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Male Perpetrators of Intimate Partner Violence and Implicit Attitudes toward Violence: Associations with Treatment Outcomes

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Abstract

The present study examined the associations among implicit attitudes toward factors related to intimate partner violence (IPV) and objective, behavioral outcomes of participants legally mandated to attend partner violence interventions. Twenty-six male offenders, adjudicated within the past month on IPV charges, completed three sets of gender and violence themed implicit associations tests (IATs) to evaluate the relationships between implicit evaluations of women and violence and three key outcome measures assessed six months after enrollment in the study: self-reported prior year IPV perpetration, completion of a court-mandated partner abuse program, and criminal reoffending. IAT results indicated that more rapid associations between violence-related words and positive valences, rather than gender evaluations or associations between gender and violence, were associated with greater IPV perpetration during the year prior to involvement in the study as well as with poorer outcomes (i.e., greater treatment non-compliance and criminal recidivism) at the 6-month follow-up. Among explicit measures, only negative partner violence outcome expectancies were marginally associated with treatment compliance. None of the explicit measures predicted previous violence or recidivism. The findings are discussed in the context of reducing violence through promoting implicit cognitive change.

Keywords

intimate partner violence; implicit associations; attitudes; treatment outcome

Over the last several decades, researchers have made significant advances in understanding, assessing, and treating intimate partner violence (IPV) (for a review, see O'Leary et al., 2009). In response to alarmingly high rates of IPV (e.g., Schafer, Caetano, & Clark, 1998), researchers and clinicians have developed a variety of etiologic models to explain the

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phenomenon of IPV, to guide the assessment of key risk factors that might predict its occurrence, and to assist in the development of IPV treatment programs (Dixon & Graham-Kevan, 2011).

Cognitive variables are ubiquitous in their inclusion across broad theoretical models of IPV, and the accumulated evidence indeed suggests that IPV perpetrators report more distorted cognitions than comparison samples (Eckhardt & Dye, 2000; Stith et al., 2004). For example, Eckhardt and colleagues (1998) found that violent males articulated greater hostile attribution biases, irrational beliefs (e.g., awfulizing and demandingness; Ellis, 1994), and cognitive biases (e.g., magnification and dichotomous thinking; Beck, 1976) than either maritally distressed and nonviolent men or maritally nondistressed and nonviolent men during a simulated conflict paradigm. Therefore, it is not surprising that most treatment approaches for IPV perpetrators are based upon variations of cognitive-behavioral models that attempt to modify behavior, in part, through prosocial cognitive change (Eckhardt et al., 2013). In the present study, we build upon recent data suggesting the importance of considering *implicit* cognitive processes when conceptualizing the role of cognitive distortions in IPV perpetration (Eckhardt et al., 2012; Robertson & Murachver, 2007). Specifically, we examined associations among implicit and explicit attitudes, treatment compliance, and criminal recidivism within a sample of men adjudicated for an IPV offense.

Models of IPV perpetration have postulated that a wide range of cognitive and attitudinal variables increase the likelihood of IPV in close relationships. Cognitions associated with IPV includes misogynistic beliefs and endorsement of patriarchal norms (Yllo, 1990), attitudes that positively endorse the use of aggression in close relationships (Kaufman-Kantor & Straus, 1990), general and specific biases in various stages of social information processing (Eckhardt, Barbour, & Davison, 1998; Holtzworth-Munroe, 1992), and a tendency to minimize or deny one's role in conflicts (Henning & Holdford, 2006). As noted by several authors (Eckhardt et al., 2012; Polaschek et al., 2009; Ward, 2000), these models have largely based their conceptualizations on data stemming from measures designed to assess explicit aspects of cognitive distortions, such as self-report questionnaires. Explicit attitudes are conscious, controlled, and systematic thoughts that contribute to instrumental and intentional actions (Dovidio, Brigham, Johnson, & Gaertner, 1996). Explicit measures require respondents to effortfully recollect an amalgam of cognitive activity across myriad contexts, affects, and other temporally relevant factors (Davison, Robins, & Johnson, 1983). However, researchers have shown that respondents are, at best, only able to provide post hoc representations of "what they think they think," but perhaps not *how* they process information in specific interpersonal contexts. Such cognitive processes are presumed to operate at a more implicit level and to be largely outside of conscious awareness (Nisbett & Wilson, 1977; Eckhardt & Dye, 2000). Clinically, explicit measures of violence-related attitudes are susceptible to biases associated with intentional deception and social desirability, which are critical concerns when assessing individuals involved in the criminal justice system.

Thus, while data on explicit cognitions have proven a useful starting point, models of IPV would benefit from a more expansive approach to defining cognitive distortions that considers the role of more automatic and implicit forms of cognitive processing in predicting

interpersonal aggression (Nosek & Smyth, 2007; Ward & Hudson, 2000). Implicit attitudes are operationalized as automatic, largely unintentional cognitive processes closely linked to contextual stimuli, affective states, memory, and enduring patterns of personality and behavior (Greenwald & Banaji, 1995; Ward, 2000). To better assess implicit cognitive processes related to interpersonal aggression, a variety of measurement approaches have been developed (for an overview, see James & LeBreton, 2012). One such method, the implicit association test (IAT; Greenwald, McGhee, & Schwartz, 1998), has emerged as the most widely used measure of implicit attitudinal strength and concept preference. In the IAT, respondents are presented with a series of categorization trials that involve sorting specific construct attributes along positive and negative valence dimensions. The IAT has demonstrated superior psychometric properties across nonclinical and clinical samples (Greenwald et al., 2009).

Researchers using the IAT with violent samples have typically examined the ability of implicit cognitions to discriminate specific offenders from controls, with data supporting the use of the IAT for this purpose (Brown, Gray, & Snowden, 2009; Gray et al., 2003; Gray et al., 2005; Nunes, Firestone, & Baldwin, 2007; Robertson & Murachver, 2007). Specifically, the IAT has reliably differentiated between child sexual offenders and non-sexual offenders (Nunes, Firestone, & Baldwin, 2007) and has been used to provide insight into the positive evaluation of violence held by psychopathic murderers in comparison to non-psychopathic murderers (Gray et al., 2003). IAT researchers have also reported an association between engaging in aggressive behavior in the lab and subsequent increases in aggressive self-concept (Bluemke, Friedrich, & Zumbach, 2010; Richetin et al., 2010; Uhlmann & Swanson, 2004).

Only one published study has used the IAT to specifically discriminate an IPV sample from community adults with no IPV history. Eckhardt and colleagues (2012) administered IATs assessing positive/negative attitudes toward women, positive/negative attitudes toward violence, and associations between violence and gender to a group of 50 IPV offenders and 40 nonviolent controls. Results indicated that, relative to nonviolent males, men in treatment for IPV showed more positive associations to violence-related stimuli and more rapid associations between violence and women. No group differences were found on measures of explicit cognitive distortions, suggesting that implicit measures may play an important role in furthering our understanding of the cognitive processes involved in IPV. However, associations between implicit cognitive content and behavioral outcomes of IPV-focused treatments have yet to be empirically investigated. Taken together, the results of IAT investigations among general criminal offenders and IPV perpetrators suggest that implicit attitudes may influence behavioral responding and are capable of detecting those who have engaged in recent violent behavior. Implicit attitudes may be similarly predictive of future violence as indexed by criminal recidivism and may relate to a broader pattern of noncompliance with interventions aimed at decreasing violent attitudes and behavior (Sherman, Smith, Schmidt, & Rogan, 1992; Wooldredge & Thistlewaite, 2002).

The present investigation aimed to provide a preliminary exploration of the ability of the IAT to predict IPV-related treatment outcomes by examining associations among IAT measures (i.e., attitudes toward women, attitudes toward violence, connections between

women and violence), explicit attitudes (outcome evaluations for IPV; attitudes toward IPV and nonviolent change), pretreatment self-reports of IPV perpetration/victimization, and treatment outcome data in a sample of males adjudicated on charges of intimate partner assault. Specifically, we examined whether explicit and implicit measures of IPV-related attitudes administered prior to treatment predicted attrition from court-mandated IPV treatment programs and criminal recidivism according to official reports of these outcomes over a 6-month period. Given prior findings using a different sample (Eckhardt et al., 2012), we hypothesized that male participants' reports of IPV perpetration prior to study involvement would be positively associated with 1) violence-related attitudes as assessed by the IAT (but not by explicit measures), and 2) IAT-assessed attitudes linking violence and females. We further hypothesized that 3) IAT-assessed attitudes favoring violence would be associated with adverse outcomes at 6-month follow-up, including a) low treatment compliance and b) high recidivism. We expected explicit measures of IPV-related attitudes to be unrelated to study outcomes. We did not propose a priori hypotheses regarding the relationships among gender-evaluation or gender-violence attitudes and treatment outcomes due to the limited number of prior studies examining associations among these constructs.

Method

Participants

Twenty-nine males were identified by probation officers during intake and referred to participate in the study being conducted at the Marion County probation department in Indianapolis, IN. Eligible participants were consenting adults adjudicated on a domestic violence-related offense involving an intimate partner. Three individuals opted not to participate in the study, citing limited available time, resulting in a final sample size of 26 participants. No females presented to probation orientation for an IPV-related offense during the study enrollment period. All males were informed that participation was entirely voluntary and would have no impact on legal involvement. Participants received \$20 compensation for the 1-hour session.

Participants were, on average, 32.2 years old ($SD = 12.5$ years). The average relationship length was 6.9 ($SD = 7.2$) years. Eight (30.7%) participants had not completed high school, seven (26.9%) had graduated from high school or earned a GED, and 11 (42.3%) had completed educational training beyond high school. Fifteen (57.7%) participants were Caucasian and the remaining 11 (42.3%) participants were African American.

Procedure

Recruitment and assessment—The Marion County Probation Department scheduled all new IPV cases for orientation on the same day each week between April and October of 2010. Eligible participants completed mandatory probation procedures before being offered the opportunity to participate in the current study. A researcher approached potential participants and identified himself as a university, rather than probation, employee. Interested participants signed an informed consent agreement and then completed assessment measures, including a sociodemographic questionnaire and the *Revised Conflict Tactics Scale* (CTS2; Straus et al., 1996) to assess physical (12-items) and verbal/

psychological (8-items) IPV perpetration ($\alpha = .79$) and victimization ($\alpha = .84$) within the previous year. Participants responded verbally using a 7-point Likert scale to rate the frequency of occurrence for each item.

Explicit attitudes—The pre-treatment assessment battery included two additional measures to assess explicit attitudes toward and acceptance of violence against female partners. Participants verbally responded to items on both measures using a 5-point Likert scale ranging from “strongly agree” to “strongly disagree.”

The 35-item *Safe At Home Scale* (SAH; Begun et al., 2003) is a measure of IPV-related readiness to change. Items focus on respondents’ attitudes toward relationship conflict, attitudes toward women, and general attitudes toward changing abusive behavior. The SAH consists of separate subscales for Precontemplation (e.g., “It’s her fault I act this way when we disagree”), Contemplation (e.g., “I want to do something about my problem with conflict”), and Action (e.g., “Even though I get angry, I know ways to keep from losing control”). The scale also provides a Readiness to Change index (RCI: Contemplation + Action – Precontemplation), which reflects attitudes about the violence as well as the need to remain violent or non-violent. The SAH possesses strong psychometric properties ($\alpha = .67 - .87$; Eckhardt & Utschig, 2007) and has demonstrated both concurrent and predictive validity among IPV samples as stage-based subscales were related to attributions and minimization of violence, denial of responsibility, and self-efficacy in the expected directions at both intake as well as a post-treatment follow-up (Begun et al., 2003).

The Outcome Expectancies for Partner Abuse Scale (OEPA; Meis, Murphy, & Winters, 2010) produces subscale scores for positive (13 items; $\alpha = .83$) and negative (11 items; $\alpha = .70$) expectancies about the consequences of perpetrating partner violence (e.g., Angry words help me get what I want; If I am aggressive or violent, my partner may try to get revenge). Meis and colleagues (2010) describe these expectancies as valenced attitudes about the use of violence in close relationships, with high positive outcome expectancies reflecting the attitude that violence may be beneficial and negative outcome expectancies suggesting the attitude that violence may be harmful or counterproductive to individual or relationship goals. Both subscales of this measure have demonstrated good convergent and discriminant validity among IPV perpetrators with strong correlations on subscales of the Revised Conflict Tactics Scale (Straus, Hamby, Boney-McCoy, & Sugarman, 1996), the State Trait Anger Expression Inventory (Spielberger, 1988), as well as self and partner reported legal outcomes (Meis et al., 2010).

Implicit attitudes—The computerized *implicit association test* (IAT; Greenwald, McGhee, & Schwartz, 1998) is a response-time task that requires participants to strike different keyboard keys to first classify a series of stimuli word using an initial pair of target contrasts (e.g., cat and dog). In a second block of 20 trials, participants are asked to do the same with a new set of stimuli and attribute contrasts (e.g., bad and good). Participants are then asked to complete a set of 20 practice trials in which the contrasts are paired before completing a set of 40 combined trials (cat/bad and dog/good). Participants then complete one more block of 20 single classification choices with the attribute exemplars in a revised order on the screen (e.g., good then bad) before completing a set of 20 practice trials and a

block of 40 more combined trials (cat/good, dog/bad). Participants receive immediate feedback on their responses with a large red X in the center of the screen for incorrect responses and a large green checkmark for correct responses. Participants are forced to enter the correct choice before advancing to the next trial. Stronger attitudes are inferred from faster responses during the block containing the target-attribute combination.

Participants in the current study completed three different IATs designed to assess participants' implicit attitudes towards IPV-related constructs. These IATs were previously shown to differentiate between males with a history of IPV mandated to attend a treatment program and a comparison sample of males without a history of IPV (Eckhardt et al., 2012). The first IAT was designed to assess the participant's attitudes toward violence in general. They were given terms associated with good/bad and violence/non-violence contrasts. The second IAT called upon the participants to classify stimulus words as good/bad and female/male to determine attitudes toward women. The final IAT combined violence and gender items to assess implicit associations between violence and women. See Table I for all stimulus terms. All trials of the combined tasks evidenced high internal consistency ($\alpha = .93-.97$). Higher scores on these tasks represent the constellation of *prosocial* associations including, 1) negative attitudes toward violence, 2) positive attitudes toward women, and 3) beliefs consistent with an association between women and non-violence.

Treatment compliance and recidivism—Follow-up data regarding treatment outcomes were retrieved from a manual search of on-site electronic probation files. Research personnel were given full access to the files of each participant 6 months after the initial intake. Follow-up data beyond six months were disregarded.

Treatment compliance was assessed as a single, dichotomous variable. A participant who had attended treatment sessions regularly and had either completed, or was on-track to complete, a mandated abuser intervention program was categorized as *treatment compliant*. Participants who opted to prematurely terminate, were terminated from treatment for absenteeism or rule violation, absconded or eloped from probation, or had probation revoked for any reason was categorized as *treatment non-compliant*. Twelve (46.2%) participants were treatment compliant at the 6-month follow-up.

Recidivism was also coded as a single, dichotomous variable. Participants who had been arrested during the 6-month follow-up period for violating probation or subsequent criminal activities were identified as having recidivated. Participants who had not been rearrested, even if they had minor probation violations or had been temporarily removed from treatment, at the time of follow-up were identified as not having recidivated. Ten (38.5%) participants had recidivated at the 6-month follow-up. Of these, four re-offenders were arrested for an IPV-related charge, including stalking, confinement, harassment, violation of a protection order, battery, or assault.

Data Analysis

Each IAT trial produced a measurement of response latency in milliseconds. Greenwald, Nosek, and Banaji (2003) compared six algorithms for preparing IAT data for analysis and concluded that each has inherent benefits with no clearly superior preparation method. In the

current study, error trial latencies were retained. This method of addressing error trials using built-in error penalties proved superior to calculating artificial error penalties. Further, as the benefit of eliminating latencies below 400 ms produces such insignificant gains as to be considered a “questionable” strategy, we retained these values as well (Greenwald et al., 2003, p. 213). Latencies larger than 10,000 milliseconds were eliminated. The first two trials of each block were retained.

Latency measures were used to determine implicit preferences for each of the three evaluative pairings by calculating the IAT D , a statistic with a range of -2.00 to 2.00 similar to the effect size d statistic (Greenwald et al., 2003). IAT D scores were calculated by dividing the difference in response latencies for two conditions (e.g. violence good/peaceful bad; violence bad/peaceful good) by the standard deviation of all response latencies across conditions. Small, medium, and large IAT effects parallel Cohen's (1988) values of .2, .5, and .8, respectively.

We first present data pertaining to general trends in response rates across the sample, and then describe associations between individual implicit attitudes and intake measures of IPV related constructs during the year prior to treatment. We then present effect sizes for associations between IAT scores and treatment compliance/outcome variables.

Results

Participants reported a moderate frequency of physical IPV perpetration ($M = 2.58$, $SD = 2.53$) and verbal IPV perpetration ($M = 2.00$, $SD = 1.39$) in the year prior to treatment. Seven participants (26.9%) denied their criminal charges and reported having perpetrated no physical IPV, two participants (7.7%) denied any perpetration of verbal aggression, and 1 participant (3.8%) reported perpetrating no physical or verbal aggression. Participants reported comparable physical and verbal victimization ($M = 3.00$, $SD = 2.64$; $M = 2.12$, $SD = 1.24$, respectively). Six (23.1%) denied physical, four (15.4%) denied verbal, and three (11.5%) denied any IPV victimization. Physical IPV was largely bidirectional, based upon the self-report of male participants, with 19 (73.1%) participants reporting both perpetration and victimization and 3 (11.5%) participants reporting neither. Similar results were found with regard to verbal IPV, with 23 (88.5%) participants reporting both perpetration and victimization, and one (3.8%) reporting neither perpetration nor victimization of verbal IPV.

IAT intercorrelations

While the attitudes toward violence IAT was not significantly associated with other IAT measures, the attitudes toward gender and gender violence pairing IAT were significantly intercorrelated ($r = 0.49$, $p = .01$). This latter correlation indicates that males who associate females with violence are also likely to negatively evaluate females and that males who associate females with non-violence also evaluate them more positively than their counterparts.

Violence IAT

Participants responded significantly more rapidly to violence/negative and nonviolence/positive trials ($M = 904.91$, $SD = 425.92$) than violence/positive and nonviolence/negative

trials ($M = 1700.21$, $SD = 875.84$), $t(48) = -4.08$, $p < .001$. Only two participants (8.0%) responded more rapidly to items in which violence was paired with positive rather than negative terms. In this sample of partner violent men, there was a strong preference for non-violence over violence, $D = 0.82$, $SD = 0.55$.

As seen in Table 2, scores on the attitudes toward violence IAT were associated with self-reported pretreatment IPV victimization, with the relationship between the D -score on the violence evaluation IAT and *verbal* IPV victimization significant and negative ($r = -0.41$, $p = .04$). This finding suggests that males who experience more verbal aggression from their partner also evaluate violence more positively. Further, attitudes toward violence IAT scores shared marginally significant relationships with composite measures of both *physical* IPV victimization ($r = -0.37$, $p = .07$) and perpetration ($r = -0.36$, $p = .08$). Thus, a greater preference for violence-good pairings was marginally related to more frequent physical IPV perpetration and victimization, partially supporting hypothesis 1.

There was a statistically significant difference in attitudes toward violence IAT scores between those who reoffended during the 6-month follow-up period ($M = 0.54$, $SD = 0.61$) and those who did not ($M = 1.01$, $SD = 0.42$), $t(23) = 2.25$, $p = .04$, $d = 0.92$. There was also a significant difference on the violence IAT between participants who were in compliance with treatment after 6 months ($M = 1.08$, $SD = .30$) and those who were not ($M = 0.59$, $SD = 0.63$), $t(22) = -2.32$, $p = .03$, $d = -0.95$. Thus, participants who were non-compliant with treatment and had reoffended demonstrated a lower implicit preference for non-violence than their compliant and non-reoffending counterparts, offering support for hypotheses 3a and 3b (Figures 1 and 2).

Gender IAT

There was no significant difference in responses to female names with positive evaluation terms (and male names with negative terms) ($M = 1161.32$, $SD = 589.17$) and responses to female names with negative terms (and male names with positive terms) ($M = 1219.18$, $SD = 632.79$), $t(50) = 0.34$, $p = 0.74$. The IAT effect ($D = 0.15$, $SD = 0.47$) was very small. There was no evidence of preferences toward males or females in the current sample. IAT results indicated that nine participants (34.6%) thought more positively about males than females. The gender IAT was not significantly related to measures of pre-treatment IPV perpetration or victimization. Similarly, there were no significant differences on gender IAT scores between those who had recidivated ($M = 0.25$, $SD = 0.58$) and those who had not ($M = .07$, $SD = 0.37$), $t(24) = -0.90$, $p = .38$, $d = -.36$, and those who were in compliance with treatment after the first 6 months ($M = 0.02$, $SD = 0.42$) and those who were not ($M = .24$, $SD = 0.51$), $t(23) = 1.16$, $p = .26$, $d = 0.47$. It is worth noting that, despite non-significant findings, the small-to-medium effect sizes indicate that those who had reoffended or were not in compliance with treatment after 6 months had more positive evaluations of female names in comparison to their counterparts.

Gender-Violence IAT

There was no significant difference in responses to trials in which females and violence were paired ($M = 1097.61$, $SD = 494.00$) relative to trials when female and non-violent

terms were paired ($M = 1158.83$, $SD = 608.52$), $t(48) = 0.35$, $p = 0.73$. Eleven participants (44.0%) demonstrated a greater association between females and violence than females and non-violence. Participants in the current study did not associate women with violence more than nonviolence, $D = -.04$, $SD = 0.40$. Hypothesis 2 was disconfirmed as implicit associations between gender and violence did not share a significant relationship with any pretreatment IPV perpetration or victimization variables.

There was no statistically significant difference on the gender-violence IAT between those who reoffended ($M = 0.10$, $SD = 0.40$) and those who did not ($M = -0.13$, $SD = 0.38$) at the 6 month follow-up, $t(23) = -1.48$, $p = .15$, $d = -.06$. There was a significant difference in implicit associations between those in compliance with treatment ($M = -0.25$, $SD = 0.34$) and those not in compliance ($M = 0.11$, $SD = 0.37$), $t(22) = 2.50$, $p = .02$, $d = 1.02$. The large effect size indicates that males who were not in compliance with treatment associated women with non-violence more so than violence.

Explicit Measures

Associations among measures of explicit attitudes, treatment outcomes, pre-treatment IPV, and implicit attitudes were also evaluated. Participants who reported greater negative expectancies associated with IPV were more likely to be in compliance with treatment at the 6-month follow-up, $t(23) = -1.95$, $p = .06$. No other compliance or recidivism group differences approached significance on explicit measures of positive expectancy, negative expectancy, or readiness to change. There were no significant associations among explicit measures and self-reported IPV perpetration or victimization. Additionally, no relationships were detected between measures of explicit and implicit attitudes.

Discussion

The present study sought to examine the relative contributions of implicit versus explicit attitudes as measured by the IAT in predicting treatment outcomes among a sample justice-involved male IPV offenders. As hypothesized, the study found that implicit attitudes towards violence predicted higher attrition and increased criminal recidivism, whereas explicit attitudes were inconsistently related to treatment outcomes. In keeping with existing research comparing implicit attitudes among IPV offenders to non-offenders (e.g., Eckhardt et al., 2012), this forensic sample of partner violent offenders demonstrated general disapproval of violence, egalitarian attitudes toward gender, and no significant implicit associations between women and violence. Despite participants' general congruence with societal norms favoring nonviolence (i.e., Felson, Ackerman, & Yeon, 2003), males in this study who exhibited IAT responses biased towards violence-related constructs were more likely to be noncompliant with court-mandated interventions and more likely to be criminally involved at follow-up. These findings are reviewed in more detail below.

Results supported hypothesis 1, but not 2, as implicit attitudes toward violence, rather than implicit attitudes toward women or associations between women and violence, were the only implicit measure associated with pretreatment IPV perpetration and victimization. This relationship was in the expected direction and indicated that greater reports of violence perpetration or victimization in one's relationship were associated with implicit approval of

violence. There is some evidence to suggest that elements of cognitive dissonance may alter one's perception of violence while involved in a violent relationship (Williams & Frieze, 2005, Johnson, 1995). Alternatively, males who approve of the use of violence may select into and maintain relationships in which violent behavior is accepted. Further longitudinal study would be required for a greater understanding of the dynamic nature of implicit attitudes toward violence and how they may be influenced by or exert influence over acts of IPV. Future treatment outcome studies of intervention programs for IPV perpetrators may benefit from the inclusion of implicit measures that assess attitudes toward violence. This is particularly important given the ease with which an offender can intuitively falsify explicit measures to produce the appearance of non-violent cognitive and behavioral change.

Similarly, implicit attitudes toward violence were associated with treatment outcomes such that more positive implicit attitudes toward non-violence predicted treatment compliance and reduced recidivism, offering support for our hypotheses. Participants with more favorable attitudes toward violence may be both more prone to engage in violent and aggressive criminal activities that result in frequent legal involvement, and more resistant to behavior change than individuals with stronger implicit preferences for non-violence. Certainly, reoffending and treatment non-compliance can be viewed as interdependent outcomes, as prior research has clearly established an important link between attrition from IPV treatment and subsequent rates of criminal recidivism (e.g., Bennett, Stoops, Call & Flett, 2007).

Analyses involving the gender-violence IAT revealed stronger associations between women and violence among treatment non-compliant, relative to treatment compliant, males. This finding may be interpreted through feminist and social learning theories of IPV. These models suggest that males, and partner violent males in particular, have learned via ongoing socialization processes of the legitimacy of coercive control tactics in close relationships as means to assert power and dominance. Such traditional gender stereotypes have been associated with partner violence using explicit measures, and these attitudes may hold true for implicit assessment as well (Ehrensaft & Vivian, 1999; Mihalic & Elliott, 1997; O'Neil, 1981). While pretreatment IPV was independent of scores on the gender-violence IAT, the association between gender and violence shared a strong relationship with treatment outcome such that males who held more traditional gender attitudes were less likely to comply with treatment. Possessing traditional gender-role attitudes may have interfered with the ability to remain motivated and compliant with treatment, as many intervention programs tend to discourage traditional or misogynistic views through the promotion of egalitarian values (Murphy & Eckhardt, 2005).

Explicit attitudes toward IPV-related constructs were inconsistently associated with study outcomes. On the expectancies measure, participants who reported negative expectancies toward IPV perpetration were more treatment compliant during the follow-up assessment than individuals scoring low on this measure. However, higher positive expectancies toward IPV were not associated with IPV perpetration or outcomes related to IPV treatment. For the SAH readiness to change measure, we found no significant associations between participants' attitudes toward IPV and IPV-related change and outcomes of IPV treatment. These data suggest the importance of combining explicit and implicit measures to develop

theoretically and practically comprehensive tools to aid in treatment planning and risk assessment.

Models of cognitive change exist for both implicit and explicit attitudes, focusing on associative and propositional processes, respectively. Methods of changing both implicit and explicit attitudes are described in many dual processes models, including the Associative-Propositional Evaluation Model (APR; Gawronski & Bodenhausen, 2006). Explicit attitudes are susceptible to changes in conscious evaluations, generated propositions or options, and behavioral consistency that are among the cornerstones of skills and change techniques utilized in current BIPs. Implicit attitude change has been linked to changing evaluative pairings through repeatedly pairing a stimulus with something that is negative or positive in a number of paradigms that resemble classical conditioning (e.g. Hermans, Baeyens, Lamote, Spruyt, & Eelen, 2005). Changes in automatic pattern activation has also been shown to modify implicit attitudes toward stimuli that are associated with both positive and negative evaluations by relying upon context cues evoke the more desirable association with the stimulus (e.g. Mitchell, Nosek, & Banaji, 2003). Changes in one process are likely to have a corresponding effect on the parallel process. More comprehensive study is required to provide IPV intervention programs with specific, empirically supported methods to modify implicit attitudes. Intervention programs are advised to consider supplementing their current curriculum with methods that promote implicit in addition to explicit cognitive change once such data become available.

Limitations

The current study was limited by a small sample size and constricted inclusion criteria, both of which limit our ability to generalize the current results to the larger population of IPV perpetrators. With an increased likelihood of Type II error, the power of our statistical tests to detect effects between outcomes of interest and either implicit or explicit measures was similarly limited. The small sample size further limited our ability to conduct more sophisticated analyses, such as controlling for prior violence in multivariate analyses or examining potential demographic moderators. While the IATs used in this study have been previously shown to differentiate between males with and without a history of IPV (Eckhardt et al., 2012), more data are needed to adequately establish the validity of the IPV-related IATs used in the present study. Finally, it is important to note that the recidivism outcome used in this study referenced general criminal recidivism and not IPV-specific reoffending. As this study represented a preliminary investigation of the role of implicit attitudes in the prediction of relevant treatment outcomes, it was first important to empirically establish the utility of such research. The results suggest that these associations may indeed be clinically relevant, and additional research should be conducted with a larger sample of IPV offenders and with more specific indicators of IPV-related outcomes.

Further, the current investigation collected only objective outcome data reported to the probation department by justice and treatment personnel within 6-months of study enrollment. Implicit and explicit measures may perform differently with more sensitive indicators of partner violent behavior. Future study designs should consider diverse types of

treatment outcome data and collateral reports of IPV frequency and severity should be collected over a longer follow-up period.

The examination of clusters of implicit attitudes may provide further information about IPV protective and risk factors (e.g., alcohol use, psychopathy, history of antisocial behavior, etc.). Indeed, social control theories associate criminal offending with weak normative standards or societal behavioral constraints. Thus, those with a higher “stake in conformity” (e.g., employed or married) have more to lose from persistent legal involvement and are, therefore, less likely to recidivate and more likely to comply with legal mandates (Sherman et al., 1992). Implicit attitudes may detect a broader pattern of deviance or general failure to conform to societal standards rather than specific tendencies to recidivate or drop out of treatment.

Conclusions

In conclusion, the current investigation supports the importance of assessing implicit attitudes in IPV research and intervention. Implicit violence and gender-violence attitudes were significantly associated with recidivism and treatment compliance. Further research is required to determine the influence of implicit associations on IPV prediction and to adapt methods of implicit cognitive change to best serve the goals of intervention and prevention.

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References

- Beck, A. Cognitive therapy and the emotional disorders. International Universities Press; New York: 1976.
- Begun A, Murphy C, Bolt D, Weinstein B, Strodthoff T, Short L, Shelley G. Characteristics of the Safe at Home instrument for assessing readiness to change intimate partner violence. *Research on Social Work Practice*. 2003; 13:80–107. doi: 10.1177/1049731502238758.
- Bennett LW, Stoops C, Call C, Flett H. Program completion and re-arrest in a batterer intervention system. *Research on Social Work Practice*. 2007; 17:42–54. doi: 10.1177/1049731506293729.
- Bluemke M, Friedrich M, Zumbach J. The influence of violent and nonviolent computer games on implicit measures of aggressiveness. *Aggressive Behavior*. 2010; 36:1–13. doi:10.1002/ab.20329. [PubMed: 19859912]
- Brown A, Gray N, Snowden R. Implicit measurement of sexual associations in child sex abusers: Role of victim type and denial. *Sexual Abuse*. 2009; 21:166–180. doi:10.1177/1079063209332234. [PubMed: 19439764]
- Cohen, J. Statistical power analysis for the behavioral sciences. 2nd ed.. Erlbaum; Hillsdale, NJ: 1988.
- Davison GC, Robins C, Johnson MK. Articulated thoughts during simulated situations: A paradigm for studying cognition in emotion and behavior. *Cognitive Therapy and Research*. 1983; 7:17–39. doi: 10.1007/BF01173421.
- Dixon L, Graham-Kevan N. Understanding the nature and etiology of intimate partner violence and implications for practice and policy. *Clinical Psychology Review*. 2011; 31:1145–1155. doi: 10.1016/j.cpr.2011.07.001. [PubMed: 21851805]
- Dovidio, J.; Brigham, J.; Johnson, B.; Gaertner, S. Stereotyping, prejudice and discrimination.. In: Macrae, N.; Stangor, C.; Hewstone, M., editors. *Foundations of stereotypes and stereotyping*. Guilford Press; New York: 1996. p. 276-319.

- Eckhardt C, Barbour K, Davison G. Articulated thoughts of maritally violent and nonviolent men during anger arousal. *Journal of Consulting and Clinical Psychology*. 1998; 66:259–269. doi: 10.1037/0022-006X.66.2.259. [PubMed: 9583329]
- Eckhardt C, Dye M. The cognitive characteristics of maritally violent men: Theory and evidence. *Cognitive Therapy and Research*. 2000; 24:139–158. Doi: 10.1023/A:1005441924292.
- Eckhardt C, Murphy C, Whitaker D, Sprunger J, Dykstra R, Woodard K. The effectiveness of intervention programs for perpetrators and victims of intimate partner violence: Findings from the Partner Abuse State of Knowledge Project. *Partner Abuse*. 2013; 4:175–195. doi: 10.1891/1946-6560.4.2.196.
- Eckhardt C, Samper R, Suhr L, Holtzworth-Munroe A. Implicit attitudes toward violence among male perpetrators of intimate partner violence: A preliminary investigation. *Journal of Interpersonal Violence*. 2012; 27:471–491. doi:10.1177/0886260511421677. [PubMed: 22333320]
- Eckhardt C, Utschig A. Assessing readiness to change among perpetrators of intimate partner violence: Analysis of two self-report measures. *Journal of Family Violence*. 2007; 22:319–330. doi:10.1007/s10896-007-9088-9.
- Ehrensaft M, Vivian D. Is physical aggression between dating partners related to their appraisals of coercive control? *Journal of Family Violence*. 1999; 14:251–266. doi:10.1023/A:1022862332595.
- Ellis, A. Reason and emotion in psychotherapy. 2nd ed.. Citadel Press; New York: 1994.
- Felson R, Ackerman J, Yeon S. The infrequency of family violence. *Journal of Marriage and Family*. 2003; 65:622–634. doi:10.1111/j.1741-3737.2003.00622.x.
- Gawronski B, Bodenhausen G. Associative and propositional processes in evaluation: An integrative review of implicit and explicit attitude change. *Psychological Bulletin*. 2006; 132:692–731. doi: 10.1037/0033-2909.132.5.692. [PubMed: 16910748]
- Gray N, MacCulloch M, Smith J, Morris M, Snowden R. Violence viewed by psychopathic murderers: Adapting a revealing test may expose those psychopaths who are most likely to kill. *Nature*. 2003; 423:497–498. doi:10.1038/423497a. [PubMed: 12774112]
- Gray N, Brown A, MacCulloch M, Smith J, Snowden R. An implicit test of the associations between children and sex in pedophiles. *Journal of Abnormal Psychology*. 2005; 114:304–308. doi: 10.1037/0021-843X.114.2.304. [PubMed: 15869360]
- Greenwald AG, Banaji MR. Implicit social cognition: attitudes, self-esteem, and stereotypes. *Psychological Review*. 1995; 102:4–27. doi: 10.1037/0033-295X.102.1.4. [PubMed: 7878162]
- Greenwald AG, McGhee DE, Schwartz JL. Measuring individual differences in implicit cognition: The implicit association test. *Journal of Personality and Social Psychology*. 1998; 74:1464–1480. doi: 10.1037/0022-3514.74.6.1464. [PubMed: 9654756]
- Greenwald AG, Nosek BA, Banaji MR. Understanding and using the Implicit Association Test: I. An improved scoring algorithm. *Journal of Personality and Social Psychology*. 2003; 85:197–216. doi: 10.1037/0022-3514.85.2.197. [PubMed: 12916565]
- Greenwald AG, Poehlman TA, Uhlmann EL, Banaji MR. Understanding and using the Implicit Association Test: III. Meta-analysis of predictive validity. *Journal of personality and social psychology*. 2009; 97:17–41. doi: 10.1037/a0015575. [PubMed: 19586237]
- Henning K, Holdford R. Minimization, Denial, and Victim Blaming by Batterers How Much Does the Truth Matter?. *Criminal Justice and Behavior*. 2006; 33:110–130. doi: 10.1177/0093854805282322.
- Hermans D, Baeyens F, Lamote S, Spruyt A, Eelen P. Affective priming as an indirect measure of food preferences acquired through odor conditioning. *Journal of Experimental Psychology*. 2005; 52:180–186. doi:10.1027/1618-3169.52.3.180.
- Holtzworth-Munroe A. Social skill deficits in maritally violent men: Interpreting data using a social information processing model. *Clinical Psychology Review*. 1992; 12:605–618. doi: 10.1016/0272-7358(92)90134-T.
- James, LR.; LeBreton, JM. Assessing the implicit personality through conditional reasoning. American Psychological Association; Washington, D.C.: 2012.
- Johnson M. Patriarchal terrorism and common couple violence: Two forms of violence against women. *Journal of Marriage and the Family*. 1995; 75:283–294. doi:10.2307/353683.

- Kaufman-Kantor, G.; Straus, MA. Response of victims and the police to assaults on wives.. In: Straus, MA.; Gelles, RJ., editors. *Physical violence in American families: Risk factors and adaptations to violence in 8,145 families*. Transaction Publishers; New Brunswick, NJ: 1990. p. 473-490.
- Meis L, Murphy C, Winters J. Outcome expectancies of partner abuse: Assessing perpetrator's expectancies and their associations with readiness to change, abuse, and relevant problems. *Assessment*. 2010; 17:30–43. doi:10.1177/1073191109343514. [PubMed: 19797325]
- Mihalic SW, Elliott D. A social learning theory model of marital violence. *Journal of Family Violence*. 1997; 12:21–47. doi:10.1023/A:1021941816102.
- Mitchell J, Nosek B, Banaji M. Contextual variations in implicit evaluation. *Journal of Experimental Psychology: General*. 2003; 132:455–469. doi:10.1037/0096-3445.132.3.455. [PubMed: 13678378]
- Murphy, C.; Eckhardt, C. *Treating the abusive partner: An individualized, cognitive-behavioral approach*. Guilford; New York: 2005.
- Nisbett RE, Wilson TD. The halo effect: Evidence for unconscious alteration of judgments. *Journal of Personality and Social Psychology*. 1977; 35:250–256. doi:10.1037/0022-3514.35.4.250.
- Nosek B, Smyth F. A multitrait multimethod validation of the implicit association test: Implicit and explicit attitudes are related but distinct constructs. *Journal of Experimental Psychology*. 2007; 54:14–29. doi:10.1027/1618-3169.54.1.14.
- Nunes K, Firestone P, Baldwin M. Indirect assessment of cognitions of child sexual abusers with the implicit association test. *Criminal Justice and Behavior*. 2007; 34:454–475. doi: 10.1177/0093854806291703.
- O'Leary, KD.; Woodin, EM. *Psychological and physical aggression in couples: Causes and interventions*. American Psychological Association; Washington, DC: 2009.
- O'Neil JM. Male sex role conflicts, sexism, and masculinity: Psychological implications for men, women, and the counseling psychologist. *Counseling Psychologist*. 1981; 9:61–80. doi: 10.1177/001100008100900213.
- Polaschek D, Calvert S, Gannon T. Linking violent thinking: Implicit theory based research with violent offenders. *Journal of Interpersonal Violence*. 2009; 24:75–96. doi: 10.1177/0886260508315781. [PubMed: 18378809]
- Richetin J, South-Richards D, Mason G. Predictive validity of IAT aggressiveness in the context of provocation. *Social Psychology*. 2010; 41:27–34. doi:10.1027/1864-9335/a000005.
- Robertson K, Murachver T. Correlates of partner violence for incarcerated women and men. *Journal of Interpersonal Violence*. 2007; 22:639–655. doi:10.1177/0886260506298835. [PubMed: 17429027]
- Schafer J, Caetano R, Clark C. Rates of intimate partner violence in the United States. *American Journal of Public Health*. 1998; 88:1702–1704. doi:10.2105/AJPH.88.11.1702. [PubMed: 9807541]
- Sherman L, Smith D, Schmidt J, Rogan D. Crime, punishment, and stake in conformity: Legal and informal control of domestic violence. *American Sociological Review*. 1992; 57:680–690. doi: 10.2307/2095921.
- Spielberger, C. *Manual for the State-Trait Anger Expression Inventory*. Psychological Assessment Resources; Odessa, FL: 1988.
- Stith S, Smith D, Penn C, Ward D, Tritt D. Intimate partner physical abuse perpetration and victimization risk factors: A meta-analytic review. *Aggression and Violent Behavior*. 2004; 10:65–98. doi:10.1016/j.avb.2003.09.001.
- Straus M, Hamby S, Boney-McCoy S, Sugarman D. The revised Conflict Tactics Scales (CTS2): Development and preliminary psychometric data. *Journal of Family Issues*. 1996; 17:283–316. doi:10.1177/019251396017003001.
- Uhlmann E, Swanson J. Exposure to violent video games increases automatic aggressiveness. *Journal of Adolescence*. 2004; 27:41–52. doi:10.1016/j.adolescence.2003.10.004. [PubMed: 15013259]
- Ward T. Sexual offenders' cognitive distortions as implicit theories. *Aggression and Violent Behavior*. 2000; 5:491–507. doi:10.1023/A:1009534109157.
- Ward T, Hudson SM. Sexual offenders' implicit planning: A conceptual model. *Sexual Abuse: A Journal of Research and Treatment*. 2000; 12:189–202. doi: 10.1023/A:1009534109157. [PubMed: 10904991]

- Williams S, Frieze I. Patterns of violent relationships, psychological distress, and marital satisfaction in a national sample of men and women. *Sex Roles*. 2005; 52:771–784. doi:10.1007/s11199-005-4198-4.
- Wooldredge J, Thistlewaite A. Reconsidering domestic violence recidivism: Conditioned effects of legal controls by individual and aggregate levels of stake in conformity. *Journal of Quantitative Criminology*. 2002; 18:45–70. doi:10.1023/A:1013292812895.
- Yllo, K.; Straus, M. Patriarchy and violence against wives: The impact of structural and normative factors.. In: Straus, MA.; Gelles, RJ., editors. *Physical violence in American families*. Transaction; New Brunswick, NJ: 1990. p. 383-399.

Figure 1.

IAT D-scores for non-violence preference among treatment compliance groups on the attitudes toward violence Implicit Association Test. IAT = Implicit Association Test; Error bars represent standard error of the mean.

Figure 2. IAT D-scores for non-violence preference among reoffender groups on the attitudes toward violence Implicit Association Test. IAT = Implicit Association Test; Error bars represent standard error of the mean.

Table 1

Implicit Association Test Stimulus Words

<u>Attribute Contrasts</u>		<u>Target Contrasts</u>	
Female (Male)	Good (Bad)	Non-Violence (Violence)	
1. Emily (Peter)	1. Super (Nasty)	1. Quiet (Hit)	
2. Anna (Robert)	2. Celebrate (Awful)	2. Compromise (Force)	
3. Michelle (Daniel)	3. Happy (Humiliate)	3. Cool (Fight)	
4. Mary (David)	4. Beautiful (Evil)	4. Calm (Attack)	
5. Rebecca (Paul)	5. Laughter (Failure)	5. Talk (Assault)	
6. Jennifer (Ben)	6. Wonderful (Agony)	6. Peaceful (Destroy)	
7. Julia (John)	7. Friendly (Horrible)	7. Serene (Power)	
8. Susan (Jeffrey)	8. Joyful (Painful)	8. Easy (Battle)	

Table 2
Bivariate Intercorrelations between Implicit Attitudes, Explicit Measures, and Pretreatment IPV

Variable	1	2	3	4	5	6	7	8	9	10	11	12
Implicit Attitudes												
1. Violence Evaluation	--	-.32	-.20	-.28	-.31	-.36*	-.41**	-.31	-.37*	.07	.13	-.08
2. Gender Evaluation		--	.49**	.05	.30	.22	.53	.35	.36	-.22	-.04	-.05
3. Gender-Violence			--	-.06	-.09	-.10	.06	.03	.04	-.12	-.07	.13
IPV Perpetration												
4. Verbal				--	.34*	.69**	.14	.19	.19	-.32	.06	-.16
5. Physical					--	.92**	.16	.39**	.35*	.02	-.22	-.11
6. Composite						--	.18	.38*	.35*	-.12	-.14	-.15
IPV Victimization												
7. Verbal							--	.60**	.80**	.15	-.18	.02
8. Physical								--	.96**	-.19	-.18	-.31
9. Composite									--	.67	.33	.26
Explicit Measure												
10. Negative Expectancies										--	-.21	.44**
11. Positive Expectancies											--	-.31
12. Readiness to Change												--

Note. IPV = Intimate Partner Violence;

* $p < .10$,

** $p < .05$.

Means and Group Differences on Implicit and Explicit Measures

Note. IAT = Implicit Association Test.