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Symptoms of Posttraumatic Stress, Depression and Body Image Distress in Female Victims of Physical and Sexual Assault: Exploring Integrated Responses

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Abstract

While body image concerns and interpersonal violence exposure are significant issues for women, their interrelationship has been rarely explored. We examined the associations between severity of acute injuries, symptoms of posttraumatic stress disorder (PTSD), depression and body image distress within a sample of predominantly African-American victims of interpersonal violence ($N = 73$). Severity of body image distress was significantly associated with each outcome. Moreover, body image distress was a significant, unique predictor of depression but not PTSD severity. We recommend continued exploration of body image concerns to further integrated research on violence against women.

The United Nations Millennium Development goals are eight goals that 191 United Nations member states have ratified for tracking targeted areas for improving world health by 2015. The third development goal focuses on the empowerment of women and equality of gender as key to improving women's global health (WHO and Millennium Goals, 2000). While reducing exposure to gendered-based violence is not an explicit indicator for tracking progress on this goal, the global importance of violence against women is mentioned in the goal overview as a factor that threatens multiple areas of women's health. Based on a systematic integration of global prevalence rates for 141 studies in 81 countries, 30% of women 15 years of age and older have experienced lifetime exposure to physical and/or sexual IPV (Devries et al., 2013). In the United States, data from the National Violence Against Women Survey (Tjaden & Thoennes, 1998) revealed that 1.9 million women report experiences of physical assault and over 300,000 report experiences of forcible rape each year. These assaults resulted in some form of injury in roughly one third of cases (32% of women who were raped and 39% of women who were physically assaulted). In addition to injury, these interpersonal assaults have widespread mental health effects including dose-response relationships with posttraumatic stress disorder and depression (Golding, 1999). While the prevalence of violence and accompanying physical and mental health sequelae have been well documented, integrated approaches examining the interrelationship among mental and physical effects are largely absent. We designed the current study to examine the interrelationships among the physical effects of violence-related injury and mental health correlates of depression, posttraumatic stress disorder (PTSD) and body image distress. Our

aim in this approach was to provide a more integrated examination of the impact of violence against women on women's health with the goal of guiding more holistic approaches to research on violence against women and to guide women-centered interventions.

We examined the extant literature and found a growing number of authors who have catalogued types of assault-related injury (Grisso et al., 2000; Sheridan & Nash, 2007). Characteristic intimate partner violence (IPV)-related injury morbidities have included blunt trauma outcomes such as abrasions, contusions, lacerations, fractures and sequelae of strangulation including bruises, abrasions, petechia and ligature marks (Sheridan & Nash, 2007). In terms of sexual assault, genital-anal injuries are less common (~20%) while lower severity, nongenital injuries are more common (~52%) (Sugar, Fine, & Eckert, 2004; Weaver, 2009). In fact, both sexual and physical assault-related injuries primarily included bruises or abrasions from being hit or kicked and the aftereffects of attempted strangulation (Sugar, et al., 2004). Given the overall prevalence rates and overlapping acute injury patterns for both forms of violence, research on violence-related injury should include sexually and physically assaulted groups.

Beyond the physical impact, injury can confer a psychological cost. In terms of the psychological morbidities of injury, direct associations with PTSD symptoms or diagnoses (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Kilpatrick & Acierno, 2003; Kilpatrick, Saunders, Amick-McMullan, Best, & et al., 1989; Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993) and symptoms of depression or major depressive disorder (Hull et al., 2003; Wong et al., 2007) have been documented in the literature. Regarding PTSD, exposure to physical injury is embedded in the Criterion A stressor for PTSD (American Psychiatric Association, 2000) and the physical injury-PTSD relationship is robust within multiple trauma populations. Specifically, increased rates of PTSD were consistently associated with injury exposure following physical or sexual assault either in the form of interpersonal crime, family violence or combat (Kilpatrick, et al., 1989; Koren, Norman, Cohen, Berman, & Klein, 2005; Weaver, Kilpatrick, Resnick, Best, & Saunders, 1997). Mechanisms underlying the injury-PTSD relationship may be through associations with subjective perceptions of life threat or other factors associated with trauma severity. There may also be physiological sequelae unique to injury, such as pain, that influence the development and/or maintenance of PTSD (Sharp & Harvey, 2001).

Symptoms of depression have also been documented following injury including traumatic or mild brain injury (Busch & Alpern, 1998; Jorge et al., 2004), spinal cord injury (Elliott & Frank, 1996), burn injury (Fauerbach et al., 2000; Thombs et al., 2007; Wiechman et al., 2001), and major depressive disorder (MDD), a clinically significant form of depression, is highly comorbid with PTSD (Brown, Campbell, Lehman, Grisham, & Mancill, 2001; Kessler, Chiu, Demler, & Walters, 2005). The source of this high rate of comorbidity remains unclear and challenges the distinct nature of depression and PTSD symptoms in response to trauma and injury. For example, researchers have found some support for a single dimension of trauma-related symptoms including both PTSD and MDD (Elhai, Contractor, Palmieri, Forbes, & Richardson, 2011; O'Donnell, Creamer, & Pattison, 2004). However, depression may also exist as a distinct construct, especially in the first few months following injury (O'Donnell et al., 2004). Given the high rates of depression-PTSD comorbidities in trauma-exposed victims (Breslau, Davis, Peterson, & Schultz, 2000), exploring the unique and overlapping sequelae of depression is necessary for a thorough examination of the psychological impact of injury.

Finally, injury by definition is a body-related insult that can result in acute or long-term appearance alterations. Individuals with injury-related appearance changes may form psychological meanings attached to these physical alterations. These meanings may relate to

the injury-related appearance change and/or to the context in which the injury occurred (Weaver, Turner, Schwarze, Thayer, & Carter-Sand, 2007a). One construct used to examine this psychological response to injury is body image distress. Body image is a multidimensional construct that refers to individuals' subjective sense of their body, focusing primarily, though not exclusively, on appearance and encompassing behavioral, perceptual, cognitive, and affective phenomena (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). Theoretically, body image is thought to be organized as a cognitive structure or schema encompassing an internal representation of one's appearance (Altabe & Thompson, 1996). This conceptualization emphasizes the importance of cognitive appraisal in shaping body image distress and possible role in influencing the trajectory of post-injury adjustment.

Body image concerns have been examined within the context of burn injury, with body image dissatisfaction identified as a strong predictor of psychosocial function as acutely as two months post-injury (Fauerbach et al., 2000) and at one year post-discharge (Thombs et al., 2008). Body image dissatisfaction has also been identified as a mediator in the relationship between pre-burn and post-burn psychosocial functioning (Thombs et al., 2008). In addition, as many as 46% of burn reconstruction victims suffer from at least mild to moderate depression, and body image dissatisfaction is one of the strongest predictors of depressive symptoms among this population (Thombs et al., 2007). Associations between body image distress and PTSD have been less well documented. When compared to a demographically matched, noninjured comparison group, individuals who have suffered facial trauma and scarring endorsed higher levels of body dissatisfaction and demonstrate higher instances of PTSD and depression (Levine, Degutis, Pruzinsky, Shin, & Persing, 2005). With regard to IPV, increased number of sexual assaults was associated with depression and body image concerns (Campbell & Soeken, 1999), but it is unclear whether sustained injury played a role in this relationship. To date, body image distress has received scant attention in the abuse or assault-related injury literature. However, Weaver and colleagues (2007b) explored the relationship between residual injury (primarily marks or scars), body image distress and PTSD in a sample of 56 female victims of IPV: 31 women with an appearance-related residual injury and 25 without such injuries. Authors found that residual injury status moderated the association between body image distress and symptoms of PTSD. That is, for female victims with an appearance-related residual injury there was a significant and positive association between body image distress and PTSD. In addition, within the residual injury positive group, body image distress was a unique predictor of PTSD severity explaining incremental variance above and beyond that explained by trauma exposure (i.e., severity of psychological maltreatment). Thus, body image distress may constitute a psychological response to injury and may be included in the constellation of posttraumatic sequelae.

Given the importance of cognitive appraisal and interpretation of meaning in shaping body image concerns, the context of interpersonal violence could add an additional dimension to shaping the evaluative process. Interpersonal violence constitutes an intentional form of injury with violations frequently characterized by a betrayal of trust (McCann, Sakheim, & Abrahamson, 1988). These contextual (and subjective) components may not only affect the interpretation of the abuse experience but also perceptions of the injuries resulting from the abuse. Considering the importance of these contextual components, degree of trust violation was explored as a correlate of body image distress within the current study.

The present study replicated and extended Weaver and colleagues' (2007b) initial study of residual injury, body image distress and PTSD. Specifically, we explored concerns of body image distress earlier in the injury recovery time frame by changing the focus from residual to acute injury within 73 recent, female victims of interpersonal assault. We also expanded

the previous research by including a broader sample of victims who experienced sexual and physical violence. In addition, the current study included a more comprehensive assessment of posttraumatic sequelae by including an assessment of symptoms of depression and body image distress and fostering an integrated examination of psychological/physical sequelae. Finally, an important subjective aspect of interpersonal violence (degree of trust violation) was examined as a way of measuring one of many important violence-related contextual qualities. Given the recency of the interpersonal crime, time since assault was assessed and controlled for in all analyses. Replicating previous findings, we expected to find a significant and positive association between severity of body image distress and symptoms of PTSD and expected to extend the findings to reveal a significant and positive association between severity of body image distress and symptoms of depression. Degree of trust violation was explored as a potential correlate of body image distress and severity of acute injury (acute injury sum) was explored as a correlate of body image distress. Finally, body image distress was tested as a unique predictor of symptoms of PTSD and depression controlling for demographic or trauma-related covariates, time since assault and symptoms of PTSD or depression (depending on the dependent variable).

Method

Measures

All participants completed a demographics questionnaire which included questions about age, race/ethnicity, income, time since assault, type of assault and education.

The *Body Dysmorphic Disorder Examination – Self Report* (BDDE-SR; Rosen & Reiter, 1996) is a self-report version of a semi-structured clinical interview used to measure impairing or self-defeating symptoms of body image behaviors including concerns about and checking an appearance feature, efforts to avoid or camouflage the appearance feature and concerns about others' perceptions of the appearance feature. The instrument was designed to be relevant to a variety of body image concerned clinical populations including body dysmorphic disorder, eating disorders, dentistry, plastic and reconstructive surgery, physical disability and sexual or physical abuse (Rosen, Reiter, & Orosan, 1995). Moreover, this instrument has been used successfully with injured, female victims of IPV (Weaver, Resnick, Kokoska, & Etzel, 2007b). Good internal consistency has been established with Cronbach's alpha of .81, .91, and .93 for a non-BDD clinical sample, university staff, and undergraduates, respectively. Adequate test-retest reliability and inter-rater reliability have also been established. Within the current study, Cronbach's α for the total body image distress score was .94.

The *Modified PTSD Symptom Scale-Self-Report* (MPSS-SR; (Foa, Riggs, Dancu, & Rothbaum, 1993; Falsetti, Resnick, Resick & Kilpatrick, 1993) is a 17 item assessment of the DSM-III-R symptoms of PTSD using a 4 point frequency scale ranging from 0 (not at all) to 3 (5 or more times per week/very much) and 5 point severity rating ranging from 0 (not at all distressing) to 4 (extremely distressing) assessed for the past two weeks. Though created for DSM-III-R, the measure's items are consistent with the wording of DSM-IV symptoms when compiled as a total score since it was the symptom cluster placement rather than the individual symptoms of PTSD that changed between the two revisions of the DSM. The MPSS-SR is a modification of the PTSD symptom scale (Foa, et al., 1993) which is a self-report assessment of PTSD that only assessed frequency of symptoms. The MPSS-SR scale was validated on both treatment and community samples reporting a range of exposure to traumatic stressors. Reliability was high with alphas of .96 for the treatment sample and .97 for the community sample. In addition, the MPSS-SR demonstrated good convergent validity with the SCID PTSD modules. In terms of cutoff scores, authors recommend a total score of 71 and 46 for treatment and community samples, respectively. In the current study,

a continuous total symptom severity score was calculated by summing frequency and intensity ratings and the total score was internally consistent with Cronbach's $\alpha = .96$.

The *Beck Depression Inventory-II* (BDI-II; Beck, Steer & Brown, 1996) is a frequently used, 21 item self-report measure of depressive symptoms in adults and adolescents. Individuals rate items based on a 4-point Likert scale with higher scores indicating higher levels of depression. High internal consistency has been demonstrated among college students ($\alpha = .93$), and outpatients ($\alpha = .92$), as well as adequate content and factor validity.

The *Trauma Interview* is a semi-structured series of questions administered by a trained master's or doctoral level clinical psychology interviewer assessing different aspects of the assault. Areas of inquiry included further details of the assault, including feelings experienced, behavioral reactions, peritraumatic dissociation, type of acts perpetrated, relationship to the perpetrator and self-reported injuries. Within the current study, self-reported acute injuries and pre-assault trust in the perpetrator was utilized. In terms of self-reported acute injuries, participants were also asked if they experienced an array of listed acute injuries or medical problems during the assault and their affirmative responses to these questions were used to create a dimensional measure of acute injury severity. With regard to self-reported trust in the perpetrator, responses were dichotomized into two categories: (0) for not all, a little or somewhat (trusted) or perpetrator was a stranger and (1) for quite a bit, very much and completely (trusted the perpetrator).

Results

Demographic and Descriptive Characteristics of the Sample

Participants were 73 women who were survivors of either rape ($n = 15$) or first-degree physical assault, defined as an assault that included attempted homicide or knowingly causing or attempting to cause physical injury, ($n = 58$) survivors. The participants included in the current study were a subgroup of a larger sample that was recruited from local advertisements, victim assistance agencies, police agencies, and hospitals to participate in a longitudinal assessment study for PTSD. The sample included 53 African-Americans (72.6%), 19 Caucasian-American participants (26%), and 1 participant of other ethnic origin (1.4%). Participants had to be at least 18 years of age ($M = 34.2$ years, $SD = 10.1$) and they had to have experienced a first-degree physical assault or a sexual assault. Participants were recruited to come into the study as soon as possible following their assault ($M = 31.7$ days post, $SD = 16.7$; range = 5–91 days post assault) for the initial (hereafter referred to as “one-month”) assessment. The sample consisted of women who were mostly low-income (46.3% earned less than \$5,000 per year, 16.4% earned \$5–10,000, 12.3% earned \$10–20,000, 11% earned \$20–29,000, 9.6% earned \$30–49,000, and 2.7% earned more than \$50,000 per year). Mean years of education was 12.5 ($SD = 2.2$, range = 4–16 years).

One participant was excluded from participation due to intoxication at the time of assessment. Protections for participants in this study were ensured through approval of the study protocol by an institutional review board. In addition, all participants gave written informed consent prior to beginning the study. Participants were paid \$60 for their one month assessment visit.

We examined all measures for violations of assumptions of normality. All primary measures were normally distributed with the exception of the acute injury measure. Transformation is described in the next section.

Description of Acute Injuries and Designation of Acute Injury Severity

A summed score of total number of acute injuries was created ($M = 1.9$, $SD = 1.5$, range = 0–7). The resulting scores were significantly, negatively skewed. A square root transformation of the total score resulted in a normal distribution and this transformed score was used in the analyses. Most of the acute injuries reported were bruises and general lacerations and 57.5% of the sample ($n = 42/73$) reported having had more than one acute injury (See Table 1). There were no significant associations between transformed acute injuries and any of the demographic variables (i.e., race, age, education, income) or type of assault.

Inter-correlations Among Primary Constructs and Associations with Body Image Distress

Zero-order correlations were conducted within the entire sample. Inter-correlations can be found in Table 2. Significant moderate relationships were found between symptoms of body image distress and depression, PTSD and transformed acute injury sum. Greater pre-assault trust in the perpetrator was associated with more severe body image distress, $t(55) = -2.0$, $p < .05$. As expected, symptoms of PTSD and depression were strongly correlated. The transformed sum of acute injuries was not significantly correlated with symptoms of PTSD or depression and time since assault was not significantly correlated with any of the mental or physical sequelae.

Body Image Distress Severity as Predictor of Symptoms of PTSD and Depression

Hierarchical regression analyses with forced entry were conducted in order to explore body image distress severity as a unique predictor of symptoms of depression and PTSD. Prior to proceeding with the regression analyses, potential demographic and assault-related covariates were explored. In terms of symptoms of depression, income, race, level of education, type of assault (rape versus physical assault), transformed acute injury severity and time since assault were nonsignificantly associated with severity of depression. Age was significantly and negatively correlated with depression severity, $r(73) = -.27$, $p < .05$. Given the *a priori* plan to control for time since assault, time since assault and age were controlled in predictions of depression severity. In terms of PTSD severity, income, race, level of education, age, transformed acute injury severity and time since assault were nonsignificantly associated with severity of PTSD. However, type of assault (rape versus physical assault) was significantly associated with PTSD severity with women who had been raped ($m = 74.27$) reporting significantly more severe symptoms of PTSD than women who experienced physical assault ($m = 51.38$), $t(71) = 2.9$, $p < .01$. Therefore, time since assault and type of assault were controlled in predictions of PTSD severity.

Two hierarchical multiple regressions were conducted in order to examine whether body image distress was a unique predictor of psychological sequelae. In the first regression predicting depression severity, time since assault and age was entered in the first step, PTSD severity was entered in the second step and body image distress severity was entered in the third step. In the second regression predicting PTSD symptom severity, time since assault and type of assault (rape versus physical) were entered in the first step, depression severity was entered in the second step and body image distress severity was entered in the third step. Regression findings are summarized in Table 3.

In the first regression, we explored whether symptoms of body image distress uniquely predicted depression severity. Age and time since assault explained 8% of the variance in depression severity. Symptoms of PTSD predicted an additional 53% of variance within the second step. Body image distress predicted an additional 5% of variance within the third step. Significant, unique predictors of depression severity in the final model were PTSD severity and body image distress severity. In the second regression, we explored whether

symptoms of body image distress uniquely predicted PTSD symptom severity. Time since assault and type of assault (rape versus physical) explained 11% of the variance in PTSD symptom severity. Symptoms of depression predicted an additional 51% of variance within the second step. Body image distress severity predicted a negligible amount of additional variance in the final step. Significant, unique predictors of PTSD severity within this final model were type of assault (rape versus physical) and depression severity.

Discussion

In this study, we aimed to provide a more holistic, integrated examination of the impact of violence against women on women's health. We partially replicated and extended previous findings from studies examining associations between injury, body image distress and PTSD (Weaver et al., 2007b). Hypotheses were largely supported in that severity of body image distress was significantly associated with PTSD symptom severity. However body image distress was not a unique predictor of PTSD symptom severity when controlling for depression. Findings were extended to depression in that severity of body image distress was significantly associated with depression severity and was a unique predictor of depressive symptoms (controlling for PTSD). Transformed acute injury severity and degree of trust violation were also significantly associated with body image distress. In terms of global health initiatives, generally, and violence against women, specifically, there has been limited attention focused on the complicated interactions between physical and mental health (Malliori, 2008). For example, although the United Nations Millennium Development goals included a focus on reducing gendered violence, absent were goals that included directives for improved mental health (Zolnierok, 2008). The psychological impact of violence-related injury is one domain of inquiry that holds potential for closing this gap. We focus the discussion on an elaboration of these interconnections.

In terms of the type of reported injuries, bruises and general lacerations and multiple rather than single injuries were common and these injury patterns were consistent with those reported within the assault literature (Sheridan & Nash, 2007; Sugar, et al., 2004). Notably, number of acute injuries, conceptualized as a rough measure of injury severity, was not significantly associated with PTSD or depression severity or type of assault. Interestingly, severity of injury is inconsistently associated with severity of PTSD with some studies reflecting a positive association (Blanchard et al., 1995) and others revealing no association (Koren, et al., 2005). Moreover, even when overall findings document a significant injury severity-PTSD severity relationship (Blanchard, et al., 1995), marked exceptions (e.g., low injury severity-severe PTSD or high injury severity-mild PTSD) within these samples were noted. Part of the inconsistency underlying these relationships may be due to limitations of the measurement of injury severity. Most researchers have used objective indices such as the Abbreviated Injury Scale, completed by participant observers, to operationalize injury severity. Absent from these observers' ratings were assessments of the individual's subjective perceptions of their injury severity. However, subjective ratings also have limitations. In the current study, we used participant's nonstandardized assessments of their own injuries with injury categories that lacked operational definitions. Limitations of relying on self-reported injury designations have been noted for non-trauma related injuries (Gabbe, Finch, Bennell, & Wajswelner, 2003). Future assessments of acute injury severity may benefit from using multiple measures and dimensions including more objective assessments of minor injury severity (Peterson, Saldana, & Heiblum, 1996) in concert with measures of subjective concerns or evaluations of severity (Watts, Greenstock, & Cole, 1998). Inclusion of objective dimensions with subjective perspectives represents an example of the physical/psychological interface that could be used for holistic injury documentation. The separate examination of these dimensions may yield clearer relationships with other psychological sequelae, including PTSD and depression.

Underscoring the potential importance of subjective appraisal, body image distress was significantly associated with aspects of the trauma related context (transformed acute injury severity and degree of trust violation) and trauma-related sequelae (PTSD and depression severity). In terms of the types of injuries, these findings extend and partially replicate those of (Weaver et al., 2007b) who documented an association between body image distress and PTSD within a group of female victims of IPV with lasting appearance changes (residual injuries). It is notable that the most common forms of acute injuries were bruises and lacerations; injuries that may not ultimately result in lasting appearance changes. While residual injury status was not measured within the current study, it is possible that body image concerns may begin relatively early in the post-assault phase and may be affected by even transient appearance changes. Further research is needed in order to clarify this relationship and longitudinal studies are needed to explore whether there are co-occurring changes in body image distress and injury healing over the course of post-trauma recovery or whether these body focused concerns may precede the violence exposure.

Body image distress was a significant unique predictor of symptoms of depression (controlling for PTSD) but not symptoms of PTSD (controlling for depression). The failure of body image distress to significantly predict symptoms of PTSD may have resulted from the fact that the body image measure wasn't specifically anchored to the trauma-related injury. That is, participants completed the body image distress measure based on their most distressing body feature and this feature may or may not have been associated with the traumatic experience. In the former Weaver and colleagues' (2007b) study, participants anchored their body distress concerns to their lasting, injury-related appearance change (i.e., typically a mark or scar). Therefore, it is possible that body image distress may be uniquely associated with PTSD in cases where there are lasting appearance changes or when concerns are explicitly anchored to trauma-related appearance features. Further research exploring these methodological considerations is needed in order to determine whether body image distress has a unique association with PTSD within trauma-exposed populations with acute and/or lasting injuries.

Nevertheless, severity of symptoms of body image distress did emerge as a unique predictor of symptoms of depression. Body image distress has been associated with depression in research that has primarily focused on weight-related aspects of appearance (Mori & Morey, 1991). Theoretically, body image is a cognitive structure or schema encompassing an internal representation of one's appearance (Altabe & Thompson, 1996). Embodied in this schema-based theory is the idea that a discrepancy between the actual and ideal appearance trait may serve as an emotional trigger for body image distress and depression (Altabe & Thompson, 1996). Actual and ideal discrepancies in other self-based traits (i.e., not appearance based) have also been identified as risk factors for negative affect, generally (Higgins, Bond, Klein, & Strauman, 1986). Extending these findings to the current study, it is possible that the interpersonal assault constitutes an activating event for disrupting the body image schema. Thus, the actual-ideal discrepancy within the current study may be related to the receipt of injury and the discrepancy in this instance may consist of an injured-intact discrepancy triggering body image distress and associated negative affect (depression).

However, the current findings should be framed within a cultural context. Since body image distress is shaped by subjective impressions, the construct is culturally anchored. For example, multiple studies have found greater rates of body image concerns and body-focused preoccupation for Americans compared with other Western (e.g., Bohne, Keuthen, Wilhelm, Deckersbach, & Jenike, 2002) or Eastern cultural groups (e.g., Crystal, Watanabe, Weinfurt, & Wu, 1998). Therefore, cultures that place greater value on physical

attractiveness may be more likely to experience dysphoria and body image distress following an appearance altering injury.

Definitions of physical attractiveness are also culturally anchored. Injuries occurring to culturally valued parts of the body may differentially affect individuals across cultures. In addition, some forms of violence-related injury are more culturally-specific such as acid attacks, defined as intentional use of sulfuric, hydrochloric or nitric acid to maim, disfigure, torture or kill women (Watts & Zimmerman, 2002). These gendered attacks occur most often in Bangladesh, India, Pakistan and Cambodia and occur when men seek retribution following women's refusal of marriage or sexual advances or other perceptions of shame. As such, these culturally-specific forms of facial injury may not only publicly convey betrayal and humiliation but also constitute profound, culturally embedded trauma for victims (Mannan et al., 2006). In the current study, degree of trust violation was associated with body image distress, which may indicate that the breach in the relationship holds meaning for victims and activates body image concerns. Future research would benefit from replicating these findings and exploring the ways in which victim's interpersonal- or relationship-derived meanings may be attached to their injuries and body image distress, both within and cross culturally.

Women experiencing violence-related injury may be at risk for multiple forms of psychological distress. Body image distress requires further study as a nascent form of injury-related psychological sequelae. Body image concerns may also impact health more broadly. For example, Resnick, Kilpatrick and Acierno (1997) highlight multiple mechanisms through which violent assault can increase risk for health problems. These mechanisms include acute and chronic physical injury as well as increased risk of mental health problems as mediators. Future researchers replicating this study's findings may reveal body image distress as a mediator between assault and broader negative health outcomes or harmful health behaviors such as disordered eating or smoking. Health care settings hold great potential for providing integrated care for the physical and psychological impact of injury. Model integrative care approaches are emerging for victims of sexual assault (Resnick, Acierno, Kilpatrick, & Holmes, 2005). These researchers have designed a model intervention for female rape victims, delivered via videotape prior to the forensic exam. The components of this intervention highlight an integrated approach to addressing the physical and psychological sequelae of rape, and include modeling the exam procedures, providing education about the psychological, cognitive and behavioral reactions to rape and providing instructions on *in vivo* exposure practices to reduce avoidance following the assault. Given that injured female victims of physical and sexual assault may present to emergency departments (Kyriacou et al., 1999) or primary care (McCauley et al., 1995) during acute or later recovery periods, future research should explore the possibility for these settings to augment their services to include more holistic interventions. Expanded services may include a venue for patients to discuss their psychological concerns regarding their injury, including implications for their appearance, functioning and ways in which the injury may be connected with assault-related distress, and receive healthcare-tailored, trauma-informed interventions.

Victims of IPV may also present to healthcare settings without identifying IPV-related injury as their primary complaint. Therefore, the WHO clinical and policy guidelines for intimate partner violence and sexual violence against women advise that healthcare providers should screen for IPV when women present with health complaints that are likely to be caused or exacerbated by IPV exposure, including multiple forms of anxiety, depression, sleep difficulties, reproductive or sexual concerns and suicidality, among others (WHO, 2013). If IPV is reported then healthcare providers should be trained in first-line support which includes responding with support and nonjudgmental attitude, documentation

of forensic information, safety assessment and planning and referral to appropriate advocacy agencies.

The current study has a number of limitations. First, the sample size was relatively small and the preliminary findings warrant replication. In addition, findings reported in this study were cross-sectional in nature precluding a determination of the temporal relationship between body image distress, PTSD and depression severity. Despite these limitations, we use results from this study to emphasize the psychological effects of violence-related injury. The findings have implications for bridging the divide between the mental and physical sequelae of violence against women and for the development of integrated, woman-focused healthcare interventions.

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Table 1Type of Acute Injuries Among Participants ($N = 73$)

Type of Acute Injury	Number of Injuries ^a	%
Bruise	50	68.5
Burn	3	4.2
Concussion	5	6.8
Fractures	6	8.2
General Lacerations	35	47.9
Internal Organ Damage	7	9.6
Loss of Function	6	8.2
Tooth Injuries	2	1.6
Vaginal Lacerations	6	8.2

^aParticipants may report more than one acute injury so the total number of injuries will exceed 100.

Table 2

Means, Standard Deviations and Zero-order Correlations Among Study Measures (N =73)

Variable	M	SD	1	2	3	4
1. MPSS-SR	56.08	28.60	-			
2. BDDE	67.97	63.31	.42**	-		
3. INJTRANS	2.65	1.22	.06	.30**	-	
4. BDI	20.16	13.47	.77**	.52**	.03	-
5. TIME	31.78	16.74	-.01	-.17	-.10	.07

Note. MPSS-SR = Total score on the Modified Posttraumatic Symptom Scale-Self Report; BDDE = Total score on the Body Dysmorphic Disorder Examination; INJTRANS = Square root transformed sum of acute injuries; BDI = Total score on the Beck Depression Inventory; TIME= Number of days since sexual or physical assault.

* $p < .05$ (two-tailed).

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

Table 3

Regression Analysis Summary for Predictors of Depression and PTSD Severity ($N = 73$)

Model	Variable	B	SE	β	t	R ²	ΔR^2
BDI							
(1)	AGE	-.36	.15	-.27	-2.34*	.08	.08
	TIME	.06	.09	.08	.67		
(2)	AGE	-.14	.10	-.10	-1.35	.61	.53
	TIME	.07	.06	.08	1.07		
	MPSS-SR	.35	.04	.75	9.67**		
(3)	AGE	-.06	.10	-.05	-.64	.66	.05
	TIME	.10	.06	.08	1.07		
	MPSS-SR	.31	.04	.66	8.30**		
	BDDE	.09	.03	.25	3.06**		
MPSS-SR							
(1)	ASSAULT	-23.10	7.96	-.33	-2.90**	.11	.11
	TIME	-.07	.19	-.04	-.34		
(2)	ASSAULT	-11.53	5.36	-.16	-2.15*	.62	.51
	TIME	-.13	.13	-.08	-1.01		
	BDI	1.56	.16	.74	9.68**		
(3)	ASSAULT	-11.66	5.44	-.17	-2.14*	.62	.00
	TIME	-.14	.13	-.08	-1.02		
	BDI	1.58	.19	.75	8.33**		
	BDDE	-.01	.07	-.02	-.19		

* $p < .05$,** $p < .01$.

Note. AGE = Age of participant; ASSAULT = Physical or Sexual Assault; MPSS-SR = Total score on the Modified Posttraumatic Symptom Scale-Self Report; BDDE = Total score on the Body Dysmorphic Disorder Examination; BDI = Total score on the Beck Depression Inventory; TIME = Number of days since sexual or physical assault.