = .041$; 95% asymmetric confidence interval = -0.181 to -0.002, $R^2 = .28$).

Chapter 4: Discussion

The aim of this study was to examine the relationships among trauma exposure, emotion regulation and PTSD. To my knowledge, this is the first study to investigate the effect of all trauma types and a multi-faceted emotion regulation construct on PTSD as defined by DSM-5. Furthermore, the participants in this study were incarcerated women, a vulnerable, underserved, and understudied population with critical treatment needs. To date, no studies have evaluated the prevalence of PTSD according to the DSM-5 criteria with incarcerated females. Additionally, this study utilized a structured clinical interview (CAPS-5) considered to be the gold standard for assessing PTSD. Findings indicated that the incarcerated women in this sample had high rates of trauma exposure, posttraumatic stress symptoms, and difficulty regulating emotion. In general, the stated hypotheses were supported. Specifically, women who experienced trauma at younger ages had significantly worse emotion regulation abilities. Age of trauma onset and trauma chronicity were both significant predictors of PTSD symptom severity. Confirmatory factor analyses demonstrated that the asserted measurement models fit the data well. That is, trauma exposure, emotion regulation difficulties, and PTSD were supported as latent constructs. Finally, the relationship between trauma exposure and posttraumatic stress symptom severity was mediated by emotion regulation. These findings are consistent with theory suggesting that poor emotion regulation contributes to PTSD symptom severity and provide insight into malleable treatment targets. Specific findings and treatment implications are discussed in greater detail below.

Rates of trauma for women in this study were high and consistent with other studies of incarcerated women (e.g., Green et al., 2005; Johnson & Lynch, 2013). The

majority of women experienced at least one trauma (99%). Nearly three out of four women experienced both sexual and physical abuse. Markedly, the majority of interpersonal trauma began in childhood. This study, unlike most existing research with incarcerated women, also reported rates of experienced crime and general traumas. General trauma was more prevalent than crime traumas and likely to occur throughout the lifespan, whereas crime trauma more often occurred in adulthood. General traumas were the most chronic followed by physical, sexual, and then crime traumas. Overall, participants experienced an average of approximately nine different types of trauma across their lifetime. Age of onset and chronicity of trauma were found to be significant predictors of current PTSD severity; collectively, they accounted for 23% of the variance in current PTSD symptom severity. This finding supported my hypothesis that women experiencing trauma at a younger age and more chronic trauma exposure would report having more severe posttraumatic stress symptoms. This finding also replicates other studies in the general population (Breslau et al., 1999; Fraizier et al., 2009; Green et al., 2000; Hagenaars, Fisch, & van Minnen, 2011). Given this sample's diverse and chronic traumatic experiences, it is not surprising that their rates of PTSD were also high.

Thirty-nine percent of the women met diagnostic criteria for current PTSD (within the past 30 days) according to the DSM-5. This finding was higher than most reported rates of PTSD in incarcerated females, which have estimated that approximately 30% of incarcerated females meet current PTSD criteria (Harner, Budescu, Gillihan, Riley, & Foa, 2015; Lynch et al., 2013; Lynch et al., 2012; Green, Miranda et al., 2005; Teplin et al., 1996; Zlotnick, 1997). There could be several reasons for the discrepancy in prevalence rates between this study and others. The type of incarcerated population (jail

vs. prison) may account for some variation. It is likely that jails house a range of individuals committing crimes with less severe psychiatric pathology than prison populations. Another possibility is that unknown variables related to geographic region could account for the higher rate of PTSD. For example, a multi-site study evaluating prevalence of mental health disorders found that rates of PTSD were significantly higher in Idaho jails compared to jails in other states (Lynch, et al., 2012). Similarly, according to the Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality (2014), Idaho was ranked among states as having higher rates of mental illness.

This study contributes to the limited research on DSM-5 PTSD factor structure and prevalence. Confirmatory factor analysis of women's reported posttraumatic stress symptoms in this study yielded excellent fit for the 4-factor model (e.g., intrusion symptoms; avoidance symptoms; negative alterations in mood and cognition symptoms; and alterations in arousal and reactivity symptoms). This finding supported my hypothesis of PTSD as a latent construct and replicates recent findings in civilian and veteran samples (Elhai, et al., 2012; Miller, et al., 2012). Evaluating factor structure is imperative as it lends credibility to construct validity and highlights potential targets for intervention. In regard to PTSD prevalence rates, there was no significant difference between women being diagnosed based on DSM-IV criteria and DSM-5 criteria. This finding is consistent with studies utilizing community and veteran samples who also did not find significant prevalence differences between the DSM-IV and DSM-5 criterion (Elhai, et al., 2012; Miller, et al., 2012).

Posttraumatic stress disorder is a critical issue for incarcerated women and is particularly concerning as it often co-occurs with, and is a risk factor for, other mental health conditions and may be related to offending. Estimates of PTSD co-occurring with substance abuse have ranged from 30% – 58% (Najavits, Weiss, & Shaw, 1997). In a sample of female prison inmates, Zlotnick (1997) demonstrated that women with PTSD were significantly more likely to meet criteria for depression, substance use, and borderline personality disorder, compared to women without PTSD. Other studies have found that posttraumatic stress symptom severity predicts likelihood of having an axis I disorder (e.g., serious mental illness, mood, anxiety, substance use; Wolff et al., 2011; Greene, Ford, Wakefield, & Barry 2014). PTSD is also associated with impairment in social and occupational functioning, as well as reduced quality of life and more physical health problems (Breslau et al., 2004; Dobie, et al., 2004). The direct relationship between PTSD and crime has not been well examined; however, its correlates such as victimization, trauma exposure, poor self-regulatory capacities, difficulty regulation emotion, and maladaptive coping (e.g., substance use), have been linked to offending. Recent, empirical evidence has supported that mental health mediates the relationship between trauma exposure and offending (Lynch et al., 2013; Salisbury & Van Voorhis, 2009). Future research should consider the explicit role of posttraumatic stress and offending. Nonetheless, PTSD is clearly prevalent among incarcerated women and is arguably a strong potential target for intervention to facilitate their adaptive re-entry into the community and to reduce recidivism.

Research and theory suggests that targeting emotion regulation skills may prove beneficial in augmenting PTSD intervention for highly-traumatized individuals (Stevens

et al., 2013; Herman, 1992; Cloitre et al., 2010; Walsh et al., 2011; Tull et al., 2007). A key feature of this study was to further elucidate the associations between emotion regulation skills, trauma exposure and PTSD. My hypothesis that age of trauma onset, trauma chronicity, and experiencing multiple types of trauma would predict greater difficulties regulating emotion was partially supported. Women experiencing trauma at a younger age, and more frequently reported worse emotion regulation and more experiential avoidance, which is consistent with literature suggesting that trauma impacts emotion regulation functioning (Cole et al., 1994; van der Kolk, 2005). Individually, trauma characteristics were not found to be related to use of specific emotion regulation strategies (i.e., expressive suppression and cognitive reappraisal). This finding was unexpected, as previous research has found that early life, and chronic, traumatic experiences are associated with greater emotional suppression and less cognitive reappraisal (e.g., Krause, Mendelson, & Lynch, 2003; Ehling & Quack, 2010). The discrepancy in this finding relative to other studies could be due to methodological differences, such as choice of assessment measure, definition of trauma or sample characteristics. It is well known that one issue of study comparisons is inconsistent definitions and measurement of the same construct (e.g., emotion regulation). This study accounted for this concern by assessing trauma and emotion regulation in multiple ways, and utilizing confirmatory factor analysis and structural equation modeling. Assessing constructs with several indicators is advantageous as it reduces measurement error and increases construct validity. Furthermore, SEM is beneficial as it allows evaluation of relationships among latent constructs while accounting for measurement error.

Confirmatory factor analyses supported the hypothesized measurement models of trauma exposure and emotion regulation difficulties in this sample of incarcerated women. Specifically, the measurement model of trauma exposure as a latent variable indicated by four observed variables (i.e., frequency of lifetime sexual abuse, physical abuse, crime-related trauma and general trauma) had excellent data fit. This finding suggests that different forms of trauma (e.g., physical, general) are related and represented well by a general trauma exposure construct. In regard to emotion regulation difficulties as a latent construct, the measurement model consisting of the following observed variables also had excellent fit to the data: emotion regulation (DERS), expressive suppression (ERQ), cognitive reappraisal (ERQ), and experiential avoidance (AAQ-II). This confirms existing theory that emotion regulation is an overarching construct represented by underlying factors.

To my knowledge, this study was the first to use SEM and examine emotion regulation difficulties as a mediating factor between trauma exposure, including all trauma types, and PTSD symptom severity among incarcerated women. Three known studies have evaluated this relationship; however, their assessment of trauma was limited to interpersonal violence during childhood or adulthood; participants included trauma-exposed college or community women; and emotion regulation was measured as a single observed variable (Burns, Jackson, Harding, 2010; Stevens, et al., 2013; Lilly et al., 2014). In this study the construct emotion regulation difficulties mediated the relationship between trauma exposure, including interpersonal and non-interpersonal traumas, and posttraumatic symptom severity. Likewise, age of onset for interpersonal trauma was found to indirectly predict posttraumatic symptom severity via emotion regulation

difficulties. These findings fully supported the stated hypotheses that trauma indirectly influences PTSD through emotion regulation skills. The effect sizes for these two models were in the small to medium range. Overall, the trauma exposure mediation model accounted for 37% of the variance in PTSD, and the age of trauma onset mediation model accounted for 28% of the variance in PTSD. These results contribute to existing knowledge as they demonstrate that collectively all trauma types predict emotion regulation functioning and PTSD symptom severity. Furthermore, this data corroborates a growing body of evidence that trauma has an indirect effect on PTSD symptom severity through emotion regulation capacities.

In this study, emotion regulation was tested as a mediator of trauma exposure and PTSD. Even though this relationship was supported, an alternative model is possible. For instance, PTSD may negatively impact emotion regulatory capacities. Notably, methodological design and statistical techniques of this study limit causal inferences between emotion regulation and PTSD. Emotion regulation abilities were expected to be diminished by repeated exposure to trauma and early age of trauma onset, which in turn were expected to predict more severe PTSD; existing research supports these hypothesized directions. For instance, it has been demonstrated that trauma exposure disrupts emotion regulation through altering neurobiological processes used to modulate the experience and expression of emotion; the same brain regions that influence the severity of many PTSD symptoms (van der Kolk, 2006). Developmental literature has also demonstrated that trauma exposure compromises the acquisition of adaptive emotion regulation skills (e.g., emotion identification, coping strategies; Cole et al., 1994; van der Kolk, 2005).

Current gold-standard, evidence-based therapies for PTSD are Prolonged Exposure (Foa, Hembree, & Rothbaum, 2007) and Cognitive Processing Therapy (Resick, & Schnicke, 1993). Theoretically, these therapies facilitate a reduction in PTSD symptoms through emotionally processing trauma memories. Though highly effective, issues of drop-out rates and nonresponsiveness to therapy have been raised (Hembree et al., 2003; Schottenbauer, Glass, Arnkoff, Tendick, & Gray, 2008). It is possible that individuals lacking foundational skills to regulate emotion become too overwhelmed, or are unable to modulate their emotional responses in an adaptive fashion, increasing their risk for avoidance or drop-out. In this study, women with poorer emotion regulation had higher experiential avoidance and more severe PTSD.

Several empirically supported therapies utilized for individuals with PTSD include a component focused on emotion regulation: Skills Training in Affect and Interpersonal Relationships (STAIR; Cloitre, Koenen, & Cohen, 2006), Dialectical Behavior Therapy (DBT; Linehan, 1993) and Seeking Safety (Najavits, 2002). For instance, STAIR emotion-specific interventions include labeling and identifying feelings, development of skills to modulate emotion, acceptance of feelings, and distress tolerance (Cloitre et al., 2006). Interestingly, in this study, post hoc analysis demonstrated that women meeting criteria for PTSD evidenced significantly greater nonacceptance of emotions, problems engaging in goal-directed behavior when upset, lack of access to effective strategies, and lack of awareness and clarity of their emotions, compared to women without PTSD. Treatment outcome studies that address emotion regulation deficits have had positive outcomes on improving emotion regulation abilities and decreasing posttraumatic stress symptoms (Cloitre, Koenen, Cohen, & Han, 2002; Cloitre

et al., 2010). Existing research coupled with results of the present study argue that incarcerated women may benefit from not only trauma-focused intervention, but treatment that explicitly facilitates the growth of adaptive emotion regulation skills.

Despite promising findings several limitations of this study are notable. Given the cross-sectional design of this study, assertions about temporal relationships among variables are limited and causality claims cannot be made. The hypothesis that trauma disrupts development of adaptive emotional regulatory strategies which in turn exacerbates posttraumatic stress symptoms was based on theory supported by scientific evidence. Prospective, longitudinal methods would be necessary to determine temporal onset of emotion regulation difficulties and PTSD. Findings in this study were based on retrospective self-reporting. It is possible that the passage of time impacted the participants' recall of early life traumas. However, research on the retrospective reporting is inconclusive and generally suggests that accuracy depends on specificity of material to be recalled (Brewin, Andrews, & Gotlib, 1993). Hardt and Rutter (2004) evaluated the reliability of retrospective reporting in adulthood of adverse childhood events and found false positives to be rare, rather the source of error was false negatives. In this study, women were inquired about trauma histories based on a validated self-report measure of trauma and given opportunities to ask questions or clarify the meaning of traumatic events. Assessment of emotional experiences was limited to self-report, which may restrict conclusions given that it was expected women with PTSD would have reduced knowledge of their emotions. Future research should include a multimodal assessment of emotion regulation, such as performance during emotion evoking tasks to systematically assess how women with PTSD regulate emotion, to extend beyond measuring one's

perception of their emotion regulation. To account for inherent limitations of self-reports, a structured diagnostic interview (CAPS-5) was employed to assess PTSD, which is a strength of this study.

Furthermore, random selection methods were used to solicit participants; however, only 68% of invited women agreed to participate. The reasons for individuals declining are unknown and it is possible that biases related to self-selection exist. Finally, this study may have limited generalizability as it only included incarcerated women in a rural setting. While existing studies have demonstrated associations between emotion regulation and PTSD symptom severity with community and veteran samples (Tull et al., 2007; Meyers et al., 2013; Monson et al., 1997; Moore et al., 2008), the specific effect of trauma on emotion regulation and subsequent influence of maintaining PTSD symptoms with other samples is unknown. Replication of my findings in other samples will be particularly important.

In conclusion, findings from this study provide information for understanding the relationship between trauma, emotion regulation, and PTSD in incarcerated women. Trauma exposure, particularly when experienced chronically or at a young age, negatively impacts emotion regulation capacities. Emotion regulation difficulties are common in incarcerated women and have a negative impact on posttraumatic stress symptoms. Adequately addressing the needs of this population entail consideration of emotion regulation capacities prior to and during PTSD intervention.

References

- American Psychiatric Association. (1980). *Diagnostic and statistical manual of mental disorders, (3rd edition)*. Washington, DC: Author.
- American Psychiatric Association. (1987). *Diagnostic and statistical manual of mental disorders, (3rd edition, rev.)*. Washington, DC: Author.
- American Psychiatric Association (2000). *Diagnostic and statistical manual of mental disorders, (4th Edition, text revision)*. Washington, DC: Author.
- American Psychiatric Association. (2013a) *Diagnostic and statistical manual of mental disorders, (5th ed.)*. Washington, DC: Author.
- American Psychiatric Association (2013b). Posttraumatic stress disorder. Retrieved from <http://www.dsm5.org/Documents/PTSD%20Fact%20Sheet.pdf>
- Arata, C. M. (2000). From child victim to adult victim: A model for predicting sexual revictimization. *Child Maltreatment*, 5(1), 28-38.
doi: 10.1177/1077559500005001004
- Arata, C., Langhinrichsen-Rohling, J., Bowers, D., & O’Farrill-Swails, L. (2005). Single versus multitype maltreatment: An examination of the long-term effects of child abuse. *Journal of Aggression, Maltreatment, & Trauma*, 11, 29–52. doi: 10.1300/J146v11n04_02
- Battel, C. L., Zlotnick, C., Najavits, L. M., Gutierrez, M., & Winsor, C. (2003). Posttraumatic stress disorder and substance abuse disorder among incarcerated women. In P. Ouimette & P. J. Brown (Eds.), *Trauma and substance abuse: Causes, consequences, and treatment of comorbid disorders* (pp. 209-226). Washington, DC: American Psychological Association.

- Belknap, J., & Holsinger, K. (2006). The gendered nature of risk factors for delinquency. *Feminist Criminology*, 1(1), 48-71. doi: 10.1177/1557085105282897
- Blake, D. D., Weathers, F. W., Nagy, L. M., Kaloupek, D. G., Gusman, F. D., Charney, D. S., & Keane, T. M. (1995). The development of a clinician-administered PTSD scale. *Journal of Traumatic Stress*, 8, 75-90. doi: 10.1007/BF02105408
- Boesch, L. E., Koss, M. P., Figueredo, A. J., & Coan, J. A. (2001). Experiential avoidance and post-traumatic stress disorder: A cognitive mediational model of rape recovery. *Journal of Aggression, Maltreatment & Trauma*, 4(2), 211-245. doi: 10.1300/J146v04n02_10
- Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N... & Zettle, R. D. (2011). Preliminary psychometric properties of the Acceptance and Action Questionnaire - II: A revised measure of psychological flexibility and experiential avoidance. *Behavior Therapy*, 42, 676-688. doi: 10.1016/j.beth.2011.03.007
- Breslau, N., Chilcoat, H. D., Kessler, R. C., & Davis, G. C. (1999). Previous exposure to trauma and PTSD effects of subsequent trauma: Results from the Detroit area survey of trauma. *American Journal of Psychiatry*, 156, 902-907. doi: 10.1176/ajp.156.6.902
- Breslau, N., Kessler, R. C., Chilcoat, H. D., Schultz, L. R., Davis, G. C., & Andreski, P. (1998). Trauma and posttraumatic stress disorder in the community: the 1996 Detroit area survey of trauma. *Archives of General Psychiatry*, 55(7), 626. doi: 10.1001/archpsyc.55.7.626

- Breslau, N., Lucia, V. C., & Davis, G. C. (2004). Partial PTSD versus full PTSD: an empirical examination of associated impairment. *Psychological Medicine*, 34(7), 1205-1214. doi: 10.1017/S0033291704002594
- Brewin, C. R. (2003). *Posttraumatic stress disorder: Malady or myth?* New Haven: Yale University Press.
- Brewin, C. R., Andrews, B., & Gotlib, I. H. (1993). Psychopathology and early experience: a reappraisal of retrospective reports. *Psychological bulletin*, 113(1), 82.
- Briere, J., Kaltman, S., & Green, B. L. (2008). Accumulated childhood trauma and symptom complexity. *Journal of traumatic stress*, 21(2), 223-226. doi: 10.1002/jts.20317
- Browne, A., Miller, B., & Maguin, E. (1999). Prevalence and severity of lifetime physical and sexual victimization among incarcerated women. *International Journal of Law and Psychiatry*, 22(4), 301-322. doi: 10.1016/S0160-2527(99)00011-4
- Burns, E. E., Jackson, J. L., & Harding, H. G. (2010). Child maltreatment, emotion regulation, and posttraumatic stress: The impact of emotional abuse. *Journal of Aggression, Maltreatment & Trauma*, 19(8), 801-819. doi: 10.1080/10926771.2010.522947
- Burton, V. S., Cullen, F. T., Evans, T. D., Alarid, L. F., & Dunaway, R. G. (1998). Gender, self-control, and crime. *Journal of Research in Crime and Delinquency*, 35(2), 123-147. doi: 10.1177/0022427898035002001
- Campbell-Sills, L., Barlow, D. H., Brown, T. A., & Hofmann, S. G. (2006). Effects of suppression and acceptance on emotional responses on individuals with anxiety

- and mood disorders. *Behavior Research and Therapy*, 44, 1251-1263. doi: 10.1016/j.brat.2005.10.001
- Carson, E. A., & Golinelli, D. (2013). *Prisoners in 2012 – Advance counts* (NJC Report 242467). Retrieved from <http://www.bjs.gov/content/pub/pdf/p12ac.pdf>
- Carlson, B. E., & Shafer, M. S. (2010). Traumatic histories and stressful life events of incarcerated parents: Childhood and adult trauma histories. *The Prison Journal*, 90(4), 475-493. doi: 10.1177/0032885510382224
- Cheung, G. W., & Lau, R. S. (2007). Testing mediation and suppression effects of latent variables: Bootstrapping with structural equation models. *Organizational Research Methods*, 11(2), 296-325. doi: 10.1177/1094428107300343
- Cloitre, M., Koenen, K. C., & Cohen, L. R. (2006). *Treating survivors of childhood abuse: Psychotherapy for the interrupted life*. New York: The Guilford Press.
- Cloitre, M., Koenen, K. C., Cohen, L. R., & Han, H. (2002). Skills training in affective and interpersonal regulation followed by exposure: a phase-based treatment for PTSD related to childhood abuse. *Journal of Consulting and Clinical Psychology*, 70(5), 1067-1074. doi: 10.1037//0022-006X.70.5.1067
- Cloitre, M., Miranda, R., Stovall-McClough, K. C., & Han, H. (2005). Beyond PTSD: Emotion regulation and interpersonal problems as predictors of functional impairment in survivors of childhood abuse. *Behavior Therapy*, 36(2), 119-124. doi: 10.1016/S0005-7894(05)80060-7
- Cloitre, M., & Rosenberg, A. (2006). Sexual revictimization: Risk factors and prevention. In V. M. Follette, & J. I. Ruzek (Eds.), *Cognitive-behavioral therapies for trauma* (321-361). New York, NY: The Guildford Press.

- Cloitre, M., Stovall-McClough, K. C., Noonan, K., Zorbas, P., Cherry, S., Jackson, C. L., ... & Petkova, E. (2010). Treatment for PTSD related to childhood abuse: A randomized controlled trial. *The American Journal of Psychiatry*, 167(8), 915-924. doi: 10.1176/appi.ajp.2010.09081247
- Cloitre, M., Stovall-McClough, C., Zorbas, P., & Charuvastra, A. (2008). Attachment organization, emotion regulation, and expectations of support in a clinical sample of women with childhood abuse histories. *Journal of Traumatic Stress*, 21(3), 282-289. doi: 10.1002/jts.20339
- Cole, P. M., Michel, M. K., & Teti, L. O. D. (1994). The development of emotion regulation and dysregulation: A clinical perspective. *Monographs of the Society for Research in Child Development*, 59(2-3), 73-102. doi: 10.1111/j.1540-5834.1994.tb01278.x
- Dobie, D. J., Kivlahan, D. R., Maynard, C., Bush, K. R., Davis, T. M., & Bradley, K. A. (2004). Posttraumatic stress disorder in female veterans: association with self-reported health problems and functional impairment. *Archives of Internal Medicine*, 164(4), 394-400. doi: 10.1001/archinte.164.4.394.
- Drapalski, A. L., Youman, K., Stuewig, J. & Tangney, J. (2009). Gender differences in jail inmates' symptoms of mental illness, treatment history, and treatment seeking. *Criminal Behaviour and Mental Health*, 19, 193-206. doi: 10.1002/cbm.733
- Dyer, K. F., Dorahy, M. J., Hamilton, G., Corry, M., Shannon, M., MacSherry, A., ... & McElhill, B. (2009). Anger, aggression, and self-harm in PTSD and complex

- PTSD. *Journal of Clinical Psychology*, 65(10), 1099-1114. doi: 10.1002/jclp.20619
- Ehring, T., & Quack, D. (2010). Emotion regulation difficulties in trauma survivors: The role of trauma type and PTSD Symptom Severity. *Behavior Therapy*, 41, 587-598. doi: 0005-7894/10/587-598
- Elhai, J. D., Miller, M. E., Ford, J. D., Biehn, T. L., Palmieri, P. A., & Frueh, B. C. (2012). Posttraumatic stress disorder in DSM-5: Estimates of prevalence and symptom structure in a nonclinical sample of college students. *Journal of Anxiety Disorders*, 26, 58-64. doi: 10.1016/j.janxdis.2011.08.013
- English, D. J., Widom, C. S., & Brandford, C. (2001). *Childhood victimization and delinquency, adult criminality, and violent criminal behavior: A replication and extension: Final report*. National Institute of Justice.
- Foa, E. B., Hembree, E. A., & Rothbaum, B. O. (2007). *Prolonged exposure therapy for PTSD: Emotional processing of traumatic experiences*. New York, NY: Oxford University Press.
- Foa, E. B., & Tolin, D. F. (2000). Comparison of the PTSD Symptom Scale-Interview Version and the Clinician-Administered PTSD scale. *Journal of Traumatic Stress*, 13, 181-191. doi: 10.1023/A:1007781909213
- Fox, H. C., Axelrod, S. R., Paliwal, P., Sleeper, J., & Sinha, R. (2007). Difficulties in emotion regulation and impulse control during cocaine abstinence. *Drug and Alcohol Dependence*, 89(2), 298-301. doi:10.1016/j.drugalcdep.2006.12.026
- Frazier, P., Anders, S., Perera, S., Tomich, P., Tennen, H., Park, C., & Tashiro, T. (2009). Traumatic events among undergraduate students: Prevalence and associated

symptoms. *Journal of Counseling Psychology*, 56(3), 450-460. doi:
10.1037/a0016412

Frewen, P. A., Lanius, R. A., Dozois, D. J., Neufeld, R. W., Pain, C., Hopper, J. W., ... & Stevens, T. K. (2008). Clinical and neural correlates of alexithymia in posttraumatic stress disorder. *Journal of Abnormal Psychology*, 117(1), 171-181. doi: 10.1037/0021-843X.117.1.171.

Friedman, M. J., Resick, P. A., & Keane, T. M. (2007). PTSD: Twenty-five years of progress and challenges. In M. J. Friedman, T. M. Keane, and P. A. Resick (Eds.), *Handbook of PTSD: Science and Practice* (pp. 3-18). New York, NY: Guilford Press.

Gratz, K. L. & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor Structure, and initial validation of the difficulties in emotion regulation scale. *Journal of Psychopathology and Behavioral Assessment*, 26(1), 41-54. doi: 10.1007/s10862-008-9102-4

Green, B. L. (1996). Trauma History Questionnaire. In B. H. Stamm (Ed.), *Measurement of stress, trauma, and adaptation* (pp. 366–369). Lutherville, MD: Sidran Press.

Green, B. L., Goodman, L. A., Krupnick, J. L., Corcoran, C. B., Petty, R. M., Stockton, P., & Stern, N. M. (2000). Outcomes of single versus multiple trauma exposure in a screening sample. *Journal of Traumatic Stress*, 13(2), 271-286. doi:
10.1023/A:1007758711939

Green, B. L., Krupnick, J. L., Stockton, P., Goodman, L., Corcoran, C., & Petty, R. (2005). Effects of adolescent trauma exposure on risky behavior in college

- women. *Psychiatry: Interpersonal and Biological Processes*, 68(4), 363-378. doi: 10.1521/psyc.2005.68.4.363
- Green, B. L., Miranda, J., Daroowalla, A., & Siddique, J. (2005). Trauma exposure, mental health functioning, and program needs of women in jail. *Crime & Delinquency*, 51(1), 133-151. doi:10.1177/0011128704267477
- Greene, C. A., Ford, J. D., Wakefield, D. B. & Barry L. C. (2014). Posttraumatic stress mediated the relationship between childhood victimization and current mental health burden in newly incarcerated adults. *Child Abuse and Neglect*, 38, 1569-1580. doi: 10.1016/j.chiabu.2014.07.006
- Gross, J. J. (1998). The emerging field of emotion regulation: An integrative review. *Review of General Psychology*, 2(3), 271-299. doi: 10.1037/1089-2680.2.3.271
- Gross, J. J. (2002). Emotion regulation: Affective, cognitive, and social consequences. *Psychophysiology*, 39(3), 281-291 doi: 10.1017/S0048577201393198
- Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, 85, 348-362. doi:10.1037/0022-3514.85.2.348
- Gross, J. J., & Levenson, R. W. (1993). Emotional suppression: physiology, self-report, and expressive behavior. *Journal of Personality and Social Psychology*, 64(6), 970. doi: 10.1037/0022-3514.64.6.970
- Gross, J. J., & Thompson, R. A. (2007). Emotion regulation: Conceptual foundations. In J.J. Gross (Ed.), *Handbook of emotion regulation* (pp. 3-26). New York: Guilford Press.

- Gottfriedson, M. & Hirischi, T. (1990). *A general theory of crime*. Stanford, CA: Stanford University Press.
- Guy, E., Platt, J. J., Zwerling, I., & Bullock, S. (1985). Mental health status of prisoners in an urban jail. *Criminal Justice and Behavior*, 12(1), 29-53. doi: 10.1177/0093854885012001004
- Hardt, J., & Rutter, M. (2004). Validity of adult retrospective reports of adverse childhood experiences: review of the evidence. *Journal of Child Psychology and Psychiatry*, 45(2), 260-273. doi: 10.1111/j.1469-7610.2004.00218.x
- Harlow, C. W. (1999). *Prior abuse reported by inmates and probationers* (NJC Report 172879). Retrieved from <http://www.bjs.gov/content/pub/pdf/parip.pdf>
- Harner, H. M., Budescu, M., Gillihan, S. J., Foa, E. B. (2015). Posttraumatic stress disorder in incarcerated women: A call for evidence-based treatment. *Psychological Trauma: Theory, Research, Practice and Policy*, 7(1), 58-66. doi: 10.1037/a0032508
- Hagenaars, M. A., Fisch, I., & van Minnen, A. (2011). The effect of trauma onset and frequency on PTSD-associated symptoms. *Journal of Affective Disorders*, 132, (1/2), 192-199. doi: 10.1016/j.jad.2011.02.017
- Hayes, S. C., Strosahl, K., Wilson, K. G., Bissett, R. T., Pistorello, J., Toarmino, D., & ... McCurry, S. M. (2004). Measuring experiential avoidance: A preliminary test of a working model. *The Psychological Record*, 54, 553-578.
- Hayes, S. C., Wilson, K. G., Gifford, E. V., Follette, V. M., et al. (1996). Experiential avoidance and behavioral disorders: A functional dimensional approach to diagnosis and

- treatment. *Journal of Consulting and Clinical Psychology*, 64, 1152-1168. doi: 10.1037/0022-006X.64.6.1152
- Hedtke, K. A., Ruggiero, K. J., Fitzgerald, M. M., Zinzow, H. M., Saunders, B. E., Resnick, H. S., & Kilpatrick, D. G. (2008). A longitudinal investigation of interpersonal violence in relation to mental health and substance use. *Journal of Consulting and Clinical Psychology*, 76(4), 633. doi: 10.1037/0022-006X.76.4.633
- Hembree, E. A., Foa, E. B., Dorfan, N. M., Street, G. P., Kowalski, J., & Tu, X. (2003). Do patients drop out prematurely from exposure therapy for PTSD? *Journal of Traumatic Stress*, 16(6), 555-562. doi: 10.1023/B:JOTS.00000004078.93012.7d
- Herman, J. (1992). *Trauma and recovery*. New York, NY: Basic Books.
- Hooper, L. M., Stockton, P., Krupnick, J. L., & Green, B. L. (2011). Development, use, and psychometric properties of the Trauma History Questionnaire. *Journal of Loss and Trauma*, 16(3), 258-283. doi: 10.1080/15325024.2011.572035
- Hovens, J. E., Van Der Ploeg, H. M., Klaarenbeek, M. T. A., Bramsen, I., Schreuder, J. N., & Rivero, V. V. (1994). The assessment of posttraumatic stress disorder with the clinician administered PTSD scale: Dutch results. *Journal of Clinical Psychology*, 50, 325-340. doi: 10.1002/1097-4679(199405)50:3<325::AID-JCLP2270500304>3.0.CO;2-M
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1–55.

doi:10.1080/10705519909540118

Jakupcak, M., Tull, M. T., McDermott, M. J., Kaysen, D., Hunt, S., & Simpson, T.

(2010). PTSD symptom clusters in relationship to alcohol misuse among Iraq and Afghanistan war veterans seeking post-deployment VA health care. *Addictive Behaviors*, 35(9), 840-843. doi: 10.1016/j.addbeh.2010.03.023

James, D. J., & Glaze, L. E. (2006). *Mental health problems of prison and jail inmates*

(NCJ Report 213600). Retrieved from

<http://www.bjs.gov/content/pub/pdf/mhppji.pdf>

Johnson, K. A. (2013). *Multi-method, multidimensional assessment of emotion regulation and related processes*. (Unpublished doctoral dissertation). Idaho State University, Idaho.

Johnson, K. A., & Lynch, S. M. (2013). Predictors of maladaptive coping in incarcerated women who are survivors of childhood sexual abuse. *Journal of Family Violence*, 28(1), 43-52. doi: 10.1007/s10896-012-9488-3

Jones, S., & Lynam, S. R. (2009). In the eye of the impulsive beholder: The interaction between impulsivity and perceived informal social control on offending. *Criminal Justice and Behavior*, 36, 307-321. doi:10.1177/0093854808328653

Kardiner, A. (1941). *The traumatic neurosis of war*. New York: Hoeber.

Kessler, R. C., Berglund, P., Demler, O., Jin, R., Merikangas, K. R., & Walters, E. E.

(2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, 62(6), 593. doi: 10.1001/archpsyc.62.6.593

- Kessler, R. C., Chiu, W. T., Demler, O., & Walters, E. E. (2005). Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, 62(6), 617. doi: 10.1001/archpsyc.62.6.617
- Kessler, R. C., Petukhova, M., Sampson, N. A., Zaslavsky, A. M., & Wittchen, H. U. (2012). Twelve-month and lifetime prevalence and lifetime morbid risk of anxiety and mood disorders in the United States. *International Journal of Methods in Psychiatric Research*, 21, 3, 169-84.
- Kessler, R. C., Sonnega, A., Bromet, E., Hughes, M., & Nelson, C. B. (1995). Posttraumatic stress disorder in the National Comorbidity Survey. *Archives of General Psychiatry*, 52(12), 1048. doi: 10.1001/archpsyc.1995.03950240066012
- Kilpatrick, D. G., Ruggiero, K. J., Acierno, R. E., Saunders, B. E., Resnick, H. S., & Best, C. L. (2003). Violence and risk of PTSD, major depression, substance abuse/dependence, and comorbidity: Results from the National Survey of Adolescents. *Journal of Consulting and Clinical Psychology*, 71, 692–700. doi: 10.1037/0022-006X.71.4.692
- Kim, J., & Cicchetti, D. (2010). Longitudinal pathways linking child maltreatment, emotion regulation, peer relations, and psychopathology. *Journal of Child Psychology and Psychiatry*, 51(6), 706-716. doi: 10.1111/j.1469-7610.2009.02202.x
- Kline, R. B. (2011). *Principles and practice of structural equation modeling, third edition*. New York, NY: Guilford Press.

- Krause, E. D., Kaltman, S., Goodman, L. A., & Dutton, M. A. (2008). Avoidant coping and PTSD symptoms related to domestic violence exposure: A longitudinal study. *Journal of Traumatic Stress, 21*(1), 83-90. doi: 10.1002/jts.20288
- Krause, E. D., Mendelson, T., & Lynch, T. R. (2003). Childhood emotional invalidation and adult psychological distress: The mediating role of emotional inhibition. *Child Abuse & Neglect, 27*, 199–213. doi:10.1016/S0145-2134(02)00536-7
- Kuhl, J., & Fuhrmann, A. (1998). Decomposing self-regulation and self-control: The Volitional Component Inventory. In J. Heckhausen & C. S. Dweck (Eds.), *Motivation and self-regulation across life span* (pp. 15–49). Cambridge, UK: Cambridge University Press.
- Kulkarni, M., Pole, N., & Timko, C. (2013). Childhood victimization, negative mood regulation, and adult PTSD severity. *Psychological Trauma: Theory, Research, Practice, and Policy, 5*(4), 359. doi: 10.1037/a0027746
- Lilly, M. M., London, M. J., & Bridgett, D. J. (2014). Using SEM to examine emotion regulation and revictimization in predicting PTSD symptoms among childhood abuse survivors. *Psychological Trauma: Theory, Research, Practice, and Policy, 6*(6), 644-651. doi: 10.1037/a0036460
- Linehan, M. M. (1993). *Cognitive-behavioral treatment of borderline personality disorder*. New York, NY: Guilford Press.
- Lynch, S. M., DeHart, D. D., Belknap, J., & Green B. (2013). *Women's pathways to jail: Examining mental health, trauma, and substance abuse* (NCJ 241045). Retrieved from <https://www.bja.gov/Publications/WomensPathwaysToJail.pdf>

- Lynch, S. M., Fritch, A., & Heath, N. M. (2012). Looking beneath the surface the nature of incarcerated women's experiences of interpersonal violence, treatment needs, and mental health. *Feminist Criminology*, 7(4), 381-400. doi: 10.1177/1557085112439224
- MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological methods*, 1(2), 130-149. doi: 10.1037/1082-989X.1.2.130
- MacKinnon, D. P. (2008). *Introduction to statistical mediation analysis*. New York, NY: Taylor and Francis Group.
- MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological methods*, 7(1), 83. doi: 10.1037/1082-989X.7.1.83
- Maxfield, M. G., & Widom, C. S. (1996). The cycle of violence: Revisited 6 years later. *Archives of Pediatrics & Adolescent Medicine*, 150(4), 390. doi: 10.1037/1082-989X.7.1.83
- McDaniels-Wilson, C. & Belknap, J. (2008). Extensive sexual violation and sexual abuse histories of incarcerated women. *Violence against Women*, 14, 1090-1127. doi: 10.1177/1077801208323160
- Merskey, H. (1991). Shell-shock. In G. E. Berrios & H. Freeman (Eds.), *150 years of British psychiatry 1841-1991* (pp. 245-267). London: The Royal College of Psychiatrists.
- Messina, N., Grella, C., Burdon, W., & Prendergast, M. (2007). Childhood adverse events and current traumatic distress a comparison of men and women drug-

dependent prisoners. *Criminal Justice and Behavior*, 34(11), 1385-1401. doi: 10.1177/0093854807305150

Meyer, E. C., Morissette, S. B., Kimbrel, N. A., Kruse, M. I., & Gulliver, S. B. (2013).

Acceptance and action questionnaire—II scores as a predictor of posttraumatic stress disorder symptoms among war veterans. *Psychological Trauma: Theory, Research, Practice, and Policy*, 5(6), 521-528. doi: 10.1037/a0030178

Miller, M. W., Wolf, E. J., Kilpatrick, D., Resnick, H., Marx, B. P., Holowka, D. W., ...

& Friedman, M. J. (2012). The prevalence and latent structure of proposed DSM-5 posttraumatic stress disorder symptoms in US national and veteran samples. *Psychological Trauma: Theory, Research, Practice, and Policy*, 5(6), 501-512. doi: 10.1037/a0029730

Minton, T. D. (2013). *Jail inmates at midyear 2012 –Statistical tables* (NJC Report 241264). Retrieved from <http://www.bjs.gov/content/pub/pdf/jim12st.pdf>

Monson, C. M., Price, J. L., Rodriguez, B. F., Ripley, M. P., & Warner, R. A. (2004).

Emotional deficits in military-related PTSD: An investigation of content and process disturbances. *Journal of Traumatic Stress*, 17, 275–279.

doi: 10.1023/B:JOTS.0000029271.58494.05

Moore, S. A., Zoellner, L. A., & Mollenholt, N. (2008). Are expressive suppression and

cognitive reappraisal associated with stress-related symptoms? *Behaviour Research and Therapy*, 46(9), 993-1000. doi: 10.1016/j.brat.2008.05.001

- Morina, N. (2007). The role of experiential avoidance in psychological functioning after war-related stress in Kosovar civilians. *The Journal of Nervous and Mental Disease*, 195(8), 697-700. doi: 10.1097/NMD.0b013e31811f44a6
- Morina, N., Stangier, U., & Risch, A. K. (2008). Experiential avoidance in civilian war survivors with current versus recovered posttraumatic stress disorder: A pilot study. *Behaviour Change*, 25(01), 15-22. doi: 10.1375/bech.25.1.15
- Mulaik, S. A., & Millsap, R. E. (2000). Doing the four-step right. *Structural Equation Modeling*, 7(1), 36-73. doi: 10.1207/S15328007SEM0701_02
- Muthen, B. O. (2008, May 16). [Online forum comment]. Re: *Mplus* confirmatory factor analysis skewness. Retrieved from <http://www.statmodel.com/discussion/messages/9/352.html>
- Muthén B. O., & Muthén L. K. (2012). *Mplus* (Version 7). Los Angeles, California.
- Najavits, L. M. (2002). *Seeking safety: A treatment manual for PTSD and substance abuse*. Guilford Press.
- Najavits, L. M., Weiss, R. D., & Shaw, S. R. (1997). The link between substance abuse and posttraumatic stress disorder in women. A research review. *American Journal of Addictions*, 6(4), 273-283. doi: 10.1111/j.1521-0391.1997.tb00408.x
- Norris, F. H., & Slone, L. B. (2007). The epidemiology of trauma and PTSD. In M. J. Friedman, T. M. Keane, and P. A. Resick (Eds.), *Handbook of PTSD: Science and Practice* (pp. 78-89). New York, NY: Guilford Press.
- Orcutt, H. K., King, L. A., & King, D. W. (2003). Male-perpetrated violence among Vietnam veteran couples: relationships with veteran's early life characteristics,

- trauma history, and PTSD symptomatology. *Journal of Traumatic Stress*, 16(4), 381-390. doi: 10.1023/A:1024470103325
- Perkins, S. C., Cortina, K. S., Smith-Darden, J. P., & Graham-Bermann, S. A. (2012). The mediating role of self-regulation between interfamilial violence and mental health adjustment in incarcerated male adolescents. *Journal of interpersonal violence*, 27, 1199-1224. doi:10.1177/0886260511425240
- Plumb, J. C., Orsillo, S. M., & Luterek, J. A. (2004). A preliminary test of the role of experiential avoidance in post-event functioning. *Journal of Behavior Therapy and Experimental Psychiatry*, 35(3), 245-257. doi: 10.1016/j.jbtep.2004.04.011
- Pratt, T. C., & Cullen, F. T. (2000). The empirical status of Gottfredson and Hirschi's general theory of crime: A meta-analysis. *Criminology*, 38(3), 931-964. doi: 10.1111/j.1745-9125.2000.tb00911.x
- Preacher, K. J., & Coffman, D. L. (2006, May). Computing power and minimum sample size for RMSEA [Computer software]. Available from <http://quantpsy.org/>.
- Regier, D. A., Narrow, W. E., Clarke, D. E., Kraemer, H. C., Kuramoto, S. J., Kuhl, E. A., & Kupfer, D. J. (2013). DSM-5 field trials in the United States and Canada, part II: test-retest reliability of selected categorical diagnoses. *American Journal of Psychiatry*, 170(1), 59-70. doi: 10.1176/appi.ajp.2012.12070999
- Resick, P. A. & Schnicke, M. (1993). *Cognitive processing therapy for rape victims: A treatment manual* (Vol. 4). Newbury Park California: Sage Publications.
- Rodriguez, P., Holowka, D. W., & Marx, B. P. (2012). Assessment of posttraumatic stress disorder-related functional impairment: A review. *Journal of*

Rehabilitation Research and Development, 49, 649-666. doi:
10.1093/oxfordhb/9780195399066.013.0021

Roemer, L., Litz, B. T., Orsillo, S. M., & Wagner, A. W. (2001). A preliminary investigation of the role of strategic withholding of emotions in PTSD. *Journal of Traumatic Stress*, 14(1), 149-156. doi: 10.1023/A:1007895817502

Rowland, S. E. (2013). *Women's pathways towards offending: Testing a model of risk and protective factors*. (Unpublished doctoral dissertation). Idaho State University, Idaho.

Salisbury, E. J., & Van Voorhis, P. (2009). Gendered pathways a quantitative investigation of women probationers' paths to incarceration. *Criminal Justice and Behavior*, 36(6), 541-566. doi: 10.1177/0093854809334076

Salters-Pedneault, K., Roemer, L., Tull, M. T., Rucker, L., & Mennin, D. S. (2006). Evidence of broad deficits in emotion regulation associated with chronic worry and generalized anxiety disorder. *Cognitive Therapy and Research*, 30(4), 469-480. doi: 10.1177/0093854809334076

Schottenbauer, M. A., Glass, C. R., Arnkoff, D. B., Tendick, V., & Gray, S. H. (2008). Nonresponse and dropout rates in outcome studies on PTSD: review and methodological considerations. *Psychiatry*, 71(2), 134-168. doi:
10.1521/psyc.2008.71.2.134

Shipman, K., Edwards, A., Brown, A., Swisher, L., & Jennings, E. (2005). Managing emotion in a maltreating context: A pilot study examining child neglect. *Child Abuse & Neglect*, 29(9), 1015-1029. doi: 10.1016/j.chiabu.2005.01.006

- Siegel, J. A., & Williams, L. M. (2003). The relationship between child sexual abuse and female delinquency and crime: A prospective study. *Journal of Research in Crime and Delinquency*, 40(1), 71-94. doi: 10.1177/0022427802239254
- Suliman, S., Mkabile, S. G., Fincham, D. S., Ahmed, R., Stein, D. J., & Seedat, S. (2009). Cumulative effect of multiple trauma on symptoms of posttraumatic stress disorder, anxiety, and depression in adolescents. *Comprehensive Psychiatry*, 50(2), 121-127. doi: 10.1016/j.comppsy.2008.06.006
- Steadman, H. J., Osher, F. C., Pamela Clark Robbins, B. A., Case, B., & Samuels, S. (2009). Prevalence of serious mental illness among jail inmates. *Psychiatric Services*, 60(6), 761-765. doi: 10.1176/appi.ps.60.6.761
- Stevens, N. R., Gerhart, J., Goldsmith, R. E., Heath, N. M., Chesney, S. A., & Hobfoll, S. E. (2013). Emotion regulation difficulties, low social support, and interpersonal violence mediate the link between childhood abuse and posttraumatic stress symptoms. *Behavior Therapy*, 44, 152–161. doi: 10.1016/j.beth.2012.09.003
- Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality. (February 28, 2014). *The NSDUH Report: State Estimates of Adult Mental Illness from the 2011 and 2012 National Surveys on Drug Use and Health*. Rockville, MD.
<http://archive.samhsa.gov/data/2k14/NSDUH170/sr170-mental-illness-state-estimates-2014.htm>
- Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics, sixth edition*. New Jersey: Pearson.

- Teplin, L. A., Abram, K. M., & McClelland, G. M. (1996). Prevalence of psychiatric disorders among incarcerated women: Pretrial jail detainees. *Archives of General Psychiatry*, 53, 505-512. doi: 10.1001/archpsyc.1996.01830060047007
- Trestman, R. L., Ford, J., Zhang, W., & Wiesbrock, V. (2007). Current and lifetime psychiatric illness among inmates not identified as acutely mentally ill at intake in Connecticut's jails. *Journal of the American Academy of Psychiatry and the Law Online*, 35(4), 490-500.
- Tripodi, S. J., & Pettus-Davis, C. (2013). Histories of childhood victimization and subsequent mental health problems, substance use, and sexual victimization for a sample of incarcerated women in the US. *International Journal of Law and Psychiatry*, 36, 30-40. doi: 10.1016/j.ijlp.2012.11.005
- Tull, M. T., Barrett, H. M., McMillan, E. S., & Roemer, L. (2007). A preliminary investigation of the relationship between emotion regulation difficulties and posttraumatic stress symptoms. *Behavior Therapy*, 38(3), 303-313. doi: 10.1016/j.beth.2006.10.001
- van der Kolk, B. A. (2005). Developmental trauma disorder. *Psychiatric Annals*, 35(5), 401-408. Retrieved from http://byronclinic.com.au/workshop/Developmental_Trauma.pdf
- van der Kolk, B. A. (2006). Clinical Implications of Neuroscience Research in PTSD. *Annual New York Academy of Sciences*, 1071, 277-293. doi: 10.1196/annals.1364.022

van der Kolk, B. A., Roth, S., Pelcovitz, D., Sunday, S., & Spinazzola, J. (2005).

Disorders of extreme stress: The empirical foundation of a complex adaptation to trauma. *Journal of traumatic stress*, 18(5), 389-399. doi: 10.1002/jts.20047

Walsh, K., DiLillo, D., & Scalora, M. J. (2011). The cumulative impact on emotion regulation difficulties: An examination of female inmates. *Violence Against Women*, 17, 1103-1118. doi:10.1177/1077801211414165

Weathers, F. W., Blake, D. D., Schnurr, P. P., Kaloupek, D. G., Marx, B. P., & Keane, T. (2013). National Center for PTSD Clinician-Administered PTSD Scale for DSM-5.

Widom, C. S. (1989). Child abuse, neglect, and violent criminal behavior. *Criminology*, 27(2), 251-271. doi: 10.1111/j.1745-9125.1989.tb01032.x

Wolff, N. L., Frueh, B. C., Shi, J., Gerardi, D., Fabrikant, N., & Schumann, B. E. (2011). Trauma exposure and mental health characteristics of incarcerated females self-referred to specialty PTSD treatment. *Psychiatric Services*, 62, 954-958. doi: 10.1176/ps.62.8.pss6208_0954

Wolff, N., Vazquez, R., Frueh, B. C., Shi, J., Schumann, B. E., & Gerardi, D. (2010). Traumatic event exposure and behavioral health disorders among incarcerated females self-referred to treatment. *Psychological Injury and Law*, 3(2), 155-163. doi: 10.1007/s12207-010-9077-9

Yehuda, R., Steiner, A., Kahana, B., Binder-Byrnes, K., Southwick, S. M., Zelman, S., & Giller, E. L. (1997). Alexithymia in Holocaust survivors with and without PTSD. *Journal of Traumatic Stress*, 10, 93-100. doi: 10.1002/jts.2490100108

Zlotnick, C. (1997). Posttraumatic stress disorder (PTSD), PTSD comorbidity, and childhood abuse among incarcerated women. *Journal of Nervous and Mental Disease*, 185, 761–763. doi: 10.1097/00005053-199712000-00007

Table 1

Demographic Data for the Study Sample

	M (SD)	Minimum	Maximum
Age	37 (10.5)	20	64
Annual Income	19,245 (26,108)	0	250,000
	n	Percent	
Ethnicity			
White/Caucasian	89	58.6	
Multi-ethnic	34	22.4	
Hispanic	14	9.2	
Native American	11	7.2	
Other	3	2.0	
African-Am/Black	1	0.7	
Education			
8 th grade or less	11	7.3	
Some High School	18	11.8	
Completed High School	15	9.9	
GED	42	27.6	
Some College	51	33.6	
Technical School	3	2.0	
College Degree	11	7.2	
Graduate Degree	1	0.7	
Marital Status			
Single	50	32.9	
Long-Term Partner	21	14.8	
Married	22	14.5	
Divorced	54	35.5	
Widowed	5	3.3	
Employment Status Prior to Incarceration			
Full-time	101	66.4	
Part-time	38	25.0	
Occasional	4	2.6	
Disability - SSI	3	2.0	
No Income	6	3.9	

N = 152

Table 2

Crime Data for the Study Sample

	M (SD)	Minimum	Maximum
Length of Incarceration	10.43 (10.32)	0.5	50*
Total Crimes Committed	3.62 (4.00)	1	34
	n	Percent	
Current Charge			
Murder/Manslaughter/ Homicide	10	6.6	
Assault	13	8.6	
Sex Offense	13	8.6	
Illegal Drug Charge	47	30.9	
Larceny/Theft/Robbery/ Burglary/Fraud	33	21.7	
Disorderly Conduct/ Public Drunkenness/DUI	5	3.3	
Other/2+ Charges	31	20.4	
First Offense			
Yes	50	32.9	
No	102	67.1	

* Note: 50 was used to represent a lifetime sentence

N = 152

Table 3

Descriptive Data for Trauma History Questionnaire (THQ)

	n	Mean	Standard Deviation	Minimum	Maximum
THQ – Age of Onset					
Sexual Trauma	121	10.50	8.31	1	49
Physical Trauma	133	14.38	9.55	0	49
Crime Trauma	112	21.48	10.47	3	49
General Trauma	148	13.61	7.89	0	40
All Trauma	151	8.70	7.57	0	49
THQ – Chronicity					
Sexual Trauma	121	2.75	2.15	0	9
Physical Trauma	133	3.78	2.50	0	9
Crime Trauma	112	2.26	2.20	0	11
General Trauma	148	6.16	4.21	0	24
All Trauma	151	14.97	8.16	0	45
THQ – Total Types					
Sexual Trauma	121	1.32	0.87	0	3
Physical Trauma	133	1.68	0.96	0	3
Crime Trauma	112	1.47	1.21	0	4
General Trauma	148	4.21	3.01	0	11
Interpersonal Trauma	144	3.01	1.49	0	6
Non-interpersonal Trauma	149	5.69	3.01	0	15
All Trauma	151	8.69	3.91	0	19

Table 4

AAQ-II Internal Consistency: Corrected Item-Total Correlations

AAQ-II Item	Corrected Item-Total Correlation
1	.722
2	.766
3	.795
4	.818
5	.706
6	.720
7	.824

Cronbach's Alpha = .925

Table 5

Proportion of Sample that Experienced Trauma by Type

	n	Percent
Had something stolen by force	47	30.9
Robbed	76	50.0
Home broken into while there	71	46.7
Home broken into while not there	30	19.7
Serious accident (e.g., car wreck)	90	59.2
Natural disaster (e.g., tornado, earthquake)	35	23.0
Manmade disaster (e.g., fire, bank robbery)	21	13.8
Exposed to dangerous chemicals	37	24.3
Seriously injured	29	19.1
Situation in which feared might be killed or seriously injured	51	33.6
Witnessed another person being injured	85	55.9
Exposed to dead bodies	50	32.9
Close friend or family member killed	34	22.4
Romantic partner or child died	53	34.9
Diagnosed with life-threatening illness	35	23.0
Received news of serious-injury or unexpected death of someone close	112	73.7
Engaged in combat	2	1.3
Sexual touching	58	38.2
Forced intercourse	108	71.1
Any other unwanted sexual contact	34	22.5
Attacked with a weapon by a partner, spouse or friend	79	52.0
Attacked without a weapon by a partner, spouse or friend	105	69.1
Beaten, spanked, or pushed hard enough to cause injury	71	46.7

N = 152

Table 6

Proportion of Sample that Experienced Trauma by Category

	n	Percent
Interpersonal Trauma	144	94.7
Non-Interpersonal Trauma	149	98.0
Sexual Trauma	121	79.6
Sexual Trauma before age 14	92	76.0
Physical Trauma	133	87.5
Physical Trauma before age 14	62	46.6
Crime Trauma	112	73.7
Crime Trauma before age 14	23	20.5
General Trauma	148	97.4
General Trauma before age 14	77	52.0
Any Trauma	151	99.3
Any Trauma before age 14	121	80.1

N = 152

Table 7

Descriptive Data for Clinician-Administered PTSD Scale for DSM-5 (CAPS-5)

	n	%			
DSM-IV: Meets PTSD Criteria	53	37.9%			
DSM-5: Meets PTSD Criteria	55	39.3%			
	n	Mean	Standard Deviation	Minimum	Maximum
Total Sample					
DSM-IV: Cluster B Severity	143	4.22	4.44	0	18
DSM-IV: Cluster C Severity	140	4.78	4.79	0	18
DSM-IV: Cluster D Severity	140	4.61	4.21	0	16
DSM-IV: Total Severity	140	13.17	11.6	0	49
Total Sample					
DSM-5: Cluster B Severity	143	4.22	4.44	0	18
DSM-5: Cluster C Severity	143	1.83	2.27	0	8
DSM-5: Cluster D Severity	140	5.63	5.68	0	22
DSM-5: Cluster E Severity	140	4.71	4.26	0	16
DSM-5: Total Severity	140	16.51	13.42	0	57
Meets Criteria for PTSD					
DSM-5: Cluster B Severity	55	7.04	5.09	0	18
DSM-5: Cluster C Severity	55	2.93	2.52	0	8
DSM-5: Cluster D Severity	55	9.73	5.67	0	22
DSM-5: Cluster E Severity	55	8.04	3.70	0	16
DSM-5: Total Severity	55	27.73	11.84	0	57

Table 8

Descriptive Data for Emotion Regulation Questionnaires

	Mean	Standard Deviation	Minimum	Maximum
DERS: Nonacceptance	14.41	6.25	6	30
DERS: Goals	13.30	4.89	5	25
DERS: Impulse	11.97	4.97	6	27
DERS: Awareness	15.29	5.97	6	28
DERS: Strategies	16.99	6.69	8	35
DERS: Clarity	10.89	4.21	5	24
DERS: Total Score	82.87	25.22	39	137
ERQ: Cognitive Reappraisal	30.92	7.09	12	42
ERQ: Expressive Suppression	15.16	5.41	4	28
AAQ-II: Experiential Avoidance	24.74	10.77	7	49

N = 152

Note: DERS = Difficulties in Emotion Regulation, ERQ = Emotion Regulation Questionnaire, AAQ-II = Acceptance and Commitment Questionnaire.

Table 9

Zero-Order Correlations between Difficulties in Emotion Regulation, Expressive Suppression, Cognitive Reappraisal, Experiential Avoidance, PTSD Symptom Severity, Age of Onset, Total Trauma Types, and Chronicity

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. DERS: Total Score	--	.715**	.789**	.785**	.710**	.882**	.698**	.400**	-.325**	.702**	.321**	-.171*	.151	.177*
2. DERS: Nonacceptance		--	.520**	.406**	.253**	.660**	.323**	.374**	-.109	.551**	.322**	-.129	.190*	.216**
3. DERS: Goals			--	.596**	.430**	.706**	.375**	.310**	-.193*	.507*	.243**	-.172*	.092	.070
4. DERS: Impulse				--	.500**	.673**	.462**	.173*	-.252**	.465*	.209*	-.140	.131	.157
5. DERS: Awareness					--	.448**	.669**	.324**	-.352**	.497**	.215*	-.174*	.085	.102
6. DERS: Strategies						--	.490**	.323**	-.348**	.662**	.240**	-.175*	.083	.099
7. DERS: Clarity							--	.309**	-.222*	.506**	.244**	-.193*	.109	.175*
8. ERQ: Expressive Suppression								--	-.198*	.398**	.178*	-.066	.090	.103
9. ERQ: Cognitive Reappraisal									--	-.350**	-.106	-.046	.104	.085
10. AAQ-II: Experiential Avoidance										--	.430**	-.211**	.150	.173*
11. PTSD Symptom Severity											--	-.347**	.333**	.358**
12. Age of Onset												--	-.444**	-.438**
13. Total Trauma Types													--	.936**
14. Chronicity														--

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Note: DERS = Difficulties in Emotion Regulation Scale; ERQ = Emotion Regulation Questionnaire; AAQ-II = Acceptance and Commitment Questionnaire

Table 10

Multivariate Multiple Regression Analyses of Characteristics of Trauma as Predictors of Emotion Regulation and Experiential Avoidance

Multivariate	<i>df</i>	F	Wilk's λ	<i>p</i>	η^2
Age of Onset	2	3.398	.955	.036	.05
Trauma Chronicity	2	.359	.995	.699	.01
Univariate	Sum of Squares	<i>df</i>	F	<i>p</i>	η^2
Predictor: Age of Onset					
Difficulties with Emotion Regulation	2735.283	1	4.489	.036	.03
Experiential Avoidance	722.760	1	6.573	.011	.04
Predictor: Trauma Chronicity					
Difficulties with Emotion Regulation	437.438	1	.718	.398	.00
Experiential Avoidance	42.683	1	.388	.534	.01

Figure 1: Proposed SEM Model

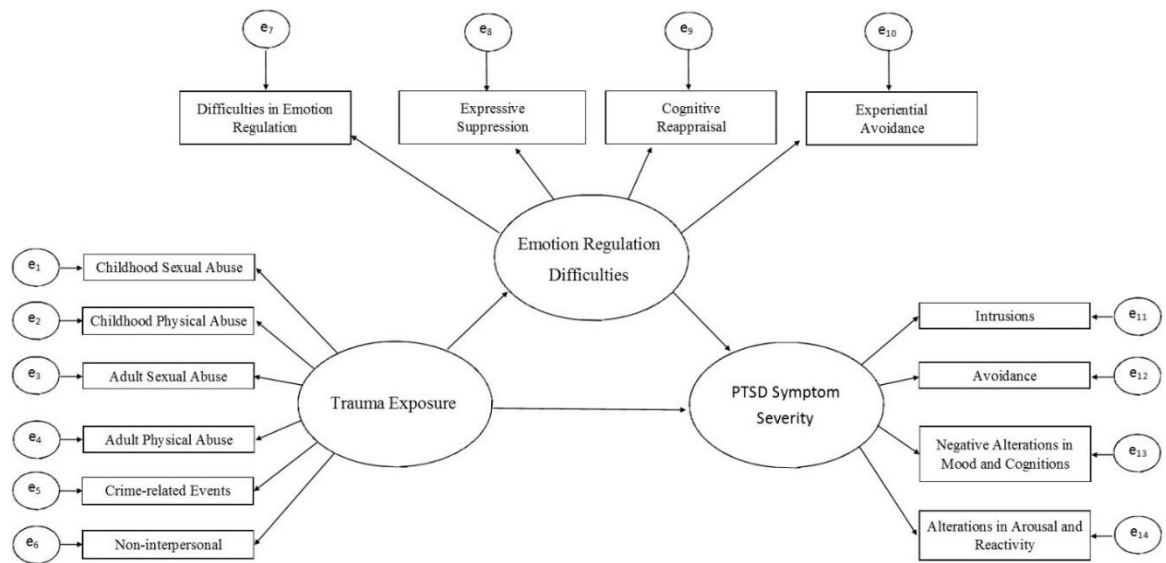
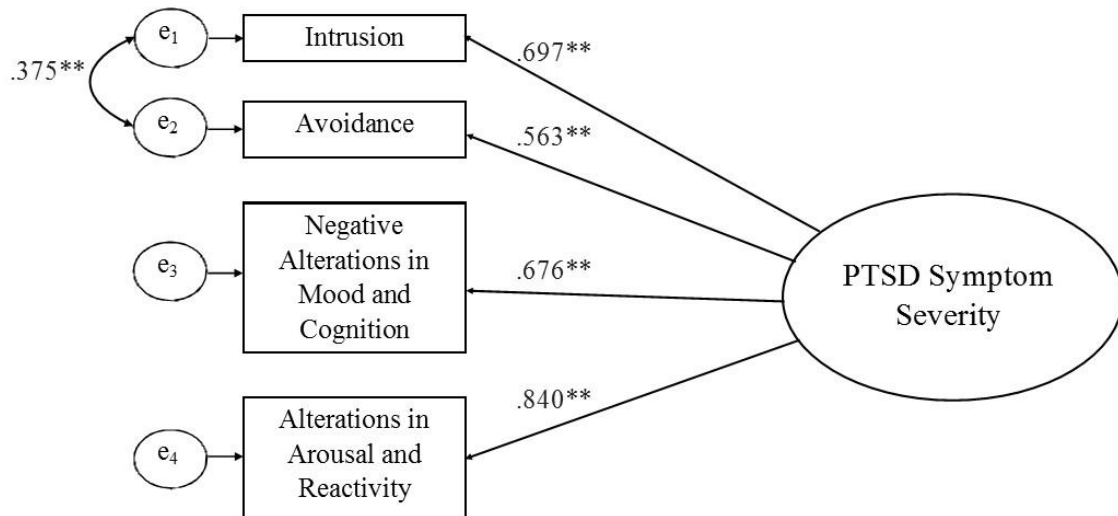
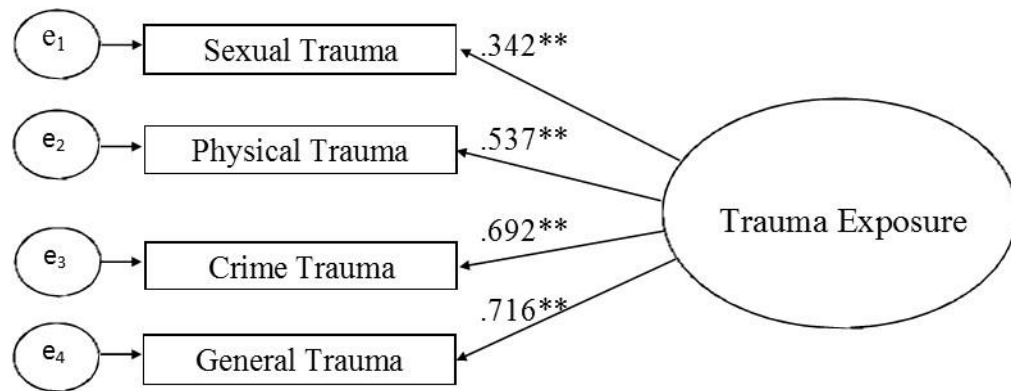


Figure 2. Measurement Model Illustrating the Latent Variable Posttraumatic Stress Symptom Severity



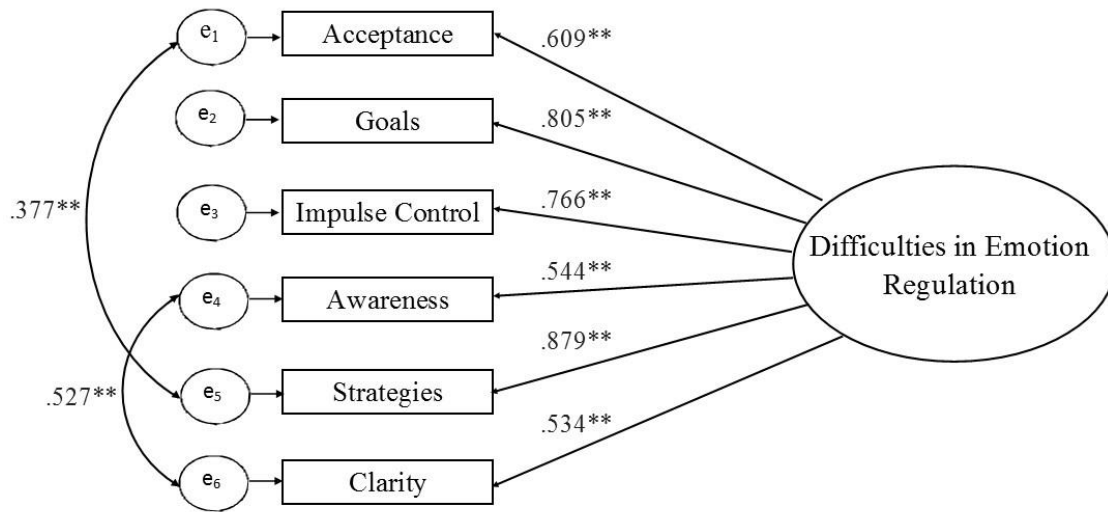
Note: $\chi^2(1) = 0.423$, $p = 0.516$; RMSEA = 0.000; TLI = 1.019; CFI = 1.000. ** Correlation is significant at the 0.01 level (2-tailed). Path coefficients in figure are represented in standardized form.

Figure 3. Measurement Model Illustrating the Latent Variable Trauma Exposure



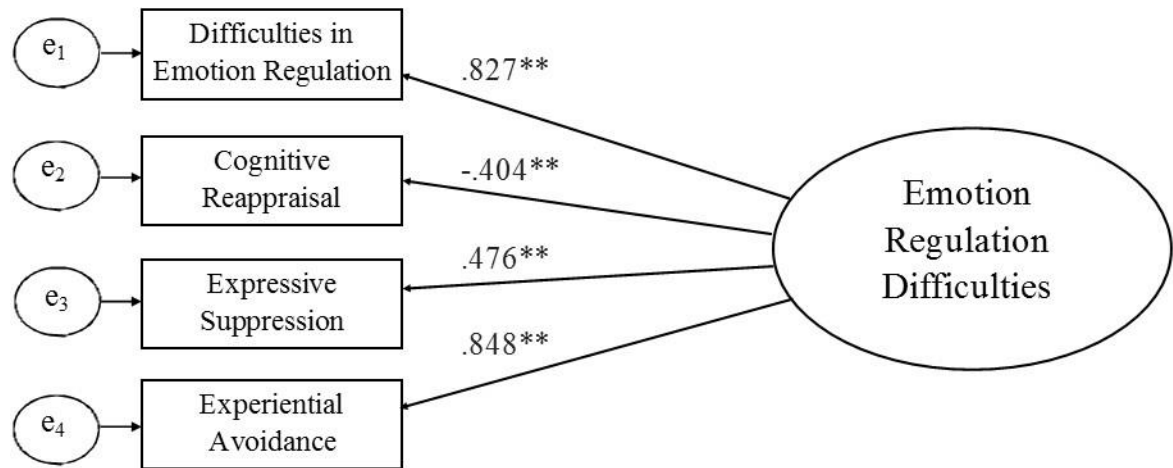
Note: $\chi^2(2) = 1.021$, $p = 0.60$; RMSEA = 0.00; TLI = 1.035; CFI = 1.000. ** Correlation is significant at the 0.01 level (2-tailed). Path coefficients in figure are represented in standardized form.

Figure 4. Measurement Model Illustrating Factor Loadings of the Difficulties in Emotion Regulation Scale as Measured by DERS Subscales



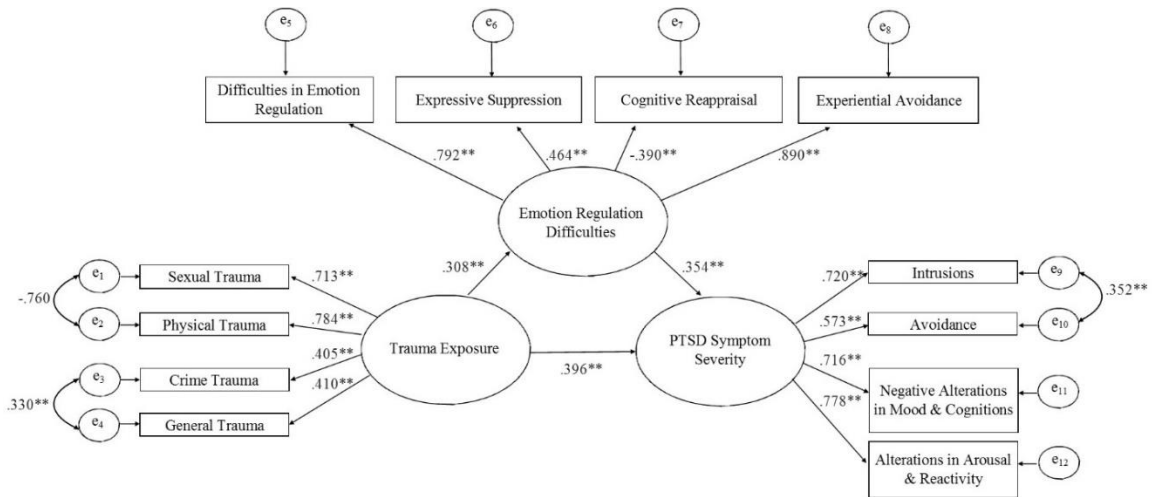
Note: $\chi^2(7) = 11.270$, $p = 0.127$; RMSEA = 0.060; TLI = 0.978; CFI = 0.990. ** Correlation is significant at the 0.01 level (2-tailed). Path coefficients in figure are represented in standardized form. DERS = Difficulties in Emotion Regulation Scale.

Figure 5. Measurement Model Illustrating the Latent Variable Emotion Regulation Difficulties



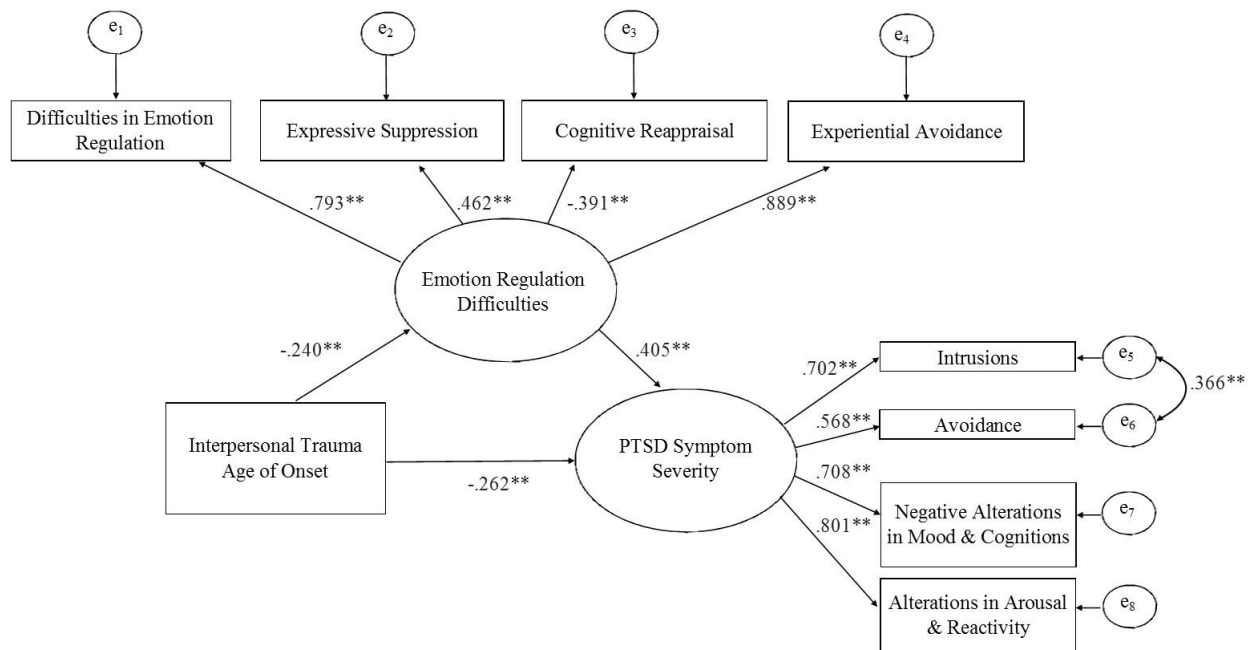
Note: $\chi^2(2) = 0.134$, $p = 0.935$; RMSEA = 0.000; TLI = 1.037; CFI = 1.000. ** Correlation is significant at the 0.01 level (2-tailed). Path coefficients in figure are represented in standardized form.

Figure 6. Structural Model Illustrating the Relationships among Trauma Exposure, Emotion Regulation Difficulties, and Posttraumatic Stress Symptom Severity



Note: $\chi^2(48) = 61.634$, $p = 0.089$; RMSEA = 0.043; TLI = 0.972; CFI = 0.96; indirect effect = .109, $z = 2.439$, $p = .015$; 95% asymmetric confidence interval = .018 – .437; $R^2 = .37$. ** Correlation is significant at the 0.01 level (2-tailed). Path coefficients in figure are represented in standardized form.

Figure 7. Structural Model Illustrating the Relationships among Interpersonal Trauma Age of Onset, Emotion Regulation Difficulties, and Posttraumatic Stress Symptom Severity



Note: $\chi^2(24) = 33.813$, $p = .088$; RMSEA = .052; CFI = .963; TLI = .975; indirect effect = -0.097 , $z = -2.041$, $p = .041$; 95% asymmetric confidence interval = -0.181 to -0.002 ; $R^2 = .28$. ** Correlation is significant at the 0.01 level (2-tailed). Path coefficients in figure are represented in standardized form.

APPENDICIES**APPENDIX A****Demographics Questionnaire**

____ Participant #

The biographical information on this page is used to provide summaries of those who participate in this study without providing details about any one individual.

1. Age: ____

2. Education

____ 6th or less

____ Some college

____ Completed 8th grade

____ 2 year college degree

____ Some high school

____ 2 year college degree

____ Completed high school

____ 2 year college degree

____ GED

____ 4 year college degree

____ Technical degree

____ Some graduate school

____ Complete a graduate program

3a. What is your religion or spiritual faith? _____

3b. How important is it in your life? _____

4a. When did you last work? _____

4b. When you last worked, what was your employment status?

____ (1) full-time

____ (4) disability/SSI

____ (2) part-time

____ (5) no income

____ (3) occasional

4c. What was your income when you last worked? _____ (circle one: per week/month/year)

5. Current marital/relationship status:

____ (1) single

____ (4) married

____ (2) divorced

____ (5) living with partner

____ (3) widowed

____ (6) not living with current partner

6a. Parent: ____ Yes ____ No

6b. # of children under 18: _____

6c. Where do your children under 18 live? _____

6d. How often do you see them? _____ daily _____ 2-3times/week _____ weekly
_____ 2x/month _____ monthly _____ less than monthly _____ never

7a. Ethnicity (check all that apply):

_____ (1) African-American/Black
American/Caucasian

_____ (6) White/European-

_____ (2) Caribbean/Haitian

_____ (7) European

_____ (3) African

_____ (8) Hispanic-American/Hispanic

_____ (4) Asian-American

_____ (9) Native-American/American-Indian

_____ (5) Asian/Pacific-Islander

_____ (10) Other:

7b. Which ethnicity do you identify with the most?

8. For what behavior(s) are you CURRENTLY incarcerated? _____

9. What is the legal charge(s) for which you are currently incarcerated? _____

10a. Are you currently waiting for trial/sentencing? ____ Yes / ____ No, already sentenced

10b. If sentenced, how long is your current sentence? _____

11a. Was the crime for which you are currently incarcerated your first offense? Yes/No

11b. If not, how many times before the current charge have you been convicted of/pled guilty to:

Murder, manslaughter, or homicide: _____ times

Assault: _____ times

Sex offenses: _____ times

Illegal drug charges: _____ times (specific charges: e.g., possession, use)

Larceny, theft, robbery, burglary, or fraud: _____ times

Disorderly conduct, public drunkenness, or driving under the influence: _____ times

Vandalism or trespassing: _____ times

On what date were you incarcerated? _____

APPENDIX B

Trauma History Questionnaire

The following is a series of questions about serious or traumatic life events. These types of events actually occur with some regularity, although we would like to believe that they are rare, and they affect how people feel about, react to, and/or think about things happening subsequently. Knowing about the occurrence of such events, and reactions to them, will help us to develop programs for prevention, education, and other services. The questionnaire is divided into questions covering crime experiences, general disaster and trauma questions, and questions about physical and sexual experiences.

For each event, please indicate (circle) whether it happened, and if it did, the number of times and your approximate age when it happened (give your best guess if you are not sure). Also note the nature of your relationship to the person involved, and the specific nature of the event, if appropriate. Finally, please indicate whether the event was distressing at the time and how much it affects you now.

Crime-Related Events

**1. Has anyone ever tried to take something from you by using force YES NO
or the threat of force, such as a stick up or mugging?**

a. Number of Times: **1** = none, **2** = 1 to 2 times, **3** = 3 to 4 times, **4** = more than 5 times

b. Approximate Age _____

**2. Has anyone ever attempted to rob you or actually rob you (i.e., YES NO
stolen your personal belongings)?**

a. Number of Times: **1** = none, **2** = 1 to 2 times, **3** = 3 to 4 times, **4** = more than 5 times

b. Approximate Age _____

**3. Has anyone ever attempted to or succeeded in breaking into your YES NO
home when you weren't there?**

a. Number of Times: **1** = none, **2** = 1 to 2 times, **3** = 3 to 4 times, **4** = more than 5 times

b. Approximate Age _____

**4. Has anyone ever tried to or succeeded in breaking into your home YES NO
while you were there?**

a. Number of Times: **1** = none, **2** = 1 to 2 times, **3** = 3 to 4 times, **4** = more than 5 times

b. Approximate Age _____

General Disaster and Trauma

**5. Have you ever had a serious accident at work, in a car or YES NO
somewhere else?**

If yes, please
specify _____
a. Number of Times: **1 = none, 2 = 1 to 2 times, 3 = 3 to 4 times, 4 = more than 5 times**
b. Approximate Age _____

**6. Have you ever experienced a natural disaster such as a tornado YES NO
hurricane, flood, major earthquake, etc., where you felt you or
your loved ones were in danger of death or injury**

If yes, please
specify _____
a. Number of Times: **1 = none, 2 = 1 to 2 times, 3 = 3 to 4 times, 4 = more than 5 times**
b. Approximate Age _____

**7. Have you ever experienced a “man-made” disaster such as a train YES NO
crash, building collapse, bank robbery, fire, etc., where you felt you
or your loved ones were in danger of death or injury?**

If yes, please
specify _____
a. Number of Times: **1 = none, 2 = 1 to 2 times, 3 = 3 to 4 times, 4 = more than 5 times**
b. Approximate Age _____

**8. Have you ever been exposed to dangerous chemicals or radioactivity YES NO
that might threaten your health**

a. Number of Times: **1 = none, 2 = 1 to 2 times, 3 = 3 to 4 times, 4 = more than 5 times**
b. Approximate Age _____

**9. Have you ever been in any other situation in which you were seriously YES NO
injured?**

If yes, please
specify _____
a. Number of Times: **1 = none, 2 = 1 to 2 times, 3 = 3 to 4 times, 4 = more than 5 times**
b. Approximate Age _____

**10. Have you ever been in any other situation in which you feared you YES NO
might be killed or seriously injured?**

If yes, please
specify _____
a. Number of Times: **1 = none, 2 = 1 to 2 times, 3 = 3 to 4 times, 4 = more than 5 times**
b. Approximate Age _____

11. Have you ever seen someone seriously injured or killed? YES NO

If yes, please specify

who _____

a. Number of Times: **1** = none, **2** = 1 to 2 times, **3** = 3 to 4 times, **4** = more than 5 times

b. Approximate Age _____

12. Have you ever seen dead bodies (other than a funeral) or had to handle dead bodies for any reason? YES NO

If yes, please

specify _____

a. Number of Times: **1** = none, **2** = 1 to 2 times, **3** = 3 to 4 times, **4** = more than 5 times

b. Approximate Age _____

13. Have you ever had a close friend or family member murdered, or killed by a drunk driver? YES NO

If yes, please specify relationship (e.g., mother, grandson, etc.) _____

a. Number of Times: **1** = none, **2** = 1 to 2 times, **3** = 3 to 4 times, **4** = more than 5 times

b. Approximate Age _____

14. Have you ever had a spouse, romantic partner, or child die? YES NO

If yes, please specify

relationship _____

a. Number of Times: **1** = none, **2** = 1 to 2 times, **3** = 3 to 4 times, **4** = more than 5 times

b. Approximate Age _____

15. Have you ever had a serious or life-threatening illness? YES NO

If yes, please

specify _____

a. Number of Times: **1** = none, **2** = 1 to 2 times, **3** = 3 to 4 times, **4** = more than 5 times

b. Approximate Age _____

16. Have you ever received news of a serious injury, life-threatening illness or unexpected death of someone close to you? YES NO

If yes, please

specify _____

a. Number of Times: **1** = none, **2** = 1 to 2 times, **3** = 3 to 4 times, **4** = more than 5 times

b. Approximate Age _____

17. Have you ever had to engage in combat while in military service YES NO

in an official or unofficial war zone?

If yes, please indicate

where _____

a. Number of Times: **1** = *none*, **2** = *1 to 2 times*, **3** = *3 to 4 times*, **4** = *more than 5 times*

b. Approximate Age _____

Physical and Sexual Experiences

18. Has anyone ever made you have intercourse, oral or anal sex against your will? YES NO

If yes, please indicate the nature of relationship with person (e.g. stranger, friend, relative, parent,

sibling) _____

a. Number of Times: **1** = *none*, **2** = *1 to 2 times*, **3** = *3 to 4 times*, **4** = *more than 5 times*

b. Approximate Age _____

19. Has anyone ever touched private parts of your body, or made you touch theirs, under force or threat? YES NO

If yes, please indicate the nature of relationship with person (e.g. stranger, friend, relative, parent,

sibling) _____

a. Number of Times: **1** = *none*, **2** = *1 to 2 times*, **3** = *3 to 4 times*, **4** = *more than 5 times*

b. Approximate Age _____

20. Other than incidents mentioned in Questions 18 and 19, have there been any other situations in which another person tried to force you to have unwanted sexual contact? YES NO

a. Number of Times: **1** = *none*, **2** = *1 to 2 times*, **3** = *3 to 4 times*, **4** = *more than 5 times*

times

b. Approximate Age _____

21. Has anyone, including family members or friends, ever attacked you with a gun, knife or some other weapon? YES NO

If yes, please indicate the nature of relationship with person (e.g. stranger, friend, relative, parent,

sibling) _____

a. Number of Times: **1** = *none*, **2** = *1 to 2 times*, **3** = *3 to 4 times*, **4** = *more than 5 times*

b. Approximate Age _____

22. Has anyone, including family members or friends, ever attacked without a gun, knife, or some other weapon? YES NO

a. Number of Times: **1** = none, **2** = 1 to 2 times, **3** = 3 to 4 times, **4** = more than 5 times

b. Approximate Age_____

23. Has anyone in your family ever beaten, “spanked” or pushed you hard enough to cause injury? YES NO

a. Number of Times: **1** = none, **2** = 1 to 2 times, **3** = 3 to 4 times, **4** = more than 5 times

b. Approximate Age_____

Other Events

24. Have you experienced any other extraordinary stressful situation or event that is not covered above? YES NO

If yes, please

specify_____

a. Number of Times: **1** = none, **2** = 1 to 2 times, **3** = 3 to 4 times, **4** = more than 5 times

b. Approximate Age_____

APPENDIX C

Clinician-Administered PTSD Scale for DSM-5 (*Sample Items*)

Criterion B: Presence of one or more of the following intrusion symptoms associated with the traumatic event(s), beginning after the traumatic event(s) occurred:

1. (B1) Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s).

Note: In children, repetitive play may occur in which themes or aspects of the traumatic event(s) are expressed.

In the past month, have you had any <u>unwanted</u> memories of (EVENT) while you were awake, so not counting dreams? [Rate 0=Absent if only during dreams] How does it happen that you start remembering (EVENT)? [If not clear:] (<i>Are these <u>unwanted</u> memories, or are you thinking about [EVENT] on purpose?</i>) [Rate 0=Absent unless perceived as involuntary and intrusive] How much do these memories bother you? Are you able to put them out of your mind and think about something else? <u>Circle:</u> Distress = <i>Minimal</i> <i>Clearly Present</i> <i>Pronounced</i> <i>Extreme</i> How often have you had these memories in the past month? # of times _____ Key rating dimensions = frequency / intensity of distress Moderate = at least 2 X month / distress clearly present, some difficulty dismissing memories Severe = at least 2 X week / pronounced distress, considerable difficulty dismissing memories	0 Absent 1 Mild / subthreshold 2 Moderate / threshold 3 Severe / markedly elevated 4 Extreme / incapacitating
--	---

2. (B2) Recurrent distressing dreams in which the content and/or affect of the dream is related to the event(s). Note: In children, there may be frightening dreams without recognizable content.

In the past month, have you had any <u>unpleasant</u> dreams about (EVENT)? Describe a typical dream. (<i>What happens?</i>) [If not clear:] (<i>Do they wake you up?</i>)	0 Absent 1 Mild / subthreshold 2 Moderate / threshold
---	---

[If yes:] <i>(What do you experience when you wake up? How long does it take you to get back to sleep?)</i> [If reports not returning to sleep:] <i>(How much sleep do you lose?)</i> How much do these dreams bother you? <u>Circle:</u> Distress = <i>Minimal</i> <i>Clearly Present</i> <i>Pronounced</i> <i>Extreme</i> How often have you had these dreams in the past month? # of times _____ Key rating dimensions = frequency / intensity of distress Moderate = at least 2 X month / distress clearly present, less than 1 hour sleep loss Severe = at least 2 X week / pronounced distress, more than 1 hour sleep loss	3 Severe / markedly elevated 4 Extreme / incapacitating
--	---

Criterion C: Persistent avoidance of stimuli associated with the traumatic event(s), beginning after the traumatic event(s) occurred, as evidenced by one or both of the following:

6. (C1) Avoidance or efforts to avoid distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).

In the past month, have you tried to <u>avoid thoughts</u> or <u>feelings</u> about (EVENT)? What kinds of thoughts or feelings do you avoid? How hard do you try to avoid these thoughts or feelings? <i>(What kinds of things do you do?)</i> <u>Circle:</u> Avoidance = <i>Minimal</i> <i>Clearly Present</i> <i>Pronounced</i> <i>Extreme</i> How often in the past month? # of times _____ Key rating dimensions = frequency / intensity of avoidance Moderate = at least 2 X month / avoidance clearly present Severe = at least 2 X week / pronounced avoidance	0 Absent 1 Mild / subthreshold 2 Moderate / threshold 3 Severe / markedly elevated 4 Extreme / incapacitating
---	---

7. (C2) Avoidance or efforts to avoid external reminders (people, places, conversations, activities, objects, situations) that arouse distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).

In the past month, have you tried to <u>avoid things</u> that <u>remind you</u> of (EVENT), like certain people, places, or situations?	0 Absent
---	------------------------

What kinds of things do you avoid? How much effort do you make to avoid these reminders? <i>(Do you have to make a plan or change your activities to avoid them?)</i> [If not clear:] <i>(Overall, how much of a problem is this for you? How would things be different if you didn't have to avoid these reminders?)</i> <u>Circle</u>: Avoidance = Minimal Clearly Present Pronounced Extreme How often in the past month? # of times _____ Key rating dimensions = frequency / intensity of avoidance Moderate = at least 2 X month / avoidance clearly present Severe = at least 2 X week / pronounced avoidance	1 Mild / subthreshold 2 Moderate / threshold 3 Severe / markedly elevated 4 Extreme / incapacitating
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APPENDIX D

Difficulties in Emotion Regulation Scale

Please answer the following questions about your emotions and feelings.

1	2	3	4	5
Almost never	Sometimes	About half the time	Most of the time	Almost Always
(0-10%)	(11-35%)	(36-65%)	(66-90%)	(91-100%)

1. I am clear about my feelings.
2. I pay attention to how I feel.
3. I experience my emotions as overwhelming and out of control.
4. I have no idea how I am feeling.
5. I have difficulty making sense out of my feelings.
6. I am attentive to my feelings.
7. I know exactly how I am feeling.
8. I care about what I am feeling.
9. I am confused about how I feel.
10. When I'm upset, I acknowledge my emotions.
11. When I'm upset, I become angry with myself for feeling that way.
12. When I'm upset, I become embarrassed for feeling that way.
13. When I'm upset, I have difficulty getting work done.
14. When I'm upset, I become out of control.
15. When I'm upset, I believe that I will remain that way for a long time.
16. When I'm upset, I believe that I'll end up feeling very depressed.
17. When I'm upset, I believe that my feelings are valid and important.

18. When I'm upset, I have difficulty focusing on other things.
19. When I'm upset, I feel out of control.
20. When I'm upset, I can still get things done.
21. When I'm upset, I feel ashamed with myself for feeling that way.
22. When I'm upset, I know that I can find a way to eventually feel better.
23. When I'm upset, I feel like I am weak.
24. When I'm upset, I feel like I can remain in control of my behaviors.
25. When I'm upset, I feel guilty for feeling that way.
26. When I'm upset, I have difficulty concentrating.
27. When I'm upset, I have difficulty controlling my behaviors.
28. When I'm upset, I believe there is nothing I can do to make myself feel better.
29. When I'm upset, I become irritated with myself for feeling that way.
30. When I'm upset, I start to feel very bad about myself.
31. When I'm upset, I believe that wallowing in it is all I can do.
32. When I'm upset, I lose control over my behaviors.
33. When I'm upset, I have difficulty thinking about anything else.
34. When I'm upset, I take time to figure out what I'm really feeling.
35. When I'm upset, it takes me a long time to feel better.
36. When I'm upset, my emotions feel overwhelming.

APPENDIX E

EMOTION REGULATION QUESTIONNAIRE

We would like to ask you some questions about your emotional life, in particular, how you control (that is, regulate and manage) your emotions. The questions below involve two distinct aspects of your emotional life. One is your emotional experience, or what you feel like inside. The other is your emotional expression, or how you show your emotions in the way you talk, gesture, or behave. Although some of the following questions may seem similar to one another, they differ in important ways. For each item, please answer using the following scale:

1.....2.....3.....4.....5.....6.....7

**Strongly
Disagree**

Neutral

**Strongly
Agree**

1. When I want to feel more *positive* emotion (such as joy or amusement), I *change what I'm thinking about*.
2. I keep my emotions to myself.
3. When I want to feel less *negative* emotion (such as sadness or anger), I *change what I'm thinking about*.
4. When I am feeling *positive* emotions, I am careful not to express them.
5. When I'm faced with a stressful situation, I make myself *think about it* in a way that helps me stay calm.
6. I control my emotions by *not expressing them*.
7. When I want to feel more *positive* emotion, I *change the way I'm thinking about the situation*.
8. I control my emotions by *changing the way I think about the situation I'm in*.
9. When I am feeling *negative* emotions, I make sure not to express them.
10. When I want to feel less *negative* emotion, I *change the way I'm thinking about the situation*.

APPENDIX F

ACCEPTANCE AND ACTION QUESTIONNAIRE- II

Below is a list of statements. Rate how true each statement is for you by circling a number next to it. Use the scale below to make your choice.

1	2	3	4	5	6	7
Never True	Very rarely true	Seldom true	Sometimes True	Often true	Almost always true	Always true

1. My painful experiences and memories make it difficult for me to live a life that I would value.
2. I'm afraid of my feelings.
3. I worry about not being able to control my worries and feelings.
4. My painful memories prevent me from having a fulfilling life.
5. Emotions cause problems in my life.
6. It seems like most people are handling their lives better than I am.
7. Worries get in the way of my success.