Recognition of facial affect in girls with conduct disorder

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ABSTRACT

Impaired recognition of facial affect has been reported in youths and adults with antisocial behavior. However, few of these studies have examined subjects with the psychiatric disorders associated with antisocial behavior, and there are virtually no data on females. Our goal was to determine if facial affect recognition was impaired in adolescent girls with conduct disorder (CD). Performance on the Ekman Pictures of Facial Affect (POFA) task was compared in 35 girls with CD (mean age of 17.9 years ± 0.95; 38.9% African-American) and 30 girls who had no lifetime history of psychiatric disorder (mean age of 17.6 years ± 0.77; 30% African-American). Forty-five slides representing the six emotions in the POFA were presented one at a time; stimulus duration was 5 s. Multivariate analyses indicated that CD vs. control status was not significantly associated with the total number of correct answers nor the number of correct answers for any specific emotion. Effect sizes were all considered small. Within-CD analyses did not demonstrate a significant effect for aggressive antisocial behavior on facial affect recognition. Our findings suggest that girls with CD are not impaired in facial affect recognition. However, we did find that girls with a history of trauma/neglect made a greater number of errors in recognizing fearful faces. Explanations for these findings are discussed and implications for future research presented.

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1. Introduction

Impaired recognition of facial affect has been reported in youths and adults with "antisocial behavior" (Marsh and Blair, 2008). However, two gaps exist in the literature. First, few of these studies have examined subjects who have the psychiatric disorders associated with antisocial behavior. Second, there are virtually no data on females.

The non-diagnostic term "antisocial behavior" describes a heterogeneous population consisting of the following: a) subjects with the psychiatric diagnoses of conduct disorder (CD) or antisocial personality disorder (ASPD); b) youths or adults in the criminal justice system; c) people who meet criteria on an instrument measuring the psychological construct of psychopathy; or d) persons who are physically aggressive. Although there are behavioral similarities across these sub-groups, there are also important differences. For example, Hare et al. (2006) estimate that fewer than 25% of people meeting the criteria for CD or ASPD would have high scores on psychopathy instruments. Knowing whether patients with these disorders have deficits in facial affect recognition would be useful for clinicians involved in their treatment.

We first investigated this question by searching the current literature. Table 1 presents a summary of the samples, methods, and results for the studies to date that have examined facial affect recognition in antisocial behavior. We selected studies if there was documented behavior (evidenced by CD, ASPD, delinquency or criminality) that violated the rights of others or demonstrated a disregard for rules and laws *or* evidence of a propensity to antisocial behavior by high scores on an instrument measuring psychopathy. We excluded studies with samples in which non-antisocial explanations for behaviors were possible, e.g., patients with psychosis, mental retardation, or parents accused of child abuse.

As can be seen, only 3/10 studies have examined youths with CD; the remainder have used youths who were delinquent or were high-scorers on a psychopathy instrument. Interpreting the findings from the three studies is limited by a) small numbers of subjects with CD (Studies 1 and 3 on Table 1); b) analysis of data from CD and attention deficit hyperactivity disorder ADHD subjects together (Study 3); and use of clinical diagnoses (Study 1). CD was associated with the lowest total score on the facial affect recognition task in the one study that had the largest number of CD subjects and in which data were analyzed separately for this group (Study 2).

Studies on adults with ASPD are fewer and more difficult to interpret. Only two studies investigated the effect on ASPD on recognition of facial emotion. One of these studies completely confounded psychopathy and ASPD by enrolling only subjects who met the criteria for both (Study 10). The remaining study reported that ASPD was significantly associated with poorer facial affect

Table 1
Facial affect recognition and antisocial behavior: summary of studies.

Study	Sample					Task and Results		
	N/n^1	Age	Race	Females	ASB[2] definition	Stimulus type and exposure time	Results	Comments
Children/adolescents								
1. (Walker, 1981) #6146	60 patients; 15 CD[3]	12 ± 2 years	?	6	Clinical diagnosis	Single photos; forced choice: 4 min	CD = controls	No covariates tested; no data on girls
2. (Cadesky, et al., 2000) #6139	200; 87 CD or CD + ADHD[4]	9 ± 1 years	?	13	Research diagnosis; parent/teacher	DANVA[5] forced choice: 2 s	CD < ADHD + CD < ADHD < controls in total score	ADHD + CD more accurate sad faces; no data on girls
3. (Guyer, et al., 2007) #8101	250; 6 diagnostic categories; 7 CD; 10 ADHD + CD	15 ± 1 years	40% Black	10 girls	Research diagnosis; parent/youth	DANVA forced choice: 2 s	ADHD + CD = controls	IQ, race, age = covariates; no data on girls
4. (McCown, et al., 1986) #6144	80; 40 DEL[6]; 40 controls	15 ± 1 years	50% Black	0	Incarceration	Ekman POFA[7]: 5 s	DEL < controls total score; DEL < controls sadness, surprise, disgust	No covariates tested; no girls in sample
5. (McCown, et al., 1988) #6164	N = ?; 84 DEL; ? controls	14 ± 1 years	100% White	0	Incarceration	Ekman POFA: .05 s/slide, then repeated	DEL = controls total score; >50% DEL did better than controls	Ss[8] tested in groups of 10-30; Bonferroni correction used; no girls in sample
6. (Carr and Lutjemeier, 2005) #6143	N = ?; 29 DEL; ? controls	15 ± 2 years	28% White; 62% Black/Hispanic	0	Juvenile justice placement facility; self-reported level of DEL	DANVA: 2 s; CERT[9]: forced choice, no time limit	DEL = controls total score, except in 11-12 year-old group	No covariates tested; 20% participation rate in DEL group; no girls in sample
7. (Blair and Coles, 2000) #8099	N = 55 school children; psychopathy scores: continuous and grouped	12 ± 1 years	59% White; 20% Black; 21% Asian	24	Psychopathy; teacher rating scale	Ekman faces in morphing hexagon: forced choice, 3 s	C/U[10], I/CP[11] negatively correlated with total scores, fearful faces; C/U negatively with sad faces; high group < low group total score; sad faces	Verbal IQ, age, sex = covariates; ? effect of sex; only 2 girls (18%) in high group
8. (Stevens, et al., 2001) #7159	N = 37 EBD[12] students; 9 high psychopathy; 9 low psychopathy	12 ± 2 years	?	0	Psychopathy; teacher rating scale	DANVA: 2 s	high group < low group total score, sad, fearful faces	No covariates tested; no girls in sample
9. (Blair, et al., 2001) #4772	N = 132 EBD students; 20 high psychopathy 31; low psychopathy	13 ± 3 years	?	0	Psychopathy; teacher rating scale	Ekman faces in morphing hexagon: forced choice, 3 s	high group < low group fearful faces	Age, IQ = covariates; no girls in sample
Adults								
10. (Habel, et al., 2002) #7160	34; 17 criminals; 17 controls	33 ± 6 years	?	0	Incarceration, all had ASPD[13], and psychopathy based on records and interview	PFD[14]: forced choice Likert scale happy/sad: ? stimulus duration	ASPD/psychopathy group < controls total score	No covariates tested; no women in sample
11. (Kosson, et al., 2002) #8127	151 criminals; 34 high psychopathy; 33 low psychopathy	27 ± 7 years	45% Black	0	Incarceration and psychopathy based on records and interview	Ekman POFA: 1 s	high group < low group disgust faces	No covariates tested; no women in sample
12. (Blair, et al., 2004) #8128	200 criminals; 19 high psychopathy; 19 low psychopathy	32 ± 8 years	5% Black	0	Incarceration and psychopathy based on records and interview	Ekman faces in morphing hexagon: forced choice, 3 s	high group < low group total score, fearful faces	No covariates tested; no women in sample
13. (Dolan and Fullam, 2006) #7156	98; 49 criminals; 49 controls	33 ± 9 years	?	0	Incarceration, all had ASPD, and psychopathy based on records and interview	AFFECT[15], morphing face task: ? stimulus duration	ASPD < controls total score, sad, happy, surprised faces; high psychopathy < low psychopathy sad faces	No group differences age, IQ; no women in sample
14. (Glass and Newman, 2006) #7155	111 criminals; 50 high psychopathy; 61 low psychopathy	33 ± 7 years	?	0	Incarceration and psychopathy based on records and interview	MBFSS[16], identification 1 emotion in 4 faces: 2.75 s	high psychopathy = low psychopathy total scores, all emotions	No group differences age, IQ; no women in sample
15. (Hoaken, et al., 2007) #8103	60; 20 violent criminals; 20 non-violent criminals; 20 controls	31 ± 7 years	?	0	Incarceration	Ekman POFA: 2 s	Violent Offenders < non-violent offenders = controls, total score; sad, disgust faces	Executive function not associated with facial affect recognition; no women in sample

[1]Nn: total sample size/number with ASB; [2]ASB: antisocial behavior; [3]CD: conduct disorder; [4]ASPD: antisocial personality disorder; [5]DANVA: Diagnostic Analysis of Nonverbal Accuracy; [6]DEL: delinquency; [7]POFA: Picture of Facial Affect; [8]Ss: subjects; [9]CERT: Cartoon Emotion Recognition Test; [10]C/U: callous/unemotional; [11]I/CP: impulsive/conduct problems; [12]EBD: emotional and behavior disordered; [13]ASPD: Anti-social Personality Disorder; [14]PFD: PENN Facial Discrimination Test; [15]AFFECT: Animated Full Facial comprehension Test; [16]MBFSS: MacBrain Facial Stimulation Set.