



Do emotion and information processing deficiencies found in Caucasian psychopaths generalize to African-American psychopaths?

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Abstract

Research on psychopathy has yet to establish whether the Psychopathy Checklist-Revised [PCL-R; Hare, R. D. (1991). *Manual for the revised psychology checklist*. Vancouver, Canada: University of British Columbia] predicts the same etiologically relevant correlates in African-American offenders as it does in Caucasians. Toward this end, we examined affective and information-processing deficits which have been theorized to contribute to psychopaths' behavior problems. We classified 94 African-American offenders as psychopathic or nonpsychopathic using the PCL-R and the Welsh Anxiety Scale [Welsh, G. S. (1956). In Welsh G. S. & Dalstrom W. G. (Eds.), *Basic readings in the MMPI in psychology and medicine* (pp. 264–281). Minneapolis: University of Minnesota Press] and assessed their performance on a lexical decision task that had differentiated the performance of Caucasian psychopathic and nonpsychopathic groups. Consistent with past research, the results provided little support for the hypothesis that African-American psychopaths display the same performance deficits as Caucasian psychopaths. © 2002 Elsevier Science Ltd. All rights reserved.

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Psychopaths are infamous for their criminal behavior and callous manipulative interpersonal style. They are known to commit more violent and non-violent crimes (Hare & McPherson, 1984), have higher levels of substance abuse (Hart & Hare, 1989; Smith & Newman, 1990), and recidivate at higher rates than non-psychopaths (Hemphill, Templeman, Wong, & Hare, 1998). In addition to their inadequately motivated antisocial behavior, psychopaths typically display a lack

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of remorse, poor judgment, loss of insight, a failure to follow any life plan, and a general poverty in major affective reactions (Cleckley, 1976).

Attempting to standardize the assessment of psychopathy, Hare developed the Psychopathy Checklist (PCL; Hare, 1980) and the Psychopathy Checklist-Revised (PCL-R; Hare, 1991). These measures have demonstrated good reliability (Hare, Harpur, Hakstian, Forth, Hart, & Newman, 1990). Using the PCL and PCL-R, researchers have identified a variety of information and emotion processing anomalies in psychopaths. For example, low-anxious Caucasian psychopaths demonstrate a variety of information processing deficiencies that have been linked to poor response modulation (Newman, Patterson, & Kosson, 1987; Newman, Schmitt, & Voss, 1997). In addition, psychopaths demonstrate deficient emotion processing on attention and memory tasks (Christiansen, Forth, Hare, Strachan, Lidberg, & Thorell, 1996; Day & Wong, 1996; Patrick, Bradley, & Lang, 1993; Patrick, Cuthbert, & Lang, 1994; Williamson, Harpur, & Hare, 1991). Further, these information and emotion processing anomalies have been linked to procedures that differentially activate left-hemisphere resources (Bernstein, Luh, Wallace, & Newman, 2000; Hare & Jutai, 1988; Hare & McPherson, 1984; Jutai, Hare, & Connolly, 1987; Kosson, 1996, 1998; Kosson & Harpur, 1997).

Despite the variety of evidence demonstrating performance deficits in Caucasian psychopaths, the PCL and PCL-R items were originally developed and normed on primarily Caucasian samples. In addition, relatively few studies have investigated the generalizability of these performance deficits in samples of African-American psychopaths. In light of the fact that African Americans comprise a large percentage of the prison population in the United States and the increased use of the PCL-R in making parole decisions (Rice, 1997), it is imperative that researchers examine the validity of the PCL-R in African-American offenders. Toward this end, we have routinely investigated the degree to which our laboratory findings with PCL-R assessed Caucasian inmates generalize to African-American inmates (e.g. Kosson, Smith, & Newman, 1990; Newman & Schmitt, 1998; Newman et al., 1997; Schmitt, Brinkley, & Newman, 1999). To date, none of the results obtained with Caucasian offenders have replicated in African-American samples (see also Thornquist & Zuckerman, 1995; c.f. Kosson, 1998). Although these findings do not necessarily establish race-related differences in psychopathy because the psychopathy by race interactions reported in these manuscripts were typically nonsignificant, they do raise questions about the generalizability of the psychopathy construct, as measured by the PCL-R, to African-Americans. Without direct evidence, researchers and clinicians should not assume that the physiological, behavioral, cognitive, and affective correlates that characterize Caucasian male psychopathic offenders will generalize to other samples (Sue, 1999).

The studies evaluating the generality of laboratory-based correlates of psychopathy to African-American inmates suggest limitations in the generalizability of the psychopathy construct as it is measured by the PCL-R. However, because most of this evidence comes from one laboratory, an alternative interpretation is that the weak findings present a challenge to the theory which guides this program of research (i.e. the response modulation hypothesis; Patterson & Newman, 1993). Indeed, for this reason, it is especially important to identify correlates of psychopathy reported by other laboratories and then examine the generalizability of these findings to African-American samples.

Several researchers attribute the maladaptive behavior of psychopaths to an emotion deficit (Hare, 1998; Lykken, 1957, 1995; Patrick, 1994). Using a lexical decision task, Williamson and colleagues (1991) conducted a seminal study examining the emotion deficits of psychopathic

offenders. In this task, participants decided if a string of letters was a word or a non-word by making right-handed keyboard responses. Previous studies using non-clinical samples demonstrate that control participants identify emotional words more quickly than neutral words (i.e. demonstrate emotion facilitation). Similarly, Williamson et al. found that control participants identified positive and negative words more quickly than neutral words. Psychopaths, however, did not demonstrate this emotion facilitation relative to controls, despite providing comparable valence ratings of the stimuli words used in the task. Using a slightly modified version of their lexical decision task, Lorenz and Newman (2001) successfully replicated and extended these findings. As predicted, psychopaths displayed significantly less emotion facilitation than controls, despite appraising the affective valence of stimulus words as accurately as controls. In addition, Lorenz and Newman reported that, compared to the performance of control participants, psychopaths did not demonstrate faster reaction times to high frequency words relative to low frequency words (i.e. frequency facilitation). Furthermore, significant group differences in emotion and frequency facilitation were specific to trial blocks involving right-hand responses.

The findings reported by Williamson et al. (1991) and Lorenz and Newman (2001) provide support for diverse hypotheses regarding the biopsychological correlates of psychopathy in Caucasian offenders. Specifically, the first two findings demonstrate the emotion paradox described (i.e. accurate appraisal, but poor utilization of emotion, see Lorenz & Newman, 2001) by Cleckley (1976) and observed by several researchers (Blair, 1999; Patrick et al., 1994; Williamson et al., 1991). The third finding involving word frequency cues provides a conceptual replication of findings by Newman et al. (1997) and lends support to the response modulation hypothesis insofar as psychopaths demonstrate an insensitivity to neutral as well as emotional cues (Newman, 1998).¹ The fourth finding conceptually replicates previous results indicating that the

¹ The lack of emotion and frequency facilitation observed in Caucasian psychopaths on the lexical decision task have been interpreted within the response modulation framework (Lorenz & Newman, 2001). Briefly, many investigators believe that lexical decisions are performed by searching the mental lexicon (Balota, 1994; Balota & Chumbley, 1984; Seidenberg & McClelland, 1989). Moreover, in tasks that require participants to distinguish neutral and emotional words from nonwords, emotion words are presumed to prime associational networks based on their emotional valence (Balota & Chumbley, 1984; Bower, 1981). These emotional cues then activate emotions that facilitate responding by rapidly indicating the presence of the stimuli in the mental lexicon. For instance, the word "tomb" may prime positive emotions that in turn activate numerous words associated with sadness or fear. This rapid activation of negative emotions makes it easier for the participant to identify the stimulus as a word. Within the context of response modulation, we posit that normal participants utilize emotional cues in a relatively automatic manner that facilitates reaction times to emotional words. Conversely, psychopaths are less able to utilize multiple aspects of a stimulus word in this manner. Similarly, Hare (1998) discussed cortical and subcortical activation as measured by relative cerebral blood flow. Relative cerebral blood flow can be thought of as a physiological measure of the activation of the associational network identified by Bower (1981). Consistent then with our presented conceptualization of the lexical decision, Hare stated that "the results of the Williamson et al. study (1991) suggested that psychopaths generate relatively few semantic/affective associations during lexical decisions, and we therefore expected that they would show less widespread activation than would normal subjects" (p. 114). Next, normal participants show faster recognition of high frequency words compared to low frequency words (Parkin, 1985; Rajaram & Neely, 1992). Presumably, when participants see a target stimulus (e.g. assault) other words that share orthographic features with the target will also be activated (e.g. assume, vault, etc.). To the extent that the alternative words are higher in frequency than the target, lexical decisions will be slower than if the reverse is true. Restated, the response times of normal participants are slower for the low-frequency words than for high frequency words because their attention is directed automatically to competing words in their mental lexicon (Balota, 1994). Alternatively, psychopaths will not attend to the other, similar orthographic words and thus not demonstrate frequency facilitation effects.

performance deficits of psychopaths may be specific to conditions that differentially activate the left hemisphere (Bernstein et al., 2000; Hare & Jutai, 1988; Hare & McPherson, 1984; Jutai et al., 1987; Kosson, 1996, 1998; Kosson & Harpur, 1997).

Given that the lexical decision task has provided powerful support for previous research and theorizing about psychopathy in a Caucasian sample, it offers a method for examining the generalizability of laboratory-based correlates of psychopathy to African-American samples. Toward this end, we examined the extent to which the emotion and information processing anomalies reported by Williamson et al. (1991) and Lorenz and Newman (2001) would replicate in an African-American sample of offenders. As in previous research, our predictions were specific to low-anxious offenders (see Newman & Brinkley, 1997; Newman et al., 1997; Schmitt & Newman, 1999, for a rationale for focusing on low-anxious participants).

The current study was designed to test four predictions. In light of past research (Lorenz & Newman, 2001; Williamson et al., 1991), our first prediction was that low-anxious African-American psychopaths would demonstrate less emotion facilitation than low-anxious controls. Second, based on prior research demonstrating comparable appraisal of emotion stimuli, we predicted that low-anxious African-American psychopaths would not differ from low-anxious African-American controls in rating the emotional valence of the words used in the lexical decision task. Support for these two predictions would demonstrate the emotion paradox in low-anxious African-American psychopaths. Third, given past research indicating that Caucasian psychopaths demonstrate a lack of word frequency facilitation in a lexical decision task, we predicted that compared to low frequency words, high frequency words would produce less facilitation in low-anxious African-American psychopaths than in low-anxious African-American controls. Finally, we predicted that African-American psychopaths would demonstrate significantly less emotion and frequency facilitation than controls on trials in which participants responded with their right hand.

1. Methods

1.1. Participants

The participants in this study were 94 African-American male inmates residing at either a minimum or maximum-security prison in Southern Wisconsin. Inmates were excluded from participation in this study if they were age 40 or older, currently taking psychotropic medication, left-handed (total scores on Chapman Handedness Scale > 21 ; Chapman & Chapman, 1987), scored below the fourth grade level on prison achievement tests or had earned estimated WAIS-R (Wechsler Adult Intelligence Scale-Revised) scores that were less than 70 on the Shipley Institute of Living Scale (Zachary, 1986). Psychopaths and non-psychopathic participants did not differ significantly on age or WAIS-R scores. Inmates were paid \$3.00 for their participation in this study.

Psychopathy was assessed using the PCL-R. In the current study, we evaluated the inter-rater reliability of PCL-R ratings using a subset of 37 participants. This analysis yielded an intra-class correlation of 0.95. Participants with PCL-R scores greater than or equal to 30 were classified as psychopaths and those with PCL-R scores less than or equal to 20 were classified as controls.

Anxiety was measured by the Welsh Anxiety Scale (Welsh, 1956) and participants were divided into subgroups using the median anxiety score ($M.D. = 11$). This process resulted in four groups: 16 low-anxious controls, 14 low-anxious psychopaths, 23 high-anxious controls and 9 high-anxious psychopaths.

1.2. Stimulus material

The task and procedures used in this study were identical to those reported in Lorenz and Newman (2001). These stimuli consisted of 12 positive words, 12 negative words, 24 neutral words, and 48 non-words and were grouped into four experimental blocks, A, B, C, and D. Each experimental block consisted of three positive, three negative, six neutral, and 12 non-words.

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 (Rubin & Friendly, 1986). The word groups for the emotion facilitation analyses were matched on frequency, pronounceability, length, number of letters, number of syllables, concreteness, and imagery (Kucera & Francis, 1967; Pavio, Yuille, & Madigan, 1968). For the word frequency analysis, the stimulus words were grouped into high, medium, and low frequency word groups (Kucera & Francis, 1967) that differed significantly on frequency. The frequency word groups were matched on goodness, emotionality length, pronounceability, number of letters, number of syllables, imagery, and concreteness (Kucera & Francis, 1967; Pavio et al., 1968; Rubin & Friendly, 1986). Typically, changing two letters for each of the words used in the experiment resulted in the 48 pronounceable non-words. In addition, a practice block consisted of 12 neutral words and 12 non-words that differed from the words used for the test trials.

1.3. Procedures

A tester, who was blind to group membership of the participants, ran the computer program and administered the questionnaires. The tester remained in the testing room throughout the experiment. Participants were 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 if the presented stimulus was a word or a non-word. The stimuli were presented in a central position on the computer screen for 100 ms.

All participants began the experiment with the practice block and responded with their right hand. The 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. The entire task lasted approximately 20 min.

Immediately after completing the lexical decision task, participants rated the stimulus words on a zero to seven scale, where 0 indicated bad, 4 indicated neutral, and 7 indicated good. Twenty-two participants did not complete the word rating task.

2. Results^{2,3}

2.1. Lexical decision task—emotion analyses

Using only reaction time values from correct responses, emotion facilitation on this task was computed by subtracting the mean reaction time for the emotional words from the mean reaction time for the neutral words. Higher reaction times indicate greater facilitation on the task. A 2(Psychopaths, controls)×2(Low-Anxious, High-Anxious)×2(Left hand, Right hand)×2(Positive Words, Negative Words) mixed-model ANOVA with psychopathy and anxiety as the between-participant factors and response hand and valence as the within-participant factors yielded no significant main effects or interactions involving psychopathy. Across groups, though, participants demonstrated significant facilitation to the emotion words, $F(1,58) = 37.42$, $P < 0.01$ ($M = 25.50$, $S.E. = 4.17$). Testing our first prediction, the planned comparison examining the emotion facilitation of low-anxious psychopaths and controls yielded a non-significant $t(58) < 1.0$, (Low-anxious psychopaths: $M = 20.82$, $S.E. = 10.60$; Low-anxious controls: $M = 28.30$, $S.E. = 9.41$).

2.2. Word ratings

A 2(Psychopaths, controls)×2(Low-Anxious, High-Anxious)×3(Positive Words, Negative Words, Neutral Words) mixed-model ANOVA with psychopathy and anxiety as the between-participant factors and word ratings as the within-participant factor yielded a significant main effect for word type, $F(1,40) = 265.01$, $P < 0.001$, (Positive words: $M = 5.35$, $S.E. = 1.26$; Neutral words: $M = 4.35$, $S.E. = 0.10$; Negative words: $M = 1.83$, $S.E. = 1.26$). Across groups, participants rated the positive words higher than the neutral words, which in turn were rated higher than the negative words. None of the main effects or interactions involving psychopathy were statistically significant.

2.3. Lexical decision task—frequency analyses

Frequency facilitation on this task was computed by subtracting the mean reaction time for the high-frequency words from the mean reaction time for the low-frequency words. Higher values indicate greater facilitation on the task. A 2(Psychopaths, controls)×2(Low-Anxious, High-Anxious)×2(Left hand, Right hand) mixed-model ANOVA with psychopathy and anxiety as the between-participant factors and response hand as the within-participant factor yielded no significant main effects or interactions involving psychopathy. Nevertheless, across groups, African-American offenders responded significantly faster to the high frequency than the low frequency

² All of the analyses were run with an accuracy facilitation variable. None of these analyses yielded any significant main effects or interactions involving psychopathy.

³ We conducted four regression analyses with four different dependent variables: total emotion facilitation collapsed across response hand and valence, emotion facilitation for right-handed responses collapsed across valence, total frequency facilitation collapsed across response hand, and frequency facilitation for right-handed responses. Continuous PCL-R and WAS scores were entered at the first step of these analyses. The interaction of PCL-R scores and WAS scores was entered at the second step. None of these regression analyses yielded significant main effects or interactions involving psychopathy.

words, $F(1,58) = 77.18$, $P < 0.001$ ($M = 51.73$, $S.E. = 5.89$), indicating that consistent with past research participants demonstrated facilitation to the high frequency words. The planned comparison yielded a non-significant difference between low-anxious African American psychopaths and controls, $t(58) < 1.0$, (Low-Anxious Psychopaths: $M = 55.16$, $S.E. = 11.72$; Low-Anxious Controls: $M = 45.94$, $S.E. = 10.96$).

2.4. Lexical decision task—response hand analysis

The planned comparisons examining the performance of psychopaths and controls for right handed trials only yielded no significant differences for emotion facilitation, $t(58) < 1.0$, (Low-Anxious Psychopaths: $M = 25.29$, $S.E. = 13.41$; Low-Anxious Controls: $M = 30.69$, $S.E. = 13.09$) or frequency facilitation, $t(58) < 1.0$, (Low-Anxious Psychopaths $M = 66.06$, $S.E. = 16.84$; Low-Anxious Controls: $M = 38.45$, $S.E. = 20.01$).

3. Discussion

Our results provide further evidence that the performance deficits observed in Caucasian psychopaths do not generalize to African-American psychopaths. Only one of our four predictions was supported. Of the predictions that yielded significant group differences between psychopaths and controls in Caucasian samples, none was supported in this sample of African-American offenders. Further, the only prediction that was supported in the African-American sample was the null prediction that psychopaths and controls would not differ on their valence ratings of the stimulus words. The lack of replication found in this study is consistent with previous findings that group differences found in Caucasian inmates yield weaker and non-significant group differences in African-American samples (Kosson et al., 1990; Newman & Schmitt, 1998; Newman et al., 1997; Thornquist & Zuckerman, 1995). Together with these past findings, the current results highlight the need to investigate possible reasons for the failure to replicate evidence of processing deficits in African-American psychopaths.

One potential explanation for this lack of generality concerns the assessment measure used to diagnose psychopathy. Typically, psychopathy assessments are made using the PCL-R. It has been shown that the PCL and the PCL-R provide researchers with a standard, reliable, and valid assessment of psychopathy in Caucasian offenders. However, there is scant evidence regarding the PCL-R's predictive validity when used with African-American offenders (Brandt, Kennedy, Patrick, & Curtin, 1997; Kosson et al., 1990; Lorenz, Smith, Bolt, Schmitt, & Newman, 2001). Using the original PCL, Kosson and colleagues (1990) reported race differences involving mean scores and factor structure. Examining the PCL-R in a larger sample, Lorenz and colleagues (2001) found evidence of item bias across Caucasian and African-American offenders. In the absence of consistent evidence that the PCL-R identifies the same latent construct in African-American and Caucasian offenders, we must be cautious when interpreting the failure to replicate reliable etiological correlates of psychopathy, as seen in Caucasians, in African-American samples. Restated, one interpretation of the current findings is that the PCL-R may not be measuring the same construct across Caucasian and African American samples (see also Boldhardt, Richards, & Gacono, 2000). For example, the PCL-R ratings of African-American offenders may

be more strongly influenced by social factors or other environmental factors than the ratings of Caucasian offenders (Lorenz et al., 2001).

Regardless, our findings are relevant with regard to the correlates of the PCL-R. Specifically, our findings indicate that the emotion deficits, as measured by the lexical decision task and associated with psychopathy in Caucasian offenders, do not generalize to African-American offenders. Moreover, the current data may have implications for researchers and clinicians using PCL-R scores in non-Caucasian samples, to the extent that the applications of the PCL-R scores assume similar psychological correlates across race. For example, although the criminal behavior exhibited by African-American psychopaths appears comparable in prevalence and severity to that of Caucasian psychopaths (Kosson et al., 1990), it may be associated with different, and as yet unidentified, distal causes.

An alternative explanation for the current findings relates to the effects of ethnicity on task performance. For example, Samuel, Soto, Parks, Ngissah, and Jones (1976) noted that evaluation apprehension might play a more significant role in disrupting the performance of African-American relative to Caucasian individuals. Moreover, such influences might be especially pronounced in studies, such as the present one, that use Caucasian experimenters to administer laboratory tasks. A related limitation of the current study is that all of the raters were Caucasian. Either or both of these limitations in our study may have contributed to the lack of replication of findings in the African-American participants. However, the fact that across groups the African-American offenders demonstrated comparable emotion and frequency facilitation to that shown by Caucasian non-psychopathic offenders appears inconsistent with this conclusion.

In summary, our findings indicate that low-anxious African-American psychopaths do not demonstrate the emotion paradox or information-processing deficit found in Caucasian psychopaths performing the same lexical decision task. Moreover, this finding raises important questions concerning the meaning of PCL-R ratings in African-American offenders. Consequently, researchers using the PCL-R may wish to test their hypotheses in Caucasian samples and then examine the generalizability of their findings to African-American samples. An important advantage of this approach is that it would produce a literature that could be used to *test* the generalizability of the psychopathy construct to African-American offenders rather than *assume* that findings obtained with primarily Caucasian samples will apply to African-American offenders (Sue, 1999).

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