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The Association Between Impulsivity, Trait Anger, and the Perpetration of Intimate Partner and General Violence Among Women Arrested for Domestic Violence

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Abstract

The problem of domestic violence is widespread, with research indicating men and women both perpetrate a substantial amount of aggression. However, aggression perpetrated by women is a relatively understudied area compared to aggression perpetrated by men. Additionally, research is needed to determine the correlates of aggression perpetration among women, as this can inform more effective treatment programs. Thus, the current study sought to examine the association between trait anger and impulsivity and the perpetration of physical and psychological intimate partner violence (IPV) and general aggression among women arrested for domestic violence ($N = 80$). Findings indicated that both trait anger and impulsivity were significantly associated with aggression perpetration and trait anger mediated the

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relationship between impulsivity and aggression perpetration. Directions for future research and violence intervention programs are discussed.

Keywords

domestic violence, aggression, anger, impulsivity

Intimate partner violence (IPV) is a devastating and prevalent problem throughout the world. Research indicates that approximately 25% of men and women will perpetrate physical aggression against their partners each year (Cunradi, Todd, Duke, & Ames, 2009), with more than 80% perpetrating psychological aggression (Ro & Lawrence, 2007). Although research indicates that male-perpetrated aggression places female victims at greater risk for injuries as a result of IPV than male victims of female-perpetrated aggression (Archer, 2000; Tjaden & Thoennes, 2000), there has been an increase in research aimed at the examination of violence perpetrated by women (e.g., Cunradi et al., 2009; Stuart et al., 2006a; Taft et al., 2006). This increased focus on female-perpetrated physical and psychological aggression is due both to research indicating that male victims of female-perpetrated aggression evidence mental health symptoms (see Hines & Malley-Morrison, 2001, for review) and findings that the majority of IPV is bidirectional (Johnson & Leone, 2005). In fact, numerous studies have shown that the prevalence of female-perpetrated aggression is equal to, or greater than, that of their male counterparts (Archer, 2000; Cunradi, 2007). Thus, research has begun to examine risk factors for female-perpetrated physical and psychological aggression against intimate partners.

Trait anger is a well-known correlate of male-perpetrated physical and psychological aggression (e.g., Norlander & Eckhardt, 2005) and one that has recently been investigated among female perpetrators. Trait anger refers to a broad predisposition to experience anger and/or respond to stressful and distressing situations with state anger (Spielberger, 1988). Taft and colleagues (2006) found that increased trait anger was positively associated with the perpetration of psychological aggression among a community sample of women. In fact, trait anger was predictive of psychological aggression even after controlling for relationship discord. Using an overlapping sample of women employed in the current paper, Stuart and colleagues (2006a, 2008) examined the association between trait anger and the perpetration of physical and psychological aggression among women arrested for domestic violence. Findings showed that trait anger was positively and significantly

associated with the perpetration of both forms of aggression. In fact, trait anger remained a significant predictor of psychological aggression even after controlling for alcohol problems, relationship discord, and psychological aggression victimization.

Impulsivity is another correlate of IPV perpetration that has recently been examined among female perpetrators of physical aggression. Impulsivity can be conceptualized as carelessness, a lack of planning, and rapid decision making and action (Magid, MacLean, & Colder, 2007). Impulsive individuals often have difficulty inhibiting responses despite the potential for punishment (Newman, 1987), are overly sensitive to rewards (Gray, 1987), and are likely to engage in sensation-seeking experiences (Zuckerman, 1991). In addition, individuals high on impulsivity appear to use hasty and simple ways of coping with distress (Magid et al., 2007). Thus, it is not surprising that Cunradi and colleagues (2009) using a community sample of women and Schafer, Caetano, and Cunradi (2004) using a nationally representative sample of heterosexual couples found that increased impulsivity was a significant predictor of physical aggression perpetration among women. Using an overlapping sample of women who participated in the present study, Stuart and colleagues (2006b) found that women who were arrested for domestic violence and smoked cigarettes reported greater impulsivity than were arrested women who did not smoke cigarettes. This study did not examine whether or not impulsivity was related to aggression perpetration. In addition, to our knowledge, no known published study has examined the relationship between impulsivity and the perpetration of psychological aggression among women.

Research conducted with male perpetrators of IPV suggests that impulsivity may not be directly related to IPV perpetration when other variables are accounted for (i.e., Stuart & Holtzworth-Munroe, 2005), and this may also be true for women. In particular, because research shows that impulsivity is related to increased anger (e.g., Barratt, 1994) it has been hypothesized that trait anger may mediate the relationship between impulsivity and psychological aggression perpetration among men (Stuart & Holtzworth-Munroe, 2005). Specifically, Stuart and Holtzworth-Munroe developed a theoretical model that proposed that trait anger would mediate the relationship between impulsivity and IPV perpetration. However, research with male perpetrators of IPV has failed to support trait anger as a mediator between impulsivity and aggression (i.e., Stuart & Holtzworth-Munroe, 2005). Yet Stuart and Holtzworth-Munroe combined measures of anger and hostility, which are distinct constructs (see Eckhardt, Barbour, & Stuart, 1997, for review). In fact, Eckhardt and colleagues argued for keeping measures of trait anger and hostility separate. Thus, the findings of Stuart and Holtzworth-Munroe may not

be an accurate representation of the association between impulsivity, trait anger, and the perpetration of aggression. In addition, it is plausible that the relationship between impulsivity, trait anger, and aggression is different for women than for men.

To our knowledge, the above theoretical model has yet to be examined among a sample of female perpetrators of IPV. In addition, this theoretical model has only been examined with psychological aggression perpetration for men, not physical aggression. Since research has found that women perpetrate both psychological and physical aggression at alarmingly high rates (e.g., Archer, 2000; Ro & Lawrence, 2007), it is important to examine whether the pathways to each type of aggression are similar or different for women. For example, if research shows that both types of aggression have similar pathways to perpetration, then intervention programs for female perpetrators could focus on treating and modifying the most salient risk factors for both forms of aggression. However, if the impulsivity, trait anger, and aggression perpetration mediation model is only supported for one type of aggression, intervention programs will have important information that could be used to effectively target each form of aggression separately.

Thus, the purpose of the present study was to examine the association between intimate partner psychological and physical aggression perpetration, impulsivity, and trait anger among a sample of women arrested and court-referred to domestic violence intervention programs. To our knowledge, this is the first study to examine the proposed theoretical model of impulsivity, trait anger, and aggression perpetration among female perpetrators of domestic violence. Because male participants in domestic violence intervention programs evidence extremely high rates of recidivism (Babcock, Green, & Robie, 2004), the use of a sample of women referred to these programs may help to elucidate possible targets of intervention (i.e., impulsivity and/or trait anger) that may increase the efficacy of these programs. Furthermore, our understanding of the salient risk factors for perpetrating IPV among women arrested for domestic violence are limited, as these women are "grossly understudied" (Hien & Hien, 1998).

In addition, because research has shown that women arrested for domestic violence also perpetrate high levels of general physical aggression (i.e., physical aggression against nonintimates; Stuart, Moore, Ramsey, & Kahler, 2004), a secondary aim of the current study was to examine whether the proposed theoretical model would also be supported for general aggression. For instance, Stuart and colleagues (2004), using a different sample of women than the ones assessed for the present study, showed that 63% of women arrested for domestic violence had perpetrated physical aggression against

people other than their intimate partner since the age of 18. In addition, Stuart and colleagues (2006a, 2008) showed that trait anger and general aggression perpetration were positively and significantly associated with each other among women arrested for domestic violence. However, we are unaware research that has examined the association between impulsivity and general aggression or the proposed theoretical model among women arrested for domestic violence. Examining the proposed model for general aggression will provide information on whether the risk factors for general and partner-specific aggression are similar, and this information could be used to further increase the efficacy of violence intervention programs.

On the basis of theory and previous research with male perpetrators of IPV (i.e., Stuart & Holtzworth-Munroe, 2005), and research with female perpetrators (i.e., Cunradi et al., 2009; Schafer et al., 2004), we expected that both impulsivity and trait anger would be positively associated with the perpetration of psychological and physical aggression and general violence. However, because no known research has examined the combined influence of impulsivity and trait anger on female-perpetrated aggression, and due to the nonsignificant findings for the proposed theoretical, mediated model with men (Stuart & Holtzworth-Munroe, 2005), no definitive hypotheses were provided for mediation.

Method

Participants

Participants were a convenience sample of 80 women arrested for domestic violence and court-referred to batterer intervention programs (BIPs) in Rhode Island. The state of Rhode Island requires mandatory arrests in cases of suspected domestic violence, which can include offenses ranging from assault and battery, stalking, harassment, and violation of orders of protection, to name a few. Although no information was obtained on the specific reasons why women were arrested, it is likely that the women in the current study were suspected of committing a wide range of offenses.

The participants represent a subsample of women who participated in a larger study that examined women court-referred to BIPs (i.e., Stuart et al., 2006a, 2008). The 80 women in the current study were included based on their completion of the measures of interest for this study. Participants reported a mean age of 30.4 years (SD = 10.1), education of 12.1 years (SD = 2.2), and annual income of US$20,403 ($SD$ = US$18,597). The ethnic composition was as follows: 74.5% White, 8% Black, 7% Hispanic, 2% American

Indian/Alaskan Native, 1% Asian/Pacific Islander, and 6% Other. At the time of the study, 15.3% of the women reported being married, 34.7% reported cohabiting and not currently married, 28.6% were dating, 8.2% were single, 6.1% were separated, and 7.1% were divorced. The average length of the women's current relationships was 5.0 years ($SD = 9.5$), length of time living with their current intimate partner was 3.1 years ($SD = 3.2$), and number of children was 1.8 ($SD = 1.4$).

Measures

Demographics questionnaire. Participants were asked to provide information regarding their age, education, income, ethnicity, marital status, duration of current relationship, duration of cohabitation with current partner, and number of children.

Intimate partner violence. The Revised Conflict Tactics Scale (CTS2; Straus et al., 1996) was used to examine IPV. The CTS2 is the most widely used scale for assessing IPV. Comprised of 78 items, the CTS2 contains five subscales: negotiation, psychological aggression, physical abuse, sexual coercion, and injury. Only the psychological aggression and physical abuse perpetration subscales were used in the current study. Adequate reliability and validity of the CTS2 has been demonstrated (Straus et al., 1996). The CTS2 is scored by summing the frequency of each of the behaviors in the past year reported for each subscale, and the score range for each item is 0 to25.[1] Higher scores on the CTS2 indicate more frequent aggression. In the present study, internal consistency was .80 for psychological aggression perpetration and .83 for physical aggression perpetration. The physical aggression subscale was positively skewed was log-transformed (natural log) prior to performing statistical analyses.

General violence. The General Violence Conflict Tactics Scale (GVCTS; Stuart, Moore, Kahler, & Ramsey, 2003; Stuart, Moore, Ramsey, & Kahler, 2003) was used to assess women's use of physical aggression against nonintimates. The GVCTS is a modified version of the Conflict Tactics Scale (CTS; Straus, 1979) that lists all of the physical assault items from the original CTS and asks respondents to report the number of times they engaged in any of the aggressive acts toward friends, coworkers, bosses, adult relatives, acquaintances, strangers, police officers, gang and/or other groups, and others since the age of 18. The score range for each item is 0 to 25, and the measure is scored by adding the frequency of violent acts for all categories.

Higher scores on the GVCTS represent more frequent aggression perpetration. The internal consistency of the GVCTS was .75.

Trait anger. The trait anger subscale of the State-Trait Anger Expression Inventory (STAXI; Spielberger, 1988) was used to assess the women's trait anger. This subscale represents a general tendency to become angry and asks participants to answer questions about self-characterizations as to whether or not they are usually angry. Using a 4-point scale (1 = *not at all or almost never*, 4 = *very much so or almost always*) participants specify the extent to which each item applies to themselves. The author of this scale demonstrated excellent reliability and validity (Spielberger, 1988), with excellent support for its construct and criterion validity (Eckhardt, Jamison, & Watts, 2002; Spielberger, Reheiser, & Sydeman, 1995). Higher scores on the STAXI reflect greater trait anger. For the current study, internal consistency of the STAXI trait anger subscale was .94.

Impulsivity. The impulsivity subscale of the Eysenck Impulsiveness Questionnaire (I-7; Eysenck, Pearson, Easting, & Allsopp, 1985) was employed to assess the women's impulsivity. This subscale measures poor behavior control and inability to delay gratification. Previous studies have shown that the Eysenck impulsivity subscale strongly correlates with impulsive behavior (Nagoshi, Walter, Muntaner, & Haertzen, 1992) and differentiates impulsive populations from control groups (e.g., Eysenck & McGurk, 1980). A higher score on the impulsivity subscale corresponds to greater impulsivity. In the current study, the internal consistency was .82.

Procedures

Participation was voluntary and questionnaires were completed during the women's regularly scheduled batterer intervention sessions. Women completed all measures of interest in small groups. Groups were open, and the mean number of intervention sessions attended was 10.39 (SD = 6.90). The number of intervention sessions attended were positively related to impulsivity (r = .40, p < .001) and trait anger (r = .31, p < .01) but was unrelated to intimate partner and general violence (both, p > .10). The information gathered was not shared with the intervention facilitators or anyone within the criminal justice system, and no compensation was given. After providing informed consent, participants were provided with a packet of questionnaires. Additional information about the procedures for the current study can be obtained from Stuart and colleagues (2006, 2008).

Table 1. Correlations, Means, and Standard Deviations Among Study Variables

	1.	2.	3.	4.	5.
1. Psychological aggression	—	.69*	.44*	.53*	.44*
2. Physical aggression		—	.34*	.47*	.48*
3. Impulsivity			—	.58*	.47*
4. Trait anger				—	.58*
5. General aggression					—
M	43.53	19.29	8.30	18.81	14.83
SD	38.62	29.69	4.50	7.39	24.92

*$p < .001$.

Results

Correlations, means, and standard deviations for all variables are presented in Table 1. Bivariate correlations among variables indicated that psychological aggression, physical aggression, and general aggression were each positively and significantly correlated with each other. In addition, each type of aggression was positively and significantly correlated with impulsivity and trait anger. Furthermore, impulsivity and trait anger were positive and significantly correlated with each other.

To examine the proposed mediating effect of trait anger on the relationship between impulsivity and aggression perpetration, Baron and Kenny's (1986) recommendations for examining mediation were followed using ordinary least squares (OLS) regression. According to this method, mediation occurs when (a) the independent variable (i.e., impulsivity) significantly predicts the dependent variable (i.e., aggression perpetration), (b) the independent variable significantly predicts the mediating variable (i.e., trait anger), (c) the mediating variable significantly predicts the dependent variable when regressed simultaneously with the independent variable, and (d) the independent variable no longer significantly predicts the dependent variable when regressed simultaneously with the mediating variable. The significance of the indirect effects was tested using Sobel's formula (Sobel, 1982). In an attempt to control for Type 1 error due to the number of analyses performed, alpha levels were adjusted and only considered significant at or below $p < .01$.

Psychological Aggression Perpetration

First, for psychological aggression, results were supportive of the proposed mediation model. These findings are presented in Table 2. As hypothesized,

Table 2. Multiple Regression Analyses Testing Trait Anger as a Mediator of the Relationship Between Impulsivity and Psychological Aggression Perpetration

	B	*SE*	B	R^2	*F*
Model 1				.20	18.98
Impulsivity	3.80	0.87	.44*		
Model 2				.31	17.16
Impulsivity	1.73	1.00	.20		
Trait Anger	2.16	0.61	.41*		

*$p < .01$.

Table 3. Multiple Regression Analyses Testing Trait Anger as a Mediator of the Relationship Between Impulsivity and Physical Aggression Perpetration

	B	*SE*	B	R^2	*F*
Model 1				.12	10.16
Impulsivity	.12	0.04	.34*		
Model 2				.23	11.19
Impulsivity	.04	0.04	.10		
Trait anger	.09	0.03	.41*		

*$p < .01$.

impulsivity significantly predicted psychological aggression perpetration ($p < .01$). Impulsivity also significantly predicted trait anger ($p < .01$). Finally, trait anger significantly predicted psychological aggression perpetration when regressed simultaneously with impulsivity ($p < .01$), and impulsivity no longer significantly predicted psychological aggression ($p > .05$). Sobel's test indicated that the addition of trait anger significantly reduced the association between impulsivity and psychological aggression perpetration, $z = 3.11$, $p < .01$. Thus, trait anger fully mediated the relationship between impulsivity and psychological aggression perpetration.

Physical Aggression Perpetration

The same analytic strategy as above was utilized to examine the proposed mediating role of trait anger on the relationship between impulsivity and physical aggression perpetration. Results were supportive of the mediation model and are presented in Table 3. As expected, impulsivity significantly

Table 4. Multiple Regression Analyses Testing Trait Anger as a Mediator of the Relationship Between Impulsivity and General Aggression Perpetration

	B	*SE*	B	R^2	*F*
Model 1				.12	10.16
Impulsivity	.12	0.04	.34*		
Model 2				.37	22.16
Impulsivity	.06	0.04	.20		
Trait Anger	.09	0.04	.47*		

*$p < .01$.

predicted physical aggression perpetration ($p < .01$). Impulsivity also significantly predicted trait anger ($p < .01$). Finally, trait anger significantly predicted physical aggression perpetration when regressed simultaneously with impulsivity ($p < .01$), and impulsivity no longer significantly predicted physical aggression perpetration ($p > .05$). Sobel's test indicated that the addition of trait anger significantly reduced the association between impulsivity and physical aggression perpetration, $z = 2.94$, $p < .01$. Thus, trait anger fully mediated the relationship between impulsivity and physical aggression perpetration.

General Aggression

Finally, the same analytic strategy was used to examine the proposed mediating role of trait anger on the relationship between impulsivity and general aggression perpetration. The results of these analyses were supportive of mediation and are presented in Table 4. Impulsivity significantly predicted general aggression perpetration ($p < .01$). Impulsivity also significantly predicted trait anger ($p < .01$). Finally, trait anger significantly predicted general aggression perpetration when regressed simultaneously with impulsivity ($p < .01$), and impulsivity no longer significantly predicted general aggression perpetration ($p > .05$). Sobel's test indicated that the addition of trait anger significantly reduced the association between impulsivity and general aggression perpetration, $z = 3.49$, $p < .01$. Thus, trait anger fully mediated the relationship between impulsivity and general aggression perpetration.

Discussion

The purpose of the present study was to examine the associations between trait anger, impulsivity, and intimate partner and general aggression among

women arrested for domestic violence. To our knowledge, this is the first study to examine the association between impulsivity and trait anger and between impulsivity and aggression perpetration in this understudied population. In addition, we examined whether trait anger mediated the relationship between impulsivity and aggression perpetration. As hypothesized, both trait anger and impulsivity were significantly associated with physical and psychological IPV and general aggression perpetration, such that increased trait anger and impulsivity were related to increased aggression perpetration. Although past research using an overlapping sample of women who participated in the present study has shown that trait anger is a significant correlate of IPV among women arrested for domestic violence (Stuart et al., 2006a, 2008), this is the first study to demonstrate that impulsivity is a significant correlate of IPV and general aggression in women arrested for domestic violence.

The finding that impulsivity is a correlate of aggression perpetration among these women is important for several reasons. First, this is the only known study to demonstrate that impulsivity is related to psychological aggression and general aggression perpetration for women. Past research has shown that impulsivity is related to physical aggression perpetration among women (Cunradi et al., 2009; Schafer et al., 2004), and findings from the current study indicate that similar correlates are operating for each form of aggression perpetration. Second, the finding that impulsivity is related to psychological and physical IPV and general aggression perpetration indicates that violence intervention programs, including BIPs, may need to focus their efforts on treating and modifying women's tendencies to act impulsively.

Findings from the current study also demonstrated that trait anger is an important correlate of aggression perpetration, which contributes to the growing body of research showing that anger is a robust correlate of female-perpetrated aggression (e.g., Taft et al., 2006). In addition, findings showed that trait anger mediated the relationship between impulsivity and the perpetration of physical and psychological IPV and general aggression. Thus, while impulsivity is an important correlate of aggression perpetration, women's propensities to respond to stressful and distressing situations with state anger is one pathway through which impulsivity may be related to aggression. In addition, this is the first known study to demonstrate this relationship between impulsivity, trait anger, and aggression among women perpetrators.

The finding that trait anger is related to all three forms of aggression investigated in the current study has important implications for violence intervention programs, such that trait anger could be an integral focal point of treatment efforts. However, it is also important to note that the current study assessed women's propensities to experience state anger and did not assess the

proximal effect of anger on aggression. Because research and theory support the notion that proximal antecedents strongly influence aggressive behavior (Bell & Naugle, 2008; Leonard, 1993), future research should examine the impact of proximal anger on aggressive behavior among women arrested for domestic violence.

In addition, future researchers may want to examine how substance use interacts with impulsivity and trait anger in predicting aggression perpetration among women, as women arrested for domestic violence use a large amount of substances (Stuart et al., 2008). For instance, Stuart and Holtzworth-Munroe (2005) showed that substance use mediated the relationship between impulsivity and psychological aggression for men, and it is possible that substance use may serve a similar role for women. It is also possible that the interaction of trait anger and substance use may particularly increase impulsive women's risk for aggression. Future researchers should investigate this possibility. Furthermore, future researchers may want to examine whether impulsivity is a mechanism through which abuse during childhood impacts risk for aggression as an adult. Indeed, childhood abuse is associated with increased impulsivity as an adult (i.e., Brodsky et al., 2001), and this may be one mechanism by which abuse during childhood influences the intergenerational transmission of violence.

Treatment Implications

Research indicates that domestic violence intervention programs, including BIPs, have minimal effects on reducing aggressive behavior among male perpetrators (Babcock et al., 2004; Stuart, Temple, & Moore, 2007). Thus, findings from the current study may have important implications for improving the effectiveness of BIPs and other violence intervention programs. In particular, in combination with previous research showing the association between trait anger and aggression perpetration (e.g., Taft et al., 2006), findings from the current study suggest that it may be helpful to focus on anger management. For instance, cognitive-behavioral (CB) techniques designed to control and reduce anger, such as cognitive restructuring and relaxation training, are approaches known to be effective in modifying and reducing trait anger (see Del Vecchio & O'Leary, 2004, for review) and could become a target of intervention for female perpetrators of aggression.

In addition, in combination with research on the association between impulsivity and aggression perpetration among women (e.g., Cunradi et al., 2009; Schafer et al., 2004), findings from the current study indicate that

impulsivity could become a target of intervention for female perpetrators. Specifically, cognitive-behavioral therapy techniques such as self-control training, problem-solving skills, coping skills, and understanding the negative consequences that are often associated with acting on impulse, and skills designed to decrease impulsivity (Magid et al., 2007; Touchet, Shure, & McCown, 1993), could become targets of intervention and may increase the efficacy of BIPs and other violence intervention programs for women.

Limitations

When interpreting the above findings it is important to recognize this study's limitations. First, the cross-sectional nature of the study precludes the determination of causality among variables despite research and theory to support the proposed mediation model. Thus, future research using longitudinal designs is needed to determine the temporal association among these variables. Second, the reliance on a self-report measure of impulsivity may not have fully captured this complex, multidimensional construct (Barratt, 1994). Additional research that uses behavioral and performance-based measures of impulsivity may provide an additional window into how this construct is related to aggressive behavior. Third, although the sample of women used in the current study is an understudied population, the generalizability of these findings is limited because they were a convenience sample of arrested women, and future research should determine whether the current findings would apply to community samples of women.

Despite these limitations, findings from the current study may have important implications for IPV intervention efforts. Findings from the current study demonstrated that both impulsivity and trait anger are important correlates of IPV and general aggression perpetration among women arrested for domestic violence. In addition, the mediating effect of trait anger on the relationship between impulsivity and aggression perpetration indicates that the pathways to aggression perpetration may be similar for different types of aggression. These findings may potentially have important implications for violence intervention programs, including BIPs. That is, treatment programs may want to consider targeting and reducing impulsivity and trait-anger through cognitive-behavioral techniques.

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Note

1. We also scored the CTS2 subscales according to a variety score, which reflects the total number of items endorsed. This method has been shown to reduce skew (e.g., Taft et al., 2006). Results were consistent across scoring methods.

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