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Brief Report

Psychopathy, aggression, and emotion processing of violent imagery in women

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ABSTRACT

Emotion processing is pivotal during development and deficient processing of certain emotions disrupts normal socialization increasing risk for violent behavior later in life. Psychopathy has been linked to both of these phenomena in men; however, the study of such relations has been relatively neglected in women. In the present study, 88 collegiate women completed measures of psychopathy, aggression, and a lexical-decision-task (LDT) assessing the processing of affective words. Participants were primed by viewing images of violence or prosocial behavior immediately before completing the LDT. Psychopathy was unrelated to emotion processing in the positive image condition, however, following exposure to violent imagery, emotional detachment (F1), but not social deviance (F2) predicted decreased processing of sadness words. This deficit mediated the relationship between F1 and proactive aggression. Results suggest that F1 may relate to deficient activation of sadness in response to inciting events and, therefore, may inform the risk of proactive aggression in emotionally detached women.

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1. Introduction

Theorists hypothesize that deficient emotion processing is the core deficit of psychopathy (Blair, 2003; Herba et al., 2007). Blair, Colledge, Murray, and Mitchell (2001) suggest that emotion processing is pivotal during early development, and that deficits in such processing can disrupt normal socialization. For example, Kimonis, Frick, Fazekas, and Loney (2006) found that decreased emotion processing of distressing imagery was associated with proactive aggression in a sample of children. Proactive aggression, a "cold-blooded" goal-directed form of aggression motivated by secondary gain (Berkowitz, 1993), is commonly evinced by psychopathic individuals and much more so than by nonpsychopathic individuals (Mitchell, Avny, & Blair, 2006; Williamson, Hare, & Wong, 1987; Woodworth & Porter, 2002). Notably, Kimonis and collegues (2006) found this deficit in emotion processing did not relate to reactive aggression, a type of aggression driven by hostile reaction to various forms of provocation (Berkowitz, 1993). According to the Integrated Emotion System (IES) model (Blair, 2005), dysfunction of the amygdala impairs the ability to experience and recognize emotions of distress in others (e.g., sadness) and, as such, may interfere with the development of empathy. Deficits in these experiences lead to increased risk for instrumentally violent and antisocial behavior. Consistent with this theory, research indicates that psychopathy is consistently linked to both deficits in emotion processing and increased risk of violence (for a review see Blair, Mitchell, & Blair, 2005; Blair, Richell, et al., 2005; Frick & Marsee, 2006; Porter & Woodworth, 2006).

The two factors of psychopathy (Hare, 2003), Factor 1 (i.e., emotional detachment) and Factor 2 (i.e., social deviance), appear to demonstrate diverging patterns of association with emotion processing and attendant forms of aggression. Factor 1 (F1) seems to be associated with a pattern most similar to that described in the IES. Specifically, F1 is related to deficient experience and processing of emotional distress and negative affect (e.g., Hicks & Patrick, 2006; Reidy, Zeichner, Hunnicutt-Ferguson, & Lilienfeld, 2008) and increased propensity for "cold-blooded" acts of instrumental, unprovoked, and sadistic aggression (Porter, Woodworth, Earle, Drugge, & Boer, 2003; Reidy, Zeichner, & Martinez, 2008; Reidy, Zeichner, Miller, & Martinez, 2007; Woodworth & Porter, 2002). Conversely, Factor 2 (F2) is associated with greater experience of anger, hostility, and attendant reactive aggression (Falkenbach, Poythress, & Creevy, 2008; Hicks & Patrick, 2006; Porter, Birt, & Boer, 2001; Reidy et al., 2007, 2008). These data support suppositions that impaired emotion processing is the core deficit of psychopathy (Herba et al., 2007), and that this deficit results in increased tendency to engage in instrumental or proactive aggression (Mitchell et al., 2006).

Despite abundant research on the relations among psychopathy, emotion processing, and violence in men, there is a notable dearth of such research that focuses on women. It is, therefore, unclear whether the emotion deficits identified in men parallel those in women, and whether the IES is useful in understanding instrumental aggression in women. Verona and Vitale (2006) note that, "only a few researchers have taken on the pioneering work

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of attempting to validate measures of psychopathy, and the construct itself, in women" (p. 415). Indeed, the few studies that have addressed psychopathy in women focused primarily on forensic samples (Nicholls, Olgoff, Brink, & Spidel, 2005). Lilienfeld (1994) argues that it is essential to conduct psychopathy research in non-institutionalized populations to identify aspects that lead to prosocial versus antisocial outcomes. As such, it is necessary to determine whether deficits in emotion processing facilitate aggression in populations of women outside the criminal justice system.

The purpose of the current study was to investigate the association among psychopathy traits, deficient emotion processing, and proactive aggression in a sample of nonforensic women. To this end, we used a lexical-decision-task (LDT) to assess affective responses to emotionally laden imagery via response latencies to affective words (i.e., sad, angry, fear, happy, and disgust). Blair, Mitchell, et al. (2005) and Blair, Richell, et al. (2005) have argued that using LDT paradigms is ideal because they allow researchers to measure implicit (and uncontrollable) emotional processing. Several studies have utilized this task to demonstrate aberrant emotion processing in relation to psychopathy (e.g., Day & Wong, 1996; Lorenz & Newman, 2002; Williamson, Harpur, & Hare, 1991). Based on theoretical work in this area (e.g., Bower & Forgas, 1999), a purported "network activation" is involved in behavioral and physiological responses, as well as in verbal and semantic structures related to a given emotion. This word-nonword discrimination task purports to measure network activation via response latency to particular stimulus words, with faster reaction times (RT) indicating greater network activation (e.g., Schacter, 1987). In contrast, slower RTs to emotion words suggest less activation. As such, individuals in a happy mood state would respond faster to happiness words whereas persons in a sad mood state would respond faster to sadness words (Ferraro, King, Ronning, Pekarski, & Risan, 2003; Olafson & Ferraro, 2001). We used the LDT to assess the cognitive/affective state of participants in response to violent imagery. Based on research that has demonstrated mood congruent response patterns with the LDT methodology (e.g., Ferraro et al., 2003), we posited that responding faster to sadness words after viewing violent imagery would reflect increased experience of sad affect due to activation of empathic responses when viewing the violence imagery. As such, low empathy individuals (i.e., high psychopathy) would display less activation of sad affect and therefore respond more slowly to sadness words. Conversely, priming with positive affective images would not activate empathic responses and therefore, psychopathy would be unrelated to the processing of sadness words. Consistent with the aforementioned research and the IES model, we advanced the following hypotheses:

H1: F1 will predict deficient processing of sadness words (i.e., sadness facilitation) after being primed with violence imagery.
H2: F1 psychopathy will relate to higher rates of proactive aggression.
H3: The link between F1 and proactive aggression will be mediated by deficient sadness facilitation in response to violence imagery.

2. Method

2.1. Participants

Eighty-eight collegiate women (M_{age} = 19.1; 86% Caucasian) were recruited from the University of Georgia to participate in exchange for partial course credit. Informed consent was obtained from all participants.

2.2. Materials and procedure

2.2.1. Self-report measures

Psychopathy was measured by the *Self-Report Psychopathy Scale: Version 3* (SRP-3; Paulhus, Neumann, & Hare, in press): a 64-item measure of psychopathic traits designed for use with college populations. It comprises four facets entitled Interpersonal Manipulation (IPM), Callous Affect (CA), Erratic Life Style (ELS), and Criminal Tendencies (CT). The four facets combine to represent the traditional two-factor model of psychopathy derived from Hare's conception of the PCL-R. The IPM and CA facet combine to make up F1 and the ELS and CT facet combine to createF2. Items are rated along a Likert-type scale from "1" (*disagree strongly*) to "5" (*agree strongly*). For the purposes of this study, we were only interested in the F1 and F2 scales as this model is the mostly widely researched (Cale & Lilienfeld, 2006). In the present sample, Cronbach's alphas were .85, .85, and .90 for F1, F2, and Total Psychopathy, respectively. Additionally, the *Levenson Self-Report Psychopathy Scale* (LSRP; Levenson, Kiehl, & Fitzpatrick, 1995), a 26-item inventory, was administered. Levenson and colleagues (1995) titled the two LSRP factors "primary" and "secondary" psychopathy because they believed that this factor structure fit Karpman's (1941), Karpman's (1948) distinction between "primary" and "secondary" psychopaths. However, it was patterned after the factor structure of the PCL-R and the subscales are considered analogous to F1 and F2. The LSRP was patterned after Hare's two-factor model of psychopathy but was designed for use in nonforensic settings to assess behavioral features of individuals not identified as criminals. Items are rated along a Likert-type scale from "1" (*disagree strongly*) to "4" (*agree strongly*). In the current sample, Cronbach's alphas were .86, .70, and .87 for F1, F2, and Total Psychopathy scores, respectively. Aggression was measured with the *Reactive–Proactive Aggression Questionnaire* (RPQ; Raine et al., 2006), comprising 23 items rated on a 0–2 scale (0 = never, 1 = sometimes, 2 = always) to assess proactive (e.g., "*How often have you used force to obtain money or things from others?*") and reactive aggression (e.g., "*How often have you hit others to defend yourself ?*"). Coefficient alphas for the reactive and proactive scales were .83 and .80, respectively.

2.2.2. Exposure to visual stimuli

After completing questionnaires, participants were randomly assigned to a condition in which they either viewed a set of violence images (n = 39) or a set of positive images (n = 49). Twenty-four color images were selected from the International Affective Picture System (IAPS; Lang, Bradley, & Cuthbert, 2005). The 12 distressing images depicted scenes in which physical violence was perpetrated against a person (e.g., a man pressing a knife against a woman's throat) whereas the 12 positive images depicted individuals interacting in a joyful manner (e.g., children playing with a kitten).[1] Participants rated the images on two dimensions, pleasantness (−4 = very unpleasant, 4 = very pleasant) and pain/distress (0 = person portrayed did not experience any pain/distress, 10 = person portrayed experienced very much pain/distress). The order of dimension rating was counterbalanced. The purpose of having participants rate the imagery was to ensure that they cognitively attended to the emotional content of the pictures.

2.2.3. Emotion processing

Following exposure to the images, a lexical-decision-task was used to assess emotion processing. Participants were required to indicate as quickly as possible, by pressing an appropriate key on

[1] Researchers wishing to identify the specific IAPS images used in the present study can contact the authors for a list of the image numbers.

a computer keyboard, whether or not strings of letters, presented on a computer screen, were actual words in the English language. Experimental trials consisted of 150 word and 150 non-word letter strings. Word stimuli were presented only once and in a randomized fashion. Seventy-five of the words were neutral (i.e., not emotional) and were matched with one of the 75 emotion words (i.e., happy, sad, angry, fearful, and disgust words) in terms of word frequency and syllabic length. Changing a single letter in each of the 150 words created pronounceable non-words. Research indicates that individuals respond faster to words of mood-congruent affect (Olafson & Ferraro, 2001).

3. Results

3.1. Data reduction

To prevent mono-operation bias (Shadish, Cook, & Campbell, 2002) and to minimize the number of analyses, composite scores for the psychopathy measures were created from the LSRP and SRP-3 by averaging their *z*-scores. Table 1 presents the correlations among psychopathy indices of the LSRP and SRP-3.[2] The correlation between the composite F1 and F2 indices was significant ($r = .69$). To control for covariance between reactive and proactive aggression ($r = .57$), we regressed the two aggression indices on one another and saved the standardized residuals.[3] The residual represents a "pure" measure of each form of aggression as it represents the variance unassociated with its counterpart.

3.2. Preliminary analyses

Psychopathy and aggression did not differ across conditions, Fs < 1. Women in the violence prime condition rated images as significantly less pleasant than women who viewed positive images $t(86) = 48.16$, $p < .0001$, $d = 10.39$. Additionally, persons portrayed in the violence imagery were rated as experiencing more pain and distress than persons in the positive images, $t(86) = -40.08$, $p < .0001$, $d = 8.64$.

In the positive prime condition, ratings of pleasantness significantly and negatively correlated with F1 ($r = -.49$, $p < .0005$), F2 ($r = -.37$, $p = .01$), and Total Psychopathy ($r = -.46$, $p = .001$). In the violence prime condition, however, F1 ($r = .46$, $p < .005$), F2 ($r = .33$, $p < .05$), and Total Psychopathy ($r = .43$, $p < .01$) covaried positively with pleasantness ratings. Because mean pleasantness ratings were low, this result actually indicates that psychopathy predicted less severe ratings of unpleasantness. Overall, these results suggest that psychopathy is related to less perceived emotional valence after being exposed to both positive and negative emotion stimuli. Additionally, psychopathy was related to lower ratings of victims' pain/distress in the violence images, F1 ($r = -.34$, $p < .05$), F2 ($r = -.26$, $p = ns$), and Total Psychopathy ($r = -.35$, $p < .05$).[4]

3.3. Psychopathy and aggression

Standardized betas for psychopathy and aggression indices can be seen in Table 2. We conducted a series of simultaneous regressions in which proactive and reactive aggression were regressed on F1 and F2. A pattern emerged in which F1 positively predicted proactive aggression whereas F2 positively predicted reactive aggression. We also conducted these analyses within conditions. An unexpected finding emerged, in which, F1 demonstrated a trend (*ns*) toward negatively predicting reactive aggression in the positive condition but not in the violence condition. Since all questionnaires were completed prior to implementing the manipulation, this difference likely represents a chance finding not due to condition effects. Additionally, because it is not pertinent to our hypotheses or the central tenet of the study we did not explore this further.

Table 1
Correlation coefficients among psychopathy indices.

Factors	1	2	3	4	5	6
1. LSRP F1	–	.58	.92	.67	.50	.63
2. LSRP F2			.84	.58	.54	.61
3. LSRP Tot				.73	.60	.72
4. SRP F1					.66	.90
5. SRP F2						.92
6. SRP Tot						–

Note. All correlations are significant at $p < .001$.

3.4. Psychopathy and emotion processing

Table 3 displays correlations between psychopathy indices and emotion processing indices by condition. As predicted, there was a significant negative correlation between F1 and sadness facilitation for women primed with violence ($r = -.44$, $p = .005$) that did not exist in the positive prime ($r = .18$, *ns*). Moreover, these correlations were significantly different, $z = 2.94$, $p < .005$, $q = .65$.[5]

3.5. Mediation analyses[6]

Mediation analysis was not performed for women in the positive condition, as F1 did not correlate with emotion processing. For women primed with violence, F1 was associated with more proactive aggression, $F(1, 36) = 5.58$, $\beta = .37$, $R^2_{adjusted} = .11$, $p < .05$ and decreased sadness facilitation, $F(1, 37) = 8.76$, $\beta = -.44$, $R^2_{adjusted} = .17$, $p = .005$. Additionally, decreased sadness facilitation was positively associated with proactive aggression, $F(1, 36) = 9.46$, $\beta = -.46$, $R^2_{adjusted} = .19$, $p < .005$. When we regressed proactive aggression simultaneously onto F1 and sadness facilitation, results indicated the model was significant, $F(2, 35) = 5.49$, $R^2_{adjusted} = .20$, $p = .01$. The relationship between F1 and proactive aggression, however, dissipated ($\beta = .20$, $p = ns$) while diminished sadness facilitation remained significant, ($\beta = -.37$, $p < .05$). A Sobel test confirmed that the mediation was statistically significant, $z = 2.13$, $p < .05$. In summary, the link between F1 psychopathy and proactive aggression was significantly and completely mediated by diminished sadness facilitation in the present sample.

4. Discussion

The current study examines the associations among psychopathy traits, proactive aggression, and emotion processing in collegiate women. One robust finding is that deficient sadness facilitation in response to distressing images of violence mediated

[2] Analyzing the psychopathy indices of the two measures individually did not change the pattern of results. Effect sizes and significance values were nearly unchanged.

[3] Although correlations with these variables represent semipartial correlations, the procedure is commonly referred to as partialling (Miller & Lynam, 2006). See Lynam, Hoyle, and Newman (2006) for a review of this procedure.

[4] Ratings of pleasantness and perceived pain/distress did not correlate with indices of aggression or emotion processing in either condition.

[5] Cohen (1992) identified *q* as the effect size measure to represent the difference between two independent correlations. Cohen's guidelines for interpreting *q* are as follows: small, $q = .10$; medium, $q = .30$; and large, $q = .50$.

[6] Consistent with the findings of Kimonis et al. (2006), our analyses confirmed that emotion processing of sadness words did not correlate with reactive aggression regardless of priming.

Table 2
Correlation coefficients for psychopathy factors and emotion processing.

Condition	Factors	Sad	Happy	Fear	Anger	Disgust
1	F1	−.44*	−.23	−.10	−.21	−.09
	F2	−.25	−.13	−.17	.05	.06
2	F1	.18	.07	−.13	.08	−.08
	F2	.18	.03	−.26	−.14	−.15

Note: Condition 1 = women primed with violence images (n = 39); condition 2 = women primed with positive images (n = 49).
* p = .005.

Table 3
Beta coefficients for psychopathy factors and aggression indices.

Condition	Factors	Proactive	Reactive
1	F1	.32	.10
	F2	.08	.35†
2	F1	.34†	−.38†
	F2	.12	.40*
3	F1	.33*	−.17
	F2	.10	.37**

Note. 1 = women primed with violence images (n = 39); 2 = women primed with positive images (n = 49); 3 = aggregated across conditions (n = 88).
† p < .10.
* p < .05.
** p = .01.

the relationship between F1 and proactive aggression. This finding lends support to the supposition that deficient ability to recognize and experience distress emotions may disrupt socialization and increase the risk for engaging in aggressive and violent behavior (e.g., Blair et al., 2001). To fully confirm the developmental link between emotion processing and proactive aggression it is necessary to demonstrate that emotion processing deficits and aggression co-occur in adolescent and preadolescent populations. Research has begun to bridge this gap demonstrating that such deficits in adolescent males are related to increased aggressivity. For example, Kimonis, Frick, Munoz, and Aucoin (2007) found that African–American boys who scored high on callous-unemotional traits demonstrate deficient responding to distress imagery and evince high rates of aggression and violent delinquency.

Interestingly, in a study of collegiate men, Reidy et al. (2008) showed that F1 predicted decreased processing of sadness words even when participants were *unprimed* with affect-laden stimuli (r = −.33). This effect size was comparable to the effect size detected for women primed with images of violence in the present study (r = −.44). This could suggest that priming had little effect on the emotion processing of sadness words. However, the F1 sadness facilitation relationship in the violence prime condition was significantly different from that of the positive prime condition (r = .18). Moreover, the statistical difference between the effect sizes (q = .65) for these two conditions was large (Cohen, 1992) suggesting that priming did, in fact, influence the relationship between psychopathy and emotion processing. Alternatively, this finding may reflect a difference between women's baseline emotional functioning and their ability to access appropriate emotions in response to an inciting event. For example, women who generally are more empathic than men (Giancola, 2003), may possess an adaptive experience of cognitive correlates of sadness at baseline functioning. When an emotionally-evocative event such as witnessing a violent crime occurs, women low in psychopathy traits may respond with increased activation of cognitive networks related to sadness. However, emotionally-detached women may demonstrate a ceiling effect under which activation of pertinent cognitive nodes is inhibited. In men, however, emotional detachment may represent an absence of cognitive node activation related to the affective experience of sadness. Clearly, these speculations are of limited utility at this time, as we did not compare gender or unprimed (i.e., baseline) emotion processing. Future research should seek to address changes from baseline emotion processing to affect-primed emotion processing for men and women.

The present results require replication and must be interpreted with caution for several reasons. First, the sample was relatively homogenous in that they were primarily collegiate Caucasian women; replication in ethnically diverse community samples is necessary. Second, as Bushman and Anderson (2001) have noted, the existence of a purely proactive or reactive forms aggression is, most likely, rare. The occurrence of aggressive behaviors comprising, to varying degrees, both instrumental and hostile motives seems plausible. Additionally, as women have been found to aggress by different means than men (e.g., Archer, 2004), it remains important to replicate this research with behavioral indices of varying forms of aggression. In addition, we should point out that although we found complete mediation in the present sample, the reduced beta for F1 was .20. It is likely, that with increased power this beta would have remained significant. Consequently, deficient sadness processing may only partially mediate the F1 – proactive aggression relationship in the population. Moreover, our methodology does not adhere to the proper longitudinal nature of true mediation analysis. That is, mediation requires a sequence in which the predictor and mediator should predict a criterion to occur in the future (i.e., future acts of instrumental aggression). Our assessment of proactive aggression relied on self-report of past acts as a proxy for the propensity to commit future acts. Tests of this path analysis can be strengthened by employing prospective designs with behavioral indices of proactive aggression as the criterion. Finally, the current emotion processing deficits were demonstrated in a population of adult women only. Future studies should seek to replicate these findings employing longitudinal and cross-sectional designs to demonstrate a temporal causal relationship and fully substantiate extant developmental theories of psychopathy.

Nevertheless, the present study replicates and extends existing research findings demonstrating aberrant emotion processing in relation to psychopathy in nonforensic populations (Kimonis et al., 2006). Further, it advances this literature by demonstrating these emotional processes in women. Additionally, it lends support to theories of psychopathy that suggest that emotion plays a key role in the development of violent and persistent delinquent behavior.

References

Archer, J. (2004). Sex differences in aggression in real-world settings: A meta-analytic review. *Review of General Psychology, 8*, 291–322.
Berkowitz, L. (1993). *Aggression: Its causes, consequences, and control*. New York: McGraw Hill.
Blair, R. J. R. (2003). A neurobiological basis of psychopathy. *British Journal of Psychiatry, 182*, 5–7.

Blair, R. J. R. (2005). Applying a cognitive neuroscience perspective to the disorder of psychopathy. *Development & Psychopathology, 17*, 865–891.
Blair, R. J. R., Colledge, E., Murray, L., & Mitchell, D. G. V. (2001). A selective impairment in the processing of sad and fearful expressions in children with psychopathic tendencies. *Journal of Abnormal Child Psychology, 29*, 491–498.
Blair, R. J. R., Mitchell, D. G. V., & Blair, K. (2005). *The psychopath: Emotion and the brain*. Malden: Blackwell.
Blair, K. S., Richell, R. A., Mitchell, D. G. V., Leonard, A., Morton, J., & Blair, R. J. R. (2005). They know the words, but not the music: Affective and semantic priming in individuals with psychopathy. *Biological Psychology, 73*, 114–123.
Bower, G. H., & Forgas, J. P. (1999). Mood and social memory. In J. P. Forgas (Ed.), *Handbook of affect & social cognition* (pp. 95–120). Mahwah, NJ: Erlbaum.
Bushman, B. J., & Anderson, C. A. (2001). Is it time to pull the plug on the hostile versus instrumental aggression dichotomy? *Psychological Review, 108*, 273–279.
Cale, E. M., & Lilienfeld, S. O. (2006). Psychopathy factors and risk for aggressive behavior: A test of the threatened egotism hypothesis. *Law and Human Behavior, 30*, 51–74.
Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*, 155–159.
Day, R., & Wong, S. (1996). Anomalous perceptual asymmetries for negative emotional stimuli in the psychopath. *Journal of Abnormal Psychology, 105*, 648–652.
Falkenbach, D., Poythress, N., & Creevy, C. (2008). The exploration of subclinical psychopathic subtypes and the relationship with types of aggression. *Personality & Individual Differences, 44*, 821–832.
Ferraro, R. F., King, B., Ronning, B., Pekarski, K., & Risan, J. (2003). Effects of induced emotional state on lexical processing in younger and older adults. *Journal of Psychology: Interdisciplinary & Applied, 137*, 262–272.
Frick, P. J., & Marsee, M. A. (2006). Psychopathy and developmental pathways to antisocial behavior in youth. In C. J. Patrick (Ed.), *Handbook of psychopathy* (pp. 481–494). New York: Guilford Press.
Giancola, P. R. (2003). The moderating effects of dispositional empathy on alcohol-related aggression in men and women. *Journal of Abnormal Psychology, 112*, 275–281.
Hare, R. D. (2003). The hare psychopathy checklist-revised (PCL-R). 2nd ed. Toronto, Canada: Multi-Health Systems.
Herba, C. M., Hodgins, S., Blackwood, N., Kumar, V., Naudts, K. H., & Phillips, M. (2007). The neurobiology of psychopathy: A focus on emotion processing. In H. Hervé & J. C. Yuille (Eds.), *The psychopath: Theory research & practice* (pp. 253–283). Lawrence Erlbaum Associates.
Hicks, B. M., & Patrick, C. J. (2006). Psychopathy and negative emotionality: Analysis of suppressor effects reveals distinct relations with emotional distress, fearfulness, and anger-hostility. *Journal of Abnormal Psychology, 115*, 276–287.
Karpman, B. (1941). On the need for separating psychopathy into two distinct clinical types: Symptomatic and idiopathic. *Journal of Clinical Psychopathology, 3*, 112–137.
Karpman, B. (1948). The myth of the psychopathic personality. *American Journal of Psychiatry, 104*, 523–534.
Kimonis, E. R., Frick, P. J., Fazekas, H., & Loney, B. R. (2006). Psychopathy, aggression, and the processing of emotional stimuli in non-referred girls and boys. *Behavioral Sciences & the Law, 24*, 21–37.
Kimonis, E. R., Frick, P. J., Munoz, L. C., & Aucoin, K. J. (2007). Can a laboratory measure of emotional processing enhance the statistical prediction of aggression and delinquency in detained adolescents with callous-unemotional traits? *Journal of Abnormal Child Psychology, 35*, 773–785.
Lang, P. J., Bradley, M. M. & Cuthbert, B. N. (2005). *International affective picture system (IAPS): Digitized photographs, instruction manual and affective ratings (Tech. Rep. No. A-6)*. Gainesville, FL: The Center for Research in Psychophysiology, University of Florida.
Levenson, M. R., Kiehl, K. A., & Fitzpatrick, C. M. (1995). Assessing psychopathic attributes in a noninstitutionalized population. *Journal of Personality & Social Psychology, 68*, 151–158.
Lilienfeld, S. O. (1994). Conceptual problems in the assessment of psychopathy. *Clinical Psychology Review, 14*, 17–38.
Lorenz, A., & Newman, J. P. (2002). Deficient response modulation and emotion processing in low anxious Caucasian psychopathic offenders: Results from a lexical decision task. *Emotion, 2*, 91–104.
Lynam, D. R., Hoyle, R. H., & Newman, J. P. (2006). The perils of partialling: Cautionary tales from aggression and psychopathy. *Assessment, 13*, 328–341.
Miller, J. D., & Lynam, D. R. (2006). Reactive and proactive aggression: Similarities and differences. *Personality & Individual Differences, 41*, 1469–1480.
Mitchell, D. G. V., Avny, S. B., & Blair, R. J. R. (2006). Divergent patterns of aggressive and neurocognitive characteristics in acquired versus developmental psychopathy. *Neurocase, 12*, 164–178.
Nicholls, T. L., Olgoff, J. R. P., Brink, J., & Spidel, A. (2005). Psychopathy in women: A review of its clinical usefulness for assessing risk for aggression and criminality. *Behavioral Sciences & the Law, 23*, 779–802.
Olafson, K. M., & Ferraro, R. F. (2001). Effects of emotional state on lexical decision performance. *Brain & Cognition, 45*, 15–20.
Paulhus, D. L., Neumann, C.S., & Hare, R. D. (in press). *Manual for the Self-Report Psychopathy (SRP) scale*. Toronto: Multi-Health Systems.
Porter, S., Birt, A., & Boer, D. P. (2001). Investigation of the criminal and conditional release profiles of Canadian federal offenders as a function of psychopathy age. *Law & Human Behavior, 25*, 647–661.
Porter, S., & Woodworth, M. (2006). Psychopathy and aggression. In C. J. Patrick (Ed.), *Handbook of psychopathy* (pp. 481–494). New York: Guilford Press.
Porter, S., Woodworth, M., Earle, J., Drugge, J., & Boer, D. (2003). Characteristics of sexual homicides committed by psychopathic and nonpsychopathic offenders. *Law & Human Behavior, 27*, 459–470.
Raine, A., Dodge, K., Loeber, R., Kopp, L., Lynam, D., Reynolds, C., et al. (2006). The reactive–proactive aggression (RPQ) questionnaire: Differential correlates of reactive and proactive aggression in adolescent boys. *Aggressive Behavior, 32*, 159–171.
Reidy, D. E., Zeichner, A., Hunnicutt-Ferguson, K., & Lilienfeld, S. O. (2008). Psychopathy traits and the processing of emotion words: Results of a lexical decision task. *Cognition & Emotion, 22*, 1174–1186.
Reidy, D. E., Zeichner, A., & Martinez, M. A. (2008). Effects of psychopathy traits on unprovoked aggression. *Aggressive Behavior, 34*, 319–328.
Reidy, D. E., Zeichner, A., Miller, J. D., & Martinez, M. A. (2007). Psychopathy and aggression: Examining the role of psychopathy factors in predicting laboratory aggression under hostile and instrumental conditions. *Journal of Research in Personality, 42*, 1244–1251.
Schacter, D. L. (1987). Implicit memory: History and current status. *Journal of Experimental Psychology: Learning, Memory, & Cognition, 13*, 501–518.
Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Boston: Houghton-Mifflin.
Verona, E., & Vitale, J. (2006). Psychopathy in women: Assessment, manifestations, and etiology. In C. J. Patrick (Ed.), *Handbook of psychopathy* (pp. 415–436). New York: Guilford Press.
Williamson, S., Hare, R. D., & Wong, S. (1987). Violence: Criminal psychopaths and their victims. *Canadian Journal of Behavioral Science, 19*, 454–462.
Williamson, S., Harpur, T. J., & Hare, R. D. (1991). Abnormal processing of affective words by psychopaths. *Psychophysiology, 28*, 260–273.
Woodworth, M., & Porter, S. (2002). In cold blood: Characteristics of criminal homicides as a function of psychopathy. *Journal of Abnormal Psychology, 111*, 436–445.