

# Women survivors of intimate partner violence and post-traumatic stress disorder: Prediction and prevention

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## ABSTRACT

A considerable body of research has demonstrated that women who are abused by their male romantic partners are at substantially elevated risk for the development of post-traumatic stress disorder (PTSD). This article reviews recent literature regarding intimate partner violence (IPV) and resultant PTSD symptoms. The article is intended to be an introduction to the topic rather than an exhaustive review of the extensive literature in this area. Factors that enhance and reduce the risk for PTSD, including social support, coping styles, and types of abusive behavior experienced, are described. In addition, the unique risks associated with IPV for women who have children are discussed. Prevention efforts and treatment are briefly reviewed.

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There are numerous forms of violence to which women can be exposed. This article will focus on women's experiences of intimate partner violence (IPV, defined here as men's violence toward their female partners). We will discuss how IPV leads to post-traumatic stress symptoms as well as preventive interventions and treatment for this group of women. In addition, we will discuss how IPV affects those women who are pregnant or are mothers. The current article is intended to provide the reader with a broad overview of research on IPV and post-traumatic stress disorder (PTSD). Articles in peer-reviewed journals and more recent research were given preference for citation whenever possible.

## Rates and Types of Intimate Partner Violence

Intimate partner violence is a serious problem that results in significant costs to individuals, the healthcare system, and society. About 20-64% of all violence against women is from romantic partners,<sup>[1,2]</sup> and more than half of the women experiencing IPV live with children under age 12.<sup>[3]</sup> Particularly troubling is that IPV is a common experience of women who are pregnant or raising children.<sup>[4]</sup> In such cases, not only are women negatively affected, but also are their developing fetuses and children.<sup>[5]</sup>

## Post-traumatic Stress Disorder as a Consequence of Intimate Partner Violence

Intimate partner violence can be life-threatening for some women, but more commonly results in injuries, immune disorders, difficulty in sleeping, and gastrointestinal problems. The mental health impairments associated with IPV include depression, low self-esteem, psychological distress, and PTSD.<sup>[6-11]</sup> Post-traumatic stress disorder is a syndrome of intrusive re-experiencing, avoidance and emotional numbing, and hyperarousal symptoms that occurs in some individuals in the aftermath of a traumatic event.<sup>[12]</sup> A traumatic event is defined as experiencing or witnessing an event involving threat to life or physical integrity that results in feelings of fear, helplessness, or horror.

Among all women, not just those who experience IPV, PTSD is usually associated with multiple other mental health problems. Cross-sectional survey research examining prevalence of PTSD in a sample of young Germans (14-24 years old) indicates that the vast majority (87.5%) of persons meeting the criteria for PTSD have at least one additional diagnosis and that PTSD is significantly correlated with almost all other mood and anxiety disorders.<sup>[13]</sup> The same authors so found that diagnoses such as

somatoform disorders, and social and simple phobias, tended to precede traumatic events, whereas depressive disorders, agoraphobia, and substance dependence tended to occur at the same time or after the trauma. When PTSD is chronic, it is comorbid with depression more than half the time.<sup>[14,15]</sup>

The prevalence of PTSD among battered women is high, ranging from 45-84%.<sup>[8,10,16,17]</sup> Numerous studies find a dose-response relationship between IPV and PTSD: the more types of IPV experienced (e.g., physical, sexual, or emotional abuse), the greater the number of the woman's PTSD symptoms.<sup>[18]</sup> Research also found that depressive symptoms, somatic complaints, and PTSD symptoms were higher in pregnant women, at a hospital in India, who reported a history of IPV and sexual coercion compared to those who did not.<sup>[19]</sup> Similarly, in another study, both physically and psychologically abused women displayed higher rates of PTSD, depressive, and anxiety symptoms, as well as thoughts of suicide when compared to nonabused controls.<sup>[20]</sup>

### **Why Does Intimate Partner Violence Result in Post-traumatic Stress Disorder?**

Recent research suggests that neuroendocrine dysregulation may play a role in why PTSD results from IPV. Similar to other stressors, IPV activates the biological stress system, of which the predominant component is the hypothalamic-pituitary-adrenal stress axis (HPA axis), which produces cortisol. Cortisol levels naturally increase with stressful stimuli and help organisms cope with transient stressors by altering metabolism and neural function. However, chronic activation of this system for prolonged periods of time can damage physiological functions, lower immunity and inflammatory responses, and, importantly, lead to psychological problems, such as PTSD, that are related to the inability to cope with stress. In fact, chronic activation of this system can be neurotoxic. In other words, it can inhibit the growth of neurons and alter the activation of neural circuits.<sup>[21,22]</sup> Recent research has suggested that these cortisol-induced brain changes are related to the emotional response that adults and children have to stressful situations.<sup>[23]</sup>

Few studies have examined whether women's exposure to IPV influences their HPA axis functioning. Extant studies suggest that it does<sup>[24,25]</sup> and that cortisol levels are sometimes further associated with PTSD and/or depression within IPV-affected samples.<sup>[23,26]</sup> Currently, it is not clear whether those who experience PTSD, compared to those who do not, have higher or lower levels of cortisol. For example, Miller *et al.*<sup>[27]</sup> in a review of the literature, describe how characteristics of a stressor (e.g., threat to physical integrity, trauma) affect cortisol secretion. Interestingly, for most people, HPA activity increases with subjective distress, but in those who have PTSD, researchers generally find their HPA activity is lower.<sup>[26,28,29]</sup> For example, Olff *et al.*<sup>[30]</sup> compared plasma cortisol levels in people who did and did not have PTSD. Severity of PTSD symptoms was negatively related to cortisol levels. However, other researchers found that IPV-victimized women with prior or current PTSD had higher cortisol levels across the day as compared to victimized women without PTSD.<sup>[23]</sup> Clearly, the relationship between changes in

cortisol levels and the development of PTSD has not been fully elucidated; further research is needed in this area.

### **Risk Factors for the Development of Post-traumatic Stress Disorder**

There are several factors that increase the likelihood that women will develop PTSD as a result of experiences of IPV. First, PTSD from childhood abuse is known to increase the risk of repeated victimization in adulthood.<sup>[31,32]</sup> Childhood abuse also appears to increase the likelihood that negative mental health consequences will emerge if a woman is victimized by a partner. Koopman and colleagues<sup>[33]</sup> found that depressive symptoms were strongly associated with childhood physical and sexual abuse among a sample of women who were IPV victims. Lewis and colleagues<sup>[34]</sup> found that childhood emotional abuse mediates the relationship between childhood exposure to family violence and PTSD which results from adult IPV victimization.

Second, the nature of the abusive behavior itself may place women at increased risk of PTSD. Sexual abuse often occurs in conjunction with other types of IPV and, when it does, increases risk for PTSD and other serious mental health consequences.<sup>[35]</sup> Partner rape has been associated with PTSD, depression, and suicidal ideation.<sup>[35]</sup> Sexual assault by a partner (vs. a nonpartner) is the stronger predictor of PTSD<sup>[36]</sup> and sexual aggression by a partner is a stronger predictor of negative mental health outcomes than is physical abuse.<sup>[37]</sup> And, Pico-Alfonso *et al.*<sup>[20]</sup> found that for IPV associated with PTSD, the co-occurrence of sexual abuse was associated with increased depression and suicide attempts.

Third, the timing and exposure to IPV affects women's mental health. In our research, we found that a history of exposure to IPV as well as IPV during pregnancy is negatively related to women's mental health symptoms across diagnostic categories.<sup>[6]</sup> The number of partners and the timing of this exposure had different effects. Those experiencing chronic IPV (across both partners and time) had the worst outcomes. Women who experienced IPV recently—during their pregnancies and in the year prior to pregnancy with their current partners—had the next worst outcomes. In other research, current IPV predicted PTSD symptoms (especially avoidance), with psychological abuse contributing variance over and above physical abuse.<sup>[34]</sup>

### **Protective Factors for the Development of Post-traumatic Stress Disorder**

While the risk of PTSD is high among women who are victims of IPV, not all women develop these symptoms. Several factors have been associated with women who are resilient to developing trauma symptoms when they experience IPV; these include social support and specific personal characteristics. Much research indicates that social support helps mitigate the influence of IPV on women's mental health. For example, social support may have both a direct effect on mental health in the context of IPV<sup>[38,39]</sup> as well as moderate the relationship between IPV and poor mental health outcomes.<sup>[40-42]</sup> Similarly,

tangible social support moderates the relationship between IPV and PTSD symptoms.<sup>[43]</sup> Martin and Hesselbrock<sup>[44]</sup> found that social support enhanced the capacity for resilience among incarcerated women with histories of victimization. Finally, Leone *et al.*<sup>[45]</sup> compared help-seeking in victims of intimate terrorism (the repeated, severe abuse of one person by his/her romantic partner) vs. situational couple violence. Those women experiencing intimate terrorism were more likely to seek formal help, but rates of informal help-seeking were equivalent.

Personal characteristics have also been associated with resilience among women experiencing IPV. In a study of survivors of violent trauma (including IPV), several personal characteristics, including control, commitment, goal-orientation, self-esteem, adaptability, social skills, and humor were associated with greater general levels of mental health, as well as lower PTSD severity.<sup>[46]</sup> In addition, particular intrapersonal coping mechanisms can attenuate the negative mental health consequences of IPV. Reviere *et al.*<sup>[47]</sup> found that, among a sample of low-income, African-American women, those who attempted suicide were more likely to use coping strategies that focused on accommodating abusers. Those who did not attempt suicide used coping strategies focused on leaving the relationship or avoiding harm. In particular, engagement coping (such as goal- or solution-oriented behaviors) seems to predict better outcomes as compared to disengagement coping, such as avoidance.<sup>[37]</sup> Finally, specific cognitions and/or cognitive styles have been associated with resilience to IPV. For example, Calvete *et al.*<sup>[48]</sup> found that cognitive schemas of disconnection and rejection mediated the link between violence and depression. Among survivors of childhood abuse, persistence of PTSD symptoms was related to perceptions of the intensity of negative emotions and fear of these negative emotions.<sup>[49]</sup> And, finally, Feldner and colleagues<sup>[50]</sup> found that anxiety sensitivity moderated the relationship between traumatic events (not specifically IPV) and PTSD symptoms.

### Intimate Partner Violence and Mother's Pregnancy

During pregnancy, women are at elevated risk of becoming victims of IPV, placing both the woman and her developing fetus at risk. Based on a systematic review of published prevalence data for partner abuse during pregnancy, Gazmararian and colleagues report that the incidence of physical abuse during pregnancy may be as high as 20% among women seeking prenatal care.<sup>[51]</sup> Importantly, the high rates of IPV during pregnancy are confounded by women's age. Younger women are more likely to experience IPV<sup>[52]</sup> and also more likely to become pregnant.

During pregnancy, research suggests that the stress associated with IPV and the resultant psychological disorders that occur may negatively affect the developing fetus. Women survivors of childhood intrafamilial maltreatment and sexual trauma may be particularly likely to experience high PTSD levels across gestation, due to psychosexual triggers associated with pregnancy and maternity care.<sup>[53,54]</sup> They are also more likely to have comorbid conditions and associated features that complicate recovery and may be as disruptive to perinatal and parenting outcomes as PTSD itself: affect (emotion) dysregulation and

interpersonal reactivity.<sup>[55,56]</sup> For example, Seng and colleagues<sup>[57]</sup> found that lifetime victimization was associated with PTSD in pregnant women, and the PTSD symptom count of these women was significantly negatively associated with perinatal outcomes. In our research, IPV experienced during pregnancy was associated with greater likelihood of premature labor, later entrance into prenatal care, greater utilization of healthcare resources, and more prenatal substance use.<sup>[58]</sup> Seng *et al.*<sup>[59]</sup> also found that PTSD diagnosis was associated with pregnancy and birth complications. Rosen *et al.*<sup>[60]</sup> found that prevalence of prenatal IPV was two times as high among women who gave birth to low birth-weight infants as compared to those with normal birth-weight infants.

### Intimate Partner Violence and Children

Although not the focus of this article, it is important to note that when mothers are victims of IPV, their children are often affected. More than half the women who experience IPV live with children under age 12.<sup>[61]</sup> Multiple studies indicate that about 20-25% of children report witnessing incidents of IPV between their parents.<sup>[62-64]</sup>

Intimate partner violence may affect children even before they are born. Prenatal IPV has been associated with compromised infant attachment to mothers at six months<sup>[65]</sup> and at age one.<sup>[66]</sup> In our own research, we found that women who had been abused during their pregnancies had significantly more negative thoughts and expectations about their unborn babies than did nonabused women.<sup>[67]</sup> We also examined the stability of these maternal representations of caretaking (i.e., how mothers thought about their relationships with and care for their infants) from pregnancy to one year postpartum.<sup>[68]</sup> Women who changed from positive to less positive representations were more likely to be abused during pregnancy than were nonabused women. And, women with more negative prenatal schemas were more controlling and hostile with their infants at one year.<sup>[69]</sup>

Once born, the effects of maternal IPV victimization may be seen beginning in infancy. Our research indicates that at age one, infants exposed to IPV were more reactive to adult anger than those who were not exposed<sup>[70]</sup> and were likely to exhibit trauma symptoms.<sup>[71]</sup> Preschool and school-age children also exhibit trauma symptoms as a result of witnessing IPV.<sup>[72-76]</sup> And a recent meta-analysis indicated that effect sizes for trauma symptoms occurring as a result of IPV exposure were greater than those for other forms of internalizing behaviors.<sup>[77]</sup> Of course, problems other than PTSD or trauma symptoms occur when children are exposed to IPV. Recent meta-analyses find an increased risk of behavioral and emotional problems among children living in households with IPV.<sup>[77,78]</sup>

Impaired parenting may result from IPV, and it has been hypothesized as one of the causal mechanisms that influence child outcomes. Much research has documented the deleterious effects of parental depression on parenting behavior and children's functioning across many age ranges.<sup>[79-84]</sup> Depression contributes to less optimal caretaking behaviors because the mother's attention and interest in the child is reduced<sup>[85,86]</sup>

and she is not available to assist the child with emotion regulation.<sup>[86,87]</sup> English *et al.*<sup>[88]</sup> found that caregiver functioning (including depression) was a mediator between IPV and child outcomes between the ages of four and six. The studies did not test for PTSD, so although there is a large literature examining the effects of depression on parenting, the effects on parenting of PTSD alone or with depression have been rarely examined.<sup>[89-91]</sup>

### Prevention of Intimate Partner Violence

Efforts to prevent the occurrence of IPV and the resultant PTSD include both broad-based and targeted interventions with adolescents prior to the onset of violence between romantic partners. Cornelius and Resseguie<sup>[92]</sup> reviewed current intervention programs for adolescent dating violence. Although most programs are able to produce changes in attitudes and beliefs about dating violence, changes in behavior are either not assessed or, when assessed, not maintained over time. For example, Foshee and colleagues<sup>[93]</sup> implemented a dating violence prevention program with eighth and ninth graders that focused on changing behavioral norms, gender stereotypes, conflict resolution styles, and altering cognitive factors associated with help-seeking for those in dating relationships. At a one-year follow-up, the authors found changes in beliefs and attitudes toward dating violence but no significant change in dating violence behaviors. Thus, further research is needed to ascertain effective preventive interventions for IPV.

### Treatment of Post-traumatic Stress Disorder

Efforts to mitigate trauma symptoms once they emerge have been effective. Among adults suffering from PTSD, several psychotherapy treatments have received empirical support. (For a review see the article of Bisson and Andrew.<sup>[94]</sup>) Treatments categorized as “probably efficacious” by the American Psychological Association’s Division of Clinical Psychology<sup>[95]</sup> include exposure therapy,<sup>[96,97]</sup> stress inoculation treatment,<sup>[96]</sup> and eye movement desensitization and reprocessing<sup>[98]</sup>; however, whether rapid eye movement is a key ingredient in treatment is debatable.<sup>[99]</sup> In addition to these psychotherapies, medical treatment may be helpful. For example, selective serotonin reuptake inhibitors have effectively treated PTSD.<sup>[100]</sup>

Newer treatments specifically targeted for violence against women are currently being developed. For example, in contrast to a purely “exposure-based” intervention, cognitive processing therapy is an evidence-based 12-session manualized treatment for PTSD.<sup>[101,102]</sup> This treatment was specifically developed for rape and sexual assault victims, but it has been used with individuals experiencing other types of trauma (e.g., war veterans).<sup>[103]</sup> Therapy clients write about their memories of the traumatic incident and the impact it has had on their lives. These narratives are read aloud during treatment sessions so that distorted cognitions involving depression, guilt, and anger can be challenged.

Some research has examined the efficacy of treating acute stress disorder (ASD) so that PTSD does not develop.<sup>[104]</sup> The ASD

symptoms are similar to those of PTSD, but they only last up to four weeks after a traumatic event. About 80% of people experiencing ASD will go on to develop PTSD.<sup>[105]</sup> A six-session cognitive behavioral therapy treatment for ASD, following motor vehicle accidents, industrial accidents, and nonsexual assaults, prevented the development of chronic PTSD at six months<sup>[106]</sup> and four years after the event.<sup>[107]</sup> To date, this intervention has not been tested with women who experience IPV.

However, it is important to note that not all preventive treatments for PTSD are effective. Many recent review articles indicate that at least one popular treatment—psychological debriefing, in which individuals are encouraged to engage in discussion about the critical incident—may actually increase or maintain symptoms.<sup>[108-110]</sup>

### Conclusion

It is clear that women who experience IPV are at considerable risk of developing PTSD. The effects of IPV on victims are profound. Factors such as victimization during childhood, sexual abuse by a partner, type of abuse (e.g., sexual, physical), and timing of abuse (chronic, recent) may increase the probability that women will develop PTSD. When considering the effects of IPV on women, practitioners must also be mindful of how the IPV and the woman’s experiences of it may affect families and children. However, there are factors that reduce the chance that women will develop PTSD as a result of IPV experiences. Social support and proactive coping styles may reduce the likelihood that PTSD will develop, and recent research suggests that effective psychological and pharmacological treatments are available.

### References

1. Rennison C. *Intimate partner violence, 1993-2001*. Washington, DC: Bureau of Justice Statistics, Department of Justice; 2003.
2. Tjaden P, Thoennes N. Extent, nature, and consequences of intimate partner violence: Findings from the national violence against women survey. Washington, DC: US Department of Justice, National Institute of Justice and Centers for Disease Control Prevention 2000. NCJ, 181867.
3. Fantuzzo J, Boruch R, Beriama A, Atkins M, Marcus S. Domestic violence and children: Prevalence and risk in five major US cities. *J Am Acad Child Adolesc Psy* 1997;36:116-22.
4. Gazmararian JA, Peterson R, Spitz AM, Goodwin MM, Saltzman LE, Marks JS. Violence and reproductive health: Current knowledge and future research directions. *Matern Child Hlth J* 2000;4:329-53.
5. Morland LA, Leskin GA, Block CR, Campbell J, Friedman MJ. Intimate partner violence and miscarriage: Examination of the role of physical and psychological abuse and PTSD. *J Interpers Violence* 2008;23:652-69.
6. Bogat GA, Levendosky AA, Theran S, von Eye A, Davidson WS. Predicting the psychosocial effects of interpersonal partner violence (IPV). *J Interpers Violence* 2003;18:1271-91.
7. Cascardi M, O’Leary KD. Depressive symptomatology, self-esteem, and self-blame in battered women. *J Fam Violence* 1992;7:249-59.
8. Houskamp BM, Foy DW. The assessment of posttraumatic stress disorder in battered women. *J Interpers Violence* 1991;6:367-75.
9. Kessler RC, Molnar BE, Feurer ID, Appelbaum M. Patterns and mental health predictors of domestic violence in the United States: Results from the National Comorbidity Survey. *Int J Law Psychiatry* 2001;24:487-508.
10. Vitanza S, Vogel LC, Marshall LL. Distress and symptoms of posttraumatic stress disorder in abused women. *Violence Vict* 1995;10:23-34.

11. Bogat GA, Levendosky AA, DeJonghe E, Davidson WS, von Eye A. Pathways of suffering: The temporal effects of domestic violence on women's mental health. *Maltrattamento e abuso all'infanzia* 2004;6:97-112.
12. American Psychiatric Association. *Diagnostic and statistical manual of mental disorders*. 4th ed. Washington, DC: 1994.
13. Perkonig A, Kessler RC, Storz S, Wittchen HU. Traumatic events and post-traumatic stress disorder in the community: Prevalence, risk factors, and comorbidity. *Acta Psychiatr Scand* 2000;101:46-59.
14. Breslau N, Davis GC, Peterson EL, Schultz L. Psychiatric sequelae of posttraumatic stress disorder in women. *Arch Gen Psychiatry* 1997;54:81-7.
15. Kessler RC, Sonnega A, Bromet E, Hughes M, Nelson CB. Posttraumatic stress disorder in the National Comorbidity Survey. *Arch Gen Psychiatry* 1995;52:1048-60.
16. Kemp A, Rawlings EI, Green BL. Post-traumatic stress disorder (PTSD) in battered women: A shelter sample. *J Trauma Stress* 1991;4:137-48.
17. Kemp A, Green BL, Hovanitz C, Rawlings EI. Incidence and correlates of posttraumatic-stress-disorder in battered women - Shelter and community samples. *J Interpers Violence* 1995;10:43-55.
18. Basile KC, Arias I, Desai S, Thompson MP. The differential association of intimate partner physical, sexual, psychological, and stalking violence and posttraumatic stress symptoms in a nationally representative sample of women. *J Trauma Stress* 2004;17:413-21.
19. Varma D, Chandra PS, Thomas T, Carey MP. Intimate partner violence and sexual coercion among pregnant women in India: Relationship with depression and post-traumatic stress disorder. *J Affect Disord* 2007;102:227-35.
20. Pico-Alfonso MA, Garcia-Linares MI, Celda-Navarro N, Blasco-Ros C, Echeburúa E, Martinez M. The impact of physical, psychological, and sexual intimate male partner violence on women's mental health: Depressive symptoms, posttraumatic stress disorder, state anxiety, and suicide. *J Women Health* 2006;15:599-611.
21. McEwen BS. Glucocorticoids, depression, and mood disorders: Structural remodeling in the brain. *Metabolism* 2005;54:20-3.
22. Mirescu C, Gould E. Stress and adult neurogenesis. *Hippocampus* 2006;16:233-8.
23. Inslicht SS, Marmar CR, Neylan TC, Metzler TJ, Hart SL, Otte C, *et al.* Increased cortisol in women with intimate partner violence-related posttraumatic stress disorder. *Psychoneuroendocrinology* 2006;31:825-38.
24. Pico-Alfonso MA, Garcia-Linares MI, Celda-Navarro N, Herbert J, Martinez M. Changes in cortisol and dehydroepiandrosterone in women victims of physical and psychological intimate partner violence. *Biol Psychiatry* 2004;56:233-40.
25. Seedat S, Stein MB, Kennedy CM, Hauger RL. Plasma cortisol and neuropeptide Y in female victims of intimate partner violence. *Psychoneuroendocrinology* 2003;28:796-808.
26. Griffin MG, Resick PA, Yehuda R. Enhanced cortisol suppression following dexamethasone administration in domestic violence survivors. *Am J Psychiatry* 2005;162:1192-9.
27. Miller GE, Chen E, Zhou ES. If it goes up, must it come down? Chronic stress and the hypothalamic-pituitary-adrenocortical axis in humans. *Psychol Bull* 2007;133:25-45.
28. Heim C, Nemeroff CB. The role of childhood trauma in the neurobiology of mood and anxiety disorders: Preclinical and clinical studies. *Biol Psychiatry* 2001;49:1023-39.
29. Yehuda R, Bierer LM, Schmeidler J, Aferiat DH, Breslau I, Dolan S. Low cortisol and risk for PTSD in adult offspring of holocaust survivors. *Am J Psychiatry* 2000;157:1252-9.
30. Olf M, Güzelcan Y, de Vries GJ, Assies A, Gersons BP. HPA- and HPT-axis alterations in chronic posttraumatic stress disorder. *Psychoneuroendocrinology* 2006;31:1220-30.
31. Messman-Moore TL, Long PJ, Siegfried NJ. The revictimization of child sexual abuse survivors: An examination of the adjustment of college women with child sexual abuse, adult sexual assault, and adult physical abuse. *Child Maltreat* 2000;5:18-27.
32. Sandberg DA, Matorin AI, Lynn SJ. Dissociation, posttraumatic symptomatology, and sexual revictimization: A prospective examination of mediator and moderator effects. *J Trauma Stress* 1999;12:127-38.
33. Koopman C, Ismailji T, Holmes D, Classen CC, Palesh O, Wales T. The effects of expressive writing on pain, depression and posttraumatic stress disorder symptoms in survivors of intimate partner violence. *J Health Psychol* 2005;10:211-21.
34. Lewis CS, Jospitre T, Griffing S, Chu M, Sage RE, Madry L, *et al.* Childhood maltreatment, familial violence, and retraumatization: Assessing inner-city battered women. *J Emotional Abuse* 2006;6:47-67.
35. Weaver TL, Allen JA, Hopper E, Maglione ML, McLaughlin D, McCullough MA, *et al.* Mediators of suicidal ideation within a sheltered sample of raped and battered women. *Health Care Women Int* 2007;28:478-89.
36. Temple JR, Weston R, Rodriguez BF, Marshall LL. Differing effects of partner and nonpartner sexual assault on women's mental health. *Violence Against Women* 2007;13:285-97.
37. Taft CT, Resick PA, Panuzio J, Vogt DS, Mechanic MB. Coping among victims of relationship abuse: A longitudinal examination. *Violence Vict* 2007;22:408-18.
38. Coker AL, Smith PH, Thompson MP, McKeown RE, Bethea L, Davis KE. Social support protects against the negative effects of partner violence on mental health. *J Women Health Gend Based Med* 2002;11:465-76.
39. Thompson MP, Kaslow NJ, Kingree JB, Rashid A, Puett R, Jacobs D, *et al.* Partner violence, social support and distress among inner-city African American women. *Am J Commun Psychol* 2000;28:127-43.
40. Carlson BE, McNutt L, Choi DY, Rose IM. Intimate partner abuse and mental health: The role of social support and other protective factors. *Violence Against Women* 2002;8:720-45.
41. Kaslow NJ, Thompson MP, Meadows LA, Jacobs D, Chance S, Gibb B, *et al.* Factors that mediate and moderate the link between partner abuse and suicidal behavior in African American women. *J Consult Clin Psychol* 1998;66:533-40.
42. Levendosky AA, Bogat GA, Theran SA, Trotter JS, von Eye A, Davidson WS II. The social networks of women experiencing domestic violence. *Am J Community Psychol* 2004;34:95-109.
43. Glass N, Perrin N, Campbell JC, Soeken K. The protective role of tangible support on post-traumatic stress disorder symptoms in urban women survivors of violence. *Res Nurs Health* 2007;30:558-68.
44. Martin ME, Hesselbrock M. Women prisoners' mental health: Vulnerabilities, risks and resilience. *J Offender Rehabil* 2001;34:25-43.
45. Leone JM, Johnson MP, Cohan CL. Victim help seeking: Differences between intimate terrorism and situational couple violence. *Fam Relat* 2007;56:427-39.
46. Connor KM, Davidson JR, Lee LC. Spirituality, resilience, and anger in survivors of violent trauma: A community survey. *J Trauma Stress* 2003;16:487-94.
47. Reviere SL, Farber EW, Twomey H, Okun A, Jackson E, Zenville H, *et al.* Intimate partner violence and suicidality in low-income African American women: A multimethod assessment of coping factors. *Violence Against Women* 2007;13:1113-29.
48. Calvete E, Estévez A, Corral S. Intimate partner violence and depressive symptoms in women: Cognitive schemas as moderators and mediators. *Behav Res Ther* 2007;45:791-804.
49. Tull MT, Jakupcak M, McFadden ME, Roemer L. The role of negative affect intensity and the fear of emotions in posttraumatic stress symptom severity among victims of childhood interpersonal violence. *J Nerv Ment Dis* 2007;195:580-7.
50. Feldner MT, Lewis SF, Leen-Feldner EW, Schnurr PP, Zvolensky MJ. Anxiety sensitivity as a moderator of the relation between trauma exposure frequency and posttraumatic stress symptomatology. *J Cognitive Psychother* 2006;20:201-13.
51. Gazmararian JA, Lazorick S, Spitz AM, Ballard TJ, Saltzman LE, Marks JS. Prevalence of violence against pregnant women. *JAMA* 1996;275:1915-20.
52. Bachman R, Saltzman LE. *Violence against women: Estimates from the redesigned National Crime Victimization Survey*: Bureau of Justice Statistics, U.S. Department of Justice; 1995. NCJ-154348.
53. Courtois CA, Courtois Riley C. *Pregnancy and childbirth as triggers for abuse memories: Implications for care*. Birth 1992;19:222-3.
54. *The impact of childhood sexual abuse on the birthing woman* [audiocassette]. Eugene, Oregon: Midwifery Today; 1993.
55. Cloitre M, Scarvalone P, Difede JA. Posttraumatic stress disorder, self- and interpersonal dysfunction among sexually retraumatized women. *J Trauma Stress* 1997;10:437-52.

56. Roth S, Newman E, Pelcovitz D, van der Kolk B, Mandel FS. Complex PTSD in victims exposed to sexual and physical abuse: Results from the DSM-IV Field Trial for Posttraumatic Stress Disorder. *J Trauma Stress* 1997;10:539-55.
57. Seng JS, Low LK, Ben-Ami D, Liberzon I. Cortisol level and perinatal outcome in pregnant women with posttraumatic stress disorder: A pilot study. *J Midwifery Women Health* 2005;50:392-8.
58. Huth-Bocks AC, Levendosky AA, Bogat GA. The effects of domestic violence during pregnancy on maternal and infant health. *Violence Vict* 2002;17:169-85.
59. Seng JS, Oakley DJ, Sampsel CM, Killion C, Graham-Bermann S, Liberzon I. Posttraumatic stress disorder and pregnancy complications. *Obstet Gynecol* 2001;97:17-22.
60. Rosen D, Seng JS, Tolman RM, Mallinger G. Intimate partner violence, depression, and posttraumatic stress disorder as additional predictors of low birth weight infants among low-income mothers. *J Interpers Violence* 2007;22:1305-14.
61. Bureau of Justice. Statistics. At a glance. Available from: <http://www.ojp.usdoj.gov/bjs/pub/pdf/bjs02.pdf>. [cited in 2002].
62. McCloskey LA, Figueredo AJ, Koss MP. The effects of systemic family violence on children's mental health. *Child Dev* 1995;66:1239-61.
63. McCloskey LA, Walker M. Posttraumatic stress in children exposed to family violence and single-event trauma. *J Am Acad Child Adolesc Psychiatry* 2000;39:108-15.
64. O'Brien M, John RS, Margolin G, Erel O. Reliability and diagnostic efficacy of parents' reports regarding children's exposure to marital aggression. *Violence Vict* 1994;9:45-62.
65. Quinlivan JA, Evans SF. Impact of domestic violence and drug abuse in pregnancy on maternal attachment and infant temperament in teenage mothers in the setting of best clinical practice. *Arch Women Ment Health* 2005;8:191-9.
66. Huth-Bocks AC, Levendosky AA, Bogat GA, von Eye A. The impact of maternal characteristics and contextual variables on infant-mother attachment. *Child Dev* 2004;75:480-96.
67. Huth-Bocks AC, Levendosky AA, Theran SA, Bogat GA. The impact of domestic violence on mothers' prenatal representations of their infants. *Inf Mental Hlth J* 2004;25:79-98.
68. Theran SA, Levendosky AA, Bogat GA, Huth-Bocks AC. Stability and change in mothers' internal representations of their infants over time. *Attach Hum Dev* 2005;7:1-16.
69. Dayton CJ, Levendosky AA, Davidson WS, Bogat GA. The child as held in the mind of the mother: The impact of prenatal maternal representations on later parenting behaviors. Poster presented at the biennial meeting of the Society for Research in Child Development Boston, MA; April, 2007.
70. DeJonghe ES, Bogat GA, Levendosky AA, von Eye A, Davidson WS. Infant exposure to domestic violence predicts heightened sensitivity to adult verbal conflict. *Infant Mental Health J* 2005;26:268-81.
71. Bogat GA, DeJonghe E, Levendosky AA, Davidson WS, von Eye A. Trauma symptoms among infants who witness domestic violence toward their mothers. *Child Abuse Negl* 2006;30:109-25.
72. Graham-Bermann SA, Levendosky AA. Traumatic stress symptoms in children of battered women. *J Interpers Violence* 1998;13:111-28.
73. Kilpatrick KL, Williams LM. Post-traumatic stress disorder in child witnesses to domestic violence. *Am J Orthopsychiatry* 1997;67:639-44.
74. Lehmann P. The development of posttraumatic stress disorder (PTSD) in a sample of child witnesses to mother assault. *J Fam Violence* 1997;12:241-57.
75. Rossman BB. Descartes error and post-traumatic stress disorder: Cognition and emotion in children exposed to parental violence. In: Holden GW, Geffner R, Jouriles E, editors. *Children exposed to marital violence: Theory, research, and applied issues*. Washington: American Psychological Association; 1998: p. 223-56.
76. Levendosky AA, Huth-Bocks AC, Semel MA. Trauma symptoms in preschool-age children exposed to domestic violence. *J Interpers Violence* 2002;17:150-64.
77. Kitzmann KM, Gaylord NK, Holt AR, Kenny ED. Child witnesses to domestic violence: A meta-analytic review. *J Consult Clin Psychol* 2003;71:339-52.
78. Wolfe DA, Crooks CV, Lee V, McIntyre-Smith A, Jaffe PG. The effects of children's exposure to domestic violence: A meta-analysis and critique. *Clin Child Fam Psychol Rev* 2003;6:171-87.
79. Cicchetti D, Rogosch FA, Toth SL. Maternal depressive disorder and contextual risk: Contributions to the development of attachment insecurity and behavior problems in toddlerhood. *Dev Psychopathol* 1998;10:283-300.
80. Hoffman C, Crnic KA, Baker JK. Maternal depression and parenting: Implications for children's emergent emotion regulation and behavioral functioning. *Parent-Sci Pract* 2006;6:271-95.
81. Lyons-Ruth K, Wolfe R, Lyubchik A, Steingard R. Depressive symptoms in parents of children under age 3: Sociodemographic predictors, current correlates, and associated parenting behaviors. In: Halfon N, McLearn KT, Schuster MA, eds. *Child rearing in America: Challenges facing parents with young children*. New York, NY: Cambridge University Press; 2002.
82. Rogosch FA, Mowbray CT, Bogat GA. Determinants of parenting attitudes in mothers with severe psychopathology. *Dev Psychopathol* 1992;4:469-87.
83. Rutter M. The developmental psychopathology of depression: Issues and perspectives. In: Rolf J, Masten AS, Cicchetti D, Nuechterlein KN, Weintraub S, eds. *Risk and protective factors in the development of psychopathology*. Cambridge: Cambridge University Press; 1990.
84. Sameroff AJ, Seifer R, Zax M. Early development of children at risk for emotional disorder. *Monographs of the Society for Research in Child Dev* 1982;47:82.
85. Gelfand DM, Teti DM. The effects of maternal depression on children. *Clin Psychol Rev* 1990;10:329-53.
86. Zahn-Waxler C, Iannotti RJ, Cummings EM. Antecedents of problem behaviors in children of depressed mothers. *Dev Psychopathol* 1990;2:271-91.
87. Cummings EM, Cicchetti D. Towards a transactional model of relations between attachment and depression. In: Greenberg MT, Cicchetti D, Cummings EM, editors. *Attachment in the preschool years: Theory, research, and intervention*. Chicago: University of Chicago Press; 1990. p. 339-72.
88. English DJ, Marshall DB, Stewart AJ. Effects of family violence on child behavior and health during early childhood. *J Fam Violence* 2003;18:43-57.
89. Capaldi DM, Dishion TJ, Stoolmiller M, Yoerger K. Aggression toward female partners by at-risk young men: The contribution of male adolescent friendships. *Dev Psychol* 2001;37:61-73.
90. Levendosky AA, Bogat GA. Domestic violence and maternal PTSD affect parenting 23<sup>rd</sup> Annual Meeting of the International Society for Traumatic Stress Studies (ISTSS). Baltimore, MD: Paper presented in the symposium, Maternal parenting and posttraumatic stress symptoms: Implications for interventions, G. Anne Bogat (Chair); 2007.
91. Ruscio AM, Weathers FW, King LA, King DW. Male war-zone veterans' perceived relationships with their children: The importance of emotional numbing. *J Trauma Stress* 2002;15:351-7.
92. Cornelius TL, Resseguie N. Primary and secondary prevention programs for dating violence: A review of the literature. *Aggress Violent Beh* 2007;12:364-75.
93. Foshee VA, Bauman KE, Greene WF, Koch GG, Linder GF, MacDougall JE. The Safe dates program: 1-year follow-up results. *Am J Public Health* 2000;90:1619-22.
94. Bisson J, Andrew M. Psychological treatment of post-traumatic stress disorder (PTSD). *Cochrane Database of Systematic Reviews* 2005;2:CD003388.
95. Chambless DL, Baker MJ, Baucom DH. Update on empirically validated therapies II. *Clin Psychol* 1998;51:3-16.
96. Foa EB, Rothbaum BO, Riggs DS, Murdock TB. Treatment of posttraumatic stress disorder in rape victims: A comparison between cognitive-behavioral procedures and counseling. *J Consult Clin Psychol* 1991;59:715-23.
97. Keane TM, Fairbank JA, Caddell JM. Implosive (flooding) therapy reduces symptoms of PTSD in Vietnam combat veterans. *Behav Ther* 1989;20:245-60.
98. Wilson SA, Becker LA, Tinker RH. Eye movement desensitization and reprocessing (EMDR) treatment for psychologically traumatized individuals. *J Consult Clin Psychol* 1995;63:928-37.
99. Davidson PR, Parker KC. Eye movement desensitization and reprocessing (EMDR): A meta-analysis. *J Consult Clin Psychol* 2001;69:305-16.
100. Albuher RC, Liberzon I. Psychopharmacological treatment in PTSD: A critical review. *J Psychiatr Res* 2002;36:355-67.
101. Resick PA, Nishith P, Weaver TL, Astin MC, Feuer CA. A comparison of cognitive-processing therapy with prolonged exposure and a waiting

- condition for the treatment of chronic posttraumatic stress disorder in female rape victims. *J Consult Clin Psychol* 2002;70:867-79.
102. Resick PA, Schnicke MK. Cognitive processing therapy for sexual assault victims. *J Consult Clin Psychol* 1992;60:748-56.
  103. Monson CM, Schnurr PP, Resick PA, Friedman MJ, Young-Xu Y, Stevens SP. Cognitive processing therapy for veterans with military-related posttraumatic stress disorder. *J Consult Clin Psychol* 2006;74:898-907.
  104. Bryant RA, Sackville T, Dang ST, Moulds M, Guthrie R. Treating acute stress disorder: An evaluation of cognitive behavioral therapy and supporting counseling techniques. *Am J Psychiatry* 1999;156:1780-6.
  105. Harvey AG, Bryant RA. The relationship between acute stress disorder and posttraumatic stress disorder: A prospective evaluation of motor vehicle accident survivors. *J Consult Clin Psychol* 1998;66:507-12.
  106. Bryant RA, Harvey AG, Dang ST, Sackville T, Basten C. Treatment of acute stress disorder: A comparison of cognitive-behavioural therapy and supportive counselling. *J Consult Clin Psychol* 1998;66:862-6.
  107. Bryant RA, Moulds ML, Nixon RV. Cognitive behaviour therapy of acute stress disorder: A four-year follow-up. *Behav Res Ther* 2003;41:489-94.
  108. Everly GS Jr, Flannery RB Jr, Eyler VA. Critical incident stress management (CISM): A statistical review of the literature. *Psychiatric Q* 2002;73:171-82.
  109. McNally RJ, Bryant RA, Ehlers A. Does early psychological intervention promote recovery from posttraumatic stress? *Psychol Sci Public Interest* 2003;4:45-79.
  110. Rose S, Bisson J, Wessely S. A systematic review of single-session psychological interventions ('debriefing') following trauma. *Psychother Psychosom* 2003;72:176-84.

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