Abstract

Prior research has demonstrated that perpetrators of intimate partner violence (IPV) display poorer performance than controls on neuropsychological tests of executive functioning (EF) and impulsivity (Imp). In a treatment-seeking sample of 80 partner-violent men, the current study examined EF and Imp as correlates of anger-reactivity, cognitive distortions, irrational beliefs, anger expression, anger control, hostility, and abusive relationship behavior. Executive functioning had significant inverse associations with cognitive distortions, irrational beliefs, and anger-reactivity assessed during anger induction using the Articulated Thoughts within Simulated Situations (ATSS) paradigm, and with global self-reports of anger expression and general hostility. Impulsivity was positively associated with cognitive distortions, irrational beliefs, and anger-reactivity on the ATSS. No significant associations were found between neuropsychological functioning and anger control or self-reported levels of physical assault and psychological aggression. Limitations in neuropsychological functioning among IPV perpetrators are associated with distorted cognitive processing of negative relationship stimuli and difficulties with anger reactivity, anger expression, and general hostility.

Keywords: IPV, Anger, Hostility, Executive Functioning, Impulsivity
Intimate partner violence is a profound public health and social problem. One common response involves psychosocial counseling interventions for perpetrators. Predominant intervention models rely heavily on an analysis of social, historical, and cultural factors that condone and support men's control and abuse of women in the domestic sphere (e.g., Pence & Paymar, 1993; reviewed by Saunders, 2008). Empirical reviews, however, indicate that these interventions have only modest efficacy in reducing violent behavior (Babcock, Greene & Robie, 2004; Murphy & Ting, 2010). As with most behavioral problems, biological and psychological factors may play important roles alongside socio-cultural influences. Thus, a broader, biopsychosocial understanding of IPV may help to expand available strategies for prevention and intervention.

Prior research has identified important neuropsychological correlates of IPV perpetration. One notable factor is head injury. An early clinical sample study found that 53% of male spouse abusers had histories of significant head injury compared to 25% of men in distressed, non-violent marriages and 16% of happily married controls (Rosenbaum et al., 1994). Subsequent studies by the same research team likewise found higher rates of head injury in male IPV perpetrators versus non-violent controls (46% versus 19% reported by Cohen, Rosenbaum, Kane, Warnken, & Benjamin, 1999 and 40% versus 10% reported by Cohen et al., 2003). In contrast, a study comparing African American men convicted of IPV to age- and socioeconomically-matched controls found no difference in overall prevalence rates of traumatic brain injury (Turkstra, Jones & Toler, 2003). IPV perpetrators, however, had sustained more severe head injuries, on average, and were more likely to have been injured as a result of physical assault. In addition, prospective analysis of head-injured men relative to men with orthopedic injuries demonstrated higher verbal aggression in the head-injured group (Warnken et al., 1994).
Although findings on head injury highlight the potential importance of brain functioning in IPV, detailed neuropsychological research is necessary to identify specific functional correlates. Using a diverse set of neuropsychological tests, Cohen and colleagues (1999) found a significant overall (multivariate) difference between IPV perpetrators and nonviolent men in discordant and satisfied marriages. Specifically, IPV perpetrators exhibited significantly poorer performance on tests of executive functioning, verbal functioning, learning, and memory, including the Wisconsin Card Sorting Test, WAIS-R Digit Symbol Test, Nonverbal Selective Reminding Test, and Warrington Recognition Memory Test for Words & Faces (Cohen et al., 1999). A subsequent study likewise revealed that IPV perpetrators exhibit poorer performance relative to controls on tests of executive functioning and attention (e.g., Digit Symbol Test and Stroop interference), and greater impulsivity as indicated by false alarms on a continuous performance test, errors on the Trail Making Test, response break errors on the Porteus Maze Test, greater variability on a motor timing task, and shorter latencies on a time estimation task (Cohen, et al., 2003). These findings produced the conclusion that frontal lobe dysfunction may increase risk for IPV. However, observed neuropsychological deficits are relatively mild and not present in all IPV perpetrators, underscoring the need to investigate individual differences in these functional domains.

In addition, the underlying mechanisms that can explain associations between neuropsychological factors and IPV are not well understood. From an information processing perspective (Holtzworth-Munroe, 2000), limitations in neuropsychological functioning may impair one’s ability to appraise interpersonal stimuli in an accurate and complete fashion, enhancing cognitive distortions and anger arousal in response to negative relationship events.
Thus, both theoretical and practical implications may depend upon a more careful analysis of the interface between neuropsychological processes, social cognition, and emotion.

IPV perpetrators display prominent cognitive distortions in response to aversive relationship events. These distortions can be readily assessed by asking them to talk out loud during a relationship-relevant anger induction. Using this assessment paradigm, known as the Articulated Thoughts in Simulated Situations (ATSS: Davison, Robins & Johnson, 1983), Eckhardt, Barbour and Davison (1998) found that IPV perpetrators displayed considerably higher levels of cognitive distortions and irrational beliefs than non-violent comparison groups. While it is problematic, both logistically and ethically, to assess partner-violent men during actual instances of partner aggression, the ATSS procedure provides a close approximation of contextual triggers for relationship conflict and accompanying anger arousal.

The goal of the current investigation was to explore mechanisms that may link neuropsychological functioning impairments to IPV. Specifically, the study examined whether neuropsychological deficits are associated with how partner-violent men react to aversive relationship stimuli, both affectively and cognitively, using both verbal and emotional reactions to simulated aversive relationship situations with the ATSS as well as general self-report measures of anger and hostility. The first aim was to examine the extent to which performance on measures of executive functioning and impulsivity can predict levels of anger reactivity and cognitive distortions displayed during the ATSS procedure. Poorer neuropsychological performance in these domains was hypothesized to predict higher levels of articulated cognitive distortions and irrational beliefs and greater anger-reactivity (assessed as the change in state anger during the ATSS procedure).
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A second aim was to examine whether performance on tasks assessing executive functioning and impulsivity is associated with global self-report measures anger expression, anger control, and general hostility among partner-violent men. Once again, poorer performance in these domains was hypothesized to be positively correlated with anger expression and hostility, and inversely correlated with anger control. Finally, the third aim was to examine whether performance on measures of executive functioning and impulsivity is associated with self-reports of physical and emotional abuse within a sample selected for the presence of relationship violence. Relatively poorer performance in these neuropsychological domains was hypothesized to be associated with higher levels of self-reported physical assault and psychological aggression.

Method

Participants

Eighty men participated. All were presenting for court-ordered counseling services at a community agency in Baltimore, Maryland. All participants were at least 18 years old and had been referred after engaging in physical aggression toward a female relationship partner. Participants had a mean age of 34.2 years ($SD = 10.48$) and a mean formal education level of 11.48 years ($SD = 1.86$). Their average reading level fell in the 4th to 5th grade range as assessed by the Wide Range Achievement Test ($M = 4.85$, $SD = 2.31$). Regarding race, 75% ($N = 60$) self-identified as African-American or Black, 21.3% ($N = 17$) as White, 1.3% ($N = 1$) as Hispanic, 1.3% ($N = 1$) as Asian, and 1.3% ($N = 1$) as “Other.”

Measures

Assessment of Neuropsychological Functioning