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*J Interpers Violence* 2006; 21; 955

DOI: 10.1177/0886260506289178

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# Intimate Partner Violence, PTSD, and Adverse Health Outcomes

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The high prevalence of adverse health outcomes related to intimate partner violence (IPV) is well documented. Yet we know little about the pathways that lead to adverse health outcomes. Research concerning the psychological, biological, neurological, behavioral, and physiological alterations following exposure to IPV—many of which are associated with posttraumatic stress disorder (PTSD)—represents a promising area of empirical discovery. New technologies and interdisciplinary collaborative efforts are required to integrate diverse methodologies and to apply new findings to improving the health and well being of those affected by IPV. This article focuses on victimization by IPV and addresses the most important research findings in the last 20 years (health and mental health burden of IPV), the most important research issue for the next decade (pathways between IPV and adverse health outcomes), and the most promising methodological innovation for the study of IPV (integrated, interdisciplinary, biobehavioral methodology).

**Keywords:** *intimate partner violence; health; PTSD*

***T***he World Health Report on Violence and Health (World Health Organization [WHO], 2002) defined violence as

the intentional use of physical force or power, intentional or actual, against oneself, against another person, or against a group or community that either results in, or has high likelihood of, resulting in injury, death, psychological harm, maldevelopment, or deprivation. (p. 5)

This broad definition of violence recognizes a wide range of outcomes beyond injury or death and highlights the need to tackle the challenge of the

immense burden violence poses to individuals, families, communities, and the health care system.

Of the 23 million crimes against persons age 12 years and older in the United States in 2002, 5.3 million were crimes of violence (U.S. Department of Justice, 2002). Population-based studies estimate that physical violence affects between 10% and 25% of all adults at some point during their childhood (Wolf & Nayak, 2003). Women (22%) and men (7%) report experiencing intimate partner violence (IPV) during their adult lives (Tjaden & Thoennes, 2002). The high prevalence of violence against men, women, and children is found worldwide (WHO, 2002). Clearly, violence is a major problem with widespread implications for health.

This article focuses on victimization by IPV and addresses the most important research findings in the past 20 years (health and mental health burden of IPV), the most important research issue for the next decade (pathways between IPV and adverse health outcomes), and the most promising methodological innovation for the study of IPV (integrated, interdisciplinary, and biobehavioral methodology).

## **The Immense Health and Mental Health Burden of IPV Exposure**

During the past 20 years, research has demonstrated the immense health and mental health burden that result from exposure to trauma. Trauma exposure and its emotional sequelae make a substantial contribution to physical health problems (Felliti et al., 1998; Friedman & Schnurr, 1995; B. L. Green & Kimerling, 2004; Walker et al., 1999). Individuals exposed to trauma report poorer health status and more physical symptoms than do similar nonexposed individuals and have more objective indicators of poor health and more medical diagnoses. There is also evidence that trauma exposure is associated with greater functional impairment and a poorer course of disease among individuals with specific medical conditions (B. L. Green & Kimerling, 2004).

### **Adverse Health Outcomes**

Specifically, women who have experienced IPV are more likely to experience higher rates of health problems and perceive their overall health as poor (Campbell & Soeken, 1999; C. R. Green, Flowe-Valencia, Rosenblum, & Tait, 1999; Lown & Vega, 2001; Resnick, Acierno, & Kilpatrick, 1997). The

most common somatic complaints include headaches, insomnia, choking sensations, hyperventilation, gastrointestinal symptoms, and chest, back, and pelvic pain (ACOG, 1995; Dutton, Haywood, & El-Bayoumi, 1997). The relationship between negative health consequences and battering has been shown to be the strongest among low-income women (Sutherland, Sullivan, & Bybee, 2001).

Injury is an obvious and well-recognized health impact of IPV. Although any type of injury may be sustained from IPV, contusions, abrasions, minor lacerations, fractures or sprains; injuries to the head, neck, chest, breast, and abdomen; injuries during pregnancy; and repeated or chronic injuries are the most common characteristics of domestic violence assaults (American Medical Association [AMA], 1992). Head injury is an often unrecognized form of injury to women who are exposed to IPV (Jackson, Philp, Nuttall, & Diller, 2002). Chronic pain syndromes are found more commonly in women who have experienced domestic violence and child abuse than controls (Kendall-Tackett, Marshall, & Ness, 2003). Violence and abuse during pregnancy may also result in detrimental health outcomes to a mother and child including low birth weight; fetal death by placenta abruption; antepartum hemorrhage; fetal fractures; rupture of the uterus, liver, or spleen; and premature labor (Bullock, 1989; Huth-Bocks, Levendosky, & Bogat, 2002; McFarlane, Campbell, Sharps, & Watson, 2002; McFarlane, Parker, & Soeken, 1995; Saltzman, 1990; Torres et al., 2000). IPV also places women at higher risk for other physical health concerns, including HIV and sexually transmitted diseases (STDs), alcohol and drug abuse, and attempted suicides (AMA, 1992; Zierler, Witbeck, & Mayer, 1996).

Recognizing the need to differentiate the health outcomes for women with varied violent and abuse experiences, more recent studies have sought to investigate how different types of IPV can influence women's perceived health outcomes. For example, psychological abuse has been found to contribute uniquely to pain and poorer physical health (Murphy, Dutton, & Somberg, 2002) over and above the influence of physical partner violence. Sexual abuse histories have been specifically linked to increased gynecological symptoms, pelvic, abdominal, and stomach pain symptoms (Campbell & Soeken, 1999; C. R. Green et al., 1999; Lown & Vega, 2001). However, it is difficult to assess the influence of sexual violence alone on health outcomes in women because sexual abuse seldom occurs without any physical violence among this population (Coker, Smith, McKeown, & King, 2000). Nevertheless, sexual and physical violence have been found to be more detrimental to physical and emotional health than experiencing physical violence alone.

## Mental Health Outcomes

A review of mental health problems among women with a history of IPV in the United States (Golding, 1999) reported that victims had a 3 to 5 times greater likelihood of depression, suicidality, posttraumatic stress disorder (PTSD), and substance abuse than nonvictims. The prevalence rates of PTSD among battered women vary from 31% to 84.4% (Golding, 1999; Jones, Hughes, & Unterstaller, 2001). Greater severity and frequency of physical violence, including life threat, has been shown to relate to the development of PTSD (Astin, Lawrence, & Foy, 1993; Houskamp & Foy, 1991; Kemp, Rawlings, & Green, 1991; Woods, 2000). Use of a weapon and sexual IPV also have been shown to predict greater PTSD symptom severity and frequency (Dutton, 2003b, 2003c; Hattendorf, Ottens, & Lomax, 1999). Greater psychological abuse has been shown to increase posttraumatic symptomatology as well. Psychological abuse is a stronger predictor of PTSD than physical abuse among women (Dutton, Goodman, & Bennett, 2001; Street & Arias, 2001). Multiple experiences of victimization throughout adulthood and childhood, especially among women experiencing current IPV with histories of childhood sexual abuse, have been found to be associated with greater PTSD (Astin, Oglan-Hand, Coleman, & Foy, 1995; Messman-Moore, Long, & Siegfried, 2000; Schaaf & McCanne, 1998).

Depression is another common psychological reaction to IPV (Cascardi, O'Leary, & Schlee, 1999; Watson et al., 1997; West, Fernandez, Hillard, Schoof, & Parks, 1990). In women who have been diagnosed with major depression, approximately 60% report histories of intimate partner abuse, a rate that is 2 times greater than the general population (Dienemann et al., 2000). Greater lifetime prevalence rates of major depression, relative to PTSD, have been found in samples of battered women (Gleason, 1993; Stein & Kennedy, 2001). Women experiencing IPV frequently develop comorbid depression and PTSD. Major depression is the most commonly cited comorbid disorder with PTSD and occurs in greater than 50% of women (Cascardi et al., 1999; Stein & Kennedy, 2001).

Greater severity of traumatic experiences is associated with greater depression (Campbell, Kub, Belknap, & Templin, 1997; Cascardi & O'Leary, 1992; Follette, Polusny, Bechtle, & Naugle, 1996). Dutton and colleagues found that higher severity and the inclusion of sexual violence in the pattern of IPV (Dutton, 2003a, 2003c), as well as continuing IPV during the course of a year (Dutton, 2003c) were associated with higher levels of depression.

## **Pathways Between IPV and Adverse Health Outcomes**

Primary prevention of IPV is a paramount goal. However, until we reach that goal, we need to know how to ameliorate the adverse health outcomes associated with exposure to IPV. Understanding the pathways between IPV and health status could lead to more effective means of treating adverse health outcomes among women who have experienced partner violence (Kendall-Tackett, 2003). The development of effective interventions requires knowledge about the pathways to adverse health consequences because not all persons exposed to IPV victimization develop such adverse health outcomes.

As discussed above, there is ample evidence documenting the immense health and mental health burden of traumatic exposure, including IPV. PTSD is not the only mental health reaction following trauma, yet it appears to be a linchpin in the relationship between exposure to violence and negative health outcomes (Schnurr & Green, 2004). PTSD has been shown to be a common outcome of exposure to violence, and the poor health outcomes associated with violence have been shown to be mediated through the development of PTSD. Depression has some important relationships with health as well, although PTSD has been shown specificity with regard to this mediational role (B. L. Green & Kimerling, 2004).

PTSD has been shown to elevate symptom reporting, increase rates of morbidity, and affect the course and impact of illness (B. L. Green & Kimerling, 2004; Schnurr & Jankowski, 1999). Friedman and Schnurr (1995), Schnurr and Green (2004), and Schnurr and Jankowski (1999) have proposed that PTSD is a major pathway by which violence exposure affects physical health, and increasing evidence supports this mediation hypothesis.

Generally, PTSD and depression have been found to lead to negative health behaviors (Brunello et al., 2001; Cohen, Alfonso, Hoffman, Milau, & Carrera, 2001; Hutton et al., 2001). Because many battered women experience posttraumatic stress and depression symptoms, we need to understand the unique consequences of these symptoms on physical health outcomes. Potential health behavior pathways to adverse health outcomes through PTSD might involve issues related to medical adherence and compliance, as well as coping strategies for dealing with PTSD. These issues might be particularly relevant to chronic illnesses such as diabetes, cancer, HIV/AIDS, heart disease, and sickle cell anemia.

## Methodological Innovations

The most promising methodological innovation for the study of the pathway between IPV, PTSD, and adverse health outcomes is based on a model of physical health consequences following trauma offered by Schnurr and Green (2004). This model represents an integrated, interdisciplinary, biobehavioral approach to studying the multiple pathways outlined in the model, including psychological, biological, neurological, behavioral, and physiological processes. Although a body of research exists in each of these areas, there is little research that examines each in the context of the others. Next is a brief examination of the literature suggesting various alterations associated with PTSD that might contribute to such an integrated methodological approach.

### Psychological Alterations

PTSD can alter psychological functioning. For example, depression is frequently found to be comorbid with PTSD (Breslau, 2000). Furthermore, the risk of depression has been shown to be significantly increased among trauma-exposed individuals who develop PTSD, relative to those who do not (Breslau, 2000). Depression therefore may affect physical health not only as a primary reaction to trauma exposure but also as a consequence of PTSD. Another psychological alteration associated with PTSD and related to physical health is hostility, as hostility is associated with greater likelihood of cardiovascular disease (Goldstein & Niaura, 1992). The cognitive appraisal of future threat following exposure to violent traumatic experiences is also associated with PTSD, including IPV (Dutton, 2003b). In one study of New York City workers exposed to violence in the September 11 attacks (Piotrkowski & Brannen, 2002), greater worry about future attacks (threat appraisal) was associated with higher levels of PTSD. This finding has preliminary support among abused women (Dutton & Kaltman, 2003).

### Biological Alterations

Biological alterations associated with the stress response and with PTSD offer another link between PTSD and adverse health outcomes. Significant alterations of two primary neurobiological systems of the stress response systems have been documented in patients with PTSD: the locus coeruleus/norepinephrine-sympathetic system (LC/NE) system and the HPA axis (Friedman & McEwen, 2004). Increases in circulating cortisol are

known to contribute to increases in blood pressure (Kelly, Mangos, Williamson, & Whitworth, 1998) and are known to be immunosuppressive and anti-inflammatory; susceptibility to autoimmune disease has been linked to a hyporesponsive HPA axis (Harbuz, Chover-Gonzalez, & Jessop, 2003). However, the variable findings on the activity of the HPA axis in PTSD prevent firm conclusions as to whether the health effects of HPA axis alterations in PTSD are those associated with high or low cortisol. Because cortisol has immunosuppressive effects, the implications for the immune system are especially important. Alterations in regulation of the HPA axis in association with PTSD could contribute to cardiovascular and immunological and/or inflammatory disorders that co-occur with PTSD.

### **Neurological Alterations**

Converging evidence from brain-imaging experiments utilizing a variety of techniques suggests that PTSD may be associated with alterations in brain structure (Bremner et al., 1995; Bremner et al., 1997; Bremner et al., 2003; Canive et al., 1997; Grossman, Buchsbaum, & Yehuda, 2002; Gurvits et al., 1996; Hull, 2002), function (Rauch et al., 2000; Shin et al., 2001), or metabolism (Mohanakrishnan Menon, Nasrallah, Lyons, Scott, & Liberto, 2003). Overall, the observed reductions in hippocampal volume, medial frontal and amygdala activity in PTSD robustly demonstrate alterations in brain structure and function in association with PTSD. The degree to which these changes are causative, rather than reflecting the effects of the disorder, remains a matter of future investigation.

### **Behavioral Alterations**

Health risk behaviors account for a substantial proportion of deaths in the United States (McGinnis & Foege, 1993). Rheingold and colleagues (Rheingold, Acierno, & Resnick, 2004) documented that trauma exposure and PTSD are associated with negative behaviors such as substance use or abuse (smoking, alcohol, drugs, and food) and failure to engage in preventive strategies (exercise, diet, safe sex, and regular health care). Failure to decrease substance abuse, as well as failure to engage in preventive behaviors, likely results from factors that decrease motivation or the ability to maintain a behavior change regimen, such as low self-efficacy, lack of social support, and depression (DeVellis & DeVellis, 2001; Havassy, Wasserman, & Hall, 1995; Niaura et al., 2001). PTSD may also affect physical and mental health by increasing risk of revictimization. Preventing revictimization is

especially important to survivors' recovery from interpersonal violence as exposure to multiple traumatic experiences affects a person's capacity to recover from subsequent traumatic events (Follette et al., 1996).

## Physiological Alterations

The physiological alterations of PTSD, especially those involving hyperreactivity of the sympathetic nervous system, may have important implications for long-term health. For instance, cardiovascular reactivity has been found to predict the development of atherosclerosis (Everson et al., 1997) and hypertension among individuals with a family history of this illness (Shapiro, 1988). Heightened reactivity has also been implicated in the occurrence of minor infectious illnesses among otherwise healthy adults (Dembroski, MacDougall, Slatts, Eliot, & Buell, 1981). In addition, elevated resting heart rate and blood pressure have been linked to future cardiovascular morbidity and mortality (Greenland et al., 1999). These findings with nontraumatized populations highlight the need to explore connections between PTSD, psychophysiological parameters, and relevant health outcomes (Peirce, Newton, Buckley, & Keane, 2002). Recent studies have found PTSD linked with a host of cardiovascular abnormalities (Friedman & McEwen, 2004; B. L. Green & Kimberling, 2004). However, more work is needed to identify the particular pathways linking alterations in PTSD to long-term health, especially efforts that can simultaneously consider the psychophysiological changes and those of other biological systems affected by PTSD.

## Conclusion

The high prevalence of adverse mental health and health outcomes resultant from IPV are well-documented. Yet we know little about the pathways that lead to adverse health outcomes. Research concerning the psychological, biological, neurological, behavioral, and physiological alterations following exposure to IPV—many of which are associated with PTSD—represents a promising area of empirical discovery rich in the potential for new developments in health promotion through prevention and intervention. New technologies and interdisciplinary collaborative efforts are required to integrate diverse methodologies and to apply new findings to improving the health and well-being of those affected by IPV.

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