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LOYOLA UNIVERSITY CHICAGO

INTIMATE PARTNER VIOLENCE AS A RISK FACTOR FOR  
PTSD IN FEMALE SURVIVORS OF DOMESTIC VIOLENCE:

A META-ANALYSIS

A DISSERTATION SUBMITTED TO  
THE FACULTY OF THE GRADUATE SCHOOL  
IN CANDIDACY FOR THE DEGREE OF  
DOCTOR OF PHILOSOPHY

PROGRAM IN COUNSELING PSYCHOLOGY

BY

SELENA R. TRAMAYNE

CHICAGO, ILLINOIS

MAY 2012

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To the survivors of domestic violence.  
May you know your strength and courage.  
May you find your way to peace, serenity, hope, and joy.

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## ABSTRACT

The purpose of this dissertation was to conduct two meta-analyses investigating the relationship between intimate partner violence (IPV) and Posttraumatic Stress Disorder (PTSD) symptomatology in female survivors of domestic violence. The first meta-analysis investigated the relationship between physical violence and PTSD symptomatology while the second meta-analysis investigated the relationship between psychological abuse and PTSD symptomatology. A moderator variable, recruitment setting, was investigated to see whether recruitment setting changed the relationship between physical violence and PTSD symptomatology and/or the relationship between psychological abuse and PTSD symptomatology. For both meta-analyses, a medium to large effect size was found. Recruitment setting was not found to moderate either relationship.

## CHAPTER ONE

### INTRODUCTION

It is estimated that in the United States each year, over one million women experience some form of physical violence from an intimate partner (Tjaden & Thoennes, 2000; U.S. Department of Justice, 2000), approximately 4.8 million rapes and physical assaults are perpetrated against women by their domestic partner annually (U.S. Department of Justice, 2000), and approximately 25% of women surveyed reported at least one episode of domestic violence during their lifetime (Black & Breiding, 2008; U.S. Department of Justice, 2000). While these numbers may seem staggering, they may be underestimates since many instances of abuse go unreported and often large scale surveys do not include very poor, hospitalized, homeless, institutionalized, or incarcerated women (Browne, 1993).

For almost 40 years, the issue of domestic violence has received increased attention and research, and many organizations have responded to international initiatives to help reduce the prevalence of domestic violence (Walker, 1999). Research in the area of domestic violence has included prevalence (Browne, 1993; Carden, 1994; Tjaden & Thoennes, 2000); the physical, emotional, and social effects on women and children (Browne, 1993); the causes and consequences of partner violence from psychological, legal, financial, cultural, and political standpoints (Browne, 1993; Carden, 1994); and best practices in treatment and prevention (Browne, 1993; Carden, 1994). Intimate

partner violence (IPV), specifically, is a pervasive problem that concerns many: researchers, practitioners, and survivors.

### Intimate Partner Violence

Intimate partner violence (IPV) is a global public health problem that greatly impacts women's mental, emotional, and physical well-being (Browne, 1993; Golding, 1999; Weaver & Clum, 1995). It occurs between two people who are currently, or have been previously, in an intimate relationship. The relationship can be either a spousal or dating relationship (Centers for Disease Control and Prevention, 2009). Abuse can occur on a continuum from one episode to ongoing battering. IPV is often characterized as coercive control that is maintained by the use of sexual violence, physical violence, and/or psychological abuse (Crowell & Burgess, 1996). Sexual violence is defined as forcing a partner to participate in a sex act without his or her consent (Centers for Disease Control and Prevention, 2009). While there has been some research looking at the consequences of sexual violence, most of the research to date has investigated the consequences of physical violence and psychological abuse.

#### *Physical violence*

Physical violence includes both mild and severe forms of violence. Milder forms of violence include such acts as throwing an object at the person or slapping, pushing, grabbing, or shoving someone. Severe forms of violence include choking, kicking, biting, hitting the person with a fist, or using (or threatening to use) a weapon such as a knife or gun (Centers for Disease Control and Prevention, 2009; Crowell & Burgess, 1996). Research has shown that physical violence has had lasting consequences on the

physical and emotional well-being of female survivors. Physical violence has been associated with negative health status and increased health risk behaviors such as cigarette smoking (Smith, Thornton, DeVellis, Earp, & Coker, 2002), increased stress (Gelles & Harrop, 1989; Smith et al., 2002), sexually transmitted diseases (Smith et al., 2002), and gynecological problems (Smith et al., 2002). Female survivors of physical violence often suffer from mental health concerns as well, such as depression (Cascardi & O'Leary, 1992; Cascardi, O'Leary, & Schlee, 1999; Gleason, 1993), anxiety (Gleason, 1993; Russell, Lipov, Phillips, & White, 1989), psychosexual dysfunction (Gleason, 1993), obsessive compulsive disorder (Gleason, 1993), substance abuse (Gleason, 1993), and an increased risk for suicidal ideation (Gelles & Harrop, 1989; Thompson, Kaslow, & Kingree, 2002). Other negative psychological effects have been noted such as feelings of worthlessness and hopelessness (Gelles & Harrop, 1989).

### *Psychological abuse*

While the effects of physical violence have been shown to be quite detrimental to women's physical and mental health, it is important to also look at the effects of psychological abuse since as few as 1% of female survivors experience physical violence in the absence of psychological abuse (Follingstad, Rutledge, Berg, Hause, & Polek, 1990; Marshall, 1996). Psychological abuse (also referred to as psychological maltreatment, emotional abuse, or psychological battering) consists of both verbal and nonverbal acts which hurt another person (Crowell & Burgess, 1996), as well as a variety of tactics to manipulate and control a partner (Centers for Disease Control and Prevention, 2009; Smith et al., 2002), including elements of shame and disempowerment

(Smith et al., 2002). Using descriptions reported by actual female survivors of IPV, Follingstad et al. (1990) identified six types of psychological abuse: (a) verbal attacks designed to control the woman by making her believe she is not worthwhile (e.g., ridicule, verbal harassment, name calling); (b) isolation intended to limit her independence (e.g., separating her from social support networks, denying access to financial and other resources); (c) jealousy and possessiveness (e.g., monitoring her behavior, repeated accusations of infidelity, controlling with whom she has contact); (d) verbal threats of abuse or torture directed at the woman or her family, children, or friends; (e) repeated threats of abandonment, divorce, or infidelity if the woman does not do what the abuser wishes; and (f) damage or destruction to the woman's personal property and possessions. Many female survivors and researchers consider psychological abuse to be as harmful, if not more so, than physical violence (Follingstad et al., 1990; Marshall, 1996) because it may (a) worsen the impact of physical violence and (b) be related to negative outcomes independent of physical violence (Street & Arias, 2001). Psychological abuse may impact female survivor's self-esteem (Aguilar & Nightingale, 1994; Sackett & Saunders, 1999), physical health (Jun, Rich-Edwards, Boynton-Jarrett, & Wright, 2008; Marshall, 1996), and ability to find employment (Kimerling et al., 2008). Psychological abuse has also been shown to significantly contribute to mental health issues such as depression (Sackett & Saunders, 1999) and acute stress (Dutton, Goodman, & Bennett, 1999).

As mentioned, many researchers have looked at the psychological symptoms and mental health concerns of female survivors of IPV. Previous reviews have proposed that

IPV is directly linked to mental health problems in women (Browne, 1993; Golding, 1999; Jones, Hughes, & Unterstaller, 2001; Robertiello, 2006; Weaver & Clum, 1995). Specifically, experts consider Posttraumatic Stress Disorder (PTSD) to be the most suitable diagnosis for many female survivors of IPV (Browne, 1993; Walker, 2009).

### Posttraumatic Stress Disorder

PTSD is a diagnostic category of the Diagnostic and Statistical Manual of Mental Health Disorders (American Psychiatric Association, 2000) which involves six criteria: (a) exposure to a traumatic event which involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others causing intense fear, helplessness, or horror; (b) persistently re-experiencing the event in one or more ways (e.g., recurrent and intrusive distressing recollections of the event); (c) persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness in three or more ways (e.g., efforts to avoid thoughts, feelings, or conversations associated with the trauma); (d) persistent symptoms of increased arousal in two or more ways (e.g., difficulty falling or staying asleep, irritability or outbursts of anger); (e) duration of the disturbance is more than one month; and (f) the disturbance causes clinically significant distress or impairment in important areas of functioning.

Severity, extent, and duration of physical violence have been associated with the prevalence or severity of PTSD (Astin, Lawrence, & Foy, 1993; Dutton et al., 2006; Golding, 1999; Jones et al., 2001; Roberts, 2002). In one of the first reviews to look at mental health issues of female survivors, Browne (1993) discussed prevalence, outcomes, and policy implications of physical violence and sexual abuse. She noted that one of the

main outcomes of IPV was PTSD in many female survivors; many experience fear and terror, flashbacks, denial and avoidance, loss of memory of traumatic events, constricted affect, emotional numbing, anxiety, hypervigilance, sleep difficulties, nightmares, and physiological reactivity. In a meta-analysis investigating the relationship between interpersonal violence (childhood sexual and physical violence, rape, criminal assault, and physical or sexual IPV) and psychological distress (e.g., adjustment, anxiety, depression, PTSD, suicidal ideation), an overall composite effect size of 0.24 was found (Weaver & Clum, 1995). Looking specifically at IPV, effect sizes of 0.21 (sexual abuse) and 0.16 (physical violence) were found. While the meta-analysis included studies with both male and female participants, 23 of the 32 studies in the analysis included only female participants (Weaver & Clum, 1995). Golding (1999) conducted a meta-analysis looking at the physical violence component of IPV as a risk factor for mental disorders in which PTSD was one of the disorders studied. Out of 11 studies analyzed, 31% to 84.4% of female survivors met criteria for PTSD with a weighted mean prevalence of 63.8% (95% CI: 60.5 - 67.1). The author compared this estimate to lifetime prevalence estimates in the general population of women (1.3% to 12.3%) and women who had a history of crime victimization (25.8%). Using systematic research synthesis (SRS), Jones et al. (2001) found that 31% to 84% of female survivors exhibited PTSD symptoms, results very similar to Golding's meta-analysis. They also found that women residing in shelters had an even higher risk for PTSD (40% to 84%). In the latest review, Robertiello (2006) concentrated on the most common disorders associated with domestic violence but with an emphasis on PTSD. In her literature review, she found that the highest rates



of PTSD were among women who had been victims of crime, especially battering and rape.

While a clear link between physical violence and PTSD has been established, research has shown that there may be a strong link between psychological abuse and PTSD as well (Arias & Pape, 1999; Dutton et al., 1999; Kemp, Green, Hovanitz, & Rawlings, 1995; Mechanic, Weaver, & Resick, 2008; Pico-Alfonso, 2005; Street & Arias, 2001), although the results have been mixed (Babcock, Roseman, Green, & Ross, 2008). Often, women in a domestic abuse relationship experience a sense of constant risk, fear, and lack of control even if there is no actual physical violence occurring at the time (Kaysen, Resick, & Wise, 2003; Pico-Alfonso, 2005; Sackett & Saunders, 1999). In a sample of women receiving services at outpatient counseling centers, Pico-Alfonso (2005) found that the main predictor of PTSD symptoms in the sample was IPV and that the psychological component was the key contributor. Dutton et al. (1999) found that emotional/verbal forms of psychological abuse significantly predicted levels of PTSD symptoms in a mostly African American sample of court-involved female survivors. Street & Arias (2001) found similar results in a sample of female survivors of physical violence and psychological abuse seeking services from battered women's shelters. They found that emotional/verbal forms of psychological abuse were related to PTSD symptomatology over and above that of physical violence and that shame emerged as an important predictor of this relationship. In another sample of shelter residents, Arias & Pape (1999) found that physical violence did not account for significant variance in either PTSD symptomatology or women's intentions to end the abusive relationship. However,

they did find that psychological abuse was a significant predictor for both PTSD symptomatology and intentions to leave the relationship. Conversely, Babcock et al. (2008) found that both physical violence and psychological abuse were positively related to PTSD symptomatology, but psychological abuse did not predict PTSD symptoms over and above physical violence. They hypothesized that this may be due to social support moderating the relationship between IPV and PTSD. They found that psychological abuse did predict PTSD symptoms in the condition of low social support.

### Recruitment Setting

While social support would be a valid construct to investigate as a potential moderator of the relationship between physical violence and PTSD symptomatology and/or psychological abuse and PTSD symptomatology, there have not been enough studies conducted to warrant a meta-analysis. However, whether a woman has sought formal help for IPV might affect these relationships. Most of the research in this area can be grouped into two categories of recruitment setting, public and non-public. Studies that can be defined as a public recruitment setting recruited for participants through public settings such as the internet, flyers, and newspaper advertisements. Studies that can be defined as a non-public recruitment setting recruited for participants through domestic violence agencies and shelters, courts where female survivors were seeking orders of protection, and medical settings where female survivors were being seen for domestic violence related injuries.

In a study comparing help-seeking behavior of female survivors of domestic violence, Lewis (2002) found that significantly more women in the help-seeking group

met the criteria for PTSD than those in the non-help-seeking group. Women in the non-help-seeking group were significantly more socially isolated and reported that they did not seek help because they were still in love with their partners and believed he would change. The help-seeking group was defined as those individuals who presented at a shelter or for mental health treatment as a result of domestic violence in the past 12 months. The non-help-seeking group was those individuals who had not sought help for domestic violence in the past 12 months. Ansara and Hindin (2010) reported that the importance of most of the formal sources of help (e.g., health professionals, police, lawyers, shelters) increased as the severity of the abuse and control increased. Shelters and crisis centers were utilized by a notable proportion of female participants who experienced the most severe abuse. This suggests that by the time a woman makes the decision to enter a shelter or seek formal help for IPV, she has experienced ever increasing violence and control. Unfortunately, neither of these studies separated psychological abuse from physical violence. Thus, investigating whether formal help-seeking behavior in the form of recruitment setting moderates the relationship between physical violence and PTSD symptomatology and psychological abuse and PTSD symptomatology would be informative.

#### Meta-analytic Hypothesis

While the literature review presented above supports the conclusion that both physical violence and psychological abuse are risk factors for PTSD symptomatology in female survivors of domestic violence, the variability in results across studies raises several important questions. First, researchers have begun to investigate physical violence

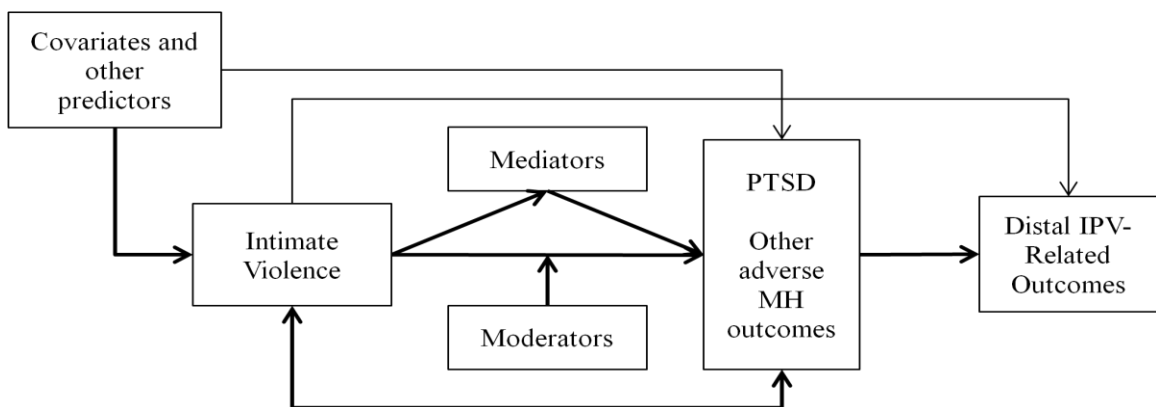
and psychological abuse as two separate constructs. Many researchers have found that psychological abuse is a risk factor for PTSD symptomatology above and beyond that of physical violence. Reports from female survivors also support this conclusion. However, other studies have found no such evidence. This meta-analysis evaluates whether psychological abuse is a risk factor for PTSD symptomatology separate from physical violence. Second, several reviews and one meta-analysis have concluded that physical violence is a risk factor for PTSD symptomatology. However, the meta-analysis conducted by Golding (1999), as well as the reviews, included studies that used a general score for IPV. It is unclear whether psychological abuse was included in the analysis as part of the total score for IPV. As one example, Astin et al. (1993) used a modified version of Form N of the Conflict Tactics Scale (CTS; Straus, 1979) to investigate IPV. The researchers used the modified form to look at verbal aggression and violence. Most researchers today would argue that verbal aggression would fall under psychological abuse and not physical violence. Therefore, this meta-analysis evaluated whether physical violence is still a risk factor for PTSD symptomatology in studies that separate psychological abuse from physical violence. Finally, this meta-analysis evaluated whether recruitment setting moderates the relationship between physical violence and PTSD symptomatology and psychological abuse and PTSD symptomatology by separating out the studies that selected participants based on advertisements and phone surveys (i.e. public) from those that were selected from formal DV help providers such as shelters, domestic violence agencies, medical settings, and court.

## CHAPTER TWO

### REVIEW OF THE LITERATURE

The following chapter provides a review of the literature pertaining to the IPV-PTSD relationship. It will be noted if studies specifically investigated physical violence and psychological abuse individually. If they did not, it will be assumed that they examined physical violence and psychological abuse together as a general IPV construct. Dutton (2009) developed a framework to help conceptualize the IPV-PTSD relationship as a whole (Figure 1). The bold lines indicate the portion of the framework discussed in this chapter, which include (a) covariates and other predictors that have a direct relationship with the IPV-PTSD link, (b) potential mediating and moderating variables of the IPV-PTSD relationship, (c) the direct link between IPV and PTSD, and (d) distal outcomes of these relationships.

Figure 1: *IPV-PTSD framework including covariates, moderators and mediators, direct link between IPV-PTSD, and distal outcomes. Bold lines indicate portion of framework discussed in this chapter.*



### Covariates and Other Predictors

Covariates and other predictors may influence the IPV-PTSD relationship. While there are many potential covariates, the main covariates found in the literature are prior trauma history, specifically childhood victimization, and ethnicity.

#### *Prior Trauma History*

Several studies have found that prior trauma history, such as child physical, sexual, and psychological abuse may contribute to and modify the relationship between IPV and PTSD symptomatology.

In an early study, Cascardi, O’Leary, Lawrence, and Schlee (1995) compared maritally discordant, physically abused women to maritally discordant, non-physically abused women and maritally satisfied non-abused women. Women in both maritally discordant groups reported higher rates of psychological abuse in childhood than women in the maritally satisfied group. Also, while the physically abused women reported significantly more coercion and psychological aggression than the other two groups, the women in the non-physically abused maritally discordant group reported significantly more psychological aggression by their spouses than women in the maritally satisfied group. These results suggest that childhood emotional abuse may be a risk factor for women in physically abusive and psychologically abusive relationships.

In an another study comparing female survivors to maritally distressed women, Astin, Ogland-Hand, Coleman, and Foy (1995) compared PTSD prevalence rates among female survivors of IPV and maritally distressed women and found that the female survivors reported significantly higher rates of PTSD symptomatology than the maritally

distressed control group (58% vs. 18.9%). While both groups had similar rates of previous trauma experiences, women with PTSD reported significantly more childhood sexual abuse and more overall previous trauma than those women who did not endorse PTSD symptomatology. For those with PTSD, exposure to IPV and childhood sexual abuse predicted 37% of the variance in overall PTSD intensity levels.

Messman-Moore, Long, and Siegfried (2000) examined mental health issues in female college students who had experienced childhood and adult victimization. They found that women who had experienced childhood sexual abuse and had been physically or sexually assaulted as adults by a date, boyfriend, or spouse reported more PTSD symptomatology than women who had only been victimized as adults. They also reported more somatic complaints, depression, anxiety, interpersonal sensitivity, and hostility.

In a study investigating lifetime violent experiences on the development of PTSD symptomatology in women, Pico-Alfonso (2005) found that survivors who had experienced physical, psychological, and sexual IPV had higher levels of PTSD symptomatology than women who had not, whereas childhood victimization variables did not explain PTSD score variance. Childhood physical, psychological and sexual abuse victimization were, however, significantly higher in women who had experienced IPV than women who had not. This suggests that women with histories of childhood victimization are more likely to experience IPV, and thus potentially experience higher levels of PTSD symptomatology. The results from this study suggest that while there

may not be a direct link from childhood victimization to PTSD symptomatology in adulthood, there may be a pathway through adult IPV.

Koopman et al. (2005) found similar results in female survivors of abuse who were no longer with the abuser. They found that childhood victimization and severity of IPV contributed significantly to the prediction of PTSD symptomatology. They suggested that these results support the theory that earlier life experiences such as child abuse may “sensitize” individuals to experience traumatic stresses such as IPV later in life.

In a large population-based telephone survey of 637 women, Seedat, Stein, and Forde (2005) investigated the prevalence of IPV and its association with childhood maltreatment and PTSD. Twenty-five percent of the women who had experienced IPV endorsed at least one incident of childhood sexual molestation compared with 5% of women who had never experienced IPV. Of the women who were still experiencing IPV, almost 18% had experienced PTSD symptomatology. Specifically, the most frequently reported symptoms were recurring thoughts of the abuse, being on guard, and feeling easily startled.

In a sample from two New York City shelters, Lewis et al. (2006) also investigated the childhood victimization, IPV, and PTSD pathway. However, they looked at how childhood victimization and IPV were related to particular symptoms of PTSD, specifically hyperarousal, intrusion, and avoidant symptoms. After controlling for IPV, they found that childhood emotional abuse mediated the effects of childhood exposure to family violence on hyperarousal and intrusion PTSD symptoms. Avoidant



PTSD symptoms were most strongly predicted by IPV with psychological abuse adding significant variance explained above and beyond physical violence.

Griffing et al. (2006) also investigated the childhood victimization, IPV, and PTSD symptomatology pathway in a multiethnic sample of shelter residents. They found that 55% of the women reported prior exposure to other forms of trauma besides IPV, particularly childhood sexual abuse, childhood physical abuse, and witnessing maternal DV. They found that the severity of current IPV predicted avoidance and hyperarousal PTSD symptoms. However, the strength of the relationship was less than what prior research would suggest. The authors attributed this to the high rates of prior trauma reported by the participants suggesting that they were exposed to multiple, severe, and/or prolonged trauma, and thus the IPV scores explained a relatively small portion of PTSD symptomatology.

In a large, population-based sample of 11,056 women from the California Women's Health Survey, Kimerling, Alvarez, Pavao, Kaminski, and Baumrind (2007) reported that women who had experienced childhood physical or sexual abuse were 5.8 times more likely to experience physical or sexual abuse as adults and these women were much more likely to report anxiety, depression, and PTSD symptomatology than women who were only victimized as children or only victimized as adults. Women who had been re-victimized were 12 times more likely to experience PTSD symptomatology than non-victimized women.

Finally, in a recent study, Becker, Stuewig, and McCloskey (2010) investigated how several types of adult IPV (psychological abuse, physical violence, escalated physical

violence, and sexual abuse) and three forms of childhood victimization (physical violence, sexual abuse, and witnessing DV) influenced PTSD symptomatology. They found that in bivariate tests all forms of adult IPV and all forms of childhood victimization showed independent associations with PTSD symptomatology. The test to see whether IPV moderated the relationship between childhood victimization and PTSD only accounted for 1% of the variance. However, the authors did find that IPV mediated the impact of childhood physical abuse. Female survivors with histories of childhood physical violence were more likely to experience IPV, resulting in increased PTSD scores. Thus, prior trauma history, specifically childhood victimization such as physical, sexual and/or psychological abuse may influence the IPV-PTSD relationship.

### *Ethnicity*

Besides prior trauma history, researchers have looked at ethnicity as a covariate and predictor of the IPV-PTSD link. In a sample of 120 European American and African American female survivors, Lilly and Graham-Bermann (2009) found that ethnicity was a significant predictor of PTSD symptomatology. African American participants endorsed lower levels of PTSD symptomatology than European American participants, despite the presence of risk factors such as lower income. They also found that past victimization increased risk for PTSD symptomatology in European American women while amount of psychological violence in the past year increased risk for African American women.

Other researchers have not found differences based on ethnicity and/or race. Griffing et al. (2006) found that ethnicity was not related to levels of violence exposure or PTSD symptomatology in a multiethnic sample of female residents of a DV shelter.

Vogel and Marshall (2001) found no ethnic differences for rates or severity of PTSD symptoms in a sample of African Americans, Euro-Americans, and Mexican American female survivors. Thus, ethnicity may also influence the IPV-PTSD relationship.

#### Potential Mediating and Moderating Variables

While there are many potential moderating and mediating variables that may change or explain the IPV-PTSD relationship, the main mediators and moderators found in the literature include coping (e.g., problem-focused coping, emotion-focused coping, avoidant-coping) and social support.

#### *Coping*

Potential mediators and moderators of the IPV and PTSD relationship have been examined including various forms of coping. Coping has been defined as constantly changing thoughts and behaviors used to manage internal and/or external stressful demands that are perceived to exceed one's existing resources (Lazarus & Folkman, 1984). Research in the area of domestic violence has looked at several possible forms of coping, including problem-focused coping, emotion-focused coping, and avoidant coping. Arias and Pape (1999) found that greater use of emotion-focused coping was related to higher levels of PTSD symptomatology in women residing in DV shelters while problem-focused coping was not. Emotion-focused coping involves efforts to manage the negative emotions that accompany a stressor and problem-focused coping involves taking active steps toward changing the source of stress (Taft, Resick, Panuzio, Vogt, & Mechanic, 2007). Lilly and Graham-Bermann (2010) also found that emotion-focused coping moderated the relationship between IPV and PTSD. In their study,

women low on emotion-focused coping had fewer PTSD symptoms than women who frequently used emotion-focused coping. However, women in the low emotion-focused coping group reported more PTSD symptoms in the presence of frequent violence exposure. For the women who frequently engaged in emotion-focused coping, violence exposure was less strongly associated with PTSD symptomatology. This suggests that emotion-focused coping may alleviate PTSD symptoms for women in frequently violent situations.

In a cross-sectional and longitudinal sample of low-income, predominantly African American women, Krause, Kaltman, Goodman, & Dutton (2008) found that avoidant coping predicted greater PTSD symptomatology at 1-year follow-up even after controlling for other factors such as baseline level of PTSD symptoms, perceived support, formal support, and childhood sexual abuse. Avoidant coping involves moving away from a stressor in thoughts, emotions, and behaviors (e.g., denial, behavioral avoidance, and wishful thinking). Wright, Perez, and Johnson (2010) found that personal empowerment, a form of coping, served as a protective factor for African American female survivors but not for their Caucasian female counterparts. Thus, research has found that several forms of coping may explain or change, at least in part, the relationship between IPV and PTSD.

### *Social Support*

Social support, a construct related to coping, has also been investigated as a moderator of the IPV-PTSD link. In a study examining both coping and social support in a sample of Asian- and Caucasian-American women, Lee, Pomeroy, and Bohman

(2007) found that level of violence experienced did not directly affect mental health (PTSD and depression). However, it did indirectly affect mental health through passive coping and perceived social support. The level of violence had a direct effect on both constructs and both constructs were found to be significant predictors of the mental health variables. The authors also examined problem-focused coping but did not find a significant relationship. In an early study looking at social support as well as other constructs, Astin, Lawrence, and Foy (1993) found that the higher the perceived available social support and social support satisfaction the lower the PTSD intensity scores in a sample of female survivors residing in shelters or seeking services at a DV agency. The IPV measure included items for both psychological abuse and physical violence. In another study investigating perceived social support, female survivors with PTSD reported significantly less perceived social support than survivors without PTSD (Perrin, Van Hasselt, Basilio, & Hersen, 1996). Coker et al. (2002) found that higher levels of reported social support were related to a significantly reduced risk for PTSD symptomatology in a large sample of 1152 women. In a sample of mostly African American women who had experienced both physical violence and psychological abuse, Kocot and Goodman (2003) found that levels of problem-focused coping were positively associated with PTSD symptomatology when social support was low but not when social support was high. That same year, Coker, Watkins, Smith, and Brandt (2003) found that emotional support, a form of social support, modified the relationship between physical violence and mental health. Higher scores on emotional support were associated with better mental health in women currently experiencing physical violence. The mental

health construct included measures of alcohol/substance abuse, anxiety, and PTSD.

Looking specifically at PTSD symptomatology, emotional support was significantly and negatively correlated with PTSD ( $r = -.183$ ).

In a sample of African American women seeking medical care at a large, urban hospital, Thompson et al. (2000) found that social support mediated the relationship between IPV and psychological distress. The authors used two measures to investigate the psychological distress construct: the Brief Symptoms Inventory to measure general distress and the National Women's Study PTSD Module to measure traumatic stress. Both psychological abuse and physical violence were investigated for the IPV construct. In a recent study of mostly African American participants, Babcock, Roseman, Green, and Ross (2008) found that social support moderated the relationship between psychological abuse and PTSD symptomatology. Psychological abuse predicted PTSD symptoms in the condition of low but not high levels of social support. The authors included four types of social support in their investigation: tangible, appraisal, self-esteem, and belonging. Thus, social support may also change or explain the relationship between IPV and PTSD.

#### The Direct Link between IPV and PTSD

As noted in chapter one, research has revealed a direct link between IPV and PTSD for both physical violence and psychological abuse. Some studies have investigated the four types of IPV (physical violence, sexual coercion, psychological abuse, and stalking). Dutton, Stacey Kaltman, Goodman, Weinfurt, & Vankos (2005) identified three patterns of abuse: pattern 1 (moderate levels of physical violence,

psychological abuse, and stalking but little sexual violence); pattern 2 (high levels of physical violence, psychological abuse, and stalking but low levels of sexual violence); and pattern 3 (high levels of all violence types). They found that pattern 3 was associated with the highest prevalence of PTSD symptoms. Basile, Arias, Desai, & Thompson (2004) studied results from 380 participants of the National Violence against Women Survey (NVAWS) to also investigate how these four types of IPV relate to PTSD symptomatology. They found that physical violence, psychological abuse, and stalking were associated with PTSD symptomatology even when the other forms of violence were controlled for. They also found evidence for a dose response in which an increase in types of violence experienced correlated with an increase in PTSD symptomatology highlighting the importance of examining co-occurring types of violence with regards to PTSD symptomatology.

Mechanic, Weaver, and Resick (2008) investigated the independent contributions of the four types of IPV on PTSD symptomatology in a sample of female survivors drawn from community DV programs. They found that psychological abuse and stalking accounted for 16.8% of the variance in PTSD symptomatology and contributed to the prediction of PTSD even after controlling for physical violence, injuries, and sexual coercion. Also, one component of psychological abuse, emotional/verbal abuse, and one component of stalking, harassing behaviors, emerged as significant individual predictors of PTSD symptomatology.

Examining sexual abuse and physical violence, Lipsky, Field, Caetano, and Larkin (2005) found that in a sample of women admitted to an emergency department in

an urban hospital, sexual abuse and severity of physical violence independently predicted PTSD symptomatology. Another study pulling from an emergency department in an urban hospital found that psychological, physical, and sexual abuse were independently related to PTSD symptoms in a sample of low-income African-American female survivors (Houry, Kemball, Rhodes, & Kaslow, 2006).

In a sample of Latina female survivors, Fedovsky, Higgins, and Paranjape (2007) found that severity of physical violence was associated with PTSD symptoms. Women who had experienced physical violence were three times more likely to have PTSD than women who had not experienced physical violence. In a sample of American Indian women, Duran et al. (2009) found that severity of physical violence was associated with PTSD symptoms. Women who had experienced severe physical violence were five times more likely to have PTSD than women who had not experienced IPV.

Koopman et al. (2005) investigated how severity, duration, and recency of psychological and physical abuse were related to PTSD symptomatology in female survivors pulled from the general public. They found that both severity and duration of psychological and physical abuse were significantly related to PTSD symptomatology, while recency of abuse was not. Survivors endorsed more PTSD symptomatology after severe and prolonged abuse, regardless of how far in the past the abuse had occurred. In another study examining both physical violence and psychological abuse separately, Watlington and Murphy (2006) found that higher levels of psychological abuse and physical violence were significantly related to PTSD symptomatology (psychological



abuse:  $r=.25$ ,  $p<.05$ ; physical violence:  $r=.38$ ,  $p<.01$ ) in a sample of African American female survivors.

In the same year, Stuart, Moore, Coop, Ramsey, and Kahler (2006) investigated IPV victimization in a sample of women arrested for IPV perpetration. The women's mean victimization scores were higher than their mean perpetration scores suggesting that many female perpetrators of IPV are also victims. Forty-four percent of the women met or exceeded the PTSD cut off scores and both psychological abuse and physical violence were significantly correlated with PTSD symptomatology ( $r=.32$  and  $.21$ , respectively).

In one of the first studies to investigate psychological abuse separately from physical violence as it relates to PTSD, Kemp, Green, Hovanitz, and Rawlings (1995) studied a community and shelter sample of 179 battered women and 48 female survivors of only psychological abuse. The authors defined battered women as women who had experienced physical violence that ranged from being pushed to attempted murder. Eighty-one percent of the battered women met criteria for a PTSD diagnosis while 62.5% of the psychologically abused women met the criteria. A shelter subsample of battered women had an even higher rate (87.8%).

In a community sample of women endorsing current IPV, Sullivan, Cavanaugh, Buckner, & Edmondson (2009) found that the frequency of sexual, physical, and psychological abuse was significantly related to greater posttraumatic stress with the relationship between psychological abuse and posttraumatic stress being the strongest. Pico-Alfonso (2005) found similar results. In bivariate tests of physical, psychological,

and sexual victimization to PTSD, only psychological abuse showed a positive and significant relationship with PTSD ( $r=0.37$ ,  $p<0.01$ ).

In another early study of psychological abuse, physical violence, and PTSD, Arias and Pape (1999) found that psychological abuse significantly predicted PTSD symptomatology, accounting for 11% to 24% of the total variance in a sample of shelter residents. The effects remained significant even after controlling for physical violence. Physical violence did not account for significant variance in PTSD symptomatology.

In a study of 65 female survivors of domestic violence investigating how smoking patterns related to PTSD in female survivors of IPV, Weaver and Etzel (2003) found significant correlations between the dominance/isolation component of psychological abuse and PTSD. Cattaneo (2007) investigated perceived risk in a population of court-involved women. She found that women who perceived higher levels of risk also reported more PTSD symptoms and greater psychological abuse.

In a study of women seeking services from 23 domestic violence shelters, Street and Arias (2001) investigated the relationship between psychological abuse and PTSD symptomatology once physical abuse was controlled for. They found that over 65% of the participants could be categorized as being at high risk for a diagnosis of PTSD and that levels of both physical and psychological abuse were related to severity of PTSD symptomatology. However, psychological abuse was found to be a significant independent predictor of PTSD symptomatology while physical abuse was not. The authors also looked at two components of psychological abuse, domination/isolation and emotional/verbal. They found that both were significantly correlated with PTSD

symptomatology, but when physical abuse was controlled for, only emotional/verbal abuse remained significant.

In a study of court-involved women, univariate analysis showed at follow-up that all abuse variables (physical violence, injury, sexual coercion, emotional/verbal psychological abuse, and dominance/isolation psychological abuse) predicted level of PTSD symptomatology (Dutton, Goodman, & Bennett, 1999). Multivariate analysis showed that emotional/verbal abuse and level of injury remained predictors explaining 23% of the variance in level of PTSD symptoms.

Taft, Murphy, King, Dedeyn, and Musser (2005) followed current or former female partners of men participating in a batterers program over the course of treatment and 6-month follow-up. They found that over half the women had probable PTSD at pre-treatment. Psychological abuse was more strongly linked to PTSD symptomatology than physical abuse. Specifically, they found that denigration (e.g., calling someone names such as loser, failure), restrictive engulfment (e.g., trying to stop someone from seeing certain friends and/or family members), and dominance/isolation (e.g., throwing, smashing, hitting, or kicking something in front of person) had the strongest associations with PTSD symptomatology. Reductions in these three components, as well as reductions in overall psychological abuse, resulted in reductions in PTSD symptomatology from pre- to post-treatment and from post-treatment to 6-month follow-up.

In a sample of couples recruited through advertisements and fliers, Babcock, Roseman, Green, and Ross (2008) found that when physical abuse was taken into

account, psychological abuse did not display a significant direct effect in predicting PTSD symptomatology. The authors discussed differences between their study and previous ones which included methodology and sampling strategy. Their study was the first to employ structural equation modeling to investigate the variance of psychological abuse and physical violence. They recruited from a community sample of couples experiencing both physical violence and psychological abuse compared to studies which used samples from shelters, partners of men in batterer's treatment programs, and nationally representative samples.

In a small study with Latina participants, Kelly (2010) found that PTSD was not significantly related to either physical or psychological abuse. She did, however, find that psychological abuse was significantly related to Major Depressive Disorder.

Some studies have investigated how IPV relates to specific symptom clusters of PTSD. Krause, Kaltman, Goodman, and Dutton (2006) evaluated four clusters of PTSD (i.e. reexperiencing, avoidance, numbing, and hyperarousal) on the likelihood that female survivors would be re-abused over the course of one year. They found that numbing and hyperarousal were high at baseline, but only numbing remained a significant predictor of reabuse status. The authors suggest that numbing symptoms may increase risk by interfering with risk recognition or reaction to threats.

While there has been a great deal of research looking at the direct relationship between IPV and PTSD, including the different types of abuse and some specific symptoms of PTSD, research has only begun to get an understanding of this research and there is much more to be learned.

### Distal Outcomes

While the main focus of the previous section was on the IPV-PTSD direct relationship and how IPV is a risk factor for PTSD in female survivors, there are also distal outcomes of this relationship. Specifically, research has focused on physical health-related issues. According to Dutton (2009) individuals with PTSD report more physical health-related symptoms and have increased morbidity rates. PTSD can affect the course and impact of illness. The following section will focus on physical health-related issues of female survivors with PTSD symptomatology.

#### *Physical Health-Related Issues*

In a study investigating mental health issues in female college students who had been victimized as children and adults, Messman-Moore, Long, and Siegfried (2000) found that women who had experienced childhood sexual abuse and had been physically or sexually assaulted as adults by a date, boyfriend, or spouse reported more PTSD symptomatology. They also reported more somatic complaints, depression, anxiety, interpersonal sensitivity, and hostility than women who had only been victimized as adults.

Taft, Vogt, Mechanic, and Resick (2007) found that PTSD symptomatology fully mediated the relationships between both physical violence and psychological abuse with physical health symptoms in a sample of female survivors seeking help from domestic violence shelters and nonresidential community agencies. The physical health measure they used included items which assessed the frequency of the occurrence of a large number of common physical health symptoms. Woods and Wineman (2004) also

examined the relationships between IPV, PTSD, and physical health symptoms. With regards to PTSD, they looked at specific symptom clusters and found that hyperarousal and avoidance symptom clusters, but not reexperiencing, were positively associated with physical health symptoms.

Two studies investigated the IPV-PTSD link on health-related quality of life. Health-related quality of life consists of several categories including physical functioning, role limitations due to physical health, bodily pain, general health, vitality, social functioning, role limitations due to emotional problems, and mental health. Laffaye, Kennedy, and Stein (2003) compared three groups, IPV survivors with PTSD, IPV survivors without PTSD, and a control group, on health-related quality of life. They found that the IPV survivors without PTSD were significantly more impaired than the control group and the IPV survivors with PTSD were significantly more impaired than the IPV survivors without PTSD on physical functioning, vitality, social functioning, role limitations due to emotional problems, and mental health. Rose, House, and Stepleman (2010) found similar results in a sample of African American female survivors with HIV; PTSD symptomatology was related to both IPV and health-related quality of life.

In a predominantly low-income, African American sample of female veterans, Campbell, Greeson, Bybee, and Raja (2008) examined the co-occurrence of childhood sexual abuse, adult sexual assault, intimate partner violence, and sexual harassment to identify four clusters of women's lifetime experiences of violence co-occurrence. The authors found that the impact of the high-violence clusters on overall health was fully mediated by their levels of PTSD symptomatology. They also found that PTSD

symptomatology levels more strongly predicted pain-related health problems (e.g., back pain, stomach pain, pelvic pain) compared to non-pain-related health symptoms (e.g., fatigue, nausea, shortness of breath). Woods et al. (2005a) found that PTSD mediated the effects of IPV on pro-inflammatory cytokine levels, an indicator of immune function, in a mostly African-American sample of female survivors seeking services at a primary care clinic. In the same year, Woods et al. (2005b) found that PTSD mediated the effects of IPV on other indicators of immune function, specifically leukocyte and lymphocyte counts. Garcia-Linares, Sanchez-Lorente, Coe, and Martinez (2004) did not find that PTSD mediated the effects of IPV on indicators of immune function. However, they did find that IPV had a direct relationship to immune status markers. Physically abused women had the lowest virus neutralization, with the psychologically abused women lower than the non-abused control group.

Using data from the Chicago Women's Health Risk Study, Morland, Leskin, Rebecca Block, Campbell, and Friedman (2008) pulled a sample of women who had been pregnant in the past year to investigate the impact of physical violence, psychological abuse, and PTSD on miscarriage. They found that miscarriage was related to physical violence. Almost 8% of the 26 women who had experienced no violence or threat of violence in the past year had a miscarriage, 13.3% of the 30 women who had experienced violence but no severe or life-threatening incident had a miscarriage, and 38.7% of the 62 women who had experienced at least one severe or life-threatening incident had a miscarriage. Psychological abuse was also significantly related to miscarriage. Total mean scores of the psychological abuse measure were significantly higher in the

miscarriage group than in the live birth group (6.77 versus 3.97,  $p=.002$ ). With regards to PTSD symptomatology, PTSD diagnosis was significantly higher in the miscarriage group than in the live birth group (67% versus 45%,  $p = .045$ ).

In a sample of female survivors of IPV recruited from crisis shelters and DV community agencies, 92.4% met the criteria for a PTSD diagnosis (Woods, Kozachik, & Hall, 2010). The authors found that PTSD functioned as a mediator of IPV effects on global sleep quality and disruptive nighttime behaviors.

Finally, survivors of IPV may be at increased risk for engaging in damaging health behaviors. Weaver and Etzel (2003) found that 58% of their sample of women seeking services for IPV were current smokers. Of this group, women who showed more symptoms of nicotine-related physical dependence were more likely to experience more IPV-related psychological abuse in the form of dominance/isolation and experienced more severe PTSD symptoms, specifically arousal and reexperiencing. Cavanaugh, Hansen, and Sullivan (2009) found that for low income women who had experienced physical violence during the past six months, PTSD was significantly associated with sexual risk behavior. The women had four times greater odds of recent sexual risk behavior compared to women without IPV-related PTSD. Sexual risk behavior was defined as having unprotected sex with a risky primary or non-primary partner (i.e. HIV-positive or unknown status) or traded sex during the past six months.

To summarize, this chapter has been a review of the literature pertaining to the IPV-PTSD relationship, its covariates and other predictors, potential moderators and mediators, and distal outcomes of the relationship. Thus far, researchers have looked at



prior trauma history and ethnicity as possible covariates and other predictors; social support and various forms of coping as mediators and moderators; and physical health as potential distal outcomes of this relationship. This meta-analysis will take this research a step further to help clarify the IPV-PTSD direct relationship by investigating two subcategories of IPV, physical violence and psychological abuse, and how they each relate to PTSD. This will be the first meta-analytic study to investigate these two subcategories of IPV and how they both may be risk factors for PTSD in female survivors of domestic violence. It will also be the first meta-analytic investigation on recruitment setting as a potential moderator of these two relationships.

## CHAPTER THREE

### METHODOLOGY

#### Study Retrieval

Studies for the meta-analysis were identified using a variety of methods. First, a computer search was performed using the following databases: PsycInfo (Psychological Information Database), Medline, PILOTS (Published International Literature On Traumatic Stress), Social Services Abstracts, Social Services INFONET, Social Work Abstracts, NCJRS (the National Criminal Justice Reference Service), and the NIMH database (National Institute of Mental Health). In order to identify relevant studies in each of these databases, multiple search terms were used. The following keywords were combined with the terms “PTSD” and “Posttraumatic Stress Disorder” and entered into each of the databases: “intimate partner violence,” “partner abuse,” “interpersonal violence,” “marital violence,” “spousal abuse,” “domestic violence,” “domestic abuse,” “physical abuse,” “physical violence,” “psychological abuse,” “emotional abuse,” “battered females,” and “battered women.”

Second, a manual search from the past twenty years (1990 – 2010) was performed on volumes of the most relevant journals. As noted, Golding (1999) conducted a comprehensive meta-analysis investigating the link between general IPV and PTSD. The earliest study published in her analysis was 1990. I did not expect to find relevant studies before this date considering that many studies did not separate physical violence and

psychological abuse until recently. Journals in the manual search included Violence and Victims; Journal of Family Violence; Journal of Aggression; Maltreatment and Trauma; Journal of Interpersonal Violence; and Trauma, Violence, and Abuse.

Third, the reference section of each potentially relevant study was examined for other relevant studies. Fourth, steps were taken to avoid what researchers refer to as the “file-drawer problem” by including unpublished dissertations and theses. A search through the UMI Proquest Digital Dissertations database was conducted using the keywords and combinations above. Finally, all identified sources were entered into the *Social Sciences Citation Index* to search for studies that may have cited the identified articles.

#### Study Criteria for Inclusion

The eligibility of each study was based on whether it met the following criteria for inclusion:

- 1) Eligible studies had to (a) involve female participants who reported experiences of domestic violence and (b) measure PTSD. Thus, studies had to report empirical data on psychological abuse and/or physical violence, as well as PTSD symptomatology. Studies that only reported a total or general IPV score without specifying type of IPV were not included in the analysis nor were studies that measured symptoms other than PTSD.
- 2) Eligible studies had to report empirical data, therefore case studies, single-subject designs, and qualitative studies were excluded.

- 3) Eligible studies had to include original data. If multiple sources have been published using the same data set, only the most relevant, comprehensive, and usable source was utilized.
- 4) Eligible studies had to report effect sizes or provide sufficient data to permit calculation of effect size estimates using formulas presented by Lipsey and Wilson (2001).
- 5) Eligible studies had to be published in English.

### Variables

Measures of physical violence and psychological abuse served as the independent variables in this study. Measures of PTSD served as the dependent variable. A dichotomous variable, recruitment setting, was created to operationalize the moderator variable in this study. Each study sample was grouped as either public or non-public based on the recruitment setting of the study. Studies that were defined as a public recruitment setting recruited for participants through public settings such as the internet, flyers, and newspaper advertisements. Studies that were defined as a non-public recruitment setting recruited for participants through domestic violence agencies and shelters, courts where female survivors were seeking orders of protection, and medical settings where female survivors were being seen for domestic violence related injuries.

### Study Coding Procedures

A detailed coding form (see Appendix A) was developed to code data from each study. As suggested by Lipsey and Wilson (2001), the coding form included source descriptors (e.g., publication year and journal, whether the study was published); sample

characteristics (e.g., number of participants, age, ethnicity, recruitment setting); study methods and procedures (e.g., measures used, reliability estimates); and effect sizes of the statistics needed to calculate effect size estimates.

### Computation and Analysis of Effect Sizes

Two separate meta-analyses were conducted—one on the relation of psychological abuse and PTSD and the other on the relation of physical violence and PTSD. These meta-analyses used a random effects model. In this model it is assumed that the true effect could vary from study to study and would be normally distributed around some mean (Borenstein, Hedges, Higgins, & Rothstein, 2009). Thus, this model assumes that all effect sizes observed in an analysis differ from the population mean ( $\mu$ ) by two factors: within-study variance and between-studies variance (Lipsey & Wilson, 2001). The total variance associated with the distribution of effect size values is the sum of these two variance estimates and is described by  $v_i^* = v_\theta + v_i$  where  $v_\theta$  is the estimate of the between-studies variance component and  $v_i$  is the estimate of the within-study variance. Thus, both meta-analyses calculated both within-study variance and between-studies variance.

The overall effect size estimate in the meta-analyses was the unbiased  $r$ —an overall correlation coefficient that has been corrected for the biasing effects of sampling and measurement error associated with each study-level correlation. That is, the sample correlations in each study were corrected for measurement error on both the independent and dependent variables, converted to Fisher  $z$ 's, weighted by the inverse of both within-study and between-studies variance for each individual  $z$  (to correct for sampling error),

summed, and then divided by the sum of the inverse variance weights. This overall corrected and weighted  $z$  was then converted back to its corresponding  $r$  value. Each of these steps is described below.

For those reports that gave the product-moment correlation coefficient, the reported correlation coefficients were coded. For those reports that did not give the product-moment correlation coefficients, estimated effect sizes were calculated using derived formulas on data that were available (Lipsey & Wilson, 2001).

Since most of the studies investigated in this meta-analysis used measurement instruments that are subject to measurement error (imperfect reliability) and produce effect size estimates that are attenuated by this measurement error, effect sizes were adjusted to correct for measurement error due to attenuation (Borenstein et al., 2009). In cases in which the reliability information was reported for the measure, the reported reliability information was used to correct the effect size. In the cases where no reliability data were provided for the measure, the reliability data provided by the developer of the instrument was sought and used to correct the effect size. The unattenuated effect size was computed as follows,

$$ES' = \frac{ES}{\sqrt{r_{xx}}\sqrt{r_{yy}}}$$

where  $ES$  is the observed effect size,  $r_{xx}$  is the reliability coefficient reported for the independent variable and  $r_{yy}$  is the reliability coefficient reported for the dependent variable.

The  $r$  statistic provides a negatively biased estimate of the population correlation. In order to correct for this bias, the unattenuated correlation coefficients were transformed using Fisher's Z-transformation, defined as

$$ES_i = .5 \log_e \left[ \frac{1 + r}{1 - r} \right]$$

where  $r$  is the unattenuated correlation coefficient calculated from each study and  $\log_e$  is the natural logarithm.

Since the number of participants varied within each study used in a meta-analysis, the observed effect size values are based on different sample sizes. Effect size values calculated from larger samples are more precise estimates of the population value than those calculated from smaller samples. Thus, larger studies should carry more weight in the analysis than smaller studies. Hedges (1982) showed that the optimal weights are based on the standard error of the effect size. The standard error (SE) is a direct index of effect size precision; the smaller the SE, the more precise the effect size. Since a larger standard error corresponds with a less precise effect size, the weights were calculated using the inverse variance weight which is the inverse of the squared standard error.

These are calculated using the following formulas,

$$v_i = \frac{1}{n - 3}$$

$$SE_i = \sqrt{v_i}$$

$$w_i = \frac{1}{SE_i^2} = n - 3$$

where  $v_i$  is the within-study variance,  $SE_i$  is the standard error, and  $w_i$  is the inverse variance weight. The inverse variance weight must also be adjusted for attenuation due to measurement error since the effect size correction increases the sampling error variance and thereby decreases the inverse variance weight. This adjustment is similar to the adjustment made to the effect size above, replacing the effect size variable for the standard error variable in the formula.

Next, the between-studies variance ( $v_\theta$ ) was estimated using a noniterative method based on the *method of moments* estimate (DerSimonian & Laird, 1986) using the formulas,

$$Q = \sum_{i=1}^k w_i ES_i^2 - \frac{(\sum_{i=1}^k w_i ES_i)^2}{\sum_{i=1}^k w_i}$$

$$C = \sum w_i - \frac{\sum w_i^2}{\sum w_i}$$

$$v_\theta = \frac{Q - df}{C}$$

where  $Q$  is the observed weighted sum of squares and  $v_\theta$  is the between-studies variance. DerSimonian and Laird (1986) proposed that this estimation method is attractive due to its simplicity and the comparability of its estimates with maximum likelihood methods.  $Q-df$  represents the excess (observed minus expected) sum of squared deviations from the weighted mean. Dividing  $Q-df$  by a scaling factor ( $C$ ) puts the between studies variance ( $v_\theta$ ) back into the same metric as the effect size and makes it an average, rather than a sum, of squared deviations.

Under the random-effects model the weight assigned to each study is



$$w_i^* = \frac{1}{v_i + v_\theta}$$

where  $w_i^*$  is the new inverse variance weight,  $v_i$  is the within-study variance, and  $v_\theta$  is the between-studies variance.

The next step was to calculate the summary effect by computing the weighted mean effect size, its variance, the standard error of the summary effect, and confidence intervals. First, the weighted mean effect size was computed by dividing the sum of the products (effect size multiplied by the new inverse variance weight) by the sum of the weights,

$$\overline{ES}^* = \frac{\sum_{i=1}^k w_i^* ES_i}{\sum_{i=1}^k w_i^*}$$

Next, the estimated unbiased effect size was converted back to its corresponding value.

The variance of the mean effect was estimated as the reciprocal of the sum of the weights and the estimated standard error of the mean effect is the square root of the variance as shown in the following formulas,

$$v_{\overline{ES}^*} = \frac{1}{\sum_{i=1}^k w_i^*}$$

$$SE_{\overline{ES}^*} = \sqrt{v_{\overline{ES}^*}}$$

These were used to calculate the confidence intervals. Confidence intervals reflect the precision with which the effect size has been estimated in the study.

Confidence intervals for mean effect sizes are based on the standard error of the weighted mean and a critical value for the z-distribution (e.g., 1.96 for  $\alpha = .05$ ). The 95% lower and upper limits was calculated using the following formulas,

$$LL_{\overline{ES}^*} = \overline{ES}^* - z_{(1-\alpha)} \times SE_{\overline{ES}^*}$$

$$UL_{\overline{ES}^*} = \overline{ES}^* + z_{(1-\alpha)} \times SE_{\overline{ES}^*}$$

where  $z_{(1-\alpha)}$  is the critical value for the z-distribution. For the purposes of this analysis, a critical value of 1.96 was used, which reflects a 0.05 probability level. Finally, a z-value was calculated to test the null hypothesis that the mean effect  $\mu$  is zero by using the formula,

$$z^* = \frac{|\overline{ES}^*|}{SE_{\overline{ES}^*}}$$

where  $|\overline{ES}^*|$  is the absolute value of the mean effect size and  $SE_{\overline{ES}^*}$  is the standard error of the mean effect size. A p-value for a two-tailed test was calculated,

$$p^* = 2[1 - (\Phi(|Z^*|))]$$

#### Moderating Variable

As discussed earlier, recruitment setting was hypothesized to moderate the relationship between physical violence and PTSD symptomatology and psychological abuse and PTSD symptomatology. Within each meta-analysis, each study was separated by recruitment setting in order to differentiate between participants who were recruited through public and non-public means. Since only two groups are being compared, subgroups were analyzed based on the Z-test to investigate whether recruitment setting moderated these relationships.

## CHAPTER FOUR

### RESULTS

#### Physical Violence

##### *Physical Violence Study and Sample Level Demographic Information*

Thirty studies published between 1999 and 2010 met criteria for inclusion in the physical violence and PTSD symptomatology meta-analysis. Of these studies, 26 were published journal articles, one was a book chapter, and three were dissertations.

Descriptive statistics for the study level variables are presented in Table 1. The analysis included a total of 4,825 participants (N range = 33 to 413). Descriptive statistics for the sample level variables are presented in Table 2. Out of the 30 studies, 31 effect sizes were calculated. Unattenuated effect sizes ranged from 0.12 to 0.55. Studies included in the meta-analysis of physical violence are presented in Table 3, along with their unattenuated effect sizes, sample sizes, confidence intervals, and standard error calculations. The distribution of effect sizes was examined to determine the presence of outliers. None were found. Table 4 presents a Stem and Leaf Graph of all unattenuated effect sizes.

Table 1: *Study Level Descriptive Information for PTSD-Physical Violence (k = 31)*

Variable	k (%)
Recruitment Frame	
Shelter, DV Agency, Other DV-related settings (court, medical)	16(52%)
Public (e.g., Flyers, brochures, non-DV related medical settings)	10(32%)
Mixed (both Shelter/DV and Public samples)	5(16%)
Journals/Book	
Addictive Behaviors	1
American College of Nurse-Midwives	1
American Journal of Community Psychology	1
Archives of Psychiatric Nursing	1
Dissertation Abstract International	3
Focus on Posttraumatic Stress Disorder Research (Book)	1
Issues in Mental Health Nursing	1
Journal of Abnormal Psychology	1
Journal of Clinical Psychology	1
Journal of Family Psychology	2
Journal of Family Violence	1
Journal of Interpersonal Violence	4
Journal of Traumatic Stress	4
Nursing Science Quarterly	1
Pain Medicine	1
Violence Against Women	2
Violence and Victims	5
Year Published	
1999	1
2000	2
2001	2
2002	1
2003	3
2004	2
2005	2
2006	3
2007	2
2008	5
2009	3
2010	5
Publication Type	
Journal Article	27
Dissertation	3
Book Chapter	1

Table 2: *Sample Level Descriptive Information for PTSD-Physical Violence*

<b>Variable</b>	<b>Mean (SD)</b>	<b># of comparisons</b>
Age	33.83 (8.71)	28
Duration of Abusive Relationship	4.56	6
Household Income	\$16,088.56	9
	<b># (%)</b>	<b># of comparisons</b>
Race/Ethnicity		
African American	2,185 (51.06)	28
European American	1,404 (33.45)	
Latina	428 (10.20)	
Asian American	24 (0.57)	
Native American	10 (0.24)	
Middle Eastern American	4 (0.10)	
Multiple Races/Ethnicities	17 (0.41)	
Race/Ethnicity Other	124 (2.95)	
Race/Ethnicity None	1(.02)	
Number Married to Abuser	1194 (34.74)	21
Some College	455 (40.23)	11

Table 3: *Studies included in the meta-analysis of physical violence (k=31)*

Citation	Unattenuated Effect Size (r)	N	95% CI Lower	95% CI Upper	SE
<b>Recruitment Setting: Shelter, DV Agency, etc.</b>					
Arias & Pape (1999)	0.15	68	-0.0870	0.3993	0.124
Becker et al. (2010)	0.26	64	0.0105	0.5124	0.128
Bell et al. (2008)	0.53	406	0.4894	0.6847	0.050
Bennice et al. (2003)	0.26	62	0.0062	0.5165	0.130
Griffing et al. (2006)	0.39	111	0.2223	0.5995	0.096
Kelly (2010)	0.28	33	-0.0704	0.6453	0.183
Kocot & Goodman (2003)	0.52	169	0.4185	0.7228	0.078
Krause et al. (2008)	0.54	262	0.4891	0.7327	0.062
Mechanic et al. (2008)	0.28	413	0.1831	0.3767	0.049
Street & Arias (2001)	0.36	63	0.1294	0.6355	0.129
Taft et al. (2007)	0.31	388	0.2200	0.4198	0.051
Torres & Han (2000)	0.21	124	0.0372	0.3936	0.091
Tyson (2002)	0.47	92	0.2985	0.7140	0.106
Watlington & Murphy (2006)	0.41	65	0.1824	0.6802	0.127
Weaver & Etzel (2003)	0.10	62	-0.1565	0.3539	0.130
Woods et al. (2008)	0.46	157	0.3457	0.6616	0.081
<b>Recruitment Setting: Public (flyers, brochures, etc.)</b>					
Babcock <i>et al.</i> (2008)	0.52	165	0.4217	0.7297	0.079
Basile <i>et al.</i> (2004)	0.42	380	0.3564	0.5583	0.052
Becker <i>et al.</i> (2010)	0.26	129	0.0868	0.4360	0.089
Humphreys <i>et al.</i> (2010)	0.40	84	0.2033	0.6388	0.111
Koopman <i>et al.</i> (2005)	0.42	57	0.1854	0.7189	0.136
Ramirez (2003)	0.30	84	0.0928	0.5284	0.111
Stuart <i>et al.</i> (2008)	0.23	103	0.0420	0.4340	0.100
Sullivan <i>et al.</i> (2009)	0.53	212	0.4594	0.7306	0.069
Taft <i>et al.</i> (2005)	0.52	96	0.3794	0.7859	0.104
Thompson <i>et al.</i> (2000)	0.27	138	0.1133	0.4507	0.086
<b>Recruitment Setting: Mixed</b>					
Lilly & Graham-Bermann (2010)	0.43	97	0.2528	0.6571	0.103
Norwood (2009)	0.53	216	0.1755	0.4441	0.069
Weaver et al. (2007)	0.12	56	-0.1497	0.3887	0.137
Woods & Isenberg (2001)	0.55	160	0.4598	0.7727	0.080
Wuest et al. (2009)	0.30	309	0.1964	0.4205	0.057

Table 4: *Stem and Leaf Graph of Physical Violence Unattenuated Effect Sizes*

Stem	Leaf
0.1	0 2 5
0.2	1 3 6 6 6 7 8 8
0.3	0 0 0 1 6 9
0.4	0 1 2 3 3 6 7
0.5	2 2 2 3 3 4 5

*Relationship of Physical Violence and PTSD Symptomatology*

This first meta-analysis, which evaluated whether experiencing physical violence was systematically associated to female survivor's PTSD symptomatology, yielded a mean weighted effect size of 0.42 (SE = 0.03). A 95% confidence interval of 0.33 to 0.45 and associated significance test ( $z=12.94$ ,  $p<0.0001$ ) showed a significant difference from zero. This mean weighted effect size indicates a medium to large relationship between physical violence and PTSD symptomatology (Cohen, 1987). To determine whether the 31 effect sizes in this analysis estimate the same population effect size, a homogeneity test was conducted. Results of this test indicated no significant heterogeneity among effect size,  $Q(30) = 22.26$ ,  $p = 0.85$ , which suggests that variability among effect sizes is due to sampling error alone.

In order to examine the potential effect of the file drawer problem on these results, a "fail-safe N" was calculated. The results suggest that an additional 91 studies averaging a zero effect on physical violence would have to exist before these results would be lowered to a small effect of 0.10. Thus, this suggests that the relationship between physical violence and PTSD symptomatology is robust and is not likely affected by sampling or publication bias.

### *Subgroup Analysis*

Within the physical violence-PTSD symptomatology meta-analysis, each study was separated by recruitment setting (public versus non-public) in order to differentiate between participants who sought help from shelters, domestic violence agencies, court, and medical settings for IPV from those who did not. Studies which used both types of recruitment settings were left out of the analysis. Since only two groups are being compared, subgroups were analyzed based on the Z-test to investigate whether recruitment setting moderates these relationships.

Effect sizes were grouped by recruitment setting and tests of homogeneity between these groups were conducted to determine if the mean effect size between the two groups significantly differ. Out of 26 studies looking at physical violence, 16 studies were categorized as non-public and 10 were categorized as public. The mean weighted effect size for participants in the non-public group was 0.41 ( $z=8.12$ ,  $p < 0.0001$ ) and the mean weighted effect size for the participants in the public group was 0.40 ( $z=8.47$ ,  $p < 0.0001$ ). These mean effect sizes did not significantly differ from each other,  $z = 0.16$ ,  $p = 0.87$ .

## Psychological Abuse

### *Psychological Abuse Study and Sample Level Demographic Information*

In all, 28 studies published between 1999 and 2010 met criteria for inclusion in the PTSD-psychological abuse meta-analysis. Of these studies, 24 were published journal articles, one was a book chapter, and three were dissertation studies. Descriptive statistics for the study level variables are presented in Table 5. The analysis included a



total of 4,328 participants (N range = 31 to 413). Descriptive statistics for the sample level variables are presented in Table 6. Out of the 28 studies, 30 effect sizes were calculated. Unattenuated effect sizes ranged from 0.15 to 0.67. Unattenuated effect sizes, sample sizes, confidence intervals, and standard error results for each study are presented in Table 7. The distribution of effect sizes was examined to determine the presence of outliers. None were found. Table 8 presents a Stem and Leaf Graph of all unattenuated effect sizes.

Table 5: *Study Level Descriptive Information for PTSD-Psychological Abuse (k = 30)*

Variable	k (%)
Recruitment Frame	
Shelter, DV Agency, Other DV-related settings (court, medical)	13 (43.33%)
Public (e.g., Flyers, brochures, non-DV related medical settings)	10 (33.33%)
Mixed (both Shelter/DV and Public samples)	7 (23.33%)
Journals/Book	
Addictive Behaviors	1
American College of Nurse-Midwives	1
American Journal of Community Psychology	1
Archives of Psychiatric Nursing	1
Dissertation Abstract International	3
Focus on Posttraumatic Stress Disorder Research (Book)	1
Issues in Mental Health Nursing	1
Journal of Abnormal Psychology	1
Journal of Clinical Psychology	1
Journal of Family Psychology	2
Journal of Family Violence	1
Journal of Interpersonal Violence	4
Journal of Traumatic Stress	3
Nursing Science Quarterly	1
Pain Medicine	1
Violence Against Women	2
Violence and Victims	5
Year Published	
1999	1
2000	4
2001	2
2002	1
2003	2
2004	2
2005	2
2006	2
2007	2
2008	4
2009	3
2010	5
Publication Type	
Journal Article	26
Dissertation	3
Book Chapter	1

Table 6: *Sample Level Descriptive Information for PTSD-Psychological Abuse*

<b>Variable</b>	<b>Mean (SD)</b>	<b># of comparisons</b>
Age	34.22 (8.78)	25
Duration of Abusive Relationship	4.42	6
Income	\$16,088.56	9
	<b># (%)</b>	<b># of comparisons</b>
Race/Ethnicity		
African American	1,897 (50.33%)	26
European American	1,341 (35.58%)	
Latina	378 (10.03%)	
Asian American	23 (0.61%)	
Native American	10 (0.27%)	
Middle Eastern American	4 (0.11%)	
Multiple Races/Ethnicities	11 (0.29%)	
Race/Ethnicity Other	104 (2.76%)	
Race/Ethnicity None	1 (.03%)	
Number Married to Abuser	1,103 (35.17%)	19
Some College	363 (40.70%)	10

Table 7: *Studies included in the meta-analysis of psychological abuse (k=30)*

Citation	Unattenuated Effect Size (r)	N	95% CI Lower	95% CI Upper	SE
<b>Recruitment Setting: Shelter, DV Agency, etc.</b>					
Arias & Pape (1999)	0.35	68	0.1214	0.6077	0.124
Becker et al. (2010)	0.20	64	-0.0505	0.4514	0.128
Bell et al. (2008)	0.58	406	0.5592	0.7544	0.050
Kelly (2010)	0.36	33	0.0198	0.7355	0.183
Kocot & Goodman (2003)	0.59	169	0.5248	0.8290	0.078
Mechanic et al. (2008)	0.37	413	0.2878	0.4814	0.049
Street & Arias (2001)	0.45	63	0.2281	0.7342	0.129
Taft et al. (2007)	0.38	388	0.3024	0.5022	0.051
Torres & Han (2000)	0.15	124	-0.0240	0.3324	0.091
Tyson (2002)	0.67	92	0.6707	1.0262	0.106
Watlington & Murphy (2006)	0.27	65	0.0332	0.5310	0.127
Weaver & Etzel (2003)	0.31	62	0.0607	0.5710	0.130
Woods et al. (2008)	0.55	157	0.4617	0.7775	0.081
<b>Recruitment Setting: Public (flyers, brochures, etc.)</b>					
Babcock et al. (2008)	0.34	37	0.0126	0.6849	0.171
Basile et al. (2004)	0.60	380	0.5926	0.7945	0.052
Becker et al. (2010)	0.29	129	0.1193	0.4685	0.089
Humphreys et al. (2010)	0.50	84	0.3353	0.7708	0.111
Koopman et al. (2005)	0.42	57	0.1838	0.7172	0.136
Ramirez (2003)	0.52	84	0.3617	0.7972	0.111
Stuart et al. (2006)	0.37	103	0.1940	0.5860	0.100
Sullivan et al. (2009)	0.53	212	0.4574	0.7286	0.069
Taft et al. (2005)	0.58	96	0.4679	0.8744	0.104
Thompson et al. (2000)	0.29	138	0.1287	0.4661	0.086
<b>Recruitment Setting: Mixed</b>					
Lilly & Graham-Bermann (2010)	0.35	97	0.1581	0.5624	0.103
Mechanic et al. (2000)	0.33	35	-0.0083	0.6847	0.177
Mechanic et al. (2000)	0.50	31	0.1715	0.9123	0.189
Norwood (2009)	0.53	216	0.4500	0.7186	0.069
Weaver et al. (2007)	0.33	56	0.0796	0.6181	0.137
Woods & Isenberg (2001)	0.57	160	0.4911	0.8040	0.080
Wuest et al. (2009)	0.26	309	0.1482	0.3723	0.057

Table 8: *Stem and Leaf Graph of Psychological Abuse Unattenuated Effect Sizes*

Stem	Leaf
0.1	5
0.2	0 7 9 9
0.3	1 3 3 4 5 5 6 7 7 8
0.4	2 5
0.5	0 0 2 3 3 5 7 8 8 9
0.6	0 7

### *Relationship of Psychological Abuse and PTSD Symptomatology*

The second meta-analysis evaluated whether experiencing psychological abuse was systematically related to female survivor's PTSD symptomatology. Considering the variability in the methods, geography, settings, and recruitment procedures of the studies, it was assumed that between-study sampling error as well as within-study sampling error was associated with the effect sizes. Therefore, a random effects model was used.

Twenty-eight studies with 30 effect sizes provided outcome data related to the psychological abuse and PTSD symptomatology relationship yielding a mean weighted effect size of 0.44 (SE = 0.038). A 95% confidence interval of 0.40 to 0.55 and associated significance test ( $z = 12.65$ ,  $p < 0.0001$ ) showed significant difference from zero. This mean weighted effect size indicates a medium to large relationship between psychological abuse and PTSD symptomatology (Cohen, 1987). To determine whether the 30 effect sizes making up the weighted mean in this analysis estimate the same population effect size, a homogeneity test was conducted. Results of this test indicated no significant heterogeneity among effect sizes,  $Q(29) = 16.49$ ,  $p = 0.97$ , which suggests that variability among effect sizes is due to sampling error alone.

In order to examine the potential effect of the file drawer problem on these results, a “fail-safe N” was calculated. The results suggest that an additional 106 studies averaging a zero effect on psychological abuse would have to exist before these results would be lowered to a small effect of 0.10. Thus, this suggests that the relationship between psychological abuse and PTSD symptomatology is robust and is not likely affected by sampling or publication bias.

### *Subgroup Analysis*

Within the psychological abuse meta-analysis, each study was separated by recruitment setting (public versus non-public) in order to differentiate between participants who sought help from shelters, domestic violence agencies, court, and medical settings for IPV from those who did not. Studies which used both types of recruitment settings were left out of the analysis. Since only two groups are being compared, subgroups were analyzed based on the Z-test to investigate whether recruitment setting moderates these relationships.

Effect sizes were grouped by recruitment setting and tests of homogeneity between these groups were conducted to determine if the mean effect size between the two groups significantly differ. Out of 23 studies looking at psychological abuse, 13 studies were categorized as non-public and 10 were categorized as public. The mean weighted effect size for participants in the non-public group was 0.44 ( $z=6.83$ ,  $p < 0.0001$ ) and the mean weighted effect size for participants in the public group was 0.46 ( $z=8.62$ ,  $p < 0.0001$ ). These mean effect sizes did not significantly differ from each other,  $z = 0.27$ ,  $p = 0.79$ .

## CHAPTER FIVE

### DISCUSSION

#### Summary of Findings

The purpose of this dissertation study was to conduct two meta-analyses investigating the relationship between IPV and PTSD symptomatology in female survivors of domestic violence. The first meta-analysis investigated the relationship between physical violence and PTSD symptomatology while the second meta-analysis investigated the relationship between psychological abuse and PTSD symptomatology. A moderator variable, recruitment setting, was investigated to see whether recruitment setting changes the relationship between physical violence and PTSD symptomatology and/or the relationship between psychological abuse and PTSD symptomatology.

Results of both meta-analyses support the hypothesis of a positive and significant relationship between IPV and PTSD symptomatology. Mean weighted effect size estimates were  $r = 0.42$  (physical violence-PTSD symptomatology) and  $r = 0.44$  (psychological abuse-PTSD symptomatology). Both of these effect size estimates indicate a medium to large relationship between IPV and PTSD symptomatology. Results of the moderator analysis showed that recruitment setting did not change the relationship between either form of IPV and PTSD-symptomatology.

Previous research has shown that the relationship between physical violence and PTSD symptomatology is strong (Astin, Lawrence, & Foy, 1993; Dutton et al., 2006;

Golding, 1999; Jones et al., 2001; Roberts, 2002). Compared to other reviews and meta-analyses, the current results show a similar or even stronger relationship between physical IPV and PTSD symptomatology. As noted earlier, in a meta-analysis examining violence (childhood sexual and physical violence, rape, criminal assault, and physical or sexual IPV) and psychological distress (e.g., adjustment, anxiety, depression, PTSD, suicidal ideation) in a broader context, Weaver and Clum (1995) found an overall composite effect size of 0.24 which would be considered a small effect size (Cohen, 1987). The effect size estimates of 0.42 (physical IPV) and 0.44 (psychological IPV) in the current meta-analyses are quite a bit larger than Weaver and Clum's findings. This may be due to the recency and re-occurring nature of IPV. Weaver and Clum included childhood instances of abuse. The effects of time may have diminished the psychological distress of these events on the participants. Weaver and Clum also included rape and criminal assault in their meta-analysis. Criminal assault tends to be a one-time occurrence and rape, unless it is part of sexual IPV, also tends to be a one-time occurrence. IPV, on the other hand, is an ongoing attack on the person's physical, emotional, and mental functioning. This may lead to greater affective distress and greater PTSD symptomatology. Weaver and Clum (1995) also specifically examined physical IPV and found an effect size of 0.16 which, again, is much smaller than the current study. It may be due to the fact that their measures of psychological distress included a range of outcomes including psychiatric disorders as classified by the DSM-III-R, as well as measures of impaired daily functioning. It may also be due to the fact that their meta-analysis included both male and female survivors of IPV while the current study only



investigated the IPV-PTSD relationship for female survivors. There may be differences between these populations. Studies looking at the impact of IPV on both male and female survivors have found that women's experiences of IPV are more intense (Tjaden & Thoennes, 2000) and they experience more PTSD symptomatology (Coker, Weston, Creson, Justice, & Blakeney, 2005).

### Implications for Research and Practice

There are several potential areas for research and practice regarding the IPV-PTSD symptomatology link. These include (a) examining psychological abuse in the absence of physical abuse to see if the relationship to PTSD remains strong; (b) examining the different components of psychological abuse and how they relate to specific PTSD symptomatology; (c) examining physical abuse and psychological abuse as two components of an overarching power and control construct; (d) developing and evaluating batterer treatment programs that focus on the reduction of psychological abuse as a major factor in the cycle of abuse; (e) developing and evaluating treatment programs for women who mainly or only experience psychological abuse; and (f) developing prevention programs for women who have not sought help for IPV to provide them with valuable information about IPV and PTSD symptoms. These potential areas of research and treatment are discussed more in depth below.

First, most of the studies used in the psychological abuse-PTSD meta-analysis used samples of female survivors who experienced both physical violence and psychological abuse. Only about 1% of women who experience physical abuse do not experience psychological abuse. While it is rare for physical violence to occur without

psychological abuse, the reverse is more common. Many women experience psychological abuse that is detrimental to their health and well-being without ever experiencing physical violence at the hands of an abuser (Blasco-Ros, Sánchez-Lorente, & Martinez, 2010). In fact, many survivors consider psychological abuse to be more damaging than physical violence (Street & Arias, 2001), stating that the bruises eventually fade, the words do not (personal communication, September, 14, 2010). For the most part, IPV research does not reflect this reality. According to the DSM-IV, the threat of death, serious injury, or physical integrity of self that causes fear, helplessness, or horror is just as central to the diagnosis of PTSD as actual serious injury. In this study, the psychological abuse-PTSD relationship was estimated to be slightly stronger than the physical violence-PTSD relationship. These results have important implications for research and practice. From a research standpoint, psychological abuse is a fairly new construct which has not been examined thoroughly. While some research has examined two components of psychological abuse (emotional/verbal and domination/isolation), most research has not been comprehensive. For one, what are the prevalence rates for women who experience psychological abuse without physical abuse and how many of these women experience PTSD symptoms? As noted earlier, the U.S. Department of Justice states that nearly 25% of the women surveyed had experienced physical or sexual IPV in their lifetime. The percentages for psychological abuse were not surveyed. Research comparing female survivors who only experienced psychological abuse to those who experienced both physical violence and psychological abuse could provide valuable information about the added stress of physical violence; the relationship of each to PTSD

symptomatology; the emotional/social/financial impact of each; and potential moderators and mediators of each.

Second, as noted earlier, some researchers have examined how physical abuse, or abuse in general, relates to specific symptoms of PTSD such as hyperarousal, intrusion, and avoidant symptoms (Griffing et al., 2006; Lewis et al., 2006). Street and Arias (2001) examined how two forms of psychological abuse, emotional/verbal abuse and domination/isolation, related to PTSD symptomatology, but they did not investigate specific PTSD symptoms. One area of potential research would be to look at the two forms of psychological abuse that have already been established in research (emotional/verbal abuse and domination/isolation) and how these relate to specific PTSD symptoms (hyperarousal, intrusion, and avoidance). This would allow researchers to gain a more comprehensive understanding of how specific forms of psychological abuse may affect specific PTSD symptoms.

Third, most of the research that has been conducted thus far has looked at physical abuse as the main abuse variable. The similar effect sizes found in this study hint at a possibility of a third overarching construct. Most researchers and practitioners believe that IPV is about power and control in the relationship. Yet, this has not been examined as its own construct in research. While there are specific items on IPV-related questionnaires that ask about power and control, there is no research examining power and control as a separate construct. This might allow researchers to gain a better understanding of the motives and thought processes of batterers. Thus, research

investigating the hypothesis that psychological abuse and physical violence are subsets of an overarching power and control construct is warranted.

Fourth, given that psychological abuse has been found to have a strong relationship with PTSD symptomatology, the next step would be to develop and evaluate batterer treatment programs that focus on the reduction of psychological abuse as a major factor in the cycle of abuse. Current batterer treatment programs could be improved by including specific components dealing with the negative effects of psychological abuse, as well as physical violence as they relate to PTSD symptoms.

Fifth, knowing that psychological abuse is as strong a risk factor for PTSD as physical violence may help clinicians provide better services to those survivors who have experienced psychological abuse only. Clinicians could become more knowledgeable about the relationship of both physical violence and psychological abuse and PTSD symptomatology. Treatment programs which focus on the alleviation of PTSD symptomatology could be developed from current research and treatment programs focused on PTSD in other populations, such as combat veterans.

Finally, recruitment setting was not found to be significant in either meta-analysis. These results demonstrate that female survivors who have not sought help for domestic violence have similar levels of PTSD symptomatology than those who did seek help. This suggests that there may be thousands of women experiencing IPV who may have PTSD who are not currently receiving treatment. Prevention programs aimed at increasing knowledge to the general public about IPV could be more effective if the specific detrimental effects of psychological abuse and physical violence as related to

PTSD symptoms were given. Female survivors in the general public not only need to understand the dynamics of abuse and what they are experiencing is abuse, they also need to understand that they may have PTSD and should seek help.

#### Areas of Potential Research and Practice

As noted in chapter two, there is a theoretical framework surrounding the IPV-PTSD link to help conceptualize this relationship (Dutton, 2009). I discussed a portion of this framework which included (a) covariates and other predictors that have a direct relationship with IPV and with PTSD through IPV, (b) potential mediating and moderating variables of the IPV-PTSD relationship, (c) the direct link between IPV and PTSD, and (d) distal outcomes of these relationships. This study focused on the direct link between IPV and PTSD as well as one potential moderator. The section above, implications for research and practice, is focused on this direct link. However, there are several areas of potential research within the other pathways of this framework.

As discussed earlier, several covariates and other predictors with a relationship to IPV and PTSD have been examined such as childhood victimization and ethnicity. While research has been conducted on the childhood victimization-IPV-PTSD pathway, there is still not enough research to conduct a meta-analysis. The initial research shows that women who have experienced forms of childhood abuse such as physical, sexual, or psychological abuse are more susceptible to experiencing IPV as adults (Cannon, Bonomi, Anderson, Rivara, & Thompson, 2010). Also, female survivors who have experienced both childhood victimization and adult IPV are more likely to experience PTSD (Astin et al., 1995; Cascardi et al., 1995; Messman-Moore et al., 2000). Given that

we now know that psychological abuse has a strong relationship with PTSD in female survivors of IPV, research looking at the childhood victimization-psychological IPV-PTSD pathway could be valuable. With regards to ethnicity, I was only able to find three studies which investigated this construct as it relates to the IPV-PTSD relationship. One study found that ethnicity was a significant predictor of PTSD symptomatology (Lilly & Graham-Bermann, 2009), while the other two did not (Griffing et al., 2006; Vogel & Marshall, 2001). Again, further research looking at ethnicity as a predictor of the IPV-PTSD link could be valuable in the treatment of PTSD in female survivors.

Potential mediating and moderating variables were also discussed in chapter two. These included coping strategies and social support. Three types of coping have been studied: emotion-focused, problem-focused, and avoidant coping. Results showed that female survivors with low emotion-focused coping had fewer PTSD symptoms (Lilly & Graham-Bermann, 2010), women with high avoidant coping had more PTSD symptoms (Krause et al., 2008), and high levels of problem-focused coping were positively associated with PTSD symptoms in women with low social support (Kocot & Goodman, 2003). With regards to social support, all researchers have found that high perceived social support is related to lower levels of PTSD symptomatology in female survivors. However, only one study investigated different types of social support (Babcock et al., 2008). These included tangible, appraisal, self-esteem, and belonging. Again, not enough research has been conducted to warrant a meta-analysis. More research is needed which investigates these potential moderators and mediators as well as others.

Research on distal outcomes has included health related issues such as general health, pain, miscarriage, sleep quality, and smoking behaviors (Laffaye et al., 2003; Messman-Moore et al., 2000; Rose et al., 2010; Taft et al., 2007). Again, this research is limited. More extensive research looking at health related issues and women who engage in damaging health behaviors as ways to cope with IPV would be valuable.

### Limitations

There are some limitations in the current study that should be noted. First, the quality of the included studies was not taken into account when conducting either analysis. Second, the ability of this author to obtain a representative sample of all of the studies conducted on the relationship between IPV and PTSD symptomatology may be limited. Although numerous literature searches were conducted in a variety of databases, it is still likely that some studies examining these relationships were omitted from the present study, especially unpublished studies. Third, some studies that were located had to be excluded from the analysis because no effect size could be calculated due to insufficient statistical data. Fourth, only two constructs of IPV (psychological abuse and physical violence) were investigated in the IPV-PTSD relationship. Some researchers have investigated the relationship between sexual abuse and PTSD, as well as stalking and PTSD symptoms, and have found a strong link. Unfortunately, not enough studies have been conducted on these relationships to warrant a meta-analysis. Until further research examining these relationships is conducted, it may be difficult to obtain an accurate representation of the relationships between sexual abuse and PTSD symptomatology and stalking and PTSD symptomatology. Finally, only one moderating

variable (recruitment setting) was investigated in this study. Several researchers have investigated other potential moderators and mediators such as coping and social support. Again, there was not enough research in this area to warrant a meta-analysis.

### Conclusion

The results of the current analysis reinforce the previous research that has concluded that psychological abuse and physical violence are strongly linked to PTSD symptomatology for female survivors of IPV. While this general conclusion has been fairly consistent throughout the literature, some research has shown some inconsistencies in the psychological abuse-PTSD relationship. The current research attempted to examine this uncertainty. The results of the psychological abuse-PTSD meta-analysis highlight the strong relationship between these two variables. Women who experience psychological abuse often experience PTSD symptoms.

While the literature on the physical violence-PTSD relationship is much more extensive, no meta-analysis had been conducted on the relationship since Golding's (1999) meta-analysis. A review and analysis of the current research was warranted. The results of the physical violence-PTSD meta-analysis also highlight the strong relationship between these two variables. Women who experience physical abuse often experience PTSD symptoms as well.

Results of the moderator analysis showed that recruitment setting did not change the relationship between either form of IPV and PTSD-symptomatology signifying that female survivors who have not sought help for domestic violence have similar PTSD symptomatology than those who did seek help which suggests that there may be



thousands of women experiencing IPV who may have PTSD who are not currently receiving treatment.

These findings highlight the need for more research in this area. Specifically, using Dutton's (2009) framework, research looking at the covariates and other predictors that have a direct relationship with IPV and with PTSD through IPV; potential mediating and moderating variables of the IPV-PTSD relationship; the direct link between IPV and PTSD; and distal outcomes of this relationship would be valuable in increasing our understanding of IPV, treatment for both batterers and survivors, and preventing it in the first place.

APPENDIX A  
CODING VARIABLES

VARIABLE	DESCRIPTION
STUDYID	ID to delineate studies from one another
REFERENCE	
PUBTYPE	Journal article, book, book chapter, dissertation, etc.
PUBYEAR	Last two digits of year
N_PSYCH	Total sample size of psychological abuse
N_PHYSICAL	Total sample size of physical violence
AGE_MEAN_PSYCH	Mean age of psychological abuse sample
AGE_SD_PSYCH	Standard Deviation of Age of psychological abuse sample, if given
AGE_MEAN_PHYSICAL	Mean age of physical violence sample
AGE_SD_PHYSICAL	Standard Deviation of Age of physical violence sample, if given
RACE_WHITE_PSYCH	Number of white participants in psychological abuse sample
RACE_WHITE_PHYSICAL	Number of white participants in physical violence sample
RACE_BLACK_PSYCH	Number of black participants in psychological abuse sample
RACE_BLACK_PHYSICAL	Number of black participants in physical violence sample
RACE_LATINA_PSYCH	Number of Latina participants in psychological abuse sample
RACE_LATINA_PHYSICAL	Number of Latina participants in physical violence sample
RACE_ASIAN_PSYCH	Number of Asian, Asian-American participants in psychological abuse sample
RACE_ASIAN_PHYSICAL	Number of Asian, Asian-American participants in physical violence sample
RACE_NATIVAM_PSYCH	Number of native American participants in psychological abuse sample
RACE_NATIVAM_PHYSICAL	Number of Native American participants in physical violence sample.
RACE_MIDEAST_PSYCH	Number of Middle Eastern American participants in psychological abuse sample
RACE_MIDEAST_PHYS	Number of Middle Eastern American participants in physical violence sample
RACE_MULTIPLE_PSYCH	Number of participants who selected more than one ethnicity/race in psychological abuse sample
RACE_MULTIPLE_PHYSICAL	Number of participants who selected more than one ethnicity/race in physical violence sample
RACE_OTHER_PSYCH	Number of participants who selected another race/ethnicity in psychological abuse sample
RACE_OTHER_PHYSICAL	Number of participants who selected another race/ethnicity in physical violence sample
RACE_NONE_PSYCH	Number of participants who did not select an option in the psychological abuse sample
RACE_NONE_PHYSICAL	Number of participants who did not select an option in the physical violence sample
MARRIED_PSYCH	Number of participants who were married in the psychological abuse sample
MARRIED_PHYSICAL	Number of participants who were married in the physical violence sample
DURATION_PSYCH	Duration of abusive relationship in months for participants in the psychological abuse sample

DURATION_PHYSICAL	Duration of abusive relationship in months for participants in the physical violence sample
INCOME_PSYCH	Yearly household income of participants in the psychological abuse sample
INCOME_PHYSICAL	Yearly household income of participants in the physical violence sample
SOMECOLLEGE_PSYCH	Number of psychological abuse survivors with some college
NOCOLLEGE_PSYCH	Number of psychological abuse survivors with no college
SOMECOLLEGE_PHYSICAL	Number of physical violence survivors with some college
NOCOLLEGE_PHYSICAL	Number of physical violence survivors with no college
DEM_OTHER	Other demographic characteristics to take note of
SAMPLE NOTES	Miscellaneous field for important information about sample characteristics.
(NON)PUBLIC	Public or non-public recruitment setting
RECRUITMENT	Notes about recruitment setting. If public, how did researchers find participants; If non-public, specific settings (e.g., shelter, agency, medical setting)
PTSD_SCALE	Measure used to calculate PTSD
PTSD_REL	Reliability estimate of PTSD measure from study
IPVPHYS_SCALE	Measure used to calculate physical violence
IPVPHYS_REL	Reliability estimate of physical violence from study
IPVPSYCH_SCALE	Measure used to calculate psychological abuse
IPVPSYCH_REL	Reliability estimate of psychological abuse from study
RDNOTES	Miscellaneous field to capture important information about research design descriptors
ESTYPE	Type of data effect size based on
PAGENUM	Page number where effect size data found
CC_PSYCHXPTSD	Correlation coefficient from study for psychological abuse & PTSD relationship
CC_PHYSXPTSD	Correlation coefficient from study for physical violence & PTSD relationship
OBSERVATIONS	Miscellaneous observations

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## VITA

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