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Risk Factors for Physical Injury Among Help-Seeking Battered Women:

An Exploration of Multiple Abuse Dimensions

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Abstract

Physical injuries among battered women represent risks for both acute and long-term physical health functioning. The current study assessed the nature and extent of minor and severe injuries among a help-seeking sample of battered women. Hierarchical regression analyses were conducted to assess the unique roles of physical violence, sexual coercion, psychological abuse, and stalking to the prediction of minor and severe injuries in battered women. Not unexpectedly, length of relationship abuse and severity of physical aggression were the most robust predictors of minor and severe physical injuries. Consistent with other research findings, psychological abuse and stalking, as a block, contributed uniquely to the prediction of severe injuries. Results are discussed in terms of implications for future research and intervention with battered women.

Keywords

battered women; help seeking; injury

Intimate partner abuse (IPA) is a significant public health problem facing women across the globe (Centers for Disease Control [CDC], National Center for Injury Control and Prevention, 2003; Saltzman, 2000). Intimate partner violence (IPV) results in a range of deleterious physical and mental health outcomes that are often chronic and disabling (Golding, 1999; Ham-Rowbottom, Gordon, Jarvis, & Novaco, 2005; Mechanic, 2004; Plichta, 2004; Sutherland, Bybee, & Sullivan, 2002). The economic consequences of IPV have been estimated to exceed \$5.8 billion annually, largely because of costs associated with medical and mental health care services provided to IPV survivors (CDC, National Center for Injury Control and Prevention, 2003). Costs also accrue from lost productivity at home and in the workplace secondary to mental and physical health consequences of IPV (CDC, National Center for Injury Control and Prevention, 2003; Tjaden & Thoennes, 2000b). Given the considerable costs associated with IPV-related injuries, identification of factors that increase risk for minor and severe IPV-related injuries is important for developing effective screening, intervention, and prevention efforts. The goal of the present research was to assess the unique roles of multiple forms of partner violence, specifically, physical violence, psychological abuse, and stalking in predicting minor and severe injuries to battered women.

Estimates of physical injury rates stemming from IPV-related assaults range between 40% and 60% in representative national and statewide studies of female victims of IPV (CDC, 1998,

2000b; Tjaden & Thoennes, 2000a, 2000b). Specifically, data from the National Violence Against Women Survey (NVAWS; Tjaden & Thoennes, 2000a, 2000b) indicate that 41.5% of women who were physically assaulted by an intimate partner reported sustaining an injury during their most recent assault (Tjaden & Thoennes, 2000b). Similar findings were obtained from the National Crime Victimization Survey, with 52% of victimized women reporting injuries (Bachman, 1994). Statewide surveys also document high rates of injury among women reporting intimate partner victimization (CDC, 1998, 2000b). In two separate statewide studies, approximately 60% (58% to 63%) of women victimized by IPV reported physical injuries from IPV (CDC, 1998, 2000b).

Studies conducted in hospital emergency departments and clinics also report high rates of injury among battered women. Kyriacou et al. (1999) compared 256 women who were intentionally injured by male partners with 659 comparison participants recruited from emergency departments at eight large university-based teaching hospitals. Collectively, 434 contusions and abrasions, 89 lacerations, and 41 fractures and dislocations were documented among the women intentionally injured by their male partners. In multivariate analyses, partner alcohol use, partner drug use, partner intermittent employment or unemployment, partner with less than a high school education, and former/estranged partner were associated with increased risk of injury from IPV.

Stalking and sexual assault also present risks for physical injury. Physical injuries as a consequence of rape were reported by 30% of victims in the *Rape in America* study (Kilpatrick, Edmunds, & Seymour, 1992). Of those injured, 4% reported sustaining serious injuries, whereas 24% reported minor injuries. The NVAWS found that risk of rape-related injury increased when the perpetrator was a current or former intimate partner (Tjaden & Thoennes, 2000b). Data from a variety of studies of sexual assault victims seeking medical treatment report even higher rates of physical injury. Anogenital trauma was reported by nearly three fourths of a large sample of sexually assaulted women seeking emergency department services (Jones, Wynn, Kroeze, Dunnuck, & Rossman, 2004). Women sexually assaulted by acquaintances versus strangers reported an equivalent number of anogenital injuries (2.0 vs. 2.33, respectively). In another treatment-seeking sample of sexually assaulted women in Australia, 46% sustained general physical injuries, whereas 22% suffered genital injuries. Risk factors for genital injuries included the presence of general physical injuries (Palmer, McNulty, D'Este, & Donovan, 2004). Very similar findings from a U.S. sample of treatment-seeking sexually assaulted women were reported by Sugar, Fine, and Eckert (2004). Specifically, 52% of victims sustained general bodily injuries, whereas 20% suffered genital–anal injuries.

Physical injuries as a consequence of stalking victimization have been reported. In one statewide epidemiological survey, injury rates were 4 times higher among women whose stalkers were current or former intimate partners compared with other types of stalkers (CDC, 2000a). Interestingly, there were no reported injuries among women who were stalked by strangers, even when the group was restricted to those who perceived danger or life threat from their stalkers. Unfortunately, there are relatively few studies that have examined physical injuries as a consequence of stalking.

Stalking has been recently implicated as a risk factor for lethal and near lethal assaults on battered women (Block, 2000; McFarlane, Campbell, & Watson, 2002; McFarlane et al., 1999). McFarlane et al. (2002) conducted a case control study of 821 women in 10 U.S. cities. A sample of 437 women who were killed or nearly killed by their intimate partners was compared with a control sample of 384 abused women residing in the community. The researchers assessed the relative significance of a set of risk factors for predicting femicide (i.e., homicide of a woman by her intimate partner) or near femicide (i.e., cases that could have but did not result in death for the victim). Compared with the control group of abused women

(49%), significantly more of the killed/nearly killed women had histories of stalking (79%) in their abusive relationships. Multivariate analyses indicated that being “followed or spied on” by the abuser in the 12 months before the lethal or near lethal incident resulted in a nearly 2.5-fold risk. More detailed analyses focused on the risk associated with specific threatening behaviors. Multivariate analyses controlling for demographic variables, identified five threat factors that increased odds of becoming a femicide/attempted femicide victim: (a) threatened to harm children if the woman left (aOR = 8.99), (b) frightened the woman with a weapon before the incident (aOR = 5.89), (c) left scary notes on the woman’s car before the incident (aOR = 4.37), (d) threatened to kill the woman (aOR = 3.02), and (e) frightened or threatened the woman’s family before the incident (aOR = 2.31).

Few multivariate studies have assessed risk for injury as a consequence of exposure to multiple forms of partner abuse. Thompson and colleagues (Thompson, Saltzman, & Johnson, 2001, 2003) assessed injury risk using data from the Canadian Violence Against Women Survey (CVAWS), and subsequently compared injury risk factors from the CVAWS with those from the NVAWS. Using multivariate analyses with the CVAWS data, Thompson et al. (2001) found that the risk of both minor and severe injuries was elevated in the context of partner alcohol use, children witnessing the assault, prior violence by the same partner, perceived life threat, and high levels of emotional abuse. In their follow-up comparative study, only prior partner violence and current partner abuse predicted injury risk in multivariate analyses using data from both samples. It is notable, however, that the magnitude of the relationship between high levels of emotional abuse and injury was higher in the NVAWS than the CVAWS. Thus, it is important to continue to examine the role of psychological abuse as a risk factor for battered women’s injuries.

The goal of this research was to use multivariate methods to assess the unique contributions of physical violence, psychological abuse, and stalking to the prediction of minor and severe injuries among a sample of help-seeking battered women. The research used continuous rather than categorical measures of partner violence exposure and injury, thus enhancing the sensitivity of the assessment. We predicted that stalking and psychological abuse would uniquely contribute to the prediction of physical injuries in a sample of help-seeking battered women.

Method

Recruitment/Screening Criteria

Participants were recruited from residential and nonresidential community agencies serving battered women. Multiple agencies participated in the recruitment process. They included residential shelters, legal advocacy programs, counseling agencies, and programs providing nonresidential support and outreach services to battered women.

Prospective participants contacted study personnel and were screened for eligibility on the telephone. To recruit a sample of battered women who experienced recent serial IPA, several screening criteria were employed: (a) length of abusive relationship, (b) recency of violence in that relationship, and (c) severity of partner violence. First, participants were required to have been in an intimate relationship, whether cohabiting or not, for a minimum of 3 months, effectively ruling out dating violence taking place within the context of casual dating relationships. Second, to improve reporting accuracy, we required that the most recent episode of violence occurred within the past 6 months. However, if the most recent episode occurred less than 2 weeks earlier, participants were scheduled so that there was at least 2 weeks between the most recent episode and the assessment. This procedure was instituted to decrease potential inflation of scores on symptom scales because of a recent assault. Finally, to obtain a sample of women who experienced more than an occasional episode of relationship violence, we

required that participants experience a minimum of four incidents of minor violence or two episodes of severe violence (or some combination of four incidents of minor and/or severe violence) within the past year. Minor violence items were pushed, shoved, or grabbed you; slapped or hit you; threw things at you that could hurt; and twisted your arm or pulled your hair. Severe violence items were hit or punched you with a fist or with something that could hurt, caused you to have physical injuries, choked you, slammed you against a wall or threw you down stairs, kicked you or beat you up, threatened you with a weapon, used a weapon against you, forced you to have sex when you did not want to, and caused you to fear for your life or the lives of your family members.

Participants who were ruled out of the study based on their telephone screening were given support, thanked for their time, and were provided with information about appropriate resources in the community. Sixty-seven women were screened out of the study for the following reasons: 7 women were involved in relationships with their partners for less than 3 months, 17 women had too few episodes of physical violence within the year preceding the study, 38 women reported that abuse in their relationship occurred more than 6 months ago, and 12 women declined to participate after completing the initial telephone screen without providing a reason for their decision. Twelve women were terminated from study participation for a variety of reasons, including apparent psychosis, acute suicidality, drug or alcohol intoxication, or other factors that might have compromised the validity of the results. Fourteen participants' data were dropped from the final data set because of suspected problems with the validity of their self-reported data (e.g., participant completed study measures much too quickly, response bias, or participant denied having experienced partner violence after having positively endorsed partner violence items on the telephone screen).

Participants

Participants were 362 battered women recruited from community agencies serving battered women. Demographic characteristics of the sample are presented in Table 1. Participants averaged 34.5 years of age ($SD = 8.1$). The majority of participants were African American. Most participants (70%) had at least one child younger than the age of 18 residing with them ($SD = 1.5$). Participants reported an average of 12.4 years of education ($SD = 2.0$), ranging from 4 to 19 years. Approximately one third of participants reported personal incomes of less than \$5,000 annually.

Slightly more than one quarter (28.5%) of participants were married; 11% reported being involved in dating relationships with their abusers, and 10.4% were separated or divorced from their abusers. Another 50.5% reported having had cohabitating relationships with their abusive partners, even though at the time of the assessment most were not living with their partners. At the time of study participation, only 9.7% of the sample resided with their abusive partners, whereas the majority of participants reported living elsewhere. Nearly all (97.8%) participants identified their perpetrators as male. Participants' abusive relationships averaged 6.9 years ($SD = 6.5$ years), ranging from 3 months to 32 years. The duration of abuse was nearly 5 years ($M = 4.6$ years; $SD = 5.5$), ranging from 7 days to 32 years. Relationship characteristics of the sample are summarized in Table 1.

Abuse Measures

Psychological Maltreatment of Women Inventory—abbreviated version (PMWI; Tolman, 1989, 1999)—The abbreviated 14-item version of the PMWI consists of two factor-derived subscales that measure Dominance/Isolation (DI) and Emotional and Verbal abuse (EV). Evidence of reliability and validity is presented by Tolman (1999). The scale is a self-report measure, and each item is rated on a 5-point frequency scale, ranging from 1 (*never*) to

5 (*very frequently*). Each subscale consists of seven items. Coefficient alphas were .89 (DI) and .91 (EV) in the current study.

Revised Conflict Tactics Scale-2 (CTS-2; Straus, Hamby, Boney-McCoy, & Sugarman, 1995)—Two subscales of the revised CTS-2 were administered to assess the frequency and severity of Physical Assault (CTS-PA; 12 items) and Injury (CTS-I; 6 items). Ratings are made in terms of frequency (0 = *never*, 1 = *once in past year*, 2 = *twice in past year*, 3 = *3 to 5 times in past year*, 4 = *6 to 10 times in past year*, 5 = *11 to 20 times in past year*, 6 = *more than 20 times in past year*). The authors of the CTS-2 suggest creating a severity index by adding the midpoint for each item and creating a summed score for each subscale. The midpoint equals the rating for ratings of 0, 1, and 2 for items rated with those scores. Scores of 3 are recoded to 4, scores of 4 are recoded to 8, scores of 5 are recoded to 15, and scores of 6 are recoded to 25. Separate subscales assessing minor and severe violence were used. The Minor Violence subscale consisted of the five CTS-2 minor violence items and had a coefficient alpha of .87. The Severe Violence subscale contained the 7 CTS-2 severe violence items supplemented with two additional items assessing repeated and violent shaking and being hit on the head repeatedly. This subscale had a coefficient alpha of .86 in the current sample.

To assess sexual coercion, we used a modification of the CTS-2 items, by using two separate questions to assess: (a) use of threats or force to coerce oral or anal sex and (b) use of threats or force to coerce vaginal intercourse. CTS-2 scoring was used. The alpha for the two items was .72.

The Stalking Behavior Checklist (SBC; Coleman, 1997)—The SBC is a 25-item inventory assessing a variety of unwanted harassing and pursuit-oriented behaviors. Each item was rated on a 6-point frequency scale, ranging from 0 (*never*), 1 (*once a month or less*), 2 (*two to three times per month*), 3 (*once or twice per week*), 4 (*three to six times per week*), and 5 (*once per day or more*). Participants rated each item for the period of time covering the 6 months preceding study participation. Two subscales, Harassing Behavior (HB) and Violent Behavior (VB), comprise the SBC. The SBC was originally factor analyzed (Coleman, 1997) resulting in two subscales, VB with 12 items, accounting for 34.7% of the variance, and HB with 13 items, accounting for 10.8% of the variance. The VB subscale consists of items addressing overt acts of violence (e.g., broke into your home or car, violated a restraining order). The HB subscale consists of items reflecting nonviolent harassment, such as unwanted telephone calls, gifts or visits, and being followed. Only the HB items were included in the present analyses because the VB subscale shared too much overlap with measures of physical violence. Coefficient alpha for the HB subscale was .90 in the current sample.

The Standardized Battering Interview—This interview consists of a variety of structured questions assessing demographic and abusive relationship characteristics. Embedded in this structured interview were questions addressing various aspects of the abusive relationship, including length of the battering, length of the abusive relationship, date of most recent episode of abuse, and time since leaving the relationship most recently. Participants were also queried about a range of minor and severe injuries. Each injury item is rated on a frequency scale. Six items assess minor injuries: (a) bruises to the head, face, and neck; (b) bruises to the rest of the body; (c) cuts on the head, face, and neck; (d) cuts on rest of the body; (e) burns to head, face, and neck; and (f) burns to other parts of the body. This classification of injuries largely replicates the classification scheme used by Thompson et al. (2001). The total score for minor injuries ranged from 0 to 20. These six items had a coefficient alpha of .73.

Seven items assessing severe injuries were also included: (a) broken bones in the head, face, and neck; (b) broken bones on other parts of the body; (c) dislocated bones on parts of the body other than head, face, and neck; (d) loss of consciousness; (e) damaged teeth; (f) ruptured

eardrum; and (g) damage to internal organs. The total score for severe injuries ranged from 0 to 16. Coefficient alpha for this subscale was .69. The low endorsement rate for this group of very severe injuries constrained the alpha level.

Procedure

Participants who met study criteria and agreed to participate completed the study in two visits that typically occurred within several days of each other. On the initial day, after obtaining informed consent, women first completed several symptom-based measures programmed onto a laptop computer to reduce the likelihood that symptom scores would be elevated as a consequence of discussing traumatic material. Next, master's or PhD level female clinicians with extensive experience dealing with traumatized populations interviewed participants. Interview material included participant exposure to partner abuse, injuries sustained, responses to abuse, and a number of other constructs not relevant to the current analyses. The second day consisted of additional self-report instruments that were programmed onto a laptop computer. Those measures are not relevant to the present discussion. Debriefings were conducted with participants following completion of all instruments. Participants were compensated for their time.

Results

Frequencies of Injuries

Table 2 lists the frequency of each of the 16 injuries assessed. Participants reported exposure to a range of minor and severe injuries. Minor injuries were almost universally experienced within the sample; 96.4% reported at least one minor injury, and at least one severe injury was experienced by more than half of the sample (64.6%). When classified by type of injury, 2.8% experienced no injuries, 32.6% experienced minor injury only, 0.8% experienced severe injury only, and 63.8% experienced both minor and severe injuries. Some injuries, such as dislocated facial bones, ruptured eardrums, burns, and miscarriages were reported to occur relatively less often than other forms of injuries, such as cuts and bruises. The high endorsement of "loss of consciousness" is notable, given the severity of this injury.

Data Analytic Strategy

First, Pearson correlations between the set of predictors and each outcome variable were computed. These data are presented in Table 3. Each type of abuse, psychological abuse, and stalking was significantly though modestly associated with minor and severe injuries. The magnitude of associations between the predictor variables appeared to be somewhat reduced for the severe versus the minor injury variable, quite possibly because of the fact that restricted range on some of the severe injury items attenuated the internal consistency of the measure.

To examine the relative contributions of stalking, psychological abuse, and physical violence on minor and severe injuries, a set of two hierarchical multiple regression analyses were conducted on each dependent measure (minor injuries and severe injuries). In the first regression, after controlling for length of abuse, physical aggression (CTS-Minor, CTS-Severe) and sexual coercion were entered in the first step, followed by the addition of the two psychological abuse variables, (EV/DI) from the PMWI and the measure of stalking (HB). A second regression was then conducted reversing the order of entry to test for unique variance associated with the addition of each set of variables. After controlling for length of relationship abuse, the psychological abuse and stalking variables were entered, followed by the addition of the physical violence and sexual coercion variables.

Multivariate Prediction of Injuries

Table 4 lists the results of the two sets of hierarchical multiple regression analyses predicting minor injuries. Entered into the equation at the first step, length of abuse accounted for 11.4% of the variance predicting minor injuries. On the second step, physical and sexual aggression variables significantly predicted 41.3% of explained variance in the prediction of minor injuries. Finally, the addition of the psychological abuse and stalking variables on the last step did not significantly contribute to the prediction. When entered in reverse order, after controlling for the effects of length of relationship abuse, the stalking and psychological abuse variables explained 12.9% of the variance in minor injuries. Last, the physical aggression variables also significantly contributed to the prediction of minor injuries, accounting for 26% of unique variance. The full model explained 53.3% of the variance. Significant individual predictors were length of abuse, minor violence, and severe violence.

Results from the prediction of severe injuries are presented in Table 5. Length of abuse, entered in the first step, explained 12.4% of the variance in the prediction of severe injuries. The physical aggression variables, entered next, also explained 24% of unique variance in the prediction of severe injuries. On the last step, psychological abuse and stalking contributed 1.8% of explained variance in the prediction. In the reverse order model, after accounting for the length of relationship abuse, psychological abuse and stalking contributed 8.9% of explained variance in the prediction of severe injuries. On the last step, the physical aggression variables predicted 16.9% of the variance in severe injuries. The full model explained 38.2% of the variance. Length of relationship abuse and severe physical violence were significant independent predictors, and trends were found for both stalking ($p = .05$) and one of the psychological abuse variables, DI ($p = .07$).

Discussion

The purpose of the present research was to examine abuse-related risk factors for injuries in a sample of help-seeking battered women. Participants in this study reported repeated exposure to multiple forms of abuse resulting in a variety of minor and severe injuries. The nature of injuries reported by this sample of women recruited from residential and nonresidential community agencies is consistent with injuries reported by women seeking emergency department medical services (Kyriacou et al., 1999). Although high rates of cuts and bruises were expected, there were significantly greater numbers of women reporting severe injuries within the current study than in Thompson et al. (2001). This difference is probably because of sampling strategies as the current study strategically sampled women experiencing moderate to severe forms of violence, both of which are likely to result in more serious injuries. It was particularly notable that nearly half (45%, 162/362) of the sample reported injuries resulting in loss of consciousness. The violence-related etiology of these injuries is unknown because the present study did not pair injuries with their cause. However, 72% (260/362) of the sample reported strangulation and 46% (166/362) reported being hit repeatedly on the head, both of which could result in loss of consciousness. Future research needs to develop mechanisms for pairing violence with injury-related sequelae. Such pairing would not preclude their separate measurement. However, if there were a mechanism for making the connection, this “event” (i.e., act and consequence) would permit a more sensitive risk assessment and be more reflective of the violence topography. For example, although more severe forms of violence are typically associated with more serious injuries, minor forms of violence, such as pushing or shoving can and do result in serious injuries, as seen in the results of this research.

Both repeated head trauma and partial or complete loss of consciousness resulting from strangulation can have enduring neuropsychological sequelae, and these effects are frequently “hidden.” Traumatic brain injuries sustained by battered women have been associated with diminished cognitive functioning evidenced as problems with attention, concentration, and

memory (Valera & Berenbaum, 2003). Strangulation can result in acute and chronic physical symptoms including ocular pathologies, such as subconjunctival hemorrhages, hoarseness, aspiration pneumonia, mental status changes, and death (McClane, Strack, & Hawley, 2001). Notably, the literatures on both traumatic brain injury and strangulation underscore the cumulative nature of their respective impacts if there is repeated exposure (e.g., Jackson, Philp, Nuttall, & Diller, 2002). Future research needs to examine the co-occurrence of head injury and strangulation within female IPV samples, assessing the ways in which sequelae associated with each form of violence may amplify the effects of the other form, and to develop objective sensitive assessments of these neuropsychological sequelae.

Injuries to battered women not only contribute to increased costs of IPV as a function of acute injury but may also contribute to chronic physical health problems (Sutherland et al., 2002). Sutherland et al. (2002) found not only direct effects of physical violence on increased injury rates but also indirect effects such that physical injuries mediated the relationship between abuse exposure and chronic physical health problems. Thus, the receipt of acute physical injuries poses both acute and long-term consequences for battered women's physical health status. Long-term effects of injury can also extend beyond the physical realm. Studies examining psychological sequelae of injury have reliably found a significant relationship between physical injury and posttraumatic stress disorder (Kilpatrick et al., 1989; O'Donnell, Creamer, Pattison, & Atkin, 2004; Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993) and major depression (O'Donnell et al., 2004). In addition, residual manifestations of injury, such as marks and scars, can be associated with anxiety and self-consciousness (Tebble, Thomas, & Price, 2004). Continued study of the long-term physical and psychological sequelae of injury is needed. In addition, training health care providers in the identification of injury-related psychological sequelae may assist affected individuals in getting more comprehensive health care.

Multivariate hierarchical regression analyses examining abuse-related risk factors for minor and severe injuries were conducted separately for minor and severe physical injuries. Both models produced robust findings in terms of explained variance. The model predicting minor injuries explained more than 50% of the variance; the model explaining severe injuries accounted for nearly 40% of explained variance. Not surprisingly, the strongest predictors of minor injuries were minor and severe physical aggression and the length of time to which a woman was exposed to abuse. Nonetheless, as a group, the stalking and psychological abuse variables contributed weakly but significantly when added into the model before the block of physical aggression variables. Not surprisingly, in the context of minor injuries, psychological abuse and stalking emerged as relatively weak predictors, most likely because of shared variance between the two sets of predictors.

In the prediction of severe injuries, stalking and psychological abuse variables as a group contributed uniquely to the prediction, both when entered before and after the physical violence variables. This suggests that stalking and psychological abuse may be important individual risk factors in the context of severe injury. These findings comport with other research highlighting stalking as a risk factor for physical injuries, including severe and lethal injuries (Block, 2000; CDC, 2000a; McFarlane et al., 1999; McFarlane et al., 2002). Likewise, Thompson et al.'s (2001, 2003) research found that severe emotional abuse was a predictor of injury in at least one large nationally representative sample of women. There is some evidence that women with IPV-related injuries may fail to get the health care they need (see Plichta, 2004, for a review). Psychological abuse may play a role in undermining women's ability to receive health care services. The functional relationship between psychological abuse and receipt of health care warrants examination. It is possible that psychological abuse may have direct effects on reducing access to health care through restricted access to resources such as

finances, employment, and transportation, or indirect effects by eroding women's sense of self-efficacy for caring for injury-related sequelae.

Although findings from the present study illuminate the nature and extent of injuries among a help-seeking sample of acutely battered women and identify several risk factors for the receipt of such injuries, there are several limitations of the study. Because this is a help-seeking sample, results may not generalize to nonhelp-seeking battered women. More severe injuries are expected among help-seeking battered women compared with representative community samples. Moreover, the sample was composed predominantly of low-income African American women, which may not generalize to other populations of battered women, although it should be noted that poor ethnic minority women are disproportionately the targets of IPA (Benson, Litton, & Fox, 2004). In addition, we did not assess the connection between certain injuries (e.g., loss of consciousness) and the type of violence associated with them, an analysis that would have painted a more detailed picture of the connection between specific forms of abuse and their resultant injuries.

Designation of injuries as minor and severe can be a misnomer. Within the current study, the classification scheme was selected to replicate the previous work of Thompson et al. (2001, 2003). However, individuals may have significant medical consequences from IPV and have no visible or minor injuries. For example, within a sample of 300 attempted strangulation cases submitted for misdemeanor prosecution, law enforcement officials arriving at the scene reported no visible injuries in half of the cases (Strack, McClane, & Hawley, 2001). In the cases in which injuries were visible, most were minor in nature including redness, cuts, scratches, or abrasions to the neck. These findings underscore the way in which participants may experience a physical assault with potentially life-threatening consequences, yet report (and be classified) within the no injury or minor injury group. In addition, the context for assessing IPV-related injury may influence reporting. For example, the assessment in the current study queried whether participants ever had any of the injuries or medical problems listed as a result of the physical force experienced from the identified partner. However, female victims of IPV may inadvertently injure *themselves* while trying to wrest themselves from their attackers. If this is the case, women may exclude these injuries from their report if they do not conceptualize the perpetrator as the "cause" of the injury. Both of these examples illustrate ways in which current injury assessments may underestimate the scope and severity of injury experienced during IPV. Future injury assessments may benefit from moving beyond gross and subjective reporting of injury lists toward more detailed and objective classification systems. One example of such a scale is Peterson's Minor Injury Severity Scale (MISS; Peterson, Saldana, & Heiblum, 1996). This scale does not require specialized medical experience to apply. It yields a 0 to 7 score that indexes behaviorally specific and objective parameters, such as depth and length of a lesion, for 22 different kinds of injuries. Although this instrument was developed for categorization of acute childhood injuries, there is no contraindication for using the scale with an adult population. Our research group found that this instrument worked well with an adult IPV population with the provision of two additional injury groups: human bite and edema from pulled out hair.

The present research endeavored to explore abuse-related risk factors for the receipt of minor and severe injuries among a sample of help-seeking battered women. Results raise important issues for the designation of abusive acts into categories such as "minor" and "severe" violence as reflected in both conceptual and measurement strategies, such as the CTS. Such frameworks suggest, perhaps incorrectly, that acts of minor violence rarely, if ever, result in injuries, an assumption not borne out by data obtained in the present study. Acts of "minor" violence, such as pushing, slapping, and shoving contributed to the prediction of both minor and severe physical injuries. Thus, as has been discussed by others, the context of abusive behaviors frames their injurious potential.

This research explored a set of multidimensional abuse-related risk factors for predicting injury among battered women. Risk factors for physical injuries included nonphysical forms of IPA, such as psychological abuse and stalking. Although the potential impact of nonphysical forms of IPA are sometimes trivialized, these data suggest their role in terms of increasing risk, especially for severe physical injury. These findings might be useful for VAW practitioners working with victims to apprise them of their risks. Future research with more sensitive measurement of injuries alongside that, which attempts to connect specific violent acts with specific injurious outcomes, would advance knowledge on this important topic.

Policy implications of the present study include the development of standardized checklists for law enforcement personnel to document acts of physical violence (including strangulation), stalking, and psychological abuse, as well as systematically reporting on injuries.

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Biography

Mindy B. Mechanic is an associate professor of psychology at California State University, Fullerton. Her research interests are psychosocial consequences of trauma, victimization, and interpersonal violence, and she regularly serves as an expert witness in complex legal cases involving battered women charged with crimes and in other legal cases involving childhood or adult trauma, victimization, and posttraumatic stress disorder.

Terri L. Weaver is an associate professor of psychology at St. Louis University. Her areas of research focus on posttraumatic stress disorder, the psychological and physical sequelae of traumatic events, especially family violence and sexual assault, the psychological impact of violence-related injury, cross-cultural research and trauma, and treatment outcome research. She is an associate editor of the *Journal of Traumatic Stress*.

Patricia A. Resick is the director of the Women's Health Sciences Division of the National Center for Posttraumatic Stress Disorder (PTSD) at the VA Boston Health Care System and also a professor of psychiatry and psychology at Boston University. She conducts research on the effects of traumatic events, particularly on women, and develops and tests therapeutic interventions for PTSD. She has received numerous awards for her research, including the Robert S. Laufer Memorial Award for outstanding scientific achievement in the field of PTSD from the International Society for Traumatic Stress Studies.

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Table 1Demographic and Relationship Characteristics of Sample (*N* = 413)

Demographic Variables	Percentage	<i>M</i>	<i>SD</i>	Min	Max
Age		34.5	8.1	18	62
Number of children younger than 18		1.5	1.5	0	8
Education		12.4	2.0	4	19
Personal income					
<\$5,000	31.4				
\$5,000 to 10,000	28.5				
\$21,000 to 30,000	10.6				
\$31,000+	4.6				
Ethnic background					
African American					
European American					
Latina/Hispanic					
Native American					
Other					
Sex of perpetrator					
Male	98.7				
Female	1.3				
Marital status					
Dating					
Cohabiting					
Married					
Separated/divorced					
Currently living with perpetrator					
No	90.3				
Yes	9.7				
Length of relationship (Years)		6.9	6.5	3 month	32 years
Length of abuse (Years)		4.6	5.5	7 days	32 years
Length of time since left (Months)		3.4	12.5	0	14 years

Table 2

Frequency of Injuries

Type of Injury	Frequency of Injuries					
	%	%	%	%	%	%
Bruises to head, face, and neck	17	27	26	16	14	
Bruises to (other) body	14	19	26	21	19	
Broken bones to head, face, and neck	89	10	.3	0.3	0.5	
Broken bones on (other) body	81	16	2	0	0	
Dislocated bones on head, face, and neck	93	5	2	0	0.3	
Dislocated bones on (other) body	79	16	5	0.3	0	
Cuts to head, face, and neck	53	28	12	4	3	
Cuts to (other) body	56	24	12	7	2	
Loss of consciousness	55	31	8	4	2	
Damaged teeth	80	18	1	0.5	0.8	
Ruptured eardrum	85	13	0.8	0.3	0.5	
Burns to head, face, and neck	95	4	1	0.3	0	
Burns to (other) body	86	12	2	0.3	0.5	
Miscarriage	83	17	0.3	0.3	0	
Sexually transmitted disease	73	24	2	0.5	0.3	

Table 3

Zero-Order Correlations for Study Variables

Variable	1	2	3	4	5	6	7	8	9
Minor injuries	.73								
Severe injuries	.66**	.69							
Medical complications	.24**	.19**	N/A						
CTS-Severe Violence	.25**	.17**	.80**	.86					
CTS-Minor Violence	.32**	.26**	.59**	.64**	.87				
CTS sexual coercion	.28**	.10**	.38**	.49**	.64*	.72			
PMWI Dominance/Isolation	.22**	.17**	.40**	.40**	.29**	.25**	.89		
PMWI Emotional/Verbal	.34**	.25**	.40**	.37**	.35**	.29**	.67**	.91	
SBC-Harassment	.30**	.24**	.37**	.32**	.28**	.25**	.43**	.31**	.69

Note: Coefficient alphas are printed in boldface along the diagonal.

** $p < .01$ (two tailed).

Table 4**Hierarchical Multiple Regression Analysis Predicting Minor Injuries**

Predictor	<i>R</i> ² Change	<i>R</i> ²	Change <i>F</i>	<i>p</i>
Step 1: Length of abuse ^a	.114	.114	43.6	<.001
Step 2: Physical abuse	.413	.527	97.9	<.001
CTS-Minor ^b				
CTS-Severe ^c				
CTS-Sexual coercion				
Step 3: Psychological abuse/stalk	.006	.533	1.6	<i>n.s.</i>
PMWI-EV				
PMWI-DI				
SBC-HB				
Step 1: Length of abuse ^a	.114	.114	43.6	<.001
Step 2: Psychological abuse/stalk	.129	.243	19.2	<.001
PMWI-EV				
PMWI-DI				
SBC-HB				
Step 3: Physical abuse	.290	.523	69.1	<.001
CTS-Minor ^b				
CTS-Severe ^c				
CTS-Sexual coercion				

Note: CTS = Revised Conflict Tactics Scale-2; PMWI-EV = Psychological Maltreatment of Women Inventory—Emotional and Verbal abuse; PMWI-DI = Psychological Maltreatment of Women Inventory—Dominance/Isolation; SBC-HB = Stalking Behavior Checklist—Harassing Behavior.

^aSignificant independent predictor in full model: $\beta = .310$, $t = 8.0$, $p < .001$.

^bSignificant independent predictor in full model: $\beta = .149$, $t = 2.3$, $p < .05$.

^cSignificant independent predictor in full model: $\beta = .482$, $t = 7.7$, $p < .001$.

Table 5**Hierarchical Multiple Regression Analysis Predicting Severe Injuries**

Predictor	R^2 Change	R^2	Change F	p
Step 1: Length of abuse ^a	.124	.134	48.1	<.001
Step 2: Physical abuse	.240	.364	42.4	<.001
CTS-Minor				
CTS-Severe ^b				
CTS-Sexual coercion				
Step 3: Psychological abuse/stalk	.018	.382	3.2	<.05
PMWI-EV				
PMWI-DI ^c				
SBC-HB ^d				
Step 1: Length of abuse ^a	.124	.124	48.1	<.001
Step 2: Psychological abuse/stalk	.089	.213	12.7	<.001
PMWI-EV				
PMWI-DI ^c				
SBC-HB ^d				
Step 3: Physical abuse	.169	.382	30.4	<.001
CTS-Minor				
CTS-Severe ^b				
CTS-Sexual coercion				

Note: CTS = Revised Conflict Tactics Scale-2; PMWI-EV = Psychological Maltreatment of Women Inventory—Emotional and Verbal abuse; PMWI-DI = Psychological Maltreatment of Women Inventory—Dominance/Isolation; SBC-HB = Stalking Behavior Checklist—Harassing Behavior.

^aSignificant Independent Predictor in full model: $\beta = .35$, $t = 8.0$, $p < .001$.

^bSignificant Independent Predictor in full model: $\beta = .52$, $t = 7.2$, $p < .001$.

^cTrend $\beta = .20$, $t = 3.0$, $p = .05$.

^dTrend $\beta = .09$, $t = 1.8$, $p = .07$.