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Aggressive Male Juvenile Offenders with Callous-Unemotional Traits Show Aberrant Attentional Orienting to Distress Cues

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Abstract

Antisocial youth with callous-unemotional (CU) traits exhibit a pattern of severe and persistent conduct problems and deficits in emotional processing that parallels adults with psychopathy. Aberrant emotional attention, particularly among individuals high on aggression, constitutes one such deficit; however, its robustness across race/ethnicity requires further investigation given findings that the psychopathy construct manifests differently across race (Sullivan & Kosson, 2006), and emotional attention is susceptible to the influence of adverse environmental factors such as violence exposure that is more common among ethnic minority youth (Kimonis, Frick, Muñoz, & Aucoin, 2008). Also, the development of a comprehensive measure of CU traits, the Inventory of Callous-Unemotional Traits (ICU), has identified specific CU dimensions (Uncaring, Callous, Unemotional) that are yet to be investigated in relation to emotional attention deficits. Thus, the purpose of the present study was to examine whether aggressive boys high on total CU traits and specific ICU dimensions show deficits in attentional orienting to negative stimuli on a dot-probe task that are consistent across race/ethnicity. Results from a predominately Latino sample of incarcerated male adolescents (N=156) showed that aggression moderated the association between CU traits and facilitation to distress stimuli. That is, aggressive boys high on CU traits or the Uncaring dimension showed deficient attentional orienting; a finding that was consistent across racial/ethnic minority groups. Results are consistent with prior research suggesting that the combination of high CU traits and aggression defines a unique subgroup of antisocial individuals that more closely fits with the construct of psychopathy than the presence of CU traits alone.

Keywords

callous-unemotional traits; juvenile psychopathy; emotional processing; emotional attention; dot probe task; Latino

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The authors declare that they have no conflict of interest.

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in the study.

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Deficits in fearful and empathic responding are at the core of psychopathic personality (Cleckley, 1941). The construct of psychopathy has been extended downward to youth, for whom callous-unemotional (CU) traits (i.e., lack of empathy, guilt, uncaring attitudes) best distinguish those antisocial individuals showing severe, stable and aggressive conduct problems (Frick, Ray, Thornton, & Kahn, 2013). Children and adolescents with CU traits exhibit a range of unique social-cognitive and neurobiological correlates related to the processing of emotional stimuli and reinforcement learning (see Herpers, Scheepers, Bons, Buitelaar, & Rommelse, 2014). For example, they show impaired recognition of sad and fearful facial expressions and body postures (Blair, Colledge, Murray, & Mitchell, 2001; Dadds, El Masry, Wimalaweera, & Guastella, 2008), lower skin conductance response to others' distress cues (Blair et al., 2001; Lorber, 2004), and reduced amygdala activation while processing fearful expressions (Viding, Sebastian, Dadds, Lockwood, Cecil, & DeBrito, 2012) compared with their low CU counterparts. Several researchers have also argued that psychopathy involves aberrant emotional attention; specifically, reduced attention capture by negative emotional stimuli (Blair & Mitchell, 2009). For example, in a visual search task, angry and fearful emotional faces were less likely to capture the attention of boys with conduct problems and CU traits compared to both typically developing children and those with conduct problems without CU traits (Hodsoll, Lavie, & Viding, 2014).

Not all studies, however, find an association between CU traits and deficits in emotional attention. Several studies find that CU traits are not associated with various emotional processing deficits in isolation, but only in combination with conduct problems or aggression (Blair et al., 2001; Loney, Butler, Lima, Counts, & Eckel, 2006; Stevens, Charman, & Blair, 2001). For example, in their predominately African American sample of detained boys, Kimonis, Frick, Muñoz and Aucoin (2008) found that those high on CU traits only exhibited deficient attentional orienting to distress cues on a dot probe task when they also scored high on aggression. The combination of high CU traits and antisocial behavior generally appears to identify youth showing distinct correlates from antisocial children low on CU traits, including temperamental differences, thrill-and-adventure seeking, response to punishment, biological markers, and more severe patterns of delinquency and other antisocial behaviors (for a review see Frick et al., 2013).

Several studies also suggest that race modifies the association between psychopathic or CU traits and cognitive-affective processing (Kosson, Smith, & Newman, 1990). For example, in a community sample, Kimonis, Frick, Fazekas, and Loney (2006) found that African American children did not show the same association between CU traits and attentional orienting to distress images on a dot probe task that was found for Caucasian children ($\beta = .09$, n.s. vs. $\beta = -.45$, $p < .05$). Whereas several studies have compared Caucasian and African American individuals scoring high on measures of psychopathy or CU traits on tasks assessing cognitive and emotional processing (Kimonis et al., 2006; Lorenz & Newman, 2002; Thornquist & Zuckerman, 1995), it is unknown whether there are differences *within* ethnic minority populations, and specifically for Latino youth who represent the fastest growing ethnic group in the US (Ennis, Rios-Vargas, & Albert, 2011). Generally, research focusing on Hispanic/Latino juvenile populations with psychopathic or CU traits is scarce (Baskin-Sommers, Newman, Sathasivam, & Curtin, 2011); a gap in the

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literature that the present study aims to fill. In one notable exception, Ermer, Cope, Nyalakanti, Calhoun, and Kiehl (2013) found in a predominately Hispanic/Latino incarcerated male adolescent sample that psychopathy scores were associated with similar brain dysfunction (i.e., decreased paralimbic gray matter volume) as observed in incarcerated adult men with psychopathic traits. Robust neuroimaging literature supports that paralimbic, and specifically amygdala, functioning underlies the processing of negative stimuli during emotional attention tasks including the dot-probe paradigm (Phelps, 2006). To date, research has failed to examine whether emotional deficits, such as attentional orienting to distress stimuli, differ *within* ethnic minority youth populations high on psychopathic or CU traits. This represents an important focus of study since ethnic minority populations in the US, namely Hispanic and African American youth, experience similarly high rates of environmental adversity such as violence exposure, which is associated with emotional attention deficits (Crouch, Hanson, Saunders, Kilpatrick, & Resnick, 2000; Kimonis et al., 2008a).

Accumulating research suggests that CU traits are multidimensional, and that its dimensions show differential associations with measures of emotional processing. Factor analytic studies of the most comprehensive measure of CU traits, the Inventory of Callous-Unemotional Traits (ICU, Frick, 2004), conducted in community and incarcerated samples across several countries and using various language translations consistently support the superiority of a three-factor bifactor model. This is a model with a general CU factor tapped by the common variance across items, along with three independent factors (Uncaring, Callous, and Unemotional) each accounting for the unique variance in their respective set of items, over and above the general factor (for a detailed description and a graphic representation of this bifactor model, see Kimonis, Frick, Skeem, Marsee, Cruise, & Muñoz, 2008). ICU dimensions show unique associations with external criterion measures; Uncaring and Callous dimensions with antisocial, delinquent and aggressive behavior and the Unemotional dimension with deficits in empathy and positive affect (Essau, Sasagawa, & Frick, 2006; Fanti, Frick, & Georgiou, 2009; Kimonis et al., 2008b). Only the Uncaring dimension was associated with reduced autonomic reactivity to provocation (Kimonis et al., 2008b). Notably, within a predominately Hispanic/Latino population of incarcerated adolescents the self-report ICU demonstrated good internal consistency relative to CU subscales of common interview-based and rater measures of psychopathy that demonstrated poor psychometric properties (Fink, Tant, Tremba, & Kiehl, 2012). The current study aims to elucidate whether specific CU dimensions uniquely relate to deficits in attentional orienting to distress stimuli on a dot probe task, when in combination with antisocial behavior. To examine this question, we focus on two specific aims. The first study aim was to extend prior research showing that CU traits interact with aggression in statistically predicting attentional orienting to distress cues by examining contributions of Uncaring, Callous, and Unemotional dimensions identified in factor analytic studies of the ICU, separately. The second study aim was to test whether these interactions differed between Latino and African American individuals using a relatively large sample of ethnically heterogeneous incarcerated boys.

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Method

Participants

Data for the present study came from a subsample of 376 male juvenile offenders housed in a secure confinement facility in Southern California for predominately violent (e.g., murder, rape, robbery, aggravated assault) index offenses (69%, $n = 258$). The subsample of youth (N=156) used for this study had completed the three primary measures (CU traits, aggression, facilitation to distress stimuli) central to study aims, as the ICU and dot probe task were introduced partway into the larger study. Youth included in this study did not differ from those excluded in terms of age, $t(371) = -1.73$, $p = .09$, or race/ethnicity, X^2 (3, $N = 374$) = 1.29, $p = .73$. Participants were between the ages of 14 and 17 years ($M = 16.51$, $SD = .75$; see Table 1), and the majority (94%) were from ethnic minority backgrounds (56% Latino, 26% African American, and 12% bi- or multi-racial), whereas only 6% of the sample was Caucasian.

Procedure

A University Institutional Review Board and the State's Department of Corrections and Rehabilitation approved all study procedures. In addition, a Certificate of Confidentiality was secured from the Department of Health and Human Services to ensure that the information disclosed by youth remained confidential. All newly admitted youth between the ages of 14 and 17 years, or those returning on a new offense, were eligible to enroll in the study. After providing written assent, their parents/guardians were contacted via telephone to verbally consent to their child's participation (97% consent rate). Within 48 hours of facility arrival, youth completed an initial interview, followed by weekly and monthly follow-up interviews (weeks 2, 3, 4, and month 2) with identical measures and several additional questionnaires. Measures completed for the purposes of the current study were conducted in weeks 3 and 4.

Measures

Demographic information.—Participants self-reported their age and race/ethnicity. A large majority reporting Latino ethnicity self-identified as Mexican American (45% of the full sample). Youth were grouped into three racial/ethnic categories (Latino, African American, and Caucasian) to address study aims; however, Caucasians were excluded from regression analyses examining moderation by race/ethnicity given the small number with scores across all measures ($n = 9$), as were youth reporting as other race/ethnicity ($n = 19$).

Callous-Unemotional Traits.—The Inventory of Callous-Unemotional Traits (ICU; Frick, 2004) includes 24 items rated on a four-point scale from 0 (*not at all true*) to 3 (*definitely true*). Alphas for total ICU scores ranged from .77 - .89 (Essau et al., 2006; Roose, Bijttebier, Decoene, Claes, & Fricke, 2010), indicative of acceptable to good internal consistency. The construct validity of ICU scores is supported in community, clinic-referred, and incarcerated samples of youth. For example, the ICU total score has been found to be associated with aggression, delinquency, and psychosocial impairment, as well as reduced emotional arousal on psychophysiological measures (e.g., Fanti et al., 2009; Kimonis et al., 2008b). Consistent with these past studies, ICU items 2 and 10 were deleted because of low

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corrected item-total correlations. The remaining 22 items were summed for a total score and subscale scores (Uncaring, Callous, and Unemotional) were computed based on factor analytic studies reported above supporting a three factor bifactor structure. Higher scores indicated greater CU traits.

Aggression.—A 24-item abbreviated version of Little, Jones, Henrich and Hawleys' (2003) self-report Aggression Inventory was used to measure aggression. This measure assesses four principle dimensions of aggressive behavior: overt versus relational aggression, and proactive versus reactive aggression. Items are rated on a 5-point scale (1 = *never*, to 5 = *almost always*). Only the 6-item overt aggression subscale (e.g., *often fight with others; hits, kicks, or punches others*) was used in the present study given its use in prior studies examining associations between psychopathic or CU traits and facilitation to distress stimuli on the dot probe task (Kimonis et al., 2006; 2008a). The overt aggression scale demonstrated good internal consistency in the current study (α = .83).

Emotional Processing.—The emotional pictures dot-probe task is a spatially oriented motivated attention task that is administered via computer to capture attentional orienting toward emotional cues (for a full description see Kimonis et al., 2006; 2008a). The task included slides depicting distressing (e.g., crying child), positive (e.g., puppies), and neutral emotional content (e.g., fork). The four test blocks each contained 18 picture pairs presented for 250 milliseconds. The dependent variable is a facilitation index, with higher facilitation scores reflecting greater attentional orienting to distressing over neutral stimuli (see Kimonis et al., 2006; 2008a). Facilitation scores greater than 3.5 standard deviations from the mean were considered outliers and removed for analyses (n = 2).

Planned Analyses

Pearson zero-order correlations were used to examine associations between main study variables for the full sample and also separately by race/ethnicity (Latino, African American), and analyses of variance (ANOVA) to test differences between racial/ethnic groups on main study variables for descriptive purposes. Study aims were tested using hierarchical regression analyses. To test aim 1, main effects for ICU total (or subscale) and aggression scores were entered into the first step of the model, and the two-way interaction between ICU scores (IV) and aggression (moderator) was entered into the second step. Predictors were centered using the sample mean prior to computing interaction terms and entering them into regression analyses to reduce multicollinearity. To test aim 2, race/ethnicity was added into step 1, its two-way interaction with CU and with aggression scores was entered into step 2, and the three-way interaction between CU traits, aggression, and race/ethnicity was entered into step 3 in statistically predicting facilitation to distress stimuli scores on the dot-probe task.

Results

All measures were normally distributed, except facilitation scores, which evidenced a more peaked distribution of scores around the mean (M = −20.40, SD = 57.70 ms) with a skewness of 0.14 (SE = .20) and kurtosis of 4.25 (SE = .39). The negative value of the mean

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facilitation to distress score is consistent with past findings in detained boys (Kimonis et al., 2008a, $M = -2.16$, $SD = 49.74$ ms), although more marked in this sample of serious offending boys. Table 1 demonstrates that ICU subscales were moderately correlated with one another with r's ranging from .23 ($p < .01$) to .32 ($p < .001$). ICU total scores, and Uncaring and Callous subscales were correlated with aggression, r's = .40, .33, and .39, all $p < .001$, respectively, but Unemotional subscale scores were not.

ICU subscales were simultaneously entered into a multiple linear regression model to test their independent contributions to the statistical prediction of aggression. Together, these subscales accounted for a significant 21.4% of the variance in aggression ($p<.001$); Uncaring and Callousness subscales independently contributed significant variance to the statistical prediction of aggression, β =.28 and.34, both $p < .001$, whereas the Unemotional subscale did not. Results were similar when covarying race/ethnicity. Repeating this analysis with facilitation to distress scores as the dependent variable, only the Uncaring subscale was a significant predictor, $r = -.19$, $p < .05$, which remained when covarying race/ethnicity, $r = -.23$, $p < .05$. That is, the higher boys scored on the Uncaring subscale of the ICU, the less distress images captured their attention when competing with a neutral image.

Results of hierarchical regression analyses testing whether aggression moderates the relation between ICU total/subscale scores and facilitation to distress (aim 1) are presented in Table 3. There was an interaction between ICU total scores and aggression in statistically predicting facilitation to distress, β = −.20, $p = .02$. There was also an interaction between the Uncaring subscale and aggression, β = −.16, $p < .05$, but not Callousness or Unemotional subscales. The form of the interaction was probed using simple slopes analyses and followed up with the Johnson-Neyman technique to identify regions of significance (SIMPLE, O'Connor, 1998; see also Preacher, Curran, & Bauer, 2006). A simple slope is defined as the regression of the outcome on the predictor at a specific value of the moderator. The SIMPLE program models the relationship between varying levels of the predictor (CU traits) and criterion variable (facilitation to distress), at three levels of the moderator (aggression, −1SD, mean, +1SD). Regions of significance refer to the range of moderator values for which there is a significant association between independent and dependent variables (see Roisman et al., 2012). Figure 1a shows the interaction with regression weights for total CU traits on facilitation to distress at three levels of aggression. High CU traits were associated with reduced orienting to distress stimuli at high levels of aggression. The Johnson-Neyman technique showed that the relationship between CU traits and facilitation to distress was significant when aggression scores were greater than.07 *SD*s above the mean. At low levels of aggression, there was no significant relationship between CU traits and facilitation to distress stimuli. As shown in Figure 1b, the form of the interaction was similar for ICU Uncaring scores, except that high scores were associated with reduced orienting to distress stimuli at both moderate and high levels of aggression; the relationship between Uncaring scores and facilitation to distress was significant when aggression scores were greater than −.03 *SD*s from the mean, according to the Johnson-Neyman technique.

Prior to testing whether race/ethnicity moderates the relationship between CU traits and aggression in statistically predicting facilitation to distress (aim 2), zero-order correlations

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between ICU scores and facilitation to distress were first examined separately by race/ethnicity (see Table 1). Uncaring scores were marginally negatively correlated with facilitation scores, $r = -.20$, $p = .06$, for Latino youth and although negatively associated for other races, correlations were not significant (Caucasian $r = -.37$; African American $r = -.22$). There were no other significant correlations between ICU total or subscale scores and facilitation scores within race/ethnicity. To examine whether youth of different race/ethnicity differed on the main study variables, a series of one-way between group ANOVAs were conducted (MANOVA for ICU subscales). As shown in Table 2, racial/ethnic groups did not differ on any main study variables.

Results of hierarchical regression analyses testing the three-way interactions between ICU scores, aggression, and race/ethnicity in predicting facilitation to distress revealed that none of the three-way interaction terms achieved significance (see online Supplementary Table 1 for total ICU scores). However, the interaction between total ICU and aggression scores remained significant after accounting for race/ethnicity ($p = .03$). Analyses were repeated for each ICU subscale (Uncaring, Callous, Unemotional) and none of the three-way interactions terms achieved significance; however, the interaction between the Uncaring subscale and aggression remained significant after accounting for the variance contributed by race/ethnicity ($p = .03$).

Discussion

Callous-unemotional (CU) traits have been consistently linked to deficits in the processing of negative emotional stimuli, and cues of distress in particular (Marsh & Blair, 2008). One such deficit may involve aberrant emotional attention, and specifically, reduced attention capture by negative emotional stimuli (Blair & Mitchell, 2009). However, findings of emotional attention deficits in individuals with psychopathic traits are inconsistent in studies of adults (Edalati, Walsh, & Kosson, 2016), and among youth are not found without considering moderating variables (i.e., aggression, Kimonis et al., 2006; 2008a). Replicating for the second time, Kimonis et al.'s (2006) finding that aggression moderates the association between CU traits and attentional orienting to negative stimuli, this study lends consistent support to findings of reduced prioritization of attention to distress cues among youth high on CU traits when they score high on aggression, but not when they score low. The present study represents the second replication with an incarcerated population (Kimonis et al., 2008a).

The current study extends prior research on emotional attention deficits in youth high on CU traits in two key ways. First, it examines whether separable CU dimensions—Uncaring, Callousness, and Unemotional—supported in several prior factor analytic studies of the self-report ICU using various language translations (Fanti et al., 2009; Roose et al., 2010) drive associations with deficient attentional orienting to distress stimuli. In doing so, findings indicated that this effect appears driven by the Uncaring dimension, and that boys scoring high on the Uncaring subscale of the ICU were less attentionally engaged by distress cues on the dot probe task than boys scoring low, even without considering aggression as a moderating variable, although with small effect size. These findings lend further support for considering separable dimensions of CU traits, which have demonstrated distinct correlates

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in prior research (e.g., Essau et al., 2006). For example, Uncaring scores were the only ICU dimension associated with reduced psychophysiological arousal to high provocation on a competitive reaction time task among incarcerated youth ($r = -.20$, $p < .05$; Kimonis et al., 2008a). Similarly, that study found that Uncaring scores were more strongly associated with measures of proactive aggression than they were with measures of reactive aggression. Both emotional underarousal and proactive aggression have been identified as correlates distinguishing antisocial youth with CU traits from those without CU traits (Frick, Ray, Thorton, & Kahn, 2014). Together, these findings suggest that CU traits tapping uncaring attitudes about one's own performance and others' feelings may be the best indicators of affective deficits of psychopathy, thought to be underpinned by fearlessness. It is important to acknowledge, however, that there is ongoing debate about the utility of examining ICU subscales, which have demonstrated modest model fit indices in prior factor analytic research (e.g., see Kahn, Byrd, & Pardini, 2012; Ray, Frick, Thornton, Steinberg, & Cauffman, 2016 for a discussion).

Second, the current study extends prior research conducted with younger community children and detained adolescent boys to find robust results across race/ethnicity using an ethnically heterogeneous sample of predominately Latino and African American youth. Latino populations have been underrepresented to date in the field of psychopathy, despite their disproportionate representation within incarceration settings relative to Caucasian youth (Villaruel & Walker, 2002). Our finding that emotional deficits considered core to psychopathic and CU traits, identified in primarily Caucasian and African American populations, are consistent within a predominately Latino population lends confidence to the validity of these constructs. Across three considerably divergent samples, with respect to race/ethnicity, culture, setting, and co-occurrence of antisocial behavior, the combination of CU traits and aggression appears to consistently signal the presence of a deficit in attentional orienting to distress stimuli. That is, distress cues failed to capture the attention of boys high on CU traits if they were high on aggression, but not if they were low on aggression, regardless of race/ethnicity. These findings are consistent with prior research suggesting it is the combination of high CU traits and aggression that defines a unique subgroup of antisocial individuals that more closely fits with the construct of psychopathy, rather than the presence of CU traits alone (Frick et al., 2014).

It is also important to note that the interaction between CU traits and aggression in predicting the processing of emotional stimuli suggests that those other youth that are high on aggression, but low on CU traits, showed enhanced attentional orienting to negative stimuli as measured by the dot-probe task. This finding is consistent with past studies of youth (Kimonis et al., 2006; Loney, Frick, Clements, Ellis, & Kerlin, 2003) and with a theoretical model suggesting that aggressive youth low on CU traits are more likely to show impairments in their ability to regulate their emotions and that these impairments may be a primary causal factor leading to the aggressive behavior in this group (Frick & Morris, 2004). For example, Viding et al. (2012) found that boys with conduct problems and low CU traits showed enhanced amygdala activation when viewing fearful vs. calm faces relative to boys with co-occurring conduct problems and high CU traits that showed reduced activation.

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These findings must be interpreted within the context of several study limitations. First, although representative of the incarcerated youth population in this region, there were a small number of Caucasian boys (n = 9) against which to compare ethnic minority groups. Further, with the remaining ethnic minority youth, it is possible that our failure to detect a significant ICU × aggression × race/ethnicity interaction was due to a lack of statistical power. A post hoc power analysis using G*Power (Faul, Erdfelder, Buchner, & Lang, (2009) revealed sufficient power (.80) to detect a medium (f = .25) but not a small (f = .10) effect. Second, this study is limited to serious male juvenile offenders and findings may not generalize to girls that are relatively understudied in the literature. Third, etiological inferences cannot be drawn from this cross-sectional study. That is, deficits in emotional attention may reflect temperamental differences in emotionality, or alternatively, may result from exposure to violent home and neighborhood environments that lead to desensitization (see Kimonis, et al., 2008b). For example, infants raised in severely impoverished social and emotional environments show a blunted pattern of emotional reactivity (Carlson & Earls, 1997), which has been shown to persist into adulthood (van der Vegt, van der Ende, Kirschbaum, Verhulst, & Tiemeier, 2009). Important strengths of this study were its focus on understudied Latino youth, and its inclusion of a widely used emotional attention task with reliable and robust effects (effect sizes up to d = .45) in anxious populations (Bar-Haim, Lamy, Pergamin, Bakermans-Kranenburg, & van Ijzendoorn, 2007).

Within the context of these strengths and limitations, the current results support the importance of deficits in attentional orienting to distress cues for understanding CU traits, but only if important moderators are considered. Our findings support the existence of a group of youth high on CU traits and aggression that also show reduced attentional orienting to others' distress cues, consistent with past research, across racial and ethnic groups overrepresented within American justice settings. Drawing from the anxiety literature in which the dot-probe task is commonly used to assess emotional attention, our findings suggest that the threshold for attention capture by negative stimuli may be different for high- versus low-CU aggressive individuals, likely stemming from less sensitive early appraisal mechanisms for negative cues (Yiend, 2010). For other psychopathologies, such as anxiety, identifying emotional attention biases has led to the development of new, effective treatments, such as Attention Bias Modification (MacLeod, Rutherford, Campbell, Ebsworthy, & Holker, 2002). Studies of emotional attention, therefore, offer a promising avenue for understanding the functional mechanisms underlying psychopathic traits, and for improving interventions for this particularly harmful population.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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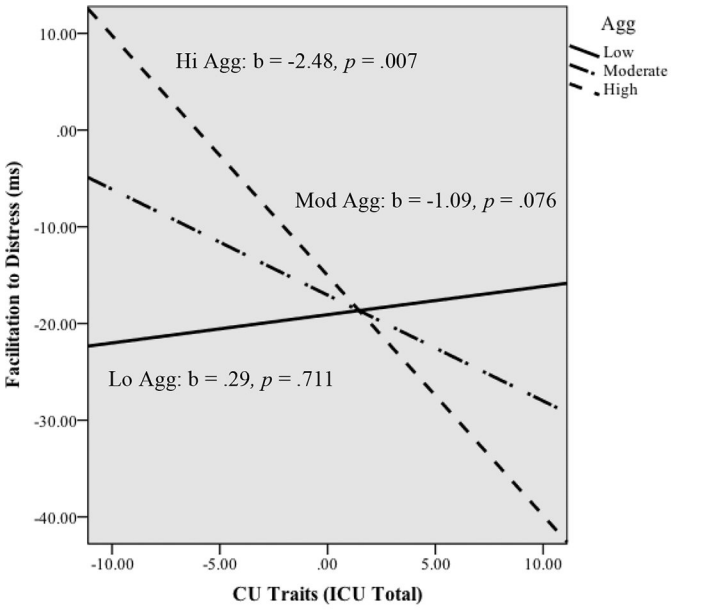
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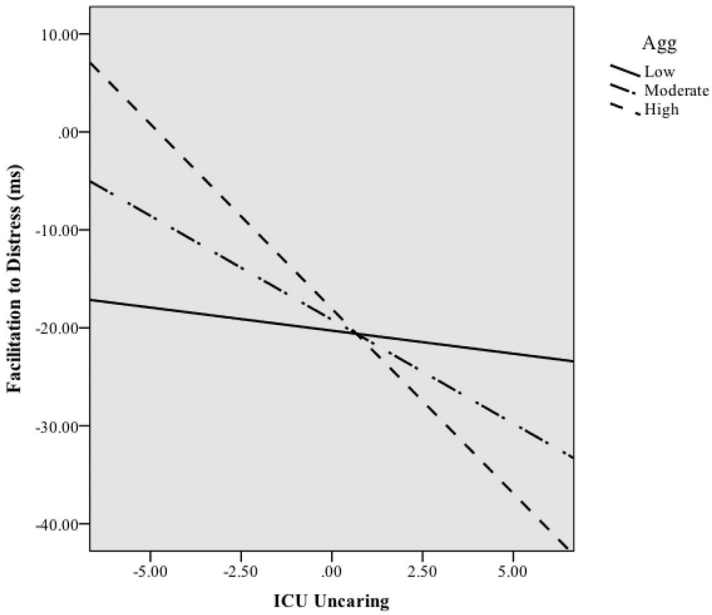
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Hi Agg: b = -3.77, p = .009

Mod Agg: b = -2.12, p = .042

Lo Agg: b = -.47, p = .745



(a)

(b)

Figures 1(a) and 1(b).

Simple slopes figures showing the interaction between total CU traits (a)/ the uncaring dimension (b) and aggression for facilitation to distress stimuli (in milliseconds). CU = callous unemotional; ICU = Inventory of Callous Unemotional Traits; Hi Agg = high aggression; Mod Agg = moderate aggression; Lo Agg = low aggression.

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Table 1.

Descriptive Statistics and Correlations (for Latino/ African American separately in parentheses) among Main Study Variables

Variables	1.	2.	3.	4.	5.	6.
1. ICU Total	--	.69***(.67/.76***)	75***(76/74***)	.57***(.65/.52***)	40***(41***/41**)	−.11 (−.04/−.22)
2. Uncaring		--	.23**(.19^{b}/.24)	.32***(.32/.38**)	.33***(.37***/.30^{a})	−.19*(−.20^{a}/−.22)
3. Callous			--	.25**(41***/.17)	.39***(36***/.36*)	−.07 (−.03/−.14)
4. Unemotion.				--	.09 (.20^{b}/.04)	−.02 (.03/−.07)
5. Aggression					--	−.03 (−.06/−.03)
6. Fac Distress						--
Descriptives (Full Sample)						
Mean (SD)	25.45 (6.52)	10.85 (4.95)	6.03 (3.84)	8.41 (2.57)	1.78 (.67)	−20.40 (57.70)
Skewness (SE)	−.32 (.19)	−.07 (.19)	.75 (.19)	.13 (.19)	.76 (.19)	.14 (.20)
Kurtosis (SE)	−.02 (.39)	−.31 (.39)	.06 (.39)	.38 (.39)	−.20 (.39)	4.25 (.39)
Range	8 − 42.95	0 − 24	0 − 18	2 − 15	1 − 3.67	−238.96 – 225.20
Alpha	.78	.83	.73	.51	.83	--

Note. ICU = Inventory of Callous-Unemotional Traits, Fac Distress = Facilitation to distress (milliseconds);

^{a} p=.06;

^{b} p=.07;

* p<.05;

** p<.01;

*** p<.001.

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Table 2.

Univariate and Multivariate Analysis of Variance Comparing Racial/Ethnic Groups on Main Study Variable

	Latino (*n* = 88)		African American (*n* = 41)		Caucasian (*n* = 9)				
Variable	**M**	**SD**	**M**	**SD**	**M**	**SD**	**F**	***p***	**η^2**
Aggression	1.81	0.72	1.85	0.64	1.41	0.41	1.33	.27	.03
Fac Distress	−25.03	55.82	−12.54	71.12	−17.29	40.62	0.46	.71	.01
ICU Total	25.86	6.73	24.67	7.03	23.56	5.50	0.64	.59	.12
Uncaring	11.49	5.09	9.46	5.39	9.11	4.17			
Callous	6.34	3.78	5.80	4.04	4.33	3.71			
Unemotional	8.38	2.69	8.12	2.65	9.44	2.30			
							1.81	.10	.04

Note: ICU subscales were analyzed using MANOVA, F ratio was generated from Pillai's statistic. Aggression *df* = 2, 135. Distress *df* = 2, 133. ICU total and scales *df* = 2, 135. Fac Distress = facilitation to distress (in milliseconds).

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Table 3

Hierarchical regression analyses testing for the potential moderating role of aggression in the association between ICU scores and attentional orienting to distress images

	B (SE)	β	R^2	R^2-change
ICU Total	−1.00 (.78)	−.11		
Aggression	1.69 (7.55)	.02	.01	
Constant	2.03 (19.47)			
ICU Total	−1.32 (.78)	−.15		
Aggression	7.48 (7.80)	.09		
ICU × Agg	−2.74 (1.13)	−.20*	.05	**.037***
Constant	4.86 (19.19)			
Uncaring	−2.34 (.99)	−.20*		
Aggression	3.56 (7.24)	.04	.04[a]	
Constant	−1.16 (14.45)			
Uncaring	−2.33 (.99)	−.20*		
Aggression	6.99 (7.38)	.08		
Uncaring × Agg	−2.76 (1.39)	−.16*	.06	**.024***
Constant	−4.33 (14.41)			
Callous	−1.01 (1.31)	−.07		
Aggression	−.028 (1.31)	.00	.01	
Constant	−14.25 (13.43)			
Callous	−1.11 (1.30)	−.07		
Aggression	3.31 (7.74)	.04		
Callous × Agg	−2.95 (1.82)	−.14	.02	.017
Constant	−16.65 (13.44)			
Unemotional	−.42 (1.82)	−.02		
Aggression	−2.11 (6.96)	−.03	.00	
Constant	−13.14 (19.38)			
Unemotional	−.87 (1.83)	−.04		
Aggression	−4.39 (7.04)	−.05		
Unemotional × Agg	−4.72 (2.79)	−.14	.02	.019
Constant	−4.50 (19.91)			

Note. ICU = Inventory of Callous-Unemotional Traits; Agg = Aggression;

* $p<.05$;

[a] $p= .06$.