

# Intimate Partner Violence and Risk of Psychiatric Symptoms: the Moderating Role of Attachment

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**Abstract** Numerous studies have examined attachment in intimate partner violence (IPV) perpetration, but less is known about adult attachment insecurity relative to victimization. This study's objective was to evaluate attachment insecurity as a moderator of the association between IPV victimization and risk of psychiatric symptoms. Data come from a subsample ( $n = 215$ ) of female healthcare workers in a longitudinal study of violence and health. Structural equation modeling was conducted to evaluate the association between IPV victimization and **posttraumatic stress** and depressive symptoms and to examine IPV exposure and psychiatric outcomes by levels of attachment insecurity. Findings suggest that anxious attachment confers vulnerability to depression following conflict and highlight the importance of attachment security in the context of interventions for interpersonal violence.

**Keywords** Adult attachment · Depressive symptoms · Domestic violence · Partner violence · PTSD

Intimate partner violence (IPV) is a term used to describe a broad range of abusive behaviors within adult intimate partner relationships and includes any or all of the following: physical harm involving the intentional use of force; sexual harm involving use of physical force to compel a person to engage in a sexual act against his or her will; threats of either physical or sexual harm with the use of words and gestures or weapons; and psychological/emotional violence involving trauma to the

victim caused by acts, threats of acts, or coercive tactics by a current or former partner or spouse (Saltzman et al. 2002). Nearly 7 million women in the U.S. are victims of IPV each year (Black et al. 2011), resulting in 2 million physical injuries and over 1200 deaths annually. IPV takes a substantial toll on women's health, both psychologically and physically, and the adverse health consequences of violence against women have been widely described (Campbell et al. 2002; Plichta 2004). The current study aimed to assess factors associated with heightened vulnerability to psychiatric symptoms following IPV victimization. We were particularly interested in adult attachment insecurity as a possible effect modifier of the association between IPV and psychiatric symptoms, including depression and posttraumatic stress symptoms.

## IPV and Psychiatric Symptoms

Posttraumatic stress disorder (PTSD) and major depression are often cited in the literature as potential psychiatric consequences of IPV victimization, existing as independent or comorbid conditions to IPV (Coker et al. 2002; Coker et al. 2005; Golding 1999; Lang et al. 2004; Nixon et al. 2004). PTSD includes a range of symptoms, including: re-experiencing the traumatic event, avoidance of stimuli related to the event, and hyperarousal (4th ed., text rev.; DSM-IV-TR; American Psychiatric Association 2000). Common posttraumatic stress symptoms among abused women are nightmares, intrusive memories, avoidant behavior, and hyperarousal (e.g., sleeplessness and hypervigilance) (Thompson et al. 1999). Major depression is also frequently triggered by recent stressful life events, including exposure to violence (Campbell et al. 2002; Golding 1999; Nixon et al. 2004). IPV and co-occurring psychiatric symptoms may be associated with mental health service utilization. IPV-related depression and PTSD may exacerbate other comorbid mental health

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conditions (e.g., substance use disorders) and delay completion of treatment (Lipsky et al. 2010).

Identification of women at highest risk of development of psychopathology following IPV may be critical for successful treatment interventions. Although separate research trajectories have linked symptoms of posttraumatic stress and depression, and attachment insecurity to violence victimization, few have considered all in the same investigation. The present study describes the direct association between IPV victimization and risk of psychiatric symptoms, and explores attachment insecurity as one possible source of vulnerability to psychopathology.

### Diathesis-stress Models

Several theoretical models, including the diathesis-stress model, have been advanced to inform our understanding of the impact of IPV on mental health. Although a direct association exists between IPV and specific mental disorders, not all IPV victims develop depressive and PTSD symptoms, suggesting a differential vulnerability to these disorders (Scott and Babcock 2010). Diathesis-stress models provide a conceptual framework for understanding how stressors, such as violence victimization can influence the etiology of mental disorders. Such models posit that the threshold for disorder varies according to the presence or absence of a diathesis or vulnerability (Abela et al. 2004; McKeever and Huff 2003; Metalsky and Joiner 1992; Monroe and Simons 1991). Depressive and PTSD symptoms may follow an ipsative model of diathesis-stress in that there is an inverse relationship between life stressors (e.g., violence victimization) and pre-existing diatheses (e.g., genetic, biological, cognitive/personality, or environmental vulnerability factors) mental health problems. In other words, either increased exposure to victimization, higher levels of vulnerability, or both lower the threshold for development of psychiatric symptoms (Abela and D'Alessandro 2002; Kwon and Laurenceau 2002; McKeever and Huff 2003; Monroe and Simons 1991).

### Attachment Theory

Several theoretical models, including adult attachment theory (Bowlby 1969), have been advanced to inform our understanding of the potential impact of IPV. Bowlby asserted that behavioral responses to environmental changes are part of an attachment behavioral system in which the parent serves as a central, influential figure in a child's life. As such, the security and quality of the parent-child relationship are correlated with positive mental health outcomes later in life (Bowlby 1969). Adult attachment theory suggests that relationships in adulthood have origins in childhood and that dysfunctional (i.e., abusive) adult relationships may be influenced by these internal working models developed in early

life (Dumas et al. 2008; Dutton et al. 1994; Gormley 2005; Scott and Babcock 2010).

In adulthood, secure attachment is associated with relationship stability; it is generally characterized by flexibility, ability to work independently and cooperatively with others, ability to elicit support from romantic partners, and capacity to manage loss well. Approximately 50 % of adults are considered to have secure attachment (Brennan et al. 1998). In contrast, insecure attachment is associated with hostile interactions in relationships and is marked by difficulty responding to stressful situations such as interpersonal conflict.

With regard to measurement of adult attachment, there has been an increased emphasis on the use of dimensional, rather than categorical, approaches (Brennan et al. 1998). Specifically, a categorical approach involves grouping individuals into types of attachment style that are consistent across relationships, whereas a dimensional perspective maintains that attachment security varies along a continuum of anxiety and avoidance. Although much of the adult attachment research traditionally has applied a four-category model of secure, avoidant, anxious-resistant, and hostile (Bartholomew and Horowitz 1991; Bartholomew and Shaver 1998), there is a growing consensus in the field of attachment research that multi-item dimensional measurement models are optimal for assessing adult attachment (Brennan et al. 1998).

Adult attachment insecurity is generally measured along dimensions of anxiety and avoidance. Individuals with anxious attachment insecurity are motivated by fear of abandonment and may have difficulties with independence that translate into difficulties with intimacy. In interpersonal relationships, anxious attachment insecurity may manifest itself through aggression, jealousy, possessiveness, and control attributed to fear of abandonment (Lopez and Gormley 2002; Maysless 1991; Roberts and Noller 1998). Conversely, individuals with avoidant attachment anxiety are motivated instead by a fear of intimacy and may experience difficulties with intimacy that translate into challenges with independence (Maysless 1991). In their relationships, individuals with avoidant attachment insecurity may engage in passive-aggression and criticism motivated by fear of intimacy.

It is less clear how these forms of insecure attachment are independently associated with IPV-related mental health outcomes. Although several studies have examined the role of attachment theory in perpetration of violent crimes (Bradshaw and Garbarino 2004; Bradshaw and Hazan 2006), there is scant research on adult attachment insecurity and its relation to IPV victimization. In their study of 41 married couples, Bond and Bond (2004) found that anxious attachment was a risk factor for IPV among women but not men. In later research with a larger sample, Dumas et al. (2008) further clarified that not only was anxious attachment a risk factor for women's IPV victimization, but also that couple "mispairings" (i.e., women's anxious attachment and

men's avoidant attachment) conferred the greatest risk for IPV within marriage.

Emerging research supports an empirical association between IPV victimization and attachment insecurity, yet few studies have extended this research to examine the consequences of this intersection for women's mental health. For example, Scott and Babcock (2010) examined the association between IPV and PTSD symptoms with attachment insecurity among a community sample of 174 women and found evidence for attachment anxiety and dependence as moderators. Current literature demonstrates that these four phenomena (IPV, depressive symptoms, PTSD, and attachment insecurity) are interrelated (Bond and Bond 2004; Dumas et al. 2008; Gormley 2005; Scott and Babcock 2010; Shaver et al. 2005); yet not all IPV victims develop psychiatric symptoms, which suggests there may be some important moderators of this association, such as attachment insecurity (Scott and Babcock 2010). Understanding how attachment insecurity influences the development of psychiatric symptoms among IPV victims may inform therapeutic interventions and direct resources to those victims most vulnerable to onset of mental disorder.

#### Overview of the Current Study

Building on the basic tenets of attachment theory, the objective of this study was to evaluate whether attachment insecurity moderates the association between cumulative IPV victimization and risk of psychiatric symptoms among women. The current study takes a latent variable approach to these associations using data from a prospective study on violence and health conducted among a cohort of female healthcare workers. Attachment insecurity was hypothesized to moderate the association between IPV victimization and symptoms of depression and posttraumatic stress, such that the association between cumulative IPV and these psychiatric symptoms would be stronger among women with high levels of attachment anxiety and avoidance.

## Methods

#### Sample and Data Collection

Data came from a subsample ( $n = 215$ ) of female healthcare workers participating in all five waves of the Safe at Work Study, a longitudinal study of violence and health among nursing personnel. Data from the parent Safe at Work Study were collected from 2007 to 2009 with an overall 70 % retention rate. An initial, on-line confidential self-report survey designed to examine the prevalence of violence in the workplace and assessing other prior trauma was administered to 2193 nurses and nursing personnel aged 18 and above recruited from three hospitals in the Baltimore, MD area. Data for the

parent study were collected using both Internet and paper surveys at four timepoints: baseline, 6, 12, and 18-month follow-up assessments (i.e., T1, T2, T3 and T4, respectively). The Johns Hopkins Medicine Institutional Review Boards approved this study, and written consent was obtained from all participants.

Additional details on the Safe at Work study design, inclusion/exclusion criteria, and data collection are available elsewhere (Bracken et al. 2010). This subsample consisted of a randomly selected group of female participants in the original Safe at Work study who were subsequently retained for the 24-month follow-up survey (Wave 5). Although 1438 women were retained through Waves 1–4, only women who participated in all five data collection waves were used for this analysis to obtain a balanced sample ( $n = 215$ ). Women selected for this subsample participated in the four previous waves of data collection in addition to Wave 5, resulting in five waves of longitudinal data since baseline for these 215 participants. Data for Wave 5 were collected through a web-based questionnaire.

*Sample Characteristics* The majority of the sample was Caucasian (74.4 %), followed by African-American (19.4 %), and other race/ethnicity groups, including Asian, Latino, and Native-American, combined (6.2 %). The mean age of the women in this sample was 39.7 years ( $SD = 11.26$ ).

#### Measures

*Primary IPV Exposure* The IPV measure was derived from a modified version of the Abuse Assessment Screen, including questions of four abusive behaviors perpetrated by a current or former partner in the 6 months preceding each wave: (1) Have you ever been physically assaulted, sexually assaulted, threatened with physical or sexual assault or stalked? (2) Have you been hit, slapped, kicked, pushed, or otherwise physically hurt? (3) As an adult, have you ever been forced into sexual activities? (4) As an adult, have you ever been emotionally abused or sexually harassed? (Soeken et al. 1998). The AAS is both a reliable and valid measure of detecting partner abuse (Soeken et al. 1998) and has been used to identify IPV in similar samples of community-dwelling women (Coker et al. 2000; Kramer et al. 2004). A review of IPV screening tools reported sensitivity and specificity for the AAS to 93 %–94 % and 55 %–99 %, respectively (Rabin et al. 2009).

*Psychiatric Outcomes* Posttraumatic stress symptoms were measured with the primary care PTSD screen (PC-PTSD), a self-administered 7-item screening scale often used in primary care settings. The screening tool is scored by summing the positive responses with scores in range 0–7. Using a threshold of 4, the PC-PTSD test-retest reliability was high ( $r = 0.84$ ,  $p < 0.001$ ), and the criterion validity against the clinician-

administered PTSD scale (CAPS) was acceptable ( $\kappa = 0.67$ ) (Breslau et al. 1999; Kimerling et al. 2006). Depressive symptoms were measured using the Center for Epidemiologic Studies Depression Scale short form (CESD-10), a 10-item screening questionnaire. Factor analyses demonstrate that this briefer form taps into the same depression symptom domains as does full-length 20-item original CES-D, and with comparable reliability using a cut-off score  $\geq 10$  on the CESD-10 and a cut-off score  $\geq 16$  for the full CES-D ( $\kappa = 0.97$ ,  $p < 0.001$ ) (Andresen et al. 1994; Radloff 1977).

**Adult Attachment** Based on the theoretical work of Hazan and Shaver (1987) and Bartholomew and Horowitz (1991), the Experiences in Close Relationships scale (ECR-R; Fraley et al. 2000) allows for assessment of individual differences in adult attachment style within relationship categories (e.g., parent, partner, friend) and across dimensions of anxiety and avoidance, and thus is particularly appropriate for this study. Attachment insecurity in both romantic and collegial relationships was measured with the Experiences in Close Relationships (ECR-R) questionnaire, a 36-item self-report measure comprised of two subscales of dimensions of relationship-specific attachment security, anxiety and avoidance (avoidance subscale  $\alpha = 0.932$ ; anxiety subscale  $\alpha = 0.925$ ). The psychometric properties of anxiety and avoidance subscales of the ECR have been successfully validated (Fraley et al. 2011; Sibley et al. 2005). Each ECR item was rated using a 7-point Likert scale; averaging these ratings yields both a continuous global score and a dimension-specific score (anxious or avoidant).

**Childhood Maltreatment** Childhood maltreatment was ascertained with three questions: (1) As a child, were you ever physically abused (spanked a lot, whipped, hit with objects, etc.) by a parent or another adult or caretaker? (child physical abuse) (2) As a child, did anyone ever touch you in a way you did not wish to be touched, or force you into any kind of sexual activity? (child sexual abuse), and (3) While you were growing up, was your parent or guardian physically abused by his or her partner? (child witness to IPV). Responses to each were coded as dichotomous variables.

## Analysis

Structural equation modeling (SEM) was used to examine complex relationships between observed and unobserved (latent) variables, including moderating variables, in a single analysis. SEM models are comprised of two models, the measurement model and a structural model that relates observed variables to the latent construct in a regression model. SEM also accounts for measurement error endemic to self-reported information (Bollen 1989; Kline 2005). SEM assumes that

each scale is an imperfect measurement of the latent variable, incorporates the measurement error into the model, and adjusts the correlations and path coefficients accordingly. In this study, SEM was conducted in two phases using data pooled from five study waves: 1) construction of measurement models for anxious and avoidant attachment dimensions; and 2) examination of observed cumulative IPV exposure and psychiatric outcomes by levels of attachment insecurity.

**Measurement Model** Confirmatory factor analysis with a robust weighted least squares parameter estimator was used to develop measurement models for anxious and avoidant attachment dimensions using 17 observed categorical indicators from each subscale of the ECR-R. Prior to analysis, one item from the ECR-R avoidance subscale was dropped due to unacceptably high amounts of missing data. One item was also dropped from the ECR-R avoidance due to poor performance (i.e., factor loading  $< 0.40$ ). Improved fit to the measurement model (i.e., increased log likelihood and sample-size adjusted BIC) was noted. See Figs. 1 and 2.

**Structural Equation model** Each of the resulting attachment dimensions, modeled as continuous latent variables, was included as a hypothesized moderator in structural equation models testing the direct association between IPV and each of two observed outcomes, depressive and posttraumatic stress symptoms. Four moderated SEM models were conducted, two for each outcome (depressive symptoms or posttraumatic stress symptoms) predicted by cumulative IPV victimization with either anxious attachment or avoidant attachment as the moderating continuous latent variable, modeled as an interaction between IPV and the attachment dimension. Each model accounted for lifetime history of IPV, childhood maltreatment, and either Wave 1 posttraumatic stress or depressive symptoms.

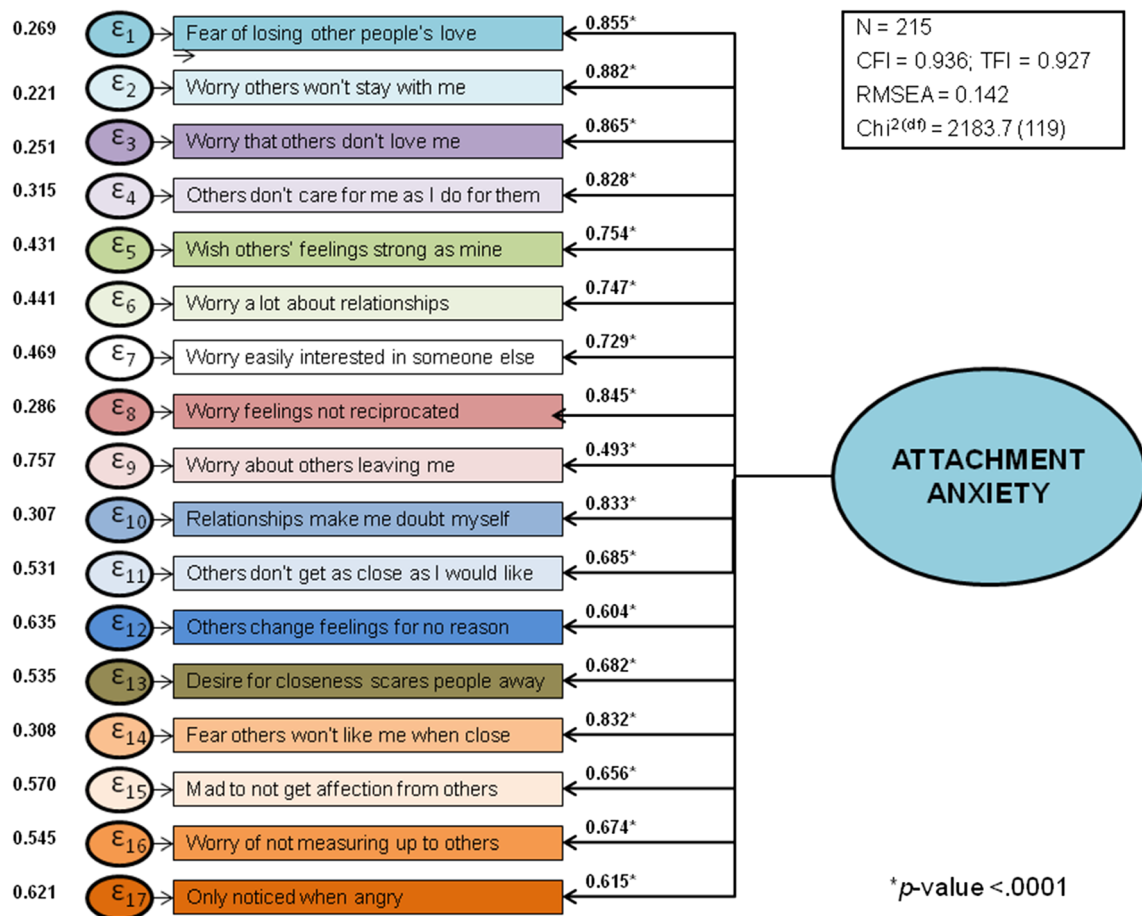
Adequacy of model fit in SEM was ascertained by several tests: a  $\chi^2$  test statistic; the Root Mean Square Error of the Approximation (RMSEA) (Chen et al. 2008; Steiger 1989); the Comparative Fit Index (CFI; Bentler 1990) greater than 0.90 and the Tucker-Lewis Index (TLI) greater than 0.90. All analyses were conducted using *MPlus* version 6.0 (Muthen & Muthen, 1998–2012).

## Results

### Descriptive Analyses

Table 1 reports the sample socio-demographic characteristics by IPV victimization status. Approximately 23.3 % ( $n = 50$ ) of women reported IPV over the study's course. No appreciable differences were noted with respect to age, race/ethnicity, educational attainment, or income. However, significant differences between abused and non-abused women were observed





**Fig. 1** The measurement model: Attachment anxiety among female participants in the Safe at Work Study (n = 215)

in regards to marital status (i.e., higher proportions of abused women were never married or were previously married relative to non-abused women) and childhood trauma (i.e., higher proportion of abused women reported physical and sexual abuse, and witnessing IPV as a child relative to non-abused women).

Among women with a lifetime history of IPV (~50 %), the IPV revictimization rate was 14.9 %. Correlations among key variables in the sample were positive, with particularly strong correlation between attachment anxiety, attachment avoidance, and depressive symptoms (see Table 2).

*Anxious and Avoidant Attachment as Moderators of the Association between IPV and Depressive Symptoms* In structural equation models, an interaction term was used to examine anxious and avoidant attachment as a continuous latent variable moderator, accounting for baseline lifetime IPV and current depressive symptoms at baseline. The significant interaction term between IPV and anxious attachment predicting depressive symptoms provided support for anxious attachment as a moderator of this association ( $\beta = 0.327, p < 0.001$ ) (see Table 3). In the avoidance model, only a main effect of IPV on depressive symptoms reached statistical significance ( $\beta = 0.728, p < 0.01$ ) (see Table 4).

*Anxious and Avoidant Attachment as Moderators of the Association between IPV and Posttraumatic Stress Symptoms* Anxious and avoidant attachment insecurity were further hypothesized to moderate the association between cumulative IPV and posttraumatic stress symptoms. Attachment anxiety and avoidance were weakly correlated with posttraumatic stress symptoms (0.280 and 0.155, respectively) (see Table 2). Two structural equation models for IPV predicting posttraumatic stress symptoms were constructed, each specifying anxious or avoidant attachment insecurity as moderating latent variables and accounting for baseline lifetime IPV and posttraumatic stress symptoms. Neither interaction term was statistically significant. Unstandardized parameter estimates for both anxiety and avoidance posttraumatic stress models are reported in Table 4.

**Discussion**

This study examined the impact of adult attachment insecurity on the relationship between IPV and two forms of psychiatric symptoms common among abused women (posttraumatic stress and depressive symptoms). Cumulative IPV was positively

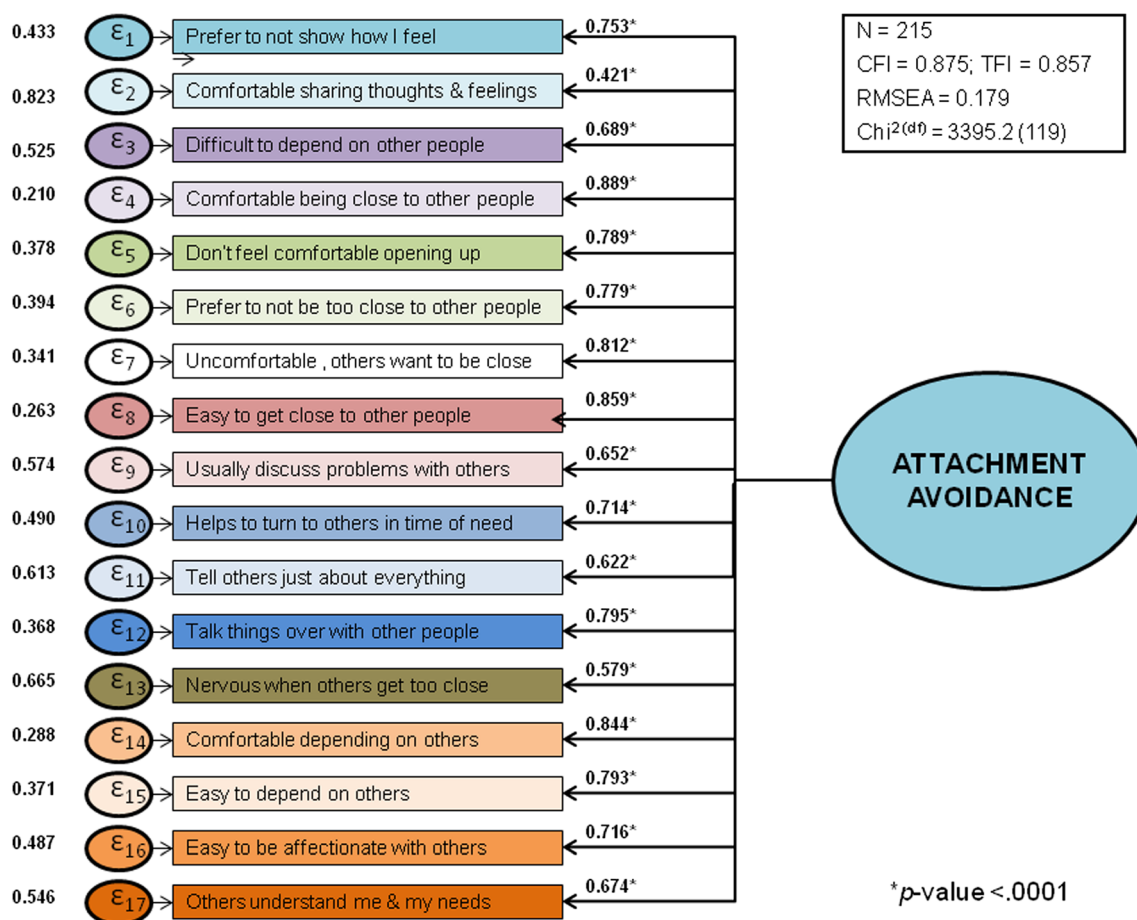


Fig. 2 The measurement model: Attachment avoidance among female participants in the Safe at Work Study (n = 215)

associated with subsequent posttraumatic stress and depressive symptoms. Pursuing an examination of the diathesis-stress model of psychiatric symptoms led us to examine both attachment anxiety and attachment avoidance as potential moderators of the association between IPV and symptoms of posttraumatic stress and depression.

Prior research has documented a clear association between adult attachment insecurity and symptoms of depression (Bifulco et al. 2006; Hankin et al. 2005; Roberts et al. 1996). As we were interested in vulnerability models to depression, anxious and avoidant attachment were evaluated as potential moderators of the relationship between prior violence victimization and depressive symptoms. The association between IPV victimization and depressive symptoms varied by level of anxious attachment, suggesting an increased risk of depressive symptoms under relational conflict among women with high anxious attachment insecurity. The finding that anxious attachment moderates the IPV-depressive symptom association is in accordance with an ipsative model of diathesis stress. Specifically, women exposed to IPV with higher anxious attachment insecurity were more vulnerable to development of depressive symptoms relative to women with lower attachment anxiety. This may be explained by the proclivity to

fear of abandonment and other dysfunctional attitudes common among those with anxious attachment (Roberts et al. 1996; West et al. 1999). Another potential explanation for this finding may be related to failed expectations of the relationship under conditions of conflict, exacerbating negative emotions (e.g., self-blame) and lowered self-confidence to succeed in relationships.

The association between cumulative IPV and depressive symptoms did not vary under conditions of avoidant attachment insecurity. There are several potential explanations for why this moderated association was not observed. The first considers attachment insecurity within a framework of cognitive vulnerability in which individuals with insecure attachment experience disrupted information processing, giving rise to depression (Gotlib and Hammen 1992). Two types of cognitively vulnerable individuals are described in terms of their corresponding attachment to others (Ingram et al. 1998). Sociotropic-dependent individuals are vulnerable to depression via their fear of losing others, thereby resembling a profile of anxious attachment. In contrast, autonomous-perfectionistic individuals may be disposed to depression by their own expectations and internalized beliefs, rather than by their relationship to others. In this way, autonomous

**Table 1** Wave 1 demographic information by intimate partner violence victimization status

	IPV (n = 50)	No IPV (n = 165)	$\chi^2$	p-value
Age, <i>M</i> (s.d.)	37.4 (11.14)	40.5 (11.23)		0.09
Race/ethnicity, (%)			5.72	0.221
White	33 (66.0)	124 (77.0)		
Black	14 (28.0)	27 (16.8)		
Other	3 (6.0)	10 (6.2)		
Marital Status, (%)			6.45	0.0398
Married/Coupled	18 (36.0)	91 (56.5)		
Previously Married	12 (24.0)	27 (16.8)		
Never Married	20 (40.0)	43 (26.7)		
Childhood Abuse				
Physical			11.81	0.0006
Yes	16 (32.0)	19 (11.5)		
No	34 (68.0)	146 (88.5)		
Sexual			5.33	0.021
Yes	16 (32.0)	28 (17.0)		
No	34 (68.0)	137 (83.0)		
Witness to IPV			6.6	0.01
Yes	10 (20.0)	12 (7.4)		
No	40 (80.0)	151 (92.6)		
Education			2.51	0.64
High school/less	6 (12.0)	11 (6.9)		
Post h.s. certificate	1 (2.0)	6 (3.8)		
2 years of college	13 (26.0)	39 (24.4)		
4+ years of college	30 (60.0)	104 (65.0)		
Income (\$)			3.51	0.32
<10,000–29,999	5 (10.2)	12 (7.6)		
30,000–59,999	14 (28.6)	31 (19.6)		
60,000–99,999	18 (36.7)	56 (35.4)		
> 100,000	12 (24.5)	59 (27.3)		

individuals are similar to those with avoidant attachment, which potentially serves as a protected state or buffer against depression in the present study.

Second, behavioral and emotional differences in motivation between anxious attachment and avoidant attachment may influence vulnerability to depressive symptoms under

conditions of relational conflict. According to Gormley (2005), individuals with high attachment anxiety are motivated by fear of loss of the relationship or rejection and, therefore, burn “hot”, or are driven to charged emotional displays under conflict (Downey and Feldman 1996). In contrast, individuals with high attachment avoidance are motivated by fear of loss of their independence within the relationship and tend to burn “cold”, or carry a grudge and respond to conflict with low levels of emotional warmth (Gormley 2005). For women with high attachment anxiety, the IPV experience may signal a level of relationship distress that results in depletion of self-esteem, which directly confers a vulnerability to depression (Hankin et al. 2005; Roberts et al. 1996; West et al. 1999). These differences in behavior under conflict may account for the differential vulnerability to psychiatric symptoms among the two attachment styles in the context of IPV.

A third possible reason for the lack of an association is that the relationship between avoidant attachment and psychiatric

**Table 2** Correlation (Spearman) between pooled Waves 1–4 variables (n = 215)

	1	2	3	4	5
1. IPV	*				
2. PTSD	0.213	*			
3. CESD	0.245	0.525	*		
4. ANXIETY	0.287	0.280	0.494	*	
5. AVOIDANCE	0.267	0.155	0.322	0.689	*

\**p*-value for all correlations < .0001

symptoms may be partially accounted for by alternative factors unmeasured in the present study. One such proposed factor is relationship quality (Shaver et al. 2005). In a study of couples' attachment styles in association with depression, attachment avoidance emerged as the strongest predictor of relationship quality (Shaver et al. 2005). Avoidant individuals may downplay their need for intimacy and partner support while inflating their sense of independence, resulting in difficulties related to investment level, trust, and intimacy. Yet this particular study did not find an association between relationship quality and depression. Poor relationship quality may be a function of attachment avoidance, but further research is warranted on how the quality of the relationship itself contributes to risk of psychiatric symptoms.

In contrast to prior research (Muller et al. 2000; Sandberg 2010; Scott and Babcock 2010), neither avoidant nor anxious attachment moderated the association between IPV and PTSD symptoms in the current study. This may be due to differences in assessment of PTSD symptoms. The current study employed a 4-item screening tool to assess posttraumatic stress symptoms, whereas the earlier studies used more robust measures of PTSD symptom clusters (e.g., the 49-item Posttraumatic Diagnostic Scale and the 17-item PTSD Checklist). Alternatively, prior research has documented other potential moderators of the IPV-PTSD relationship not captured in the current study. For example, Lilly and Graham-Bermann (2010) found that adoption of certain coping

strategies moderated the relationships between IPV victimization and current PTSD symptoms. Moreover, Babcock et al. (2008) found evidence for perceived social support as a moderator of the association between psychological IPV and women's PTSD symptoms. The type, chronicity, and amount of IPV exposure may differentially impact this association as well. Further research on these key moderators, types of victimization experiences, and the co-occurrence of other psychiatric symptoms is needed to make these collective findings more conclusive.

Strengths and Limitations

The findings of this study should be considered in light of several limitations. First, the absence of data on partner attachment insecurity, relationship quality, and other relationship characteristics (e.g., length of relationship) limited the extent to which we could assess in detail the dynamic operating within the couple that may give rise to IPV. Additionally, because this sample is employed, the prevalence of posttraumatic stress and depressive symptoms is likely less than in an unemployed sample of victims of violence, as these mental health challenges may make it more difficult to obtain or maintain employment (Brohan et al. 2012). The findings of the present study, therefore, may be underestimated relative to the general population. Efforts to minimize participant burden guided selection of instruments in this study. As the study employed a 4-item screening tool to assess posttraumatic

**Table 3** Unstandardized parameter estimates and standard errors of the structural equation model (n = 215)

	Beta	SE
Anxiety		
Anxious	0.281***	0.046
IPV	0.256	0.289
Anxious x IPV	0.325**	0.107
Baseline IPV	0.404	0.271
Baseline CESD	0.559***	0.031
CSA	0.538	0.36
CPA	0.197	0.416
CWIPV	-0.121	0.394
Intercept	2.056***	0.434
Avoidance		
Avoidant	0.346***	0.068
IPV	0.728*	0.283
Avoidant x IPV	0.169	0.174
Baseline IPV	0.359	0.258
Baseline CESD	0.604***	0.03
CSA	0.205***	0.014
CPA	0.163***	0.013
CWIPV	0.103***	0.01
Intercept	1.966***	0.437

CESD = Center for Epidemiological Studies Depression Scale; CPA = child physical abuse; CSA = child sexual abuse; CWIPV = child witness to IPV

\*p < 0.05; \*\*p < 0.01; \*\*\*p < .001

**Table 4** Unstandardized parameter estimates and standard errors of the structural equation model (n = 215)

	Beta	SE
Anxiety		
Anxious	0.053***	0.01
IPV	0.149	0.106
Anxious x IPV	0.033	0.043
Baseline IPV	0.08	0.06
Baseline PTSD	0.139**	0.045
CSA	0.297**	0.106
CPA	0.331**	0.126
CWIPV	0.321*	0.133
Intercept	0.385**	0.113
Avoidance		
Avoidant	0.049**	0.015
IPV	0.163	0.11
Avoidant x IPV	0.051	0.06
Baseline IPV	0.09	0.06
Baseline PTSD	0.135**	0.046
CSA	0.341**	0.106
CPA	0.331**	0.126
CWIPV	0.301*	0.13
Intercept	0.38**	0.114

CESD = Center for Epidemiological Studies Depression Scale; CPA = child physical abuse; CSA = child sexual abuse; CWIPV = child witness to IPV

\*p < 0.05; \*\*p < 0.01; \*\*\*p < .001



stress symptoms, it was not possible to assess the impact of IPV on specific symptom clusters. IPV was measured as a dichotomous variable at each wave, potentially masking heterogeneity of victimization experiences, as well as associations between specific forms of IPV and psychiatric symptoms. An absence of measures of IPV severity is an additional limitation of this study. Also, with 215 participants, the current study may have had limited statistical power to fully address our hypotheses using a SEM approach.

Though further empirical longitudinal research is needed to confirm the stability of attachment security across the lifespan, this study assumes a life course continuity, as well as a modest overlap between parent–child attachment and that between romantic partners. Negative life events, such as early victimization, are associated with maintenance of insecure attachment from childhood into adulthood (Aspelmeier et al. 2007; Rapoza and Baker 2008). As the data are not longitudinal since childhood, the impact of childhood trauma on attachment insecurity and subsequent attachment experiences are not known for this sample of women. As such, all models adjusted for history of childhood maltreatment. However, prior studies indicate that attachment insecurity incurred in early years by childhood trauma appears to remain stable into young adulthood (Hamilton, 2000; Lynch & Cicchetti, 1991), thus strengthening the rationale for employing a measure of adult attachment security. It is possible that attachment security may change in response to IPV, yet this has not been investigated empirically. Finally, it is possible that attachment insecurity is affected by other factors related to PTSD and depression in IPV victims, including social support, and coping strategies. These factors were not available for assessment in the present study.

The association between IPV and depressive symptoms remained unchanged after accounting for multiple forms of childhood maltreatment. This strengthens evidence that the associations observed between IPV and psychiatric symptoms were independent and not simply an extension of the effect of childhood trauma into adulthood. These findings further suggest that attachment does play a role in symptom outcomes in concert with other forms of violence victimization.

An additional strength of this study was the use of a latent variable approach in measurement of continuous dimensions of attachment insecurity. This multi-item dimensional approach to measurement of anxious and avoidant attachment, in combination with latent variable methods, permitted overall testing of relationships among both observed and unobserved variables in a single analysis and accounted for measurement error inherent in self-reported data. The prospective design is an additional strength of this research and minimizes the potential for recall bias in case–control studies.

## Implications and Future Directions

Findings of this research may guide therapeutic interventions toward healthy responses to conflict, particularly for mental health professionals who work directly with abused women (Scott and Babcock 2010). For example, if attachment insecurity is evaluated, mental health professionals and shelter workers can intervene to promote certain coping activities over others to facilitate recovery among IPV victims with attachment insecurity (Lilly and Graham-Bermann 2010). Understanding the potential mediating and moderating effects of coping strategies and social support in the context of IPV may inform treatment avenues for IPV-related symptoms among individuals with differing attachment styles (Iverson et al. 2013; Krause et al. 2008; Lilly and Graham-Bermann 2010; Mitchell et al. 2006). Analysis of attachment insecurity will contribute to our understanding of the potential impact of preventive interventions, such as those that target the promotion of secure attachment in early childhood. Future research warrants adoption of a prospective design to track the childhood origins of attachment insecurity in order to better understand its influence on adult relationships.

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