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ORIGINAL ARTICLE

Emotional Reactivity of Partner Violent Men with Personality Disorder during Conflict

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Abstract
This study addresses negative affect, psychophysiological reactivity, and antecedents to psychological aggression within the context of intimate partner violence. One hundred and thirty-nine partner violent men were administered the SCID-II and participated in verbal conflict with their partner in a laboratory setting, during which time observed affect and psychophysiological indices were continuously recorded. Relative to men with antisocial personality disorder (ASPD), men with borderline personality disorder (BPD) exhibited longer periods of anger ($p = .03$) and lower skin conductance reactivity ($p = .04$). Relative to men with no diagnosis, men with BPD exhibited less frequent distress ($p = .04$) and longer periods of anger ($p = .02$); men with ASPD exhibited shorter periods of anger ($p = .03$) and greater heart rate reactivity ($p = .04$). In men with ASPD, psychological aggression was likely to be preceded by partner positive/neutral affect. Treatment and research implications are discussed.

Keywords Domestic violence · Batterers · Partner violent men · Personality disorder · Predicting domestic violence

Introduction

Intimate partner violence (IPV) constitutes a serious public and mental health concern in the United States. Twenty-two percent of women and 14% of men report having been the victim of severe physical violence by a current or former intimate partner (Breiding et al. 2015). Previous research has demonstrated treatment for IPV is minimally successful in reducing IPV recidivism (Babcock et al. 2016). Heterogeneity in partner violent men with respect to severity of violence, target of violence, and co-existing mental health and personality disorders (Holtzworth-Munroe et al. 2000; Wray et al. 2015) might suggest a need for tailored treatment for IPV (Ferraro 2017). The purpose of the current study is to address the role of affective instability in motivating violence among partner violent men with borderline personality disorder (BPD).

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Holtzworth-Munroe et al.'s (2000) meta-typology of partner violent men distinguishes borderline-dysphoric (BD) from generally violent-antisocial (GVA) and family-only (FO) subtypes of partner violent men based on frequency and target of violence and psychological features. Another typology, based on heart rate reactivity, identified a group of psychophysiologically hyperreactive partner violent men who were high on BPD features, jealousy, and abandonment fears (Gottman et al. 1995a). Although the Holtzworth-Munroe et al. (2000) typology was theoretically compelling, it failed empirically, with four clusters emerging and partner violent men changing categories over time (Capaldi and Kim 2007). Gottman et al.'s (1995a) typology also failed to be replicated (Babcock et al. 2004; Meehan et al. 2001), their findings perhaps attributable to an artificially high baseline heart rate (Babcock et al. 2004). Yet at the core of both of these typologies were borderline and antisocial personality disorder features. However, few studies to date have used formal personality disorder diagnoses, expected to be more reliable and stable across time, as a distinguishing factor among partner violent men (Fowler and Weston 2011; Ross and Babcock 2009). This despite recent research showing ASPD to be present in nearly 36% of men seeking treatment for perpetration of IPV, and BPD in nearly 22% (Elklit et al. 2018).

Affective instability is a more consistent feature of BPD than ASPD, manifesting as high negative affect and variability in positive affect during interpersonal interactions (Paris et al. 2013; Russell et al. 2007; Stepp et al. 2009; Trull et al. 2008). This affective instability might preclude effective management of violent impulses, especially in response to exhibition of partner distress or perceived partner abandonment (Babcock et al. 2000; Ross and Babcock 2009). One study used sequential analysis of retrospective reports of past violent events and reported partner violent men with BPD were severely violent towards their partner when she exhibited distress; partner violent men with ASPD were severely violent towards their partner when she exhibited belligerence or dominance (Ross and Babcock 2009). We might expect these findings to be supported during verbal conflict in the lab.

Psychophysiological reactivity may underlie affective instability. Although findings pertaining to affective hyperarousal in individuals with BPD are mixed, it appears they do evidence exaggerated psychophysiological response to certain emotional stimuli, including film clips depicting interpersonal conflict (Austin et al. 2007). Despite previous research on psychophysiological hyporeactivity of partner violent men with ASPD during verbal conflict with their partner, no previous research has used this paradigm to study psychophysiological response in partner violent men with BPD (Babcock et al. 2005; Gottman et al. 1995a).

Aims of the Current Study

The primary aims of the current study were to assess negative affect, psychophysiological reactivity, and antecedents to psychological aggression of partner violent men with BPD relative to partner violent men with ASPD and partner violent men with no diagnosis.

Hypotheses

1. Negative Affect: Partner violent men with BPD were expected to exhibit (a) negative affect more frequently and for longer duration than partner violent men with no diagnosis and (b) distress more frequently and for longer duration than partner violent men with ASPD.
2. Psychophysiological Reactivity: Partner violent men with BPD were expected to exhibit psychophysiological hyperreactivity relative to partner violent men with ASPD or no diagnosis. Partner violent men with ASPD were expected to exhibit psychophysiological hyporeactivity relative to partner violent men with BPD or no diagnosis.
3. Antecedents to Psychological Aggression: Partner violent men with personality disorder (PD) were expected to react more psychologically aggressively than partner violent men with no diagnosis in response to their partner's exhibited aggressive, distressed, and positive/neutral affect. Partner violent men with BPD were expected to demonstrate increased aggression and partner violent men with ASPD to demonstrate decreased aggression in response to partner distress. Partner violent men with APSD were expected to demonstrate increased aggression in response to their partner's aggression.

Method

Sample

Community violent couples were recruited from a metropolitan area in the southern United States by local newspaper ads and flyers seeking "Couples Experiencing Conflict" who had been living together for at least 6 months, were at least 18 years of age, and were able to speak and write English easily.

Measures

Revised Conflict Tactics Scale The Physical Assault (12 items) and Injury (6 items) scales of the CTS-2 (Straus et al. 1996) assess the frequency of physically abusive acts and physical injury acquired by one's partner during the past year. Responses are indicated on an 8-point Likert scale ranging from 1 ("Once in the past year") to 6 ("More than 20 times in the past year"). Internal consistency of CTS-2 scores for female report of male-to-female violence during the past year was $a = .84$, indicating good internal consistency.

Structured Clinical Interview for DSM-IV Axis II Personality Disorders The SCID-II (First et al. 1997) is a semi-structured interview assessing the presence of DSM-IV Axis II personality disorders. Each question documents the existence of a diagnostic criterion and can be scored as 1 (absent), 2 (subthreshold), or 3 (threshold). Interrater agreement was 80% (Please refer to procedural details on page 8).

Specific Affect Coding System Trained coders use cues from facial affect, vocal tone, body language, and content of speech to identify displayed emotions (Gottman et al. 1995b). Specific Affect codes were documented in real time using the Video Coding System (Long 1998b): Anger, Aggression (composite of belligerence, contempt, domineering), and Distress (composite of fear/tension, sadness, whining). Affection, humor, interest, joy/surprise, neutral affect, and validation comprised the affective variable Positive/Neutral,

which, in conjunction with Aggression and Distress, was explored as a partner affective antecedent to Aggression in partner violent men. Interested readers may refer to Coan and Gottman (2007) for the function, indicators, physical cues, and counterindicators of each emotion. Kappa values for specific affect codes exceeded kappa = 0.7, indicating strong interrater agreement (Please refer to procedural details on page 9).

Psychophysiology Heart rate, respiratory sinus arrhythmia (RSA), and skin conductance were continually collected using an integrated software and hardware package (Long 1998a). Heart rate was measured by placing three electrodes on each participant's chest, two in a bipolar configuration on opposite sides of the chest, and the third on the sternum as a ground. The interbeat interval (IBI) data analysis program (Long 1998a) recorded R-waves on a second-by-second basis, from which heart beats per minute was computed. A bellows around the chest measured interbeat interval during each inspiration/expiration. The difference between the minimum interbeat interval during inspiration and the maximum interbeat interval during expiration captured RSA. Skin conductance level was measured via two Ag/AgCl (1-cm diameter) electrodes containing isotonic solution, placed on the first and third phalanges of the non-dominant hand. Sweat gland secretion was recorded in microsiemens. All physiological measures were analyzed as change scores, operationalized as the difference between average resting level and average verbal conflict level.

Procedure

The following procedures were conducted in compliance with our Institutional Review Board. The Physical Assault scale of the Revised Conflict Tactics Scale (CTS-2; Straus et al. 1996) was administered to female partners over the telephone. Couples were invited to the lab to participate if the female partner endorsed on this scale at least one male-to-female act of violence in the past year and did not anticipate increased aggression from her partner as a result of participation. No females whose partnership was otherwise eligible reported anticipation of increased aggression by her partner as a result of participation.

During the first lab session, informed consent was obtained from male partners. The presence of BPD and ASPD were assessed with the Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II; First et al. 1997); no other personality disorders were assessed. The SCID-II was administered by graduate students in at minimum their second year of a Ph.D. Clinical Psychology program. Training of graduate students was overseen by the second author. Each interview was videotaped and rescored by a second graduate student. Participants received $30 for their participation.

During the second lab session, informed consent was obtained from each partner. Participants independently completed a demographic form (see Table 1), and then graduate students facilitated the Play-by-Play Interview (Gottman 1996), a semi-structured interview to identify topics of conflict. With the assistance of the graduate student, participants agreed on the topic of conflict. Undergraduate research assistants connected both partners to psychophysiological recording devices. Couples sat quietly for a 4-min baseline measurement of psychophysiological indices then commenced the 7.5-min conflict discussion. The couple's discussion was videotaped, and two undergraduate research assistants reviewed the videotapes using Gottman et al.'s (1995b) Specific Affect (SPAFF) Coding System to code each partner's displayed affects. Each partner received $35 for his/her participation.

Safety Check Prior to the couple's departure, male partners were independently debriefed as to the goals of the project and asked to review an adjective checklist and indicate the degree to which they currently felt 15 specific emotions. Participants who indicated moderate to high levels of any negative emotion were asked a clarifying question based on the intensity of the emotion rated (i.e., "How likely are you to have a fight on the ride home, or in the near future, because of your conversation or because of how you are feeling tonight?" or "Do you feel more likely to hit your partner, or to be physically aggressive in any way, because of your interviews today? We can help you avoid violence."). Then, male partners were given a referral list and a debriefing letter, which was reviewed in the presence of the research assistant and included instruction to notify the research assistant if he felt upset, angry, or unsafe. The senior author was debriefed within 24 h about any male partners who endorsed at minimum moderate negative emotion to determine that all was done to avoid violence.

Female partners were independently debriefed as to their fear level, and a safety check was conducted. Referrals for counseling and a list of resources for victims of IPV were provided to all interested participants. A follow-up telephone call to female partners was conducted 1 week later to assess for adverse events resulting from participation. All participants denied adverse events.

Data Analytic Plan

Hypothesis 1 Multivariate analysis of variance (MANOVA) was used to evaluate whether frequency and duration of negative affect during conflict with one's partner distinguished

Table 1 Demographics by Diagnostic Group

Diagnostic Group					
	ASPD ($n = 18$)	BPD ($n = 23$)	No PD ($n = 98$)	F / χ^2	p
Age (yrs)	30.47 (8.04)	34.78 (9.75)	31.57 (10.63)	1.13	.33
Race				9.83	.46
African American	9 (52.9%)	15 (65.2%)	47 (51.6%)		
Caucasian	4 (23.5%)	5 (21.7%)	26 (28.6%)		
Hispanic	2 (11.8%)	2 (8.7%)	15 (16.5%)		
Other	1 (5.9%)	1 (4.3%)	2 (2.2%)		
Asian American	0 (0.0%)	0 (0.0%)	1 (1.1%)		
Native American	1 (5.9%)	0 (0.0%)	0 (0.0%)		
Education				9.30	.68
Some High School	1 (6.3%)	4 (17.4%)	8 (8.8%)		
GED	4 (25%)	1 (4.3%)	12 (13.2%)		
High School Graduate	4 (25%)	5 (21.7%)	21 (23.1%)		
Some College	1 (6.3%)	2 (8.7%)	2 (2.2%)		
AA/Technical Degree	4 (25%)	6 (26.1%)	30 (33.0%)		
College Graduate	2 (12.5%)	3 (13.0%)	9 (9.9%)		
Post-Graduate	0 (0.0%)	2 (8.7%)	9 (9.9%)		
Employed				.11	.95
Full-Time	7 (63.6%)	11 (64.7%)	42 (67.7%)		
Part-time	4 (36.4%)	6 (35.3%)	20 (32.3%)		
Marital Status				12.59	.13
Married	7 (41.2%)	8 (34.8%)	32 (35.2%)		
Cohabiting	6 (35.3%)	13 (56.5%)	54 (59.3%)		
Single	3 (17.6%)	2 (8.7%)	4 (4.4%)		
Divorced	1 (5.9%)	0 (0.0%)	0 (0.0%)		
Widowed	0 (0.0%)	0 (0.0%)	1 (1.1%)		
Relationship Length (yrs)	4.20 (3.90)	3.73 (3.94)	4.70 (4.37)	.50	.61
Annual Income ($)	22,047.06 (33,107.97)	14,789.56 (11,113.33)	21,407.46 (37,744.18)	.31	.73
No. of Children	2.21 (1.85)	2.21 (2.32)	2.24 (3.91)	.001	.99
No. DV[a] Charges	.75 (.71)	1.11 (.93)	.48 (1.1)	1.37	.27
No. of NDV[b] Charges	3.06 (4.67)	2.07 (.92)	1.89 (1.72)	1.43	.25
No. of Times in Jail	3.55 (5.68)	1.82 (1.17)	1.39 (1.41)	2.75	.07
No. of Yrs in Jail	3.00 (3.40)	4.67 (5.48)	1.76 (4.13)	1.74	.19
No. of Violent Incidents	32.07 (39.63)	26.91 (31)	12.37 (15.17)	5.95	.01
No. of Partner Injuries	8.2 (14.82)	6.71 (10.6)	2.32 (4.48)	4.54	.05

[a] Domestic violence

[b] Non-domestic violence

men with BPD from men with ASPD or no diagnosis. Follow-up tests on differences among groups in frequency and duration of aggression, anger, and distress were completed where appropriate.

Hypothesis 2 MANOVA was used to evaluate whether psychophysiological reactivity during conflict with one's partner distinguished men with BPD from men with ASPD or no diagnosis. Follow-up tests on differences among groups in heart rate, RSA, and skin conductance reactivity were completed where appropriate.

Hypothesis 3 Sequential analysis determined antecedents to displays of psychological aggression in male partners. Antecedents included displays of aggressive, distressed, and positive/neutral affect in female partners.

Results

Sample Description

One hundred and eighty couples met eligibility criteria during screening and were scheduled to participate in the study. Forty-one were disqualified after three failures to attend their study session. Participants were 139 men, 18 of whom met criteria for ASPD alone, 7 of whom met criteria for BPD alone, 16 of whom met criteria for both ASPD and BPD, and 98 of whom did not meet criteria for a personality disorder. Partner violent men who met criteria for BPD alone or comorbid BPD and ASPD were grouped together as the BPD group ($n = 23$) due to the low number of men meeting criteria for BPD alone and research suggesting that a large majority of men with BPD have comorbid ASPD (Robitaille et al. 2017). Robitaille et al. (2017) also reported men with BPD alone and men with comorbid BPD and ASPD share a trajectory for violent convictions that typically onset in adulthood and occured at a higher rate relative to men with ASPD alone, whose behavior problems tended to originate in childhood and persist at a stable rate into adulthood.

Univariate ANOVAs revealed a significant difference among groups in female partner report of severity of male-to-female violence ($F[2, 121] = 5.95$, $p < .01$) and female-acquired injuries ($F[2, 121] = 4.54$, $p < .05$). Partners of men with BPD reported significantly more instances of IPV ($M = 26.91$, $SD = 31$) and injuries ($M = 6.71$, $SD = 10.6$) relative to partners of men with no diagnosis ($M = 12.37$, $SD = 15.17$; $M = 2.32$, $SD = 4.48$). Instances of IPV and injuries reported by partners of men with BPD did not differ from those of men with ASPD ($M = 32.07$, $SD = 39.63$; $M = 8.2$, $SD = 14.82$). Please refer to Table 1 for detailed description of the sample. There were no significant differences among the three groups of partner violent men on any other sociodemographic variable.

Hypothesis 1: Negative Affect

Results of a MANOVA revealed a significant difference among subgroups in frequency of negative affect (Pillai's trace = .11, $F[6, 258] = 2.57$, $p = .02$, $\eta^2 = .06$). Results of between-subjects effects revealed a significant difference among subgroups in frequency of distress ($F = 4.95$, $p = .01$, $\eta^2 = .07$) but not aggression ($F = .43$, $p = .65$, $\eta^2 = .01$) or anger ($F = 2.49$, $p = .08$, $\eta^2 = .04$). Men with BPD expressed distress less frequently than men with no diagnosis ($p = .04$) but no differently than men with ASPD ($p = .99$). (See Table 2).

Results of a MANOVA revealed a significant difference among subgroups in duration of negative affect (Pillai's trace = .13, $F[6, 252] = 2.93$, $p = .01$, $\eta^2 = .07$; Table 2). Results of between-subjects effects revealed a significant difference among subgroups in duration of anger and distress ($F = 4.58$, $p = .01$, $\eta^2 = .07$; $F = 4.15$, $p = .02$, $\eta^2 = .06$) but not aggression ($F = .10$, $p = .91$, $\eta^2 = .002$). Men with BPD expressed anger for longer duration than men with ASPD ($p = .03$) or no diagnosis ($p = .02$). Men with ASPD expressed distress for shorter duration than men with no diagnosis ($p = .03$). (See Table 2).

Table 2 Estimated means (Standard Errors) of personality disorder diagnosis on negative affect and psychophysiological reactivity

Diagnostic Group	ASPD ($n = 18$)	BPD ($n = 23$)	No PD ($n = 98$)	F	p
Frequency[a]				2.57	.02
Anger	.03 (.07)	.21 (.06)	.06 (.03)	2.49	.08
Aggression	2.65 (.29)	2.86 (.26)	.26 (.13)	.43	.65
Distress	.17 (.05)	.18 (.05)[3*]	.27 (.02)[3*]	4.95	.01
Duration[b]				2.93	.01
Anger	.06 (.18)[1*]	.69 (.16)[1*3*]	.17 (.08)[3*]	4.58	.01
Aggression	6.69 (.96)	7.14 (.89)	6.72 (.41)	.10	.91
Distress	.30 (.10)[2*]	.44 (.09)	.59 (.04)[2*]	4.15	.02
Reactivity[c]				2.89	.01
HR[d]	.65 (.03)[2*]	.61 (.03)	.57 (.01)[2*]	3.80	.03
RSA[e]	−.01 (.01)	.00 (.00)	.00 (.00)	1.82	.17
SC[f]	2.15 (.11)[1*]	1.78 (.10)[1*]	2.01 (.05)	3.43	.04

[a] ASPD ($n = 17$), BPD ($n = 22$), No PD ($n = 94$)
[b] ASPD ($n = 17$), BPD ($n = 20$), No PD ($n = 93$)
[c] ASPD ($n = 17$), BPD ($n = 21$), No PD ($n = 94$)
[d] Heart rate
[e] Respiratory sinus arrhythmia
[f] Skin conductance
[1] ASPD vs. BPD
[2] ASPD vs. No PD
[3] BPD vs. No PD
[*] The mean difference is significant at the .05 level

Hypothesis 2: Psychophysiological Reactivity

MANOVA was used to evaluate whether psychophysiological reactivity during conflict with one's partner distinguished men with BPD from men with ASPD or no diagnosis. Results revealed a significant difference among subgroups in psychophysiological reactivity (Wilks' lambda = .88, $F[6, 254] = 2.89$, $p = .01$, $\eta^2 = .06$). Results of between-subjects effects revealed a significant difference among subgroups in heart rate and skin conductance reactivity ($F = 3.80$, $p = .03$, $\eta^2 = .06$; $F = 3.43$, $p = .04$, $\eta^2 = .05$) but not RSA reactivity ($F = 1.82$, $p = .17$, $\eta^2 = .03$). Men with ASPD demonstrated greater heart rate reactivity than men with no diagnosis ($p = .04$). Men with BPD demonstrated lower skin conductance reactivity than men with ASPD ($p = .04$). (See Table 2).

Hypothesis 3: Antecedents to Psychological Aggression

Sequential analysis of couples' interactions was completed using General Sequential Querier (GSEQ 5; Bakeman and Quera 2011). The lag sequential method (Bakeman and Gottman 1997) determines which antecedent events precede the consequent events of interest more often than expected based on chance alone. GSEQ provides adjusted residuals, whose distribution is akin to the *z*-score and which can be interpreted as such.

Sequential analyses examined female partner behavior immediately preceding their partner's behavior during verbal conflict. Psychological aggression of men with ASPD was likely to be preceded by their partner's positive/neutral affect ($z = 2.22$, $p = .03$). In fact, 85% of psychological aggression by men with ASPD was preceded by their partner's positive affect. No partner behavior predicted aggression in men with BPD or no diagnosis (See Fig. 1).

Exploratory analyses investigated antecedents to distress and positive/neutral affect in partner violent men. For men with BPD or no diagnosis, distress was likely to be preceded by their intimate partner's distress (BPD, $z = 8.95$, $p < .01$; No PD, $z = 3.96$, $p < .01$). This pattern was especially likely in men with BPD ($zdiff = 3.53$, $p < .001$), whose distress was preceded by their intimate partner's distress 43% of the time. Men's distress was unlikely to be preceded by women's positive/neutral affect (ASPD, $z = -2.19$, $p = .03$; BPD, $z = -2.57$, $p = .01$; no diagnosis, $z = -2.12$, $p = .03$) (See Fig. 2).

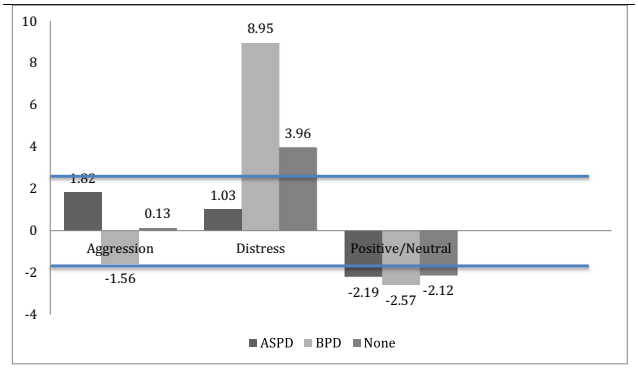

Fig. 2 Z-scores associated with women's affective antecedents to partner violent men's distress

Discussion

Negative Affect and Psychophysiological Reactivity

The primary objective of the current study was to compare partner violent men with BPD to partner violent men with ASPD or no diagnosis in frequency and duration of negative affect and psychophysiological reactivity during verbal conflict with their partner. Although we expected men with BPD to exhibit more distress and psychophysiological reactivity than the comparison groups, they in fact displayed less distress than men with no diagnosis and lower psychophysiological reactivity than men with ASPD. In addition, men with BPD expressed anger for longer duration than men with ASPD. Taken together, results highlight relatively low levels of distress and long periods of anger as a distinguishing feature of men with BPD during verbal conflict. Despite significant periods of anger during verbal conflict, men with BPD did not demonstrate psychophysiological reactivity consistent with an activated sympathetic nervous system; in fact, low skin conductance reactivity suggests a dampened response.

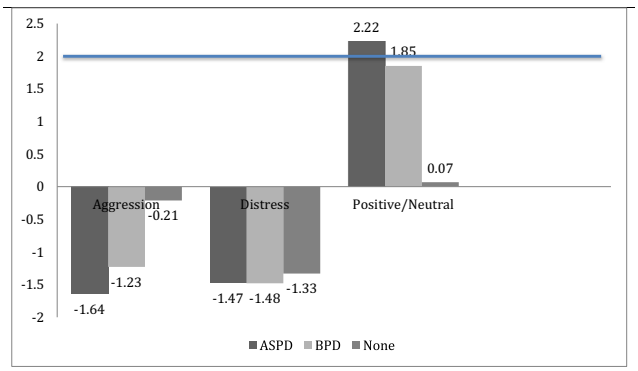

Fig. 1 Z-scores associated with women's affective antecedents to partner violent men's aggression

Although contrary to our expectations, results are consistent with earlier findings revealing high self-reported lability in anger and anxiety in individuals with BPD relative to individuals with other personality disorders, including ASPD (Koenigsberg et al. 2002). Although more pronounced elevations in frequency and duration of affect were expected for men with BPD, previous research suggests restricted affect akin to people with depression, in particular expressions of contempt (a component of our Aggression composite) relative to sadness, anger, disgust, or fear (Renneberg et al. 2005). Additional mechanisms for reserved affective displays in the current study include the motivation of individuals with BPD to avoid negative cognitive and emotional experiences and their fear of losing emotional control (Butler et al. 2002; Gratz et al. 2006; Rosenthal et al. 2005).

Although marked anger (i.e., emotional arousal) and blunted skin conductance (i.e., hypoarousal) seem antithetical, previous research supports disparities among physiological, experiential, and expressive indicators of emotion in individuals with psychopathology generally and a coupling of high self-reported arousal and low skin conductance in individuals with BPD specifically (Cook et al. 1988; Herpertz et al. 1999; Vujanovic et al. 2006). This paradox may also be explained by the tendency for individuals with BPD to dissociate or detach during emotionally arousing tasks (Ebner-Priemer et al. 2005). Thus, findings related to psychophysiological reactivity might relate to self-protective mechanisms of partner violent men with BPD.

Antecedents to Psychological Aggression

For most men, female partners' positive affect reduced the likelihood of men's distress and aggression, suggesting a soothing, suppressive effect of her positivity on his negativity. However, for violent men with ASPD, female partners' positive/neutral affect predicted his psychological aggression. That is, while partner positive/neutral affect served as a suppressor for aggression for most men, for men with ASPD, it appears to have readied them to attack. In addition, women's distress increased the likelihood of distress in men with BPD or no diagnosis, suggesting these men commiserated or reciprocated their partner's distress. This tendency is further substantiated by our finding that partner distress reduced the likelihood of displays of positive/neutral affect in men with BPD.

This mirroring of their partner's distress is supported by research on mothers' facial responses to images of their children crying as a function of mothers' attachment style (Strathearn et al. 2009). Mothers with an insecure/dismissing attachment style characteristic of individuals with BPD demonstrated a negative affective response to an image of their child crying as detected by functional magnetic resonance imaging (fMRI) (Agrawal et al. 2004). The researchers suggested this response resulted from the child's image serving to provoke the mothers' own distress-producing memories. The researchers also suggested this response demonstrated a deficit in mentalization, or disentangling one's own cognitive and emotional experiences from those of other people. Separately, emotional contagion, "feeling what another person is feeling," may explain mirroring of distress as well (Levenson 1996, p. 187).

A notable absence in attempts by men with BPD to placate their partner's distress is also consistent with research on partner violent men who reported refraining from offering comfort or support to their distressed wives (Holtzworth-Munroe and Smutzler 1996). Several studies in the area of social cognition in individuals with BPD might help explain this finding. First, one meta-analysis suggested deficits in facial emotion recognition in individuals with BPD (Daros et al. 2013). This difficulty appears to be compounded in tasks requiring interpretation of not only affective but also prosodic information (Minzenberg et al. 2006). Thus, deficits in affect recognition during this highly emotional, interpersonal task might be responsible for unexpected emotional responses from men with BPD.

The attachment style of men who perpetrate intimate partner violence appears to be an important explanatory factor for the anger they experience (Genest and Mathieu 2014). More specifically, previous sequential analytic studies of past episodes of intimate partner violence identified female partners' withdrawal as an antecedent to violence in men with a preoccupied attachment style reminiscent of borderline features and intimate partner distress as an antecedent to violence in partner violent men with BPD (Babcock et al. 2000; Ross and Babcock 2009). This may be due to heightened abandonment fears among individuals with BPD and preoccupied attachment styles (Babcock et al. 2000). However, antecedents to observed psychological aggression in men with BPD could not be identified in the current laboratory study. It might be that previously reported antecedents to aggression are limited to physical aggression and do not generalize to psychological aggression in these men.

Dyadic patterns contrary to our expectations might be explained by the tendency for individuals with BPD to dissociate or detach during emotionally arousing tasks, discussed above; the interfering effect of rumination and anxious anticipation on the ability of men with BPD or its features to be present moment-focused; and the length of time required for individuals with BPD to return to psychophysiological baseline when emotionally aroused (Ebner-Priemer et al. 2005; Linehan 1993).

Clinical and Policy Implications

Treatment matching has been discussed as an antidote to differing functions of violence across partner violent men and the complicating role of personality pathology in treatment engagement and recidivism (Huss and Ralston 2008). Harkening Paul's (1969) ultimate clinical question, Cavanaugh and Gelles (2005) noted, "One of the questions to be examined is not only what kind of batterer program works, but what works, for which types of men, and under what circumstances" [p. 157]. Although in its infancy, IPV treatment matching has shown some modest success. For example, Saunders (1996) reported differential treatment effects of feminist-cognitive-behavioral (FCBT) and process-psychodynamic (PPD) treatments based on the personality pathology of partner violent men. There has also been growing interest in dialectical behavior therapy for partner violent men with borderline features (Waltz 2003). The treatment-matching approach for IPV emphasizes personalized, individual therapy for partner violent men generally, and there has been suggestion to offer exclusively individual therapy to partner violent men with BPD or offer it prior to or concurrent with IPV treatment (White and Gondolf 2000; Murphy and Meis 2008).

Research Implications

The sequential analytic approach taken in this study aligns with calls for examining personality disorder in the context of the intimate relationship (Capaldi and Kim 2007). This study adds to findings of differential precursors of men's first violent act among men with BPD or ASPD (Ross and Babcock 2009). Future research can expand the focus from immediate antecedents to longer patterns of interactions resulting in psychological or physical aggression or test differential antecedents during different interpersonal tasks. The paradoxical coupling of affective emotional arousal and

psychophysiological hypoarousal among men with BPD suggests sympathetic and parasympathetic activation may not sufficiently capture emotional lability. Rather, fMRI or other physiological measures may be better suited to capture emotional dysregulation.

Limitations

Diagnosis of BPD and ASPD were facilitated by administration of the SCID-II and, as with self-report measures generally, may be subject to demand characteristics and social desirability bias. Relative to participants' natural environments where conflict arises organically, the lab environment and facilitated verbal conflict might limit the extent to which the results generalize to other conflicts in other settings and to incidents of violence that differ from the psychological aggression studied in the present research. The current sample is relatively small, with men with personality disorder underrepresented relative to men with no diagnosis. There were high rates of comorbidity between BPD and ASPD, which could have obscured the differences between the two groups; in addition, it is possible that findings attributed to presence of BPD may also be due to presence of multiple personality disorder diagnoses. Similarly, substance use is strongly related to BPD (Carpenter et al. 2016), ASPD (Brook et al. 2016), and intimate partner violence (Cafferky et al. 2018) and is an important unassessed variable. Men with no diagnosis could have met criteria for other psychiatric disorders, not assessed. The relatively low prevalence of BPD and ASPD in this community sample of partner violent men was not unexpected, yet it did produce a sample size powered to detect a large effect only. Therefore, although the study's significant findings can be backed with a certain degree of confidence, the null results might be the result of type 2 error due to low power.

With regard to sample diversity, nearly all partner violent men were in early adulthood and identified as African American or Caucasian. Hispanic and other ethnic identities were underrepresented in the sample. Although the majority of the sample attained at least a high school degree, and many attained post-secondary education, college and post-graduate degrees were rare. Reported annual income suggests a low- to middle-income sample. We would anticipate study findings to generalize to sociodemographically similar samples of partner violent men; the extent to which findings generalize to older, more formally educated, higher income partner violent men is unknown.

In assessing intimate partner antecedents to psychological aggression, sequential analyses detected immediate antecedents only. An implicit assumption of this method was that the immediate antecedent to psychological aggression served as the motivator for psychological aggression in this sample of partner violent men. It could be that psychological aggression was in response to a number or pattern of distressing events occurring over the course of verbal conflict, or the response was delayed just enough to allow a partner event to be coded prior to the expression of psychological aggression. Lastly, the focus on male-to-female violence and, specifically, female antecedents to male aggression, ignores the dyadic nature of violence.

Conclusions

Partner violent men with BPD demonstrated longer periods of anger and low skin conductance reactivity relative to partner violent men with ASPD or no diagnosis. Furthermore, partner violent men with BPD were especially likely to commiserate with, and refrain from placating, their female partner's distress. These findings suggest a unique pattern of emotional responding during verbal conflict for partner violent men with BPD, who may therefore benefit from specialized treatment to improve treatment engagement and recidivism.

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