THE PROACTIVE-REACTIVE CLASSIFICATION OF INTIMATE PARTNER VIOLENCE OFFENDERS: A MULTI-METHOD APPROACH TO CLASSIFICATION OF BATTERERS

A Thesis
Presented to
The Faculty of the Department
of Psychology
University of Houston

In Partial Fulfillment
of the Requirements of the Degree of
Masters of Arts

By
Sheetal Kini
December, 2012

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ABSTRACT

The current study attempted to replicate and extend Chase, O'Leary, and Heyman's (2001) Proactive-Reactive classification of intimate partner violent (IPV) men. Male perpetrator and female victim narratives of past violent incidents were coded using a modified, dimensional version of the Proactive-Reactive coding system (Chase, O'Leary & Heyman, 2001), yielding three categories of batterers: Predominantly Reactive (PR), Mixed Proactive/Reactive (MP), and Predominantly Proactive (PP). Coded proactive and reactive categories were examined for differences in personality disorder features, psychophysiological reactivity, and the project-designed Proactive-Reactive Questionnaire (PRQ). Results suggested agreement in the classification when based on perpetrator vs. victim's report. No differences were found on personality measures between the groups when classified based on both male as well as female narratives. However, Predominantly Reactive batterers coded from men's narratives engaged in more reactive violence than the Mixed Proactive/Reactive group as per the PRQ. Predominantly Reactive batterers classified from women's narratives exhibited significantly greater heart rate reactivity than the Mixed Proactive/Reactive group, as expected. This study suggests that Chase et al's (2001) coding system is reliable and valid based on either perpetrator or victims' report.

Introduction

Intimate Partner Violence in the United States has reached staggering numbers, with nearly five million relationships being affected each year (Stanford, Houston & Baldridge, 2008). To understand this issue of intimate partner violence (IPV), many researchers have examined the consequences and impact on the victims. However, to understand the cause, attention is best addressed at the perpetrator. In the past two decades, researchers have begun to recognize that abusers are heterogeneous in terms of their personality (Holtzworth-Munroe & Stuart, 1994) and the kind of violence they commit (Tweed & Dutton, 1998). Hence, there has been a proliferation in typologies of perpetrators of IPV.

Over the past 20 years, typologies have classified male batterers based on many variables, including severity of violence (Saunders, 1992; Holtzworth-Munroe & Stuart, 1994), generality of violence (Saunders, 1992; Holtzworth-Munroe & Stuart, 1994), attachment styles (Babcock et al., 2000), personality, (Saunders, 1992; Holtzworth-Munroe & Stuart, 1994), and heart rate reactivity (Gottman et al., 1995). These typologies have used a variety of different correlates to understand the differences between batterers. However, in order to target and eliminate battering behaviors and formulate treatments, the emphasis needs to be put on a system that reconciles the different correlates of violent behavior to predict specific patterns of violence.

To our knowledge, Tweed and Dutton (1998) were the first to directly classify batterers into two groups based on presumed functions of violence. Using cluster analysis, batterers were grouped into Instrumental vs. Impulsive types based on personality psychopathology and generality of violence (Tweed & Dutton, 1998). They found that perpetrators grouped as instrumental acted violently in order to satisfy an ulterior goal. On the other hand, the impulsive batterers engaged in violence only when they felt spited or instigated by their partners (Tweed &

Dutton). Between these groups, they observed that attachment style was significant in predicting the type of violence committed. Whereas both Instrumental as well as Impulsive batterers exhibited preoccupied styles of attachment, the Impulsive group of batterers also exhibited a highly fearful style of attachment. Theoretically, the Instrumental batterer is preoccupied with the idea of being dominant in a relationship causing him to use violence instrumentally, whereas the Impulsive batterer is preoccupied with the fear of rejection and insecurity leading to emotionally charged violence.

Subsequently, Babcock, Jacobson, Gottman & Yerington (2000) applied a functional analysis to explore how the patterns of violence differ between Dismissing, Preoccupied, and Securely attached batterers. Sequential analysis of antecedents leading up to the man's first violent act suggested that dismissing husbands became violent when their wives became defensive, defiant, or thwarted their authority. Thus, the violence of the dismissing batterers was conceptualized as Instrumental, i.e. violence used to control the wife and reassert power. On the other hand, Preoccupied husbands became violent when their wives withdrew, threatened to leave or distanced themselves during an argument (Babcock et al., 2000). Thus, the violence of the Preoccupied batterers was thought to be reactive or impulsive, in response to abandonment fears. Furthermore, while dismissing batterers exhibited significantly higher scores on antisocial personality measures than preoccupied batterers, preoccupied batterers scored higher on measures of borderline personality.

The utility of typologies based on the predicable function of violence was also supported when classified by a questionnaire (Stanford, Houston and Baldridge, 2008). Using a 30- item self-report questionnaire known as the Impulsive/Premeditated Aggression Scale (IPAS; Stanford et al., 2003), batterers were classified as engaging in either Impulsive or Premeditated

aggression. Impulsive batterers exhibited borderline personality features such as emotional dysregulation and lack of behavioral control, whereas Premeditated batterers exhibited antisocial personality and psychopathic features such as lack of emotional arousal and calculated thinking (Stanford, Houston and Baldridge, 2008).

Each of these aforementioned typologies consistently found a dichotomy in the nature of aggression. Whether referred to as "Instrumental" (Tweed & Dutton, 1998; Babcock et al., 2000) or "Premeditated" (Stanford, Bride & Houston, 2008), these batterers essentially engaged in proactive aggression; one that is calculated, perpetrated in the absence of negative affect, and to ultimately obtain a goal other than harming the partner. Similarly, the batterers classified as "Impulsive" (Tweed & Dutton, 1998; Stanford, Bride & Houston, 2008) or "Preoccupied" (Babcock et al., 2000) engaged in reactive aggression; one that occurs in the absence of high levels of cognition but in the presence of negative affect and high arousal. This Proactive-Reactive classification is based on a functional analysis of violence that differentiates between batterers based on the nature of their trait aggression. Although this Impulsive-Premeditated classification seems to overlap with the Proactive-Reactive typology, the two typologies actually tap into two different constructs (Babcock, Tharp, Sharp & Stanford, in preparation; Tharp, Sharp, Stanford, Lake, Raine & Kent, 2011). For example, the Impulsive-Premeditated Aggression Scale may assess state aggression, whereas the Proactive-Reactive questionnaire assesses trait aggression (Tharp et al, 2011). Since our purpose for classifying batterers is to identify and remediate trait aggression, we focus on the Proactive-Reactive classification in this study.

The Proactive and Reactive Typology of Violence

The Proactive- Reactive classification first emerged to explain aggression in children (Dodge & Coie, 1987; Dodge & Crick, 1996). In an attempt to explain the differences between proactive and reactive aggression, Dodge and Crick (1996) suggested that the function of aggression can be attributed to differences in social information processing. They explained that children, who process ambiguous social information in a negative way, thereby attributing a hostile or malicious intent to their peers' actions, tend to act aggressively in revenge or to defend themselves. This can be understood as reactive aggression. However, children that perceive aggression to be a favorable act, one that can be carried out with proficiency, use aggression as a means to achieve other ends by intimidating peers. This form of aggression is highly reinforcing as each act of aggression is rewarded by the accomplishment of a certain ulterior goal. This is referred to as proactive aggression. Such proactive and reactive forms of aggression are similarly observed in men who engage in IPV.

The first study to directly categorize proactive vs. reactive violence among IPV offenders was conducted by Chase, O'Leary & Heyman (2001). Men were interviewed and asked to describe two past violent events. Based on narratives of the circumstances and antecedents of men's violence as described by the perpetrators, Chase classified men as Proactive or Reactive. Chase O'Leary & Heyman (2001) found two criteria for predicting Proactive or Reactive aggression; impulsivity vs. intentionality and the presence or absence of heightened negative affect, and physiological arousal. Therefore, if a batterer's violence emerged during an emotionally-charged argument in an impulsive manner, it was coded as Reactive. However, If his violence was used as a means to achieve an end, e.g. to get her to stop talking or not leave, it was coded as Proactive (Chase, O'Leary & Heyman, 2001). If men reported any proactivity, they

would be placed in the Proactive category; if not, they would be coded as Reactive. They found that of all batterers, 68% were coded as Reactive and 32% as Proactive. They also found other important differences between batterers. Men classified as Reactive scored significantly higher on Borderline and dependent traits, than Proactive batterers, whereas Proactive batterers scored significantly higher on Antisocial traits than Reactive batterers (Chase, O'Leary & Heyman, 2001). Furthermore, Reactive batterers were found to exhibit more anger and less dominance in an argument with their partner, than the Proactive batterers.

Recent research finds further empirical support in studies coding Proactive and Reactive violence among batterers diagnosed with personality disorders (Ross & Babcock, 2009). Using the Structured Clinical Interview for the DSM-IV (SCID-II; First, Spitzer, Gibbon, & Williams, 1997) to formally diagnose batterers with Borderline Personality Disorder (BPD) or Antisocial Personality Disorder (ASPD), Ross and Babcock (2009) found that batterers diagnosed with BPD were more likely to engage in Reactive aggression than men diagnosed with ASPD or no personality disorder. Batterers diagnosed with ASPD were more likely to engage in Proactive violence as compared to men diagnosed with BPD or no disorder. However, these ASPD batterers were also capable of being reactively aggressive. Thus, depending on the context and situation, batterers diagnosed with ASPD would engage in either Proactive or Reactive violence (Ross & Babcock, 2009). However, Proactive violence appeared to be used exclusively by batterers with Antisocial Personality Disorder (Ross & Babcock, 2009).

According to the coding system designed by Chase, O'Leary and Heyman (2001), Proactive violence is committed as a goal-oriented, calculated behavior that is well thought out and in the absence of heightened affect or arousal (Chase O'Leary & Heyman, 2001). On the other hand, Reactive violence is that which is elicited in response to perceiving of a threat or due

to built-up frustration, and acted upon in impulsivity (Chase, O'Leary & Heyman, 2001). More specifically, Reactive violence always occurs in the context of "high affective-physiological arousal and minimal cognitive processing" (Chase, O'Leary & Heyman, 2001, p.568) although no studies to date have assessed physiological arousal differences between Proactive and Reactive men when angered.

The current study examined differences in psychophysiological reactivity between Proactive and Reactive batterers. Research has shown that low physiological arousal is a predictor of criminality due to its encouragement of sensation seeking behaviors (Schalling, Edman &Asberg, 1983). Low physiological arousal among adolescents has also predicted their criminal behavior in adulthood (Raine, Venables & Williams, 1990). Furthermore, batterers who exhibited low physiological arousal, specifically heart rate reactivity, during an argument with their partners (Type I batterers), were more severely violent towards their partner and evidenced antisocial personality features (Gottman et, al, 1995) compared to batterers whose heart rate increased. On the other hand, batterers whose heart rate increased evidenced more borderline personality features. Citing research linking cardiovascular problems and hostility, Gottman et al, (1995) explained that batterers that were physiologically hyperaroused during arguments were hostile in their interactions with their partners, exhibiting anger and defensiveness. Subsequently, Gottman et al (1995) speculated that Type I batterers use violence instrumentally, i.e. engage in proactive violence, and Type II batterers resort to violence impulsively, i.e. engage in reactive violence However, no study yet has evaluated these physiological markers in the direct context of Proactive and Reactive violence.

The Current study

The current study attempted to replicate and extend Chase, Heyman & O'Leary's (2001) Proactive-Reactive typology to classify batterers in a larger and more diverse community sample. While Chase and colleagues (2001) used a bimodal classification system to typify men, this study attempted to provide a slightly dimensional classification of batterers, as there may be a continuum between Reactive and Proactive aggression. The original study by Chase, O'Leary & Heyman (2001) coded 60 batterers' self-reported narratives as a basis for their classification into Proactive and Reactive groups. However, batterers may recall past violent events in a self-serving light, considering that the legal system is more lenient toward impulsive crimes as opposed to calculated or instrumental ones. Therefore, batterers may minimize or reframe their own Proactive violence as Reactive violence (Bushman & Anderson, 2001). However, using female victims' narratives of violent incidents may be less subject to reporting biases. Therefore, the current study classified batterers based on male as well as female narratives and evaluated discrepancies.

In addition, previous studies of Proactive-Reactive or Impulsive/Premeditated IPV have only used either self-report questionnaires or interview narratives (Babcock et al., 2000) to classify batterers. The current study utilized a new Proactive-Reactive questionnaire, completed by both men and women to assess men's violent traits, to validate the Proactive-Reactive coding system, which assesses men's violent states. In addition, no study to date has examined differences in psychophysiological responding between Proactive and Reactive batterers. Thus, this study compared skin conductance and heart rate reactivity between the Proactive and Reactive batterers. Finally, while the original study by Chase, O'Leary & Heyman (2001) used a predominantly Caucasian sample, the current study employed a more diverse sample, in terms of

ethnicity, SES, as well as educational background.

Hypotheses

1: There will be significant agreement as to the classification of batterers into the Proactive-Reactive continuum when comparing men's and women's coded narratives.

2: There will be concordance between the Proactive-Reactive classification when based on both men's and women's coded narratives and the Proactive-Reactive Questionnaire. Specifically, men classified as Predominantly Proactive will score higher on proactive aggression on the PRQ; men classified as Predominantly Reactive will score higher in reactive aggression on the PRQ.

3: Men coded as Predominantly Proactive will score higher on Antisocial personality features as measured on the PAI than the men classified as Mixed Proactive/Reactive and Predominantly Reactive. These results will hold for the batterers when classified based on men's as well as women's narratives.

4: Men coded as Predominantly Reactive will score higher on Borderline personality features as measured on the PAI than men classified as Mixed Proactive/Reactive and Predominantly Proactive. These results will hold for batterers as classified based on men's as well as women's narratives.

5: Men coded as Predominantly Proactive will score higher on frequency of assault as measured on the CTS-2 than men classified as Mixed Proactive/Reactive and Predominantly Reactive. These results will hold for the batterers as classified based on men's as well as women's narratives.

6: Men coded as Predominantly Proactive will score lower on physiological measures of heart rate and skin conductance change from baseline to a conflict discussion with their partners than

men classified as Mixed Proactive/Reactive and Predominantly Reactive. These results will hold for the batterers as classified based on men's as well as women's narratives.

Method

Participants

This sample consisted of participants that were recruited through local newspaper advertisements and flyers requesting "couples needed." During a telephone screening interview to determine eligibility, female partners were administered a modified version of the Conflict Tactics Scale (CTS; Straus, 1979) by trained undergraduates. To be eligible to participate, couples had to be 18 years of age, married or living together as if married for at least 6 months, heterosexual, and able to speak and write English fluently. Participants were initially classified as intimate partner violent (IPV) or nonviolent (NV) based on the wife's report of violence on the CTS as assessed during the telephone interview. Participants classified as (NV) were screened out of this study. To be classified as NV, female partners must have reported no act of severe violence and no reports of male to female violence in the past 5 years of their relationship. To be classified as IPV, female partners must have reported at least one act of violence by their partners in the past year. Only IPV couples were used in the current study.

Procedure

Data were collected as part of a larger study in which male participants came into the lab twice: once alone and once with their partners. During the first assessment, male participants were first administered a series of pencil and paper questionnaires. They then engaged in a standardized anger induction task while psychophysiological measures were continuously recorded. On the second assessment period, both male and female participants were administered questionnaires followed by two marital interaction tasks while psychophysiological

responding was recorded. Heart rate, skin conductance, respirations, skin temperature, finger pulse amplitude and movement were continually assessed during a 4 minute resting baseline and during a 7.5 minute conflict discussion, followed by an intervention and a second conflict discussion. Couples were disconnected from the psychophysiological equipment and interviewed separately about their history of domestic violence. During this interview, they were asked to describe in a step-by-step way two past violent incidents where the man was violent towards the woman (Jacobson et al., 1994). Both men and women were asked to describe the worst and the most recent incident of IPV. Couples were then reunited for debriefing and payment. Couples were paid $90 to $100 for their participation in the two 3-hour assessment periods.

Measures

Proactive-Reactive Coding System. Participants were individually administered a semi-structured clinical interview to assess their relationship and violence history (developed by Jacobson et al., 1994). As part of this interview, participants were asked separately to describe the most recent and the worst violent incidents in which male-to-female physical aggression occurred in their current relationship. If a participant responded that there had been no incidents of physical aggression in their relationship, interviewers consulted the previously administered CTS2. Had the participant indicated any physical aggression on the questionnaire, the interviewer then asked specifically about the time in which that act had occurred and gently encouraged participants to discuss the incident. Interviewers were instructed to allow participants to describe the step-by-step progression of the incident and to interrupt as necessary in order to clarify the sequence of events or elicit more detail. The system used to code these narratives was based on two main dimensions; one being intentionality vs. impulsivity, and the other being heightened affective arousal or lack thereof during and after a conflict. The coding system

provided a 'Proactive' criteria and 'Reactive' criteria (Chase et al, 2001). According to Chase, O'Leary & Heyman (2001), in order to be coded as Proactive, meeting any of the Proactive criteria was sufficient, and it was also acceptable if the participant manifested some Reactive behavior as well. However, in order to be coded as Reactive, the participant had to meet the Reactive criteria, without exhibiting any signs of Proactive behavior. Using this coding system, the batterers were coded as Proactive or Reactive for both the incidents they narrated. Based on the two incidents they described, they received a score of 0, 1, or 2 depending on the number of incidents for which they received a Proactive classification. Thus, a batterer with a score of 0 was considered as Predominantly Reactive, 1 as Mixed Proactive/Reactive, and 2 as Predominantly Proactive. This was done to facilitate expression of Proactive and Reactive tendencies in a more dimensional rather than categorical way, as suggested by Stanford and colleagues (Stanford et al., 2003). Videotaped incidents were coded by two undergraduate coders, trained to reliability by the first author. To confirm reliability, 20% tapes were double coded resulting in a Kappa =0.67 when coded based on male narratives and Kappa = .89 when coded based on female narratives.

Proactive-Reactive Questionnaire. All participants completed a questionnaire assessing Proactive and Reactive aggressive tendencies in men: men self-reported on their own proactive and reactive traits, and women completed a collateral report of men's violent traits. The Proactive-Reactive self- and partner-report questionnaires, each consisting of the eight similar items (pronouns changed), were adapted from a similar questionnaire used to assess Proactive and Reactive aggression in youth (Dodge & Coie, 1987). The original Dodge and Coie measure consists of two subscales (Proactive aggression and Reactive aggression), each composed of three items. The modified Proactive-Reactive aggression questionnaire used in the present study

contained all six items from the original Dodge and Coie measure, plus two additional items. The first added item, "When I am threatened, I get angry and fight back" was added despite the presence of a similar, original item ("When I am teased, I get angry easily and strike back") in order to tap the more adult experience of "threat" as opposed to "teasing" alone. The second added item "When in a fight, I believe that others started the whole trouble" was included in addition to the original item "I believe that others are to blame in a fight" due to concern that the original item might not adequately identify the Reactive nature of the fight when *started* by others. Internal consistency of the Proactive subscale was $\alpha = 0.80$ for men's self-report and $\alpha = .737$ for women's collateral report. For the Reactive subscale, $\alpha = .727$ for men's self-report and $\alpha = .82$ for women's collateral report.

Conflict Tactics Scale-2 (CTS-2). The CTS-2 (Straus, Hamby, Boney-McCoy, & Sugarman, 1995) is considered the gold standard to assess for domestically violent behavior within the past year. The CTS-2 is a 78-item self-report questionnaire that assesses the severity and frequency of physical, sexual, and psychological abuse committed by intimate partners. Five scales measure negotiation, psychological aggression, physical assault, sexual coercion, and injury. The CTS-2 was used to determine final group membership into nonviolent and domestically violent groups based on both male and female reports as well as determine frequency of men's IPV based on male and female reports. Internal consistencies on the CTS-2 ranged from .49 to .78.

PAI- ASPD/BPD. In order to assess for Antisocial and Borderline Personality Disorder features among male participants, graduate student researchers administered the Personality Assessment Inventory individually to each man. The PAI is made up of 344 items that constitute 22 non-overlapping scales; 4 validity scales, 11 clinical scales, 5 treatment scales, and 2

interpersonal scales (Morey, 1991). The (ANT) Antisocial and BOR (Borderline) scales will be evaluated specifically for this study. Participants endorsed items on a 4-point likert type scale (1 = false, not at all true, 4= very true). The test-retest reliability for this scale is fairly high with a Cronbach's alpha exceeding .80 (Morey, 1991). The BOR scale is comprised of 24 items constituting four, 6-item subscales. It has fair convergent and discriminant validity (Kurtz et al., 1993; Morey, 1991). The ANT scale is comprised of 24 items constituting three, 8-item subscales. The ANT scale has good reliability with Cronbach values of .84 and .81 for men and women respectively (Morey, 1991).

Heart Rate Reactivity. Heart rate was measured by placing three, pre-gelled, 30-mm square Unitrace, alligator-clip-type electrodes on the participant's chest: two in a bipolar configuration on opposite sides of the chest and the third on the sternum as a ground. R-waves were automatically detected by using the interbeat interval (IBI) data analysis program (Long, 1998b). Electrocardiogram files were visually screened and R-waves of problematic files were manually marked by using the IBI edit program (Long, 1998b). Second-by-second heart rate (in beats per minute) was computed from the resultant IBI file. Heart rate arousal was measured by average resting heart rate. Heart rate scores were range corrected. The formula for calculated range-corrected heart rate (HR) scores is (mean HR during task - minimum HR)/(maximum HR - minimum HR) (Lykken, Rose, Luther, & Maley, 1966). Heart rate change was calculated from average heart rate during the first 7.5 minute interaction minus the average across the 4 minute baseline. An increase in heart rate generally indicates increased arousal, caused by alpha- and beta-adrenergic activation or by parasympathetic (vagal) inhibition.

Skin Conductance Level. Skin conductance level was measured via two electrodes placed on the volar surfaces on the distal phalanges of the first and third fingers of the non-

dominant hand. James Long Company Ag/AgCl electrodes (1-cm diameter) were filled with an isotonic solution and attached with double sided adhesive collars with 1-cm diameter holes and Velcro straps. Skin conductance change was calculated from skin conductance during the first 7.5 minute interaction minus the average across the 4 minute baseline (in microsiemens). Skin conductance reactivity assessed electrodermal activity, or changes in the secretion of sweat glands. These sweat levels are thought to change in response to emotional stimuli (as opposed to temperature) (Gottman et al., 1995). Skin conductance is a relatively pure index of sympathetic activation, as the sweat glands are innervated predominantly by the sympathetic nervous system.

Data Analytic Strategy

Hypothesis 1 predicted that there will be moderate levels of agreement between male and female coded narratives of past violent incidents resulting in slightly different sets of frequencies of batterers coded as Predominantly Proactive, Mixed Proactive/Reactive and Predominantly Reactive. This hypothesis was tested using a 3 X 3 contingency chi square analysis comparing the frequencies of the three categories of batterers as coded from male narratives with those obtained from female narratives.

To test hypothesis 2, a Multivariate Analysis of Variance (MANOVA) was conducted to compare the Proactive and Reactive subscales scores of the Proactive-Reactive questionnaire among the three categories of the Proactive-Reactive continuum. The Proactive/Reactive codes (0, 1 or 2) based on men's report of past violent incidents served as the independent variable. Proactive and Reactive subscale scores of the PRQ served as the dependent variables. Furthermore, following the omnibus *F* test, univariate analyses were examined to see which specific differences were significant. A separate MANOVA was then conducted using women's report of violent incidents and compared to the Proactive and Reactive subscales scores of the

partner report version of the Proactive-Reactive questionnaire. As multiple comparisons were made, Type I error was addressed through LSD corrections to the alpha level of significance.

To test hypothesis 3 and 4, once again two separate Multivariate Analyses of Variance (MANOVAs) were conducted to compare the three Proactive/ Reactive groups on Antisocial and Borderline features. For the first MANOVA Proactive/Reactive codes based on men's report of past violent incidents served as the independent variable. Antisocial personality and Borderline personality scores as measured on the PAI were entered as dependent variables. For the second MANOVA Proactive/Reactive codes based on women's report of past violent incidents served as the independent variable with Antisocial and Borderline scores serving as dependent variables. Furthermore, following the omnibus *F* test, univariate analyses were examined. Type I error was addressed through LSD corrections to the alpha level of significance.

To test hypothesis 5, two Analyses of Variance tests (ANOVAs) were conducted to explore mean differences between Predominantly Reactive (PR), Mixed Proactive/Reactive (MP), and Predominantly Proactive (PP) men on frequency of perpetrator's assault. For the first analysis, the PR/MP/PP classification as based on men's report of past violent incidents served as the independent variable, while the frequency of men's IPV based on men's report served as the dependent variable. For the second analysis, the PR/MP/PP classification as based on women's report of past violent incidents served as the independent variable, while frequency of men's IPV based on female report served as the dependent variable.

To test hypothesis 6, two one-way multivariate analyses of variance (MANOVA) were conducted to explore mean differences between the batterers on psychophysiological measures of heart rate and skin conductance change. For the first analysis, the PR/MP/PP classification as based on men's report of past violent incidents served as the independent variable, while the

heart rate and skin conductance measures served as dependent variables. For the second analysis, the PR/MP/PP classification as based on women's report of past violent incidents served as the independent variable, while men's heart rate and skin conductance change served as dependent variables. Furthermore, following the omnibus *F* test univariate analyses were examined. Once again, Type I error was addressed through LSD corrections to the alpha level of significance.

Results

Participants

In total, 478 potential participants responded to advertisements. Of these, N=124 couples were classified as IPV. Men's average age was 32 (*SD* = 10.2), while women's average age was 30 (*SD* = 9.37). Their mean family income as reported by men was approximately $28,000 per year (*SD* =39,524.73) and as reported by women was approximately $31,000 per year (*SD*= 26,664.23). One-quarter of the men did not graduate from high school and 12% were college graduates. Approximately 63% of the men were African American, 20% were Caucasian, 14% were Hispanic, and 3% were from other racial or ethnic origins. Average length of the relationship was 4.15 years (*SD* = 3.38). Of the 124 IPV couples, at least one violent incident description was available for 78 of the couples. Of the 78 IPV couples, all women reported at least one incident and 95% of men reported at least one violent incident.

Table 1

Demographics by Gender

	Male		Female	
	Mean	(SD)	Mean	(SD)
Age	31.98	(10.2)	29.87	(9.37)
Family Income	28391.62	(39524.73)	31149.08	(26664.23)
Number of years in relationship	4.47	(4.23)	4.3	(4.78)
Men's IPV frequency in past year[1]	14.27	(26.6)	16.24	(23.05)

[1]Men's and women's reports of men's perpetration of IPV acts in the past year on the CTS-2.

Male-Female Agreement on Classification

Coding the batterers based on male and female narratives resulted in markedly similar distributions of batterers into the three subgroups. The frequency of the batterers in the groups based on male and female report can be seen in Table 2. Chi-square analyses revealed that there was a statistically significant relationship between the frequencies of batterers as classified by male and female narratives with χ^2 (4, N= 78) = 30.62, $p < 0.001$, suggesting agreement between classifications based on men's and women's narratives. When classified based on male narratives, the distribution of batterers resulted in 50 Predominantly Reactive batterers, 19 Mixed Proactive/Reactive batterers and 6 Predominantly Proactive batterers. Similarly when classified based on female report, the distribution resulted in 48 Predominantly Reactive batterers, 22 Mixed Proactive/Reactive batterers and 8 Predominantly Proactive batterers. Whereas the overall percent agreement between male and female report was 55.67%, the percent agreement within couple was 70.51%.

Table 2

Chi Square of Frequencies of batterers into the three groups based on male and female report

Male Report		Female Report			Total
		Pred. Reactive	Mixed Pro/Reactive	Pred Proactive	
Pred. Reactive	Count	41	4	4	49
	% within male report	83.7%	8.2%	8.2%	100.0%
	% within female report	87.2%	22.2%	50.0%	67.1%
Mixed Pro/Reactive	Count	4	12	2	18
	% within male report	22.2%	66.7%	11.1%	100.0%
	% within female report	8.5%	66.7%	25.0%	24.7%
Pred. Proactive	Count	2	2	2	6
	% within male report	33.3%	33.3%	33.3%	100.0%
	% within female report	4.3%	11.1%	25.0%	8.2%
Total	Count	47	18	8	73
	% within male report	64.4%	24.7%	11.0%	100.0%
	% within female report	100.0%	100.0%	100.0%	100.0%

Chi-Square	30.623
Df	4
P-value	0.001
Overall %Agreement	55.67%
% agreement within couple	70.51%

Personality Psychopathology

In order to test the hypotheses regarding the difference between the three subtypes of batterers on measures of antisocial traits and borderline traits, two MANOVAs were conducted with both of the two PAI scales (antisocial and borderline) as the dependent variables, and the subtype of batterers as the independent variable, based on men's and women's narrative separately.

When classified based on male report, the omnibus effect was statistically non-significant, with Pillai's Trace = 0.006, F (4, 140) = .101, p = .982. Follow up ANOVAs for the borderline and antisocial scores were examined. The overall differences between the groups in antisocial (F (2, 70) = .194, p= .824) as well as borderline measures (F (2, 70) = .077, p = .926) were not significant.

Table 3

Differences on PAI variables between Predominantly Reactive, Mixed Proactive/Reactive, and Predominantly Proactive men based on Men's Narrative.

	Pred. Reactive Mean (SD)	Mixed Pro/Reactive Mean (SD)	Pred. Proactive Mean (SD)	Statistical Comparisons F (4,140)
ANT	24.96 (1.59)	24.84 (2.51)	27.83 (4.47)	.194
BOR	26.67 (1.55)	26.88 (2.46)	28.5 (4.37)	.077

When classified based on female report, a MANOVA effect was statistically non-significant, with Pillai's Trace = 0.055, F (4,146) = 1.03, p = 0.393. Follow up ANOVAs for the borderline and antisocial scores were examined. The overall differences between the groups in

antisocial (F (2, 73) = .91, p = 0.41) as well as borderline measures (F (2, 73) = .311, p = 0.733) were statistically non-significant.

Table 4

Differences on PAI variables between Predominantly Reactive, Mixed Proactive/Reactive, and Predominantly Proactive men based on Women's Narrative.

	Pred. Reactive Mean (SD)	Mixed Pro/Reactive Mean (SD)	Pred. Proactive Mean (SD)	Statistical Comparisons F (4,140)
ANT	25.59 (1.64)	22.77 (2.37)	28.5 (3.93)	.905
BOR	27.75 (1.59)	26.32 (2.3)	24.85 (3.82)	.311

Proactive- Reactive Questionnaire

In order to compare differences in self-reported Proactive/Reactive traits between the three subgroups, a MANOVA was conducted using subtype of batterers (male report) as the independent variable, and the Proactive and Reactive subscale scores of the PRQ self-report as dependent variables. Then a separate, MANOVA was conducted, using three batterer subtypes (female report) as the independent variable, and Proactive and Reactive subscale scores of the PRQ partner report as dependent variables. When classified based on men's narratives, a MANOVA effect was not statistically significant, with Pillai's Trace =0.075, F (4,128) = 1.255, p = .291. Nonetheless, follow up ANOVAs for the Proactive and Reactive subscale scores were examined. The three groups differed in their reactive subscale scores in a marginally significant manner, F (2, 64) = 2.33, p = 0.10. Specifically, post hoc analyses showed that the Predominantly Reactive batterers scored significantly higher on the reactive subscale of the questionnaire than the Mixed Proactive/Reactive batterers (p = 0.049). However, no significant

differences were observed between the three groups on the Proactive subscale (F (2, 64) = .63, p = .51)

Table 5

Differences on the Proactive-Reactive Questionnaire between Predominantly Reactive, Mixed proactive/reactive, and Predominantly Proactive men based on men's narratives.

	Pred. Reactive Mean (SD)	Mixed Pro/Reactive Mean (SD)	Pred. Proactive Mean (SD)	Statistical Comparisons F (4,140)
Proactive subscale	0.51 (0.13)	0.353 (0.21)	0.00 (0.49)	0.63
Reactive Subscale	$4.55\ (0.44)_a$	$2.82\ (0.74)_b$	2.67 (1.78)	2.33^t

Note:
^{t} Trend, $p < 0.1$
$_{a, b}$ Groups with different subscripts are significantly different from each other with $p < .05$

When classified based on women's narrative, the omnibus MANOVA effect was not statistically significant, with Pillai's Trace = 0.063, F (4,142) = 1.15, p = 0.33. Univariate tests revealed no differences between the three groups in their Reactive scale scores (F (2, 71) = 1.62, p = 0.21) or Proactive scale scores (F (2, 71) = .12, p = 0. 89).

Table 6

Differences on the Proactive-Reactive Questionnaire between Predominantly Reactive, Mixed proactive/reactive, and Predominantly Proactive men based on women's narratives

	Pred. Reactive Mean (SD)	Mixed Pro/Reactive Mean (SD)	Pred. Proactive Mean (SD)	Statistical Comparisons F (4,140)
Proactive subscale	0.83 (0.22)	1.00 (0.32)	1.00 (0.55)	0.12
Reactive Subscale	3.109 (0.42)	3.62 (0.62)	5.143 (1.07)	1.62

Men's Violence

To understand the differences in frequency of men's IPV between the three groups of batterers, two separate ANOVAs were conducted. In the first one, frequency of assault as indicated by male report served as the dependent variable, with the subtype of batterer, classified with male report used as the independent variable. In the second ANOVA, frequency of men's IPV as indicated by female report served as dependent variable, with the subtype of batterer, classified with female report used as the independent variable.

When classified based on male report, the ANOVA was not statistically significant with F (2, 71) = .896, p = 0.41 suggesting no differences in frequency of assault between the groups. Similarly, when classified based on female report, the ANOVA was not statistically significant with F (2, 71) = 1.825, p = 0.17 suggesting no differences in frequency of assault between the groups in this case as well. However, male and female report both suggest sizably yet insignificantly larger means for the Predominantly Proactive batterers when compared to the other two groups.

Table 7

Differences in Frequency of men's IPV between Predominantly Reactive, Mixed proactive/reactive, and Predominantly Proactive Based on Men's Narratives

	Pred. Reactive Mean (SD)	Mixed Pro/Reactive Mean (SD)	Pred. Proactive Mean (SD)	Statistical Comparisons F (4,140)
Frequency of men's IPV	16.98 (4.13)	14.58 (6.62)	32.33 (11.79)	.896

Table 8

Differences in Frequency of men's IPV between Predominantly Reactive, Mixed proactive/reactive, and Predominantly Proactive Based on Women's Narratives

	Pred. Reactive Mean (SD)	Mixed Pro/Reactive Mean (SD)	Pred. Proactive Mean (SD)	Statistical Comparisons F (4,140)
Frequency of men's IPV	16.03 (3.46)	18.64 (5.11)	33.5 (8.47)	1.83

Psychophysiological Reactivity

To test the differences in heart rate reactivity and skin conductance response between the different groups of batterers, two MANOVAs were conducted. In the first one, the subtype of batterers as classified based on male narratives was used as the independent variable, and the batterers' heart rate change score (heart rate after an argument minus the baseline heart rate, corrected for range) and skin conductance change score (average skin conductance during an argument minus the baseline skin conductance) were used as the dependent variables. In the

second MANOVA, the subtype of batterers as classified based on female narratives was used as independent variable, with the heart rate change and skin conductance change scores as the dependent variables.

When classified based on male report, a MANOVA effect was not statistically significant with Pillai's Trace = 0.04, F (4, 102), p = 0.69. The between subjects effects on the heart rate reactivity revealed an F (2, 51) = 1.044, p = 0.36. On skin conductance, differences between the group were not statistically significant with an F (2, 51) = .06, p = 0.94.

Table 9

Differences in Psychophysiological Reactivity between Predominantly Reactive, Mixed proactive/reactive and Predominantly Proactive Based on Men's Narratives.

	Pred. Reactive Mean (SD)	Mixed P/R Mean (SD)	Pred. Proactive Mean (SD)	Statistical Comparisons F (4,140)
HR Reactivity	0.38 (0.04)	0.29 (0.06)	0.4 (0.09)	1.044
Skin conductance	3.29 (0.46)	3.27 (.72)	2.87(1.1)	0.062

When classified based on women's narrative, however, the omnibus MANOVA was marginally significant, with Pillai's Trace = 0.244 F (4,104) = .3.62, p = .10. A main effect for heart rate reactivity was observed with F (2, 52) = 7.94; p = 0.001. Follow up post hoc analyses revealed that on average, Predominantly Reactive batterers exhibited greater heart rate reactivity than the Mixed Proactive/Reactive group (p < 0.001). However, the Mixed Proactive/Reactive group exhibited significantly lower heart rate reactivity than the Predominantly Proactive group (p = 0.04). For skin conductance, although the pattern of SCL change was in the expected

direction, differences between the group were not statistically significant with an F (2, 52) = .097, p = 0.91.

Table 10

Differences in Psychophysiological Reactivity between Predominantly Reactive, Mixed proactive/reactive, and Predominantly Proactive Based on Women's Narratives.

	Pred. Reactive Mean (SD)	Mixed P/R Mean (SD)	Pred. Proactive Mean (SD)	Statistical Comparisons F (4,140)
HR Reactivity	$0.43\ (0.04)_a$	$0.19\ (0.05)_b$	$0.38\ (0.08)_{ab}$	7.943*
Skin conductance	3.33 (0.49)	3.31 (0.67)	2.83 (1.04)	0.097

Note:*$p < 0.05$
$_{a, b}$ Groups with different subscripts are significantly different from each other, $p < .05$.

Discussion

This study validates a coding system (Chase, O'Leary & Heyman, 2001) to classify the patterns of violence based on retrospective reports of intimate partner violence. As hypothesized, classifying batterers into a Proactive-Reactive typology resulted in similar frequencies of batterers per group when based on men's and women's retrospective narratives. Although we presumed some degree of perpetrator's self-report bias, classifying violence based on the female victims' narratives resulted in a similar classification as when based on the perpetrators' narratives. This suggests that the coding system can be reliably applied to either victims' or perpetrators' reports. While reporter bias likely exists, men's and women's reports were not so different as to affect the rates of Proactive vs. Reactive violence. In fact, their high rates of

agreement on classification within the couple suggest that female report could be reliably used in situations where male report is inaccessible, such as in battered women shelters.

In addition, this study introduced a third category (the Mixed Proactive/Reactive group) between the Proactive and Reactive categories (Chase, O'Leary & Heyman, 2001) in an attempt to move towards a more dimensional conceptualization of the function of violence. Support for this mixed group is evidenced by similar number of batterers being categorized as Mixed Proactive/Reactive by both male as well as female narratives. However, few differences were found comparing the Mixed group to the Predominantly Proactive group. Whether this finer gradation as to the degree of proactivity is useful remains to be seen. Perhaps the original two group coding system has more power to detect meaningful differences.

One of the main findings of the original study on Proactive vs. Reactive batterers (Chase, O'Leary & Heyman, 2001) was that Proactive and Reactive batterers differed significantly in their personality disorder features. In comparison to the Reactive batterers, Proactive batterers scored higher on measures of antisocial personality. On the other hand, the reactive batterers exhibited stronger borderline personality traits. However, the current study failed to replicate such findings with respect to borderline or antisocial features. This could be due to differences in the samples, measurement, or coding system. The original study recruited batterers attending a battering intervention program whereas ours recruited a community sample. While the original study used the Millon Clinical Multiaxial Inventory- II (MCMI-II; Millon 1987), we employed the Personality Assessment Inventory (Morey, 1991). The main difference in the two measurement tools is that the former is used primarily for clinical populations while the latter is employed with non-clinical populations. Since the current study employed a community sample, the PAI was more appropriate for our sample. Nonetheless, differences in measurement tools

could have contributed to the failure to replicate Chase et al.'s (2001) personality differences between Proactive and Reactive batterers. Finally, modifications to the coding system to classify the 'Mixed' group could have decreased power to detect differences between a Proactive vs. Reactive group.

Employing a multi-method approach to measuring Proactive/Reactive violence, we found some correspondence between the coding system and the project-designed Proactive-Reactive Questionnaire. This brief questionnaire was modified from a measure of Proactive and Reactive tendencies in children (Dodge & Coie, 1987). When classified based on men's narratives, the Predominantly Reactive batterers indeed scored higher on the Reactive violence subscale than the Mixed group of batterers. However, contrary to what we had presumed, the Mixed group did not score higher than the Predominantly Proactive group of batterers. This lack of difference in reactive violence between the last two groups could be reflective of the nature of our sample. The "Mixed Proactive/Reactive" category was introduced in this study to detect and understand the varying degree of proactivity. Furthermore, we had expected only the frequently violent batterers that belong on the far end of the reactive-proactive continuum, to be classified as Predominantly Proactive. However, since the Predominantly Proactive batterers and Mixed group of batterers did not significantly differ in their frequency of battering, this could have led to little distinction between the last two groups as endorsed on this subscale of the questionnaire.

In addition, this finding also brings to light the exclusivity and distinction of the reactive batter from any type of Proactive batterer (Mixed proactive/reactive or Predominantly Proactive). Chase, O'Leary and Heyman's (2001) original coding system was based on a premise where batterers meeting criteria for being "Proactive" could also exhibit some reactive tendencies. However, "Reactives" were only categorized so, because they were absent of any proactive traits

(low physiological arousal, intentional violence). The current findings reflects the nature of this difference as the Predominantly Reactive batterers emerged as the most reactively violent when compared to the two proactive groups, with little difference in any self-report measure between the two Proactive groups.

With regard to the proactive subscale of the PRQ, no differences in endorsed Proactive violence were found between the three groups using men's or women's narratives. Perhaps this new questionnaire is too brief to adequately capture proactive aggression, as the scale contained only three items. Or perhaps this was a flaw of the original scale developed for children: Dodge and Coie (1987) reported that their Reactive subscale exhibited excellent psychometrics in factor analysis but the Proactive subscale did not meet the conventional Eigenvalue cut off of 1 (Dodge & Coie, 1987). Future modifications to Dodge's questionnaire may benefit from additional items that measure proactive aggression in a meaningful way. While longer, validated scales exist to measure proactive/reactive aggression in children (Raine, et al., 2006) and the related concept of premeditated vs. impulsive aggression in adults (Stanford et al., 2003), there appears to be no validated self-report measures of proactive vs. reactive aggression validated for use in adults (Babcock et al, 2012). This is an area for future research.

This study also extended Chase and colleagues (2001) findings to examine differences in physiological arousal between Proactive and Reactive batterers. Perhaps the absence of skin conductance levels change is not surprising, as Lorber et al's (2004) meta-analytic study indicated that there are generally no relations between skin conductance and aggression. However, some interesting findings were observed with regard to heart rate reactivity. Based on female narratives, the Predominantly Reactive batterers exhibited greater physiological arousal (as evidenced through higher heart rate reactivity) than the Mixed Proactive/Reactive group of

batterers. However, the Mixed Proactive/Reactive group of batterers exhibited lower heart rate reactivity than even the Predominantly Proactive group. It can be interpreted that in comparison to the Predominantly Reactive group, the Mixed group truly captured the physiological hypoarousal that is predicted in Proactive batterers while the Predominantly Proactive group (n= 7) may have been too small for comparison. Nonetheless, the observed physiological hyperarousal in Predominantly Reactive batterers is consistent with previous research on physiological arousal and violence. When angered or threatened, reactive batterers experience increased cardiovascular activity (increase HR) suggestive of their inability to regulate their emotional arousal resulting in overwhelming rage and sometimes violence. This is known as *flooding* (Gottman, 1994), and is presumably causally related to reactive batterers lashing out at their partners.

Another reason that explains why reactive batterers exhibit greater physiological arousal than Proactive batterers is rooted in the nature of their aggression. Whereas Proactive violence is goal-oriented, reactive violence is brought upon by a feeling of being attacked, threatened, or provoked (Chase, O'Leary & Heyman, 2001). In the case of the latter, the experience of being threatened or provoked automatically triggers the batterer's sympathetic nervous system response and the batterer assumes the "fight-or-flight" mode (Sijtsema, Shoulberg & Murray-Close, 2011) This heightened physiological arousal occurs as a preparatory step to help the batterer engage in fight or flight, leading the batterer to act against the threat, i.e., his partner in the case of IPV (Boucsein, 1992).

Based on Gottman et al.'s findings (1995), the current study had also hypothesized that the Predominantly Proactive batterers would exhibit the lowest heart rate reactivity following a conflict discussion among all the batterers in our sample. From the fearlessness theory

perspective, these batterers would have a lowered heart rate reactivity, because they would not feel threatened or provoked by their partner, thus preventing them from experiencing sympathetic reactivity or a spike in heart rate reactivity (Kindlon et al., 1995; Raine, 2002a, 2002b). Such batterers would hence be the "coolest" ones of the sample, being fearless, engaging in violence instrumentally, without fearing its repercussions. Furthermore, according to the sensation-seeking theory (Schalling, Edman &Asberg, 1983), Proactive batterers would also be expected to act out antisocially because their chronic low levels of arousal would lead them to seek stimulation with extreme behaviors, including violent crimes. However, without a nonviolent control group, it is would not be possible to determine if the Proactive batterers were under-reactive or if the Reactive batterers were over-reactive when arguing with their partners. This also seemed to be the case with our findings in this study. Nevertheless, the Predominantly Reactive and Mixed Proactive/Reactive groups were able to successfully demonstrate physiological hyper-arousal and hypo-arousal in Reactive and Proactive batterers respectively.

Overall, the findings suggest that this coding system can be used reliably using perpetrator as well as victim's reports. Furthermore, men's as well as women's coded narratives revealed that batterers classified as Predominantly Reactive were different from batterers with Proactive tendencies, as evidenced through different patterns of correlates. Specifically, the Reactive batterers categorized using the coding system also self-reported as more "Reactive" on the questionnaire than did the proactive groups, thus validating this newly created subscale of the questionnaire. In terms of physiological arousal, differences in physiological responding between Predominantly Reactive batterers and the Mixed Proactive/Reactive batterers when based on victims' narratives were. Also, these findings on heart rate reactivity provided evidence for the convergence between Gottman's Type II batterers (1995) and our Predominantly Reactive type

of batterers. However, as the findings of this study suggests, there may be uncertainty regarding the existence of a truly "Predominantly Proactive" group. Research has shown that Proactive aggression is highly correlated with Reactive aggression within a sample of Proactive violent perpetrators (Fite, et al., 2010). However, within Reactive perpetrators there is no relation between Proactive and Reactive traits (Fite et al., 2010). Thus, it may not be so surprising that we found only a small predominantly reactive group, as most proactive batterers exhibit reactive traits, as well. Although we introduced the mixed category as a new criterion to classify batterers, our findings suggests that the Mixed group, men exhibiting a combination of Proactive and Reactive tendencies, was more representative of Proactive batterers.; Therefore Chase el al.'s (2001) original two-group classification scheme may be preferable, as an exclusively Proactively violent group of batterers may to be difficult to isolate.

Clinical Implications

Findings of this study generate promising implications clinically, for both assessment and intervention. Our multi-method approach in classifying batterers generally converged on the classification of whether a batterer was Proactive or Reactive, based on self- and partner coded narratives and based on self- and partner questionnaire reports. This has important implications in the field of assessment. Although classifying batterers using the perpetrators' coded narratives, system may remain the "gold standard" approach, having convergent, valid measures suggest that questionnaire measures are tapping into the same construct. Partners' retrospective self-reports of violent incidents appear to generate similar classifications as perpetrators' coded narratives. Similarly, questionnaires completed either by the partner or victim may give us an accurate picture of the degree to which a man's violence was reactive. Questionnaires may be more useful in clinical practice, when there is a time constraint or a lack of resources for coding.

In addition, this study also validates the use of the Proactive-Reactive typology which provides an opportunity for understanding how IPV arises *in situ* (Chase, O'Leary & Heyman, 2001). Considering the high rates of recidivism among IPV batterers, interventions need to be tailored to the batterers more effectively (Babcock, Green & Robie, 2004). Evaluating specific patterns of violence may help in conceptualizing the main triggers for aggression in different kinds of batterers, thereby providing specific targets that can be addressed in group or individual therapy. Such target-specific interventions may help to reduce recidivism.

Just as studies have shown that violence of Reactive/Impulsive batterers decreases when treated with the anticonvulsant Phenytoin (Dilantin) whereas that of Proactive/Premeditated batterers does not (Barratt, Stanford, Felthous, et al., 1997), reactive and proactive batterers may also differentially respond to psychotherapeutic interventions. Specifically, whereas reactive batterers who are violent as a consequence of physiological *flooding* may benefit considerably from emotional regulation strategies (Michonski, & Babcock, 2009), proactive batterers may benefit more from interventions aimed at contingency management (Chase, O'Leary & Heyman, 2001). This suggests that differentiating among different functions of violence has important implications in treatment outcomes.

Limitations and Future Directions

One of the biggest limitations of this study was the sample size. Even though this study coded 153 narratives, typifying 78 batterers into three categories, resulted in uneven and small groups, reducing the power needed to generalize some of the findings of this sample to the population. Furthermore, this typology has been previously criticized for its bimodal nature, since not every person falls neatly within one or the other category, and often categories overlap (Bushman & Anderson, 2001). Although categorical distinctions are commonly used in

medicine, categorical distinctions of Proactive vs. Reactive violence may limit the power to detect differences between the groups. Continuous measures of proactive/reactive violence may prove more predictive of outcomes than simple groups.

While the current study moved toward a more dimensional version of the coding system to rectify this problem, it remains a categorical coding system. Since most of our findings in this study set the Predominantly Reactive group apart from the other two, perhaps identifying a Mixed Proactive/Reactive group is unnecessary. Chase and colleagues (2001) suggested in their study that the addition of a dimensional category would help understand the batterers who were on the proactive end of the continuum, and would help to differentiate the mixed group of batterers from those who were psychopaths. Since we were unable to differentiate between the Mixed group and the Predominantly Proactive group, future researchers in this field may need to explore the utility of this dimensional system. The inclusion of a Proactive-Reactive Questionnaire was another effort to capture proactive and reactive violence dimensionally. As previously mentioned, future studies with larger samples need to explore the reliability and utility of questionnaires to examine dimensions of proactive and reactive violence in adults.

With regard to understanding physiological differences among batterers, future research could measure different physiological channels. Subsequent studies could employ other measures of psychophysiological arousal such as vagal tone, blood pressure, respiratory rate, etc. Furthermore, in order to find more robust differences in physiological arousal among proactive and reactive batterers, there may be moderating variables that need consideration. For example, anxiety (Arnett et al., 1997) and personality psychopathology (Kelsey, Ornduff, McCann, & Reiff, 2001) have been shown to moderate physiological responding as it relates to psychopathic traits. Given that we were unable to find significant physiological hypoarousal in our

Predominantly Proactive batterers, the significance of psychopathy and other moderating variables could be an area to be explored in future research.

Also, considering that our study was focused on male-to-female violence, a potential direction for future studies could be to examine female-to-male violence in addition to the male-to-female violence. No study to date has examined women's violent proactive vs. reactive violent tendencies. Studying dyadic interactions could potentially provide greater context for understanding IPV particularly with "common couples violence" (Johnson, 1995), where both partners are violent. Future studies may consider employing statistical models, such as Actor-Partner Interdependence Model (APIM; Cook & Kenny, 2005), which may help contextualize the interdependence of violence among some couples. Effective battering interventions may hinge upon improved assessment to guide treatment matching. Hopefully, the findings of the current study have brought us one step closer to that goal.

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