SHORT REPORTS

Utilization of Emotion Cues in Male and Female Offenders With Antisocial Personality Disorder: Results From a Lexical Decision Task

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Antisocial personality disorder (ASPD) diagnoses have demonstrated good reliability and validity in male offenders. However, there is a paucity of research assessing utilization of emotion cues in ASPD individuals and the extent to which correlates of ASPD in males generalize to females. This investigation examined emotion utilization in incarcerated men and women with and without ASPD using a lexical decision task with emotional and neutral words. The performance of male offenders with ASPD was similar to that of male controls, whereas women with ASPD demonstrated greater emotional facilitation than female controls. Moreover, the number of violent crimes committed by female inmates with ASPD was related to emotion facilitation, suggesting a link between their sensitivity to emotion cues and antisocial behavior.

The criteria for antisocial personality disorder (ASPD) as specified in the Diagnostic and Statistical Manual of Mental Disorders (4th ed.; DSM–IV; American Psychiatric Association, 1994) include a pattern of criminal and impulsive behavior. Research has linked ASPD to pathological gambling (Hall et al., 2000; Steel & Blaszczynski, 1998), increased substance use (Compton et al., 2000; Muser et al., 2000), and neurological anomalies (Costa, Bauer, Kuperman, Porjesz, & O’Conner, 2000; Dinn & Harris, 2000; Raine, Lencz, Bihlre, LaCrosse, & Colletti, 2000) in primarily male samples. In addition, using self-report data, Krueger (1999) reported that ASPD is associated with a tendency to experience highly negative emotions. Thus, at least for males, ASPD appears to be a valid diagnostic category with important psychological and biological correlates.

However, scant research exists that examines these correlates in female offenders diagnosed with ASPD (e.g., Rutherford, Alterman, Cacciola, & Snider, 1995). In addition, investigators have yet to examine emotion processing of negative and positive cues in individuals diagnosed with ASPD using laboratory measures. Therefore, the current study sought to examine emotion processing using a lexical decision task in male and female offenders diagnosed with ASPD.

Lexical decision tasks involve classifying letter-strings as words or nonwords and may be used to assess utilization of emotional linguistic cues. In particular, normal participants identify emotional words more quickly than neutral words (i.e., demonstrate emotion facilitation; Challis & Crane, 1988; Graves, Landis, & Goodglass, 1981; Strauss, 1983). Moreover, individuals with highly emotional states often demonstrate emotion-congruent emotion facilitation on a lexical decision task with emotion words (Olafson & Ferraro, 2001).

Based on Krueger’s finding (1999), male and female offenders diagnosed with ASPD are predicted to demonstrate more emotion facilitation to the negative words than control participants. In addition, because ASPD is often comorbid with psychopathy, which affects performance on a lexical decision task (Williamson, Harpur, & Hare, 1991), we examined the influence of psychopathy on the association between ASPD and emotion facilitation on the lexical decision task.

Method

Participants

The participants in this study were 237 (121 Caucasian, 116 African American) male and 172 (95 Caucasian, 77 African American) female inmates residing at correctional institutions in Wisconsin. Inmates were excluded from participation if they were 45 or older, scored below the fourth-grade level on prison achievement tests, or had earned estimated WAIS–R (Wechsler Adult Intelligence Scale—Revised; Wechsler, 1981) scores that were less than 70 on the Shipley–Institute of Living Scale (Zachary, 1986).

Preliminary analyses indicated that antisocial individuals were significantly younger than nonantisocial individuals, $F(1, 413) = 15.43, p < .01$. In addition, antisocial individuals received significantly lower estimated WAIS–R scores, $F(1, 413) = 3.74, p = .05$, than control participants. No other main effects or interactions involving group were significant.

Stimulus Material

The stimuli consisted of 12 positive words, 12 negative words, 24 neutral words, and 48 nonwords and were grouped into four experimental
blocks—A, B, C, and D—each consisting of 3 positive, 3 negative, 6 neutral, and 12 nonwords. The positive and negative words differed significantly from the neutral words on emotionality, and the positive, negative, and neutral words differed significantly from each other on goodness/valence (Rubin & Friendly, 1986). The word groups were matched on frequency, pronounceability, length, number of letters, number of syllables, concreteness, and imagery (Kučera & Francis, 1967; Pavio, Yuille, & Madigan, 1968). Typically, changing two letters for each of the words used in the experiment resulted in the 48 pronounceable nonwords.

Procedure
Participants gave informed consent and were interviewed and rated on the DSM–IV ASPD criteria and the Psychopathy Checklist—Revised (PCL–R; Hare, 1991). ASPD was assessed using the criteria set forth in the DSM–IV during an interview conducted by advanced graduate students. All inmates not meeting the DSM–IV criteria for ASPD were placed in the control group. This procedure resulted in 72 Caucasian men with ASPD, 83 African American men with ASPD, 54 male Caucasian controls, 40 male African American controls, 40 Caucasian women with ASPD, 32 African American women with ASPD, 55 female Caucasian controls, and 45 female African American controls.

Psychopathy was assessed using the PCL–R. Raters scored each item of the PCL–R with 0, 1, or 2 to indicate increasing similarity between the item description and information gathered from the semi-structured interview and review of prison files. Summed together, these ratings yield a PCL–R total score ranging from 0 to 40. Raters also recorded the number of criminal charges reported by the participants during the interview and/or recorded in the participant’s prison file. Violent crimes included the following offenses: robberies, assaults, murders, weapons, kidnapping, and sexual charges.

Within 3 weeks, a tester, who was unaware of group membership of the participants, administered the lexical decision task in a private room within the institution. Each participant was seated in front of a computer monitor and read the task instructions on the computer screen. Participants were instructed to indicate as quickly as they could, without making mistakes, whether the presented stimulus was a word or a nonword. The four experimental blocks were presented in the following order: A, B, C, D, B, A, D, C. Participants alternated their response hand after each block, so that each experimental block was completed once with the right hand and once with the left hand.

Results
Preliminary Analyses
Before evaluating our hypotheses, we evaluated potential group differences in reaction time (RT) and overall accuracy using two multivariate analyses of variance (MANOVAs). In the first, we analyzed RT to positive, negative, neutral, and pseudowords, with group (antisocial, controls), gender (female, male), and race (Caucasian, African American) as the between-participants variables.

The second MANOVA was identical except that we analyzed accuracy instead of RT. Examination of Hotelling’s trace revealed no significant group differences in RT or accuracy. Overall accuracy was 89%.

Emotion Analyses
Using only RT values from correct responses, we computed emotion facilitation by subtracting the mean RT for the emotional (positive, negative) words from the mean RT for the neutral words. Thus, higher reaction times indicate greater facilitation. A 2 (Group: antisocial, controls) × 2 (Gender: female, male) × 2 (Race: Caucasian, African American) × 2 (Hand: left, right) × 2 (Valence: positive, negative) mixed-model analysis of covariance (ANCOVA) was conducted, with group, gender, and race as the between-subjects variable, response hand and valence as the within-subjects variables, and estimated WAIS–R scores and age as covariates. This analysis yielded a significant main effect for group, F(1, 410) = 6.62, p < .01, with antisocial individuals (M = 31.35, SE = 2.45) demonstrating more emotion facilitation than controls (M = 22.35, SE = 2.49). In addition, the Gender × Group interaction was significant, F(1, 410) = 7.45, p < .01, indicating that women with ASPD (M = 37.34, SE = 4.01) demonstrated more facilitation to the emotional words than female controls (M = 18.80, SE = 3.44), t(170) = 3.85, p < .001, whereas male controls and antisocials did not differ, t(244) < 1.0, ns. This result is shown in Figure 1. Further analyses indicated that women with ASPD demonstrated significantly more facilitation to both positive, t(170) = 3.42, p < .01, and negative, t(170) = 2.06, p < .05, words relative to control participants (see Figure 1). No other main effects or interactions involving group were significant.

We next conducted a similar analysis that used PCL–R scores as well as age and estimated WAIS–R scores as covariates. This analysis yielded the same results as the primary analysis.

Supplemental Analyses
The heightened sensitivity to emotional cues demonstrated by women with ASPD led us to examine the extent to which emotion facilitation on a lexical decision task moderated their violent criminal behavior. On the basis of Quay’s (1987) characterization of “neurotic delinquents” as individuals whose criminal activity is driven by their heightened emotionality, we predicted that female offenders with ASPD would commit more crimes as their sensitivity to emotional cues (as assessed with the lexical decision task) increased, whereas controls would commit less crimes. Conducting a hierarchical regression analysis, we entered emotion facilitation scores, ASPD group, and the interaction of emotion facilitation and ASPD group at Steps 1, 2, and 3, respectively. Overall, the equation accounted for 11% of the total variance in the number of violent crimes, F(3, 132) = 5.15, p < .01. This analysis also indicated that the commission of violent crimes was significantly correlated with ASPD in women (r = .30, p < .02) but not with control individuals (r = −.17, ns). Moreover, the ASPD × Emotion Facilitation interaction was significant, sr2 = .06, F(1, 132) = 8.13, p < .01. As predicted, this interaction indicated that as emotion facilitation increased, women diagnosed with ASPD committed more violent crimes, whereas control individuals committed fewer violent crimes. This finding is shown in Figure 2.

Discussion
Contrary to expectation, male offenders with and without ASPD demonstrated comparable emotional facilitation to both the negative and positive words in a lexical decision task. This finding contrasts with those obtained with Caucasian psychopathic offenders who displayed significantly less emotion facilitation on a lexical decision task (Lorenz & Newman, 2002a). Resembling the current results, however, African American psychopathic and non-psychopathic offenders did not differ on this lexical decision task.
Lorenz & Newman, 2002b). Although psychopathy is not the focus of this report, in conjunction with past results, this investigation suggests that deficits in emotion facilitation are relatively specific to male Caucasian psychopaths.

Partially consistent with our prediction, incarcerated Caucasian and African American women diagnosed with ASPD demonstrated significantly higher levels of facilitation to negative words than inmates without ASPD. However, the heightened sensitivity

\begin{figure}
\centering
\includegraphics[width=\textwidth]{positive_negative_facilitation.png}
\caption{Positive and negative facilitation on the lexical decision task by African American and Caucasian female offenders with and without antisocial personality disorder (ASPD). RT = reaction time.}
\end{figure}

\begin{figure}
\centering
\includegraphics[width=\textwidth]{violent_crimes.png}
\caption{Lexical decision task performance differentially predicting number of violent crimes in ASPD and control female offenders. ASPD = antisocial personality disorder.}
\end{figure}
to emotional cues was not specific to negative words but extended to positive words, as demonstrated by the ASPD females showing significantly more emotion facilitation to the positive stimuli. To our knowledge, these data provide the first laboratory evidence demonstrating general emotional processing anomalies in women with ASPD.

The fact that incarcerated women with ASPD could be differentiated from controls on the basis of their sensitivity to emotional cues suggests that they may represent an important criminal subtype. This finding stands in contrast to results for psychopathic females whose performance on the lexical decision task was comparable to nonpsychopathic controls (MacCoon, Lorenz, & Newman, 2001). Although the basis for this speculation is limited, we believe that it is worth exploring the possibility that female offenders with ASPD possess the attributes of neurotic psychopaths described by Hare (1970), Quay (1987), and Blackburn and Lee-Evans (1985). According to these authors, neurotic psychopaths resemble primary psychopaths in their proclivity to antisocial behavior, but the antisocial behavior of neurotic psychopaths is thought to reflect emotional hyperreactivity as opposed to emotional hyporeactivity. On the basis of this association between criminal behavior and emotionality, we examined whether the violent criminal behavior of ASPD female offenders would be associated with exaggerated emotion facilitation. Consistent with our prediction, as emotion facilitation increased, female offenders with ASPD committed more violent crimes, whereas those without ASPD committed less crimes.

The results of this study also demonstrate that the laboratory performance of offenders with ASPD is moderated by gender. Whereas female offenders with ASPD displayed significantly greater emotion facilitation than female controls, male offenders with ASPD did not differ from controls. This finding is consistent with speculation by MacCoon et al. (2001), who recently proposed that it is easier to observe the effects of hyperemotionality in female than male participants. Conversely, these authors proposed that it is more difficult to observe the effects of hypemotionality in female than male participants. Although these proposals are speculative, they provide a basis for generating hypotheses about potential gender differences in the expression of emotionality and antisocial behavior.

In summary, our findings suggest that examination of emotion processing may be a useful method for distinguishing between offenders with ASPD and psychopathy as well as for clarifying the processes that give rise to violence in criminal subtypes. In addition, these results highlight the need for further research to clarify the extent to which race and gender moderate the expression of ASPD diagnoses.

References


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