

EMOTIONAL EMPATHY AND PSYCHOPATHY IN OFFENDERS: AN EXPERIMENTAL STUDY

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Previous studies associated psychopathy in adults with deficits in empathy but these studies did not directly compare cognitive and emotional facets of empathy. The present study sought to establish whether psychopathy is associated with impairments in emotional empathy among adult offenders. Participants were 90 male offenders scoring low ($n = 29$), medium ($n = 33$) or high ($n = 28$) on the Psychopathy Checklist-Revised (PCL-R) and $n = 28$ male noncriminal controls. Empathy functioning was assessed through self-report and computerized decision tasks, differentiating between perspective-taking (cognitive empathy) and compassion (emotional empathy). Against expectations, level of psychopathy among the offenders was not associated with either emotional or cognitive empathy. Offenders however had lower scores for both cognitive and emotional components of empathy functioning than controls. Both facets of empathy showed small but significant positive correlations with education level and social desirability. The methods employed to assess differences in empathy functioning may not be sensitive enough to assess differences in forensic samples.

Psychopaths are characterized by a general lack of empathy and remorse, and attenuated responding to emotional stimuli (Hare, 2003; Herpertz & Sass, 2000). Studies show that psychopaths are particularly prone to antisocial and criminal behaviors (Leistico, Salekin, DeCoster, & Rogers, 2008) and are thus overrepresented in forensic populations (Coid et al., 2009; Habermeyer, Passow, & Vohs, 2010; Hare & Neumann, 2009). There is an ongoing discussion about the relationship between psychopathy and antisocial personality disorder. Whereas some researchers regard psychopathy as a severe form of antisocial personality disorder (Coid & Ullrich, 2010), others argued for distinct disorders with different developmental underpinnings (Cooke, Michie, Hart, & Clark, 2004).

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It has been put forward that alterations in emotion processing might be crucial for the development of psychopathic traits in childhood and adolescence (Blair, 2001; Blair, Peschardt, Budhani, Mitchell, & Pine, 2006). Supported by studies showing impaired aversive conditioning in psychopaths and attenuated autonomic responding to aversive stimuli (Birbaumer et al., 2005; Blair, Jones, Clark, & Smith, 1997; Flor, Birbaumer, Hermann, Ziegler, & Patrick, 2002; Hare & Quinn, 1971; Lykken, 1957; Newman & Kosson, 1986), the low fear theory hypothesized that the reduced ability to adjust to the negative consequences of one's own behavior in the social context might be the crucial factor for the development of psychopathic traits (Sommer et al., 2006). However, a general lack of fear or anxiety or deficits in passive avoidance learning cannot explain callousness and the emotional detachment that is regarded as a hallmark of psychopathy (Kirsch & Becker, 2007).

Alternative concepts focusing on the lack of empathy emphasize the possibility that psychopaths show a general disability to decode social signals such as facial expressions of emotions and are thus less sensitive in social contexts (Blair, 2005). There is some evidence for a general impairment of facial emotion recognition in criminal psychopaths as well as in individuals scoring high on psychopathic traits (Hastings, Tangney, & Stuewig, 2008). A number of studies did not replicate these results, or indicated that impairment might be attributable to confounds such as lower education, delinquency, or imprisonment rather than to central emotion processing capacity (Dolan & Fullam, 2004; Glass & Newman, 2006; Pham & Philippot, 2010; Richell et al., 2003), and some studies even demonstrated a better performance of psychopaths in facial emotion recognition (Book, Quinsey, & Langford, 2007; Dolan & Fullam, 2004).

Others hypothesized that psychopathic individuals might be specifically less sensitive to social signals which are supposed to be preferentially processed by the amygdala, in particular to signals of fear and sadness (Blair, Colledge, Murray, & Mitchell, 2001). There is empirical support for the hypothesis of specific deficits in emotion processing: In some studies psychopaths showed a pronounced or exclusive deficit in recognizing fear or sadness (Blair et al., 2001; Dolan & Fullam, 2006; Eisenbarth, Alpers, Segre, Calogero, & Angrilli, 2008; Marsh & Blair, 2008). In summarizing the findings of studies on emotion recognition and psychopathic traits, a recent meta-analysis on 22 studies reported very small but significant overall impairments in emotion recognition associated with psychopathy (Wilson, Juodis, & Porter, 2011).

While facial emotion recognition refers to the cognitive facet of empathy (i.e., decoding and describing the emotional state based on the facial expression of another person), the emotional aspect in terms of the responsiveness to another person's affective state has not been tested frequently in psychopaths. The distinction of two interrelated yet separate aspects of empathy functioning is of particular importance since a dissociation between cognitive and emotional empathy has been proposed as a relevant

factor in psychopathy: Psychopathic individuals might be well able to decode the emotional state of another person in cognitive terms, but might be impaired in vicariously feeling the emotion (Blair, 2008). As early as 1923 German psychiatrist Kurt Schneider (1923) had argued that it was likely the capacity of feeling compassionate that was dysfunctional among psychopaths, not the ability to comprehend someone else's inner state at the intellectual level. In his influential monograph, *The Mask of Sanity*, Hervey Cleckley used the metaphor of color blindness to highlight the curious detachment of psychopathic individuals from the feelings of others (Cleckley, 1976). A specific lack of emotional empathy might thus explain the divergent findings of previous studies, and has been less extensively studied in criminal populations (Lishner et al., 2011).

We hypothesized that psychopathic offenders would show a pronounced deficit in emotional empathy functioning (compassion) but not in cognitive empathy (perspective-taking). In order to control for delinquency and imprisonment, we compared groups of inmates who had either high, medium, or low psychopathic trait levels with a healthy control group of nonoffenders which showed no history of delinquency, imprisonment, and psychopathy. We used both self-report questionnaires as well as computerized performance tasks that allow differentiating between cognitive and emotional components of empathy functioning. Based on the theoretical and empirical work presented above, we assumed that psychopathy would be specifically associated with lower emotional empathy.

METHODS

PARTICIPANTS

Ninety male criminal inmates (of which 36 were under preventive detention order and 24 under mandatory treatment order) and 28 noncriminal controls participated in the present study. The offenders were recruited from a prison in southern Germany and a forensic hospital. Based on file records, index offenses were as follows: murder/homicide ($n = 27$); sexual offenses ($n = 42$); causing grievous bodily harm/robbery ($n = 21$). All participants were German native speakers. None of them fulfilled the criteria for a life-time diagnosis of psychotic disorders, attention-deficit hyperactivity syndrome, major depression, dysthymia, bipolar disorder, dyslexia, cerebral disorder, or intellectual impairment (IQ below 70).

The study protocol was approved by the ethics committee of the Medical Faculty of the University of Rostock, Germany. All participants gave written informed consent before participation.

DEMOGRAPHIC AND CLINICAL ASSESSMENT

Demographic variables and criminal history such as age, life-time imprisonment (years), and criminal index offense were taken from criminal record files. Axis-I and Axis-II disorders were assessed with the German

version of the SCID-I and SCID-II (Wittchen, Zaudig, & Fydrich, 1997). Noncriminal history of the controls was assessed within the SCID-II interview exploring antisocial tendencies and delinquency over the lifespan. In addition, a short version of the Hamburg-Wechsler Intelligence Test for Adults (Tewes, 1991) was used as an estimate of general intelligence.

The Psychopathy Checklist-Revised (Hare, 2003) includes 20 items to assess psychopathy based on criminal file record and semi-structured clinical interview. Apart from the calculation of a sum total across all 20 items of the PCL-R, factor analysis suggests the combination of items to two second-level factors, with Factor 1 (8 items) capturing core personality traits and Factor 2 (10 items) referring to social deviance (Hare et al., 1990; Hare & Neumann, 2008). Internal consistency (Cronbach's α) was estimated at .85 (total score), .80 (Factor 1), and .85 (Factor 2) in the construction sample of male offenders from North America (Hare, 2003). In the present study the PCL-R was coded by a trained clinical psychologist (K. V.). The group of offenders was divided in three groups using a tercile split of the total score to allow testing for nonlinear effects. This resulted in three groups: PCL-R <15 ($n = 29$), PCL-R 15–21 ($n = 33$), and PCL-R >21 ($n = 28$). A score on the PCL-R above 19 has been shown to reflect significant psychopathic traits (Harris, Rice, & Quinsey, 1994).

In order to control for the possible influence of a response bias we measured social desirability tendencies with the Lie scale of the Eysenck Personality Inventory (Eggert & Ratschinski, 1983; Eysenck & Eysenck, 1964).

SELF-REPORT MEASURES OF EMPATHY

Cognitive and emotional empathy was assessed with the Interpersonal Reactivity Index (IRI; Davis, 1983). The 28-item questionnaire contains four scales with 7 items each: perspective taking (PT), empathic concern (EC), fantasy (F), and personal distress (PD). Perspective taking and fantasy relate to the cognitive aspect of empathy, and personal distress and to a lesser extent empathic concern represent emotional aspects. In addition, a total score may be computed. The scales of the IRI show moderate to good homogeneity with Cronbach's α coefficients ranging from .68 to .79. Previous studies showed that the scales of the IRI differentiate between cognitive and emotional aspects of empathy in autistic adults (Dziobek et al., 2008; Rogers, Dziobek, Hassenstab, Wolf, & Convit, 2007).

In addition, the Empathy Quotient (Baron-Cohen & Wheelwright, 2004) was administered, a questionnaire originally developed to assess empathic abilities in adults with autism-spectrum disorders. In addition to a total score, factor analyses suggest the calculation of three sub-scores: cognitive empathy (CE, 11 items), emotional reactivity (ER, 11 items), and social skills (SS, 6 items; cf. Lawrence, Shaw, Baker, Baron-Cohen, & David, 2004). Twelve-month test-retest reliability for the total score has been shown to be very high: $r = .97$ (Baron-Cohen & Wheelwright, 2004). The validity of the Empathy Quotient questionnaire is supported by studies indi-

cating significantly lower scores among autistic individuals compared with healthy persons (Baron-Cohen & Wheelwright, 2004) as well as moderate correlations with some subscales of the IRI (Lawrence et al., 2004).

READING THE MIND IN THE EYES TEST

The Reading-the-Mind-in-the-Eyes Test (RMET; Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001) was developed to assess the deficits in social cognition among high-functioning individuals with autism-spectrum disorders. The revised version of the test comprises 36 items showing the eye region of faces coupled with four verbal labels describing the facial expression. On each picture, the participant is asked to choose the label that best describes what the depicted person might be feeling or thinking. In the present study we used a German version, which was used in previous studies successfully (Domes, Heinrichs, Michel, Berger, & Herpertz, 2007; Hysek, Domes, & Liechti, 2012). We used a computerized version that recorded the number of correct responses and response latencies automatically.

MULTIFACETED EMPATHY TEST

We used an extended version of the Multifaceted Empathy Test (MET; Dziobek et al., 2008) as previously described (Hurlemann et al., 2010). This version of the MET comprises 40 pictures of people in emotionally charged situations from everyday life. Half of the pictures show situations with a positive valence, the remainder depicts scenes with a negative valence. While viewing the pictures, participants were asked to give three different answers/ratings on each stimulus: (1) infer the emotional state of the depicted person (cognitive empathy) by choosing the correct among four verbal labels, (2) indicate how strongly they felt for the person on a nine-point Likert-type scale (ordered from 1 = not at all to 9 = very strongly; direct emotional empathy), and (3) the report their degree of arousal (also on a nine-point ordinal scale) while viewing the picture (indirect emotional empathy). Accordingly, the following scores were calculated for the three MET tasks, separately for pictures with positive (pos) and negative valence (neg): Cognitive Empathy CEpos and CEneg (0–20), Direct Emotional Empathy EDpos and EDneg (20–180), and Indirect Emotional Empathy Elpos and Elneg (20–180). The numbers in brackets show the hypothetical score range, with up to 20 correct responses in the cognitive task of emotion recognition and a maximum total score of 180 for both of the emotional empathy tasks.

STATISTICAL ANALYSES

Group differences regarding age, education, and intelligence were tested using Student's *t*-test or the Chi-square test, respectively. Differences on

self-report measures of cognitive and emotional empathy were tested with separate multivariate analyses of variance (MANOVA), with follow-up univariate testing for specific effects.

Performance and response latencies in the RMET were subjected to one-way ANOVA in order to test for differences between the three groups. Scores on the MET were tested using separate two-way analyses of variance (ANOVA) for the three dependent variables (CE, ED, EI) with valence of the presented pictures as the within, and group as the between-subject factors. Post-hoc pairwise tests of group differences were done using *t*-tests with Bonferroni-correction.

Statistical testing was done with PASW Statistics, version 18 (IBM Corporation, Somers, NY, USA). The type I error rate was set at $p < .05$, which was adjusted using Bonferroni-correction in the case of multiple comparisons.

RESULTS

DEMOGRAPHIC AND OFFENSE-RELATED VARIABLES

Study groups did not differ significantly in age or IQ (all $p > .10$). However, offenders showed a lower education level, indicated by a lower number of participants with high school education in the offender groups compared to controls ($p < .001$). In addition, offender groups did not differ with regard to the index offense ($p = .35$), although on average offenders with high scores on the PCL-R (>21) had stayed in prison twice as long as offenders with low scores (<15) on the PCL-R ($p < .001$). As a whole group, offenders reached an average PCL-R total score of $M = 18.2$ ($SD = 7.2$, $Min = 2$, $Max = 34$) and on Factor 1: $M = 7.2$ ($SD = 3.4$; $Min = 0$, $Max = 15$) and Factor 2 $M = 9.7$ ($SD = 4.9$, $Min = 0$, $Max = 19$). For details see Table 1. In addition, groups did not differ significantly with regard to socially desirable responding as measured with the Lie scale of the Eysenck Personality Inventory. However, within the offender group ($n = 90$) we found a small but significant positive correlation ($r = .28$ $p = .008$) between the Empathy Quotient and the EPI Lie scale. No other correlation with the Lie scale with any other dependent variable was significant. In order to test, whether education level might serve as a significant covariate for the tests of empathy employed in the present study, we calculated bivariate Spearman rank correlations. For the Empathy Quotient, we found small but significant positive correlation with the total score of $r_s = .40$ ($p < .001$). In addition, there was an even smaller correlation with the cognitive empathy component (CE) of the MET ($r = .24$, $p = .01$).

SELF-REPORT QUESTIONNAIRES

For the Empathy Quotient we found significant group differences for the total score, $F(3, 114) = 2.81$, $p < .05$, as well as when testing the subscales

TABLE 1. Demographics, Offense-Related Characteristics, and Scores on the Psychopathy Checklist-Revised (PCL-R) for the Study Groups

	Group											
	Controls (n = 28)			PCL-R <15 (n = 29)			PCL-R 15-21 (n = 33)			PCL-R >21 (n = 28)		
	M	SD		M	SD		M	SD		M	SD	
										ANOVA		
Age	52.5	10.7		48.3	14.1		47.8	10.4		49.5	11.4	$F(3, 114) = 0.95; p = .421$
IQ	100.1	9.4		100.7	9.4		103.4	11.8		98.6	13.0	$F(3, 114) = 1.04; p = .379$
EPI Lie-Scale	4.0	2.2		3.8	2.3		3.6	1.8		3.7	1.9	$F(3, 114) = 0.24; p = .869$
Years in prison				10.4	10.0		15.3	8.9		21.7	10.0	$F(3, 114) = 9.68; p < .001^{**}$
PCL-R												
Factor 1 (Psychopathic Core Traits)	—	—		4.2	2.7		7.2	2.1		10.3	2.8	$F(2, 89) = 41.28; p < .001^{**}$
Factor 2 (Social Deviance)	—	—		5.4	3.6		9.3	3.0		14.6	3.2	$F(2, 89) = 57.32; p < .001^{**}$
Total Score	—	—		10.2	3.5		18.1	1.7		26.7	7.1	$F(2, 89) = 232.8; p < .001^{**}$
Education	n	%		n	%		n	%		n	%	Chi ² -test
No graduation	0	0.0		2	6.9		1	2.9		7	25.9	$Chi^2 = 49.280; p < .001^{**}$
School for handicapped	0	0.0		3	10.3		2	5.9		2	7.4	
Secondary school	4	14.3		17	58.6		21	61.8		14	51.9	
Junior high school	17	60.7		5	17.2		9	26.5		2	7.4	
High school	7	25.0		2	6.9		1	2.9		2	7.4	
Index offense				n	%		n	%		n	%	Chi ² -test
Murder / Homicide				12	41.4		7	20.6		6	22.2	$Chi^2 = 6.733; p = .346$
Sexual offense				10	35.5		19	55.9		13	48.1	
Robbery / Aggravated assault				7	24.1		6	17.6		6	22.2	
Others				0	0.0		2	5.9		2	7.4	

with a MANOVA, $F(9, 342) = 2.00, p < .05$; see Table 1. The overall effect was mainly due to group differences in the Social Skills subscale, $F(3, 114) = 4.41, p < .01$. Post-hoc single comparison revealed significantly lower self-reported social skills for offenders with low PCL-R (<15) scores compared to controls, $t(55) = 3.20, p_{\text{corr}} = .009$. After controlling for the modulating influence of education with a MANCOVA, the global group effect did not remain significant, $F(9, 339) = 1.36, p = .207$. Similarly, there was no significant group effect with regard to the total score of the Empathy Quotient, $F(3, 113) = 0.66, p = .576$.

For the Interpersonal Reactivity Index (IRI), there was neither an overall group difference to be observed nor any difference regarding the subscale of the IRI; see Table 2.

READING THE MIND IN THE EYES TEST

In the RMET neither group differences regarding the number of correct responses, $F(3, 114) = 1.12, p = .343$, nor mean RTs were significant, $F(3, 114) = 0.54, p = .657$. Table 3 summarizes the descriptive statistics for the RMET.

MULTIFACETED EMPATHY TEST

For the MET, Table 4 presents the descriptive statistics and the ANOVA results.

The two-way ANOVA for correct responses in terms of cognitive empathy revealed a main effect of stimulus valence: positive stimuli were recognized more easily than negative stimuli, $F(1, 114) = 36.14, p < .001$. In addition, the main effect of group status was significant, $F(3, 114) = 3.62, p = .015$. Post-hoc test for positive stimuli revealed the only significant pairwise difference between offenders with a PCL-R total score <15 reached and controls, $t(55) = 3.05, p_{\text{corr}} = .046$, and a nearly significant difference for negative stimuli between PCL-R >21 and controls, $t(54) = 2.72, p_{\text{corr}} = .060$; see Figure 1, upper row. After controlling for education as a covariate, the main effect of group status was not statistically significant, $F(3, 113) = 2.38, p = .073$. The interaction of stimulus valence and group was also not significant, $F(3, 114) = 0.15, p = .93$. Compared to controls, offenders as a whole group ($n = 90$) showed lower cognitive empathy for both positive, $t(80.8) = 3.29, p = .001$, and negative stimuli, $t(116) = 2.54, p = .012$.

The two-way ANOVA for emotional empathy scores, i.e., the summarized ratings for direct and indirect empathy, also revealed a main effect for stimulus valence: negative stimuli elicited higher emotional empathy ratings than positive stimuli, $F(1, 114) = 55.59, p < .001$. Again the group effect was significant, $F(3, 114) = 5.25, p = .002$. Post-hoc tests revealed, for both positive and negative stimuli, the only significant difference between the intermediate PCL-R group and the control group, $t(59) = 3.66$,

TABLE 4. Results of the Multifaceted Empathy Test

Score/ Valence	Group										F-Test	Group × Valence	
	Controls (n = 28)		PCL-R 15-21 (n = 33)				PCL-R >21 (n = 28)						
	M	SD	M	SD	M	SD	M	SD	Group	Valence			
CE													
Positive	12.9	1.6	11.1	2.7	12.0	3.1	11.4	2.2	11.4	2.2	F = 3.61; P = .015	F = 36.14; p < .001	F = 0.15; ns
Negative	11.2	2.3	9.8	2.6	10.3	2.9	9.8	2.6	9.8	2.6			
EE total													
Positive	198.5	60.2	171.2	74.5	147.3	58.5	162.9	68.6	162.9	68.6	F = 5.25; p = .002	F = 55.59; p < .001	F = 0.93; ns
Negative	239.6	55.2	201.5	67.1	171.7	65.4	206.4	59.9	206.4	59.9			
Direct EE													
Positive	105.6	29.5	93.5	40.8	85.6	36.4	90.8	35.6	90.8	35.6	F = 4.71; p = .004	F = 35.14; p < .001	F = 1.17; ns
Negative	123.6	28.2	105.2	34.0	90.9	34.8	108.3	29.9	108.3	29.9			
Indirect EE													
Positive	92.5	31.8	77.7	38.6	66.7	29.9	77.4	33.2	77.4	33.2	F = 5.35; p = .002	F = 62.75; p < .001	F = 0.74; ns
Negative	116.0	27.7	96.2	34.3	80.7	33.3	98.0	31.1	98.0	31.1			

Note. Effects of group and valence were tested with two-way ANOVAs for Cognitive Empathy (CE) and Emotional Empathy (EE), and subscores of direct emotional empathy and indirect emotional empathy.

$p_{\text{corr}} = .009$; $t(59) = 4.80$, $p_{\text{corr}} < .001$; see Figure 1, bottom row. Again, there was no interaction effect between stimulus valence and group status, $F(3, 114) = 0.98$, $p = .40$. As indicated by a subsequent ANCOVA, the group effect was independent of education level, $F(3, 113) = 4.76$, $p = .004$. Compared to controls, offenders as a whole group showed lower emotional empathy for both positive, $t(116) = 2.71$, $p = .008$, and negative stimuli, $t(116) = 3.50$, $p = .001$.

CORRELATIONS WITH PCL SUBSCORES

To further explore the result that even considerable psychopathic trait levels (PCL-R total score >21) were not associated with lowered empathy functioning we computed the correlations between the self-reported empathy capabilities (Subscales of EQ and IRI) and performance-related measures (MET and RMET indicators) with the subtotals on Factor 1 and Factor 2 of the PCL-R, which describe affective and interpersonal personality traits, and antisocial lifestyle, respectively. None of the correlations with Factor 1 reached the level of statistical significance after controlling for multiple testing. In addition, there was no significant correlation of Factor 2 with any of the employed empathy measures. This was also found, when calculating correlations for the subgroups showing low, median, and high levels of psychopathy (all $r < |.38|$, all corrected $p > .05$).

DISCUSSION

We hypothesized that psychopathy among offenders would be related to impairments in emotional but not cognitive empathy functioning. While we noted a lower level of both cognitive and emotional empathy functioning in offenders than in (presumably nonpsychopathic) nonoffending controls, we did not observe the expected decline in emotional empathy functioning from low to highly psychopathic offenders using a battery of self-report and computerized stimulus-response tasks.

Differences in cognitive empathy in the MET were confounded with the education level of the participants, with more highly educated participants showing a better performance. Group differences in emotional empathy however were not due to educational differences. The group with intermediate PCL-R scores showed the lowest emotional empathy scores in the MET, whereas the controls showed the highest level. The results for self-report questionnaires were less clear. Although we found a small but significant group effect in the Empathy Quotient questionnaire, the effect disappeared after controlling for educational level. The emotional and cognitive subscales of the IRI did not seem to differentiate between offenders and controls.

Against our expectation the level of psychopathic traits in the offender group did not account for a significant amount of variance of either cognitive or emotional empathy. Descriptive data suggested a nonlinear trend

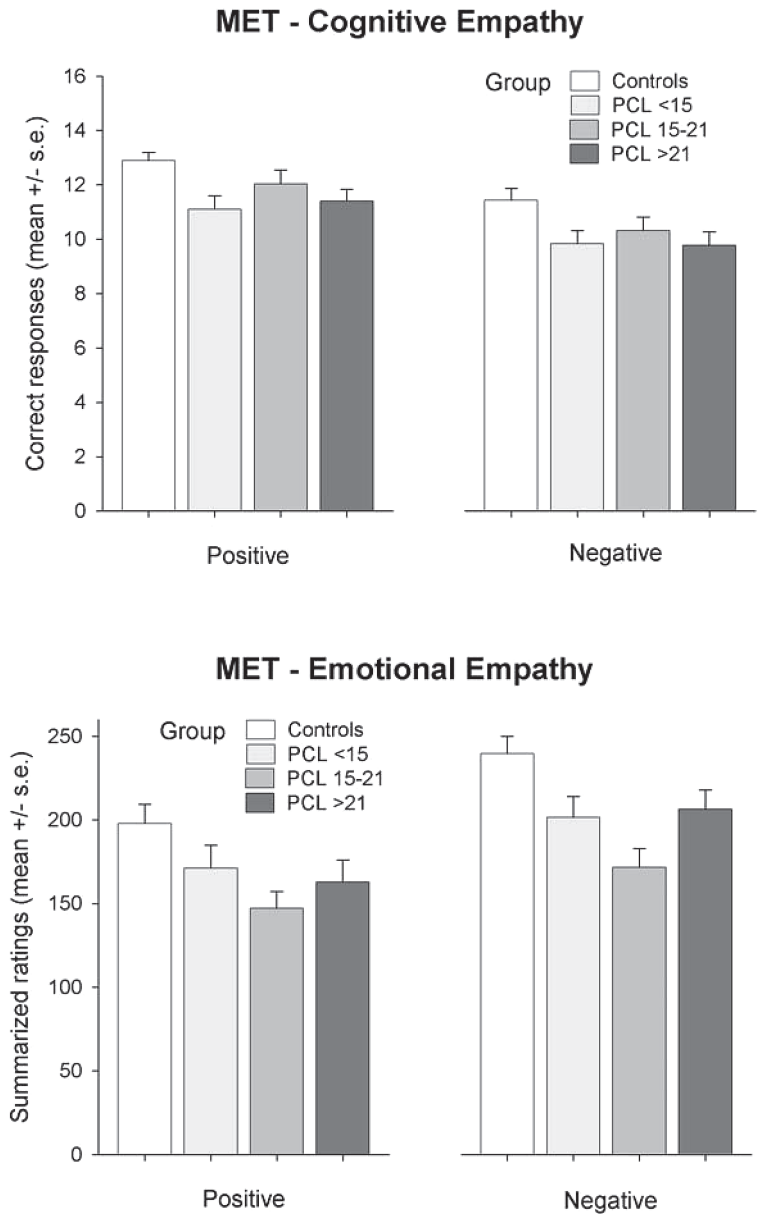


FIGURE 1. Results in the Multifaceted Empathy Test (MET) for Offenders and Controls.

between psychopathic traits and emotional empathy within the group of offenders, with the group scoring in the intermediate range showing the most pronounced impairment compared to the control group. This effect was not significant, however.

The present results are in accordance with previous studies on cognitive

empathy which reported relatively intact cognitive abilities for psychopathic individuals (Dolan & Fullam, 2004; Glass & Newman, 2006; Richell et al., 2003). Similarly, the link between education level and cognitive empathy has been described before (Pham & Philippot, 2010). The present study extends these findings with regard to emotional empathy: Even offenders with medium-to-high psychopathic traits (i.e., the individuals in the PCL-R > 21 group) did not show any impairment of emotional empathy in the MET.

Regardless of psychopathy levels, offenders as a group showed empathy deficits in both the cognitive and the emotional domain, however, when compared with the nonoffender controls. Thus, delinquency or imprisonment rather than psychopathy seems to have been inversely related with empathic abilities, at least for the offenders assessed in the present study. Interestingly, self-report measures of empathy did not reveal relevant deficits of the offenders in the present study, which might be due to the susceptibility of these measures to dissimulation and the impact of social desirability especially in the forensic settings (Tan & Grace, 2008; Tatman, Swogger, Love, & Cook, 2009). In the present study we did observe a small but significant correlation of the Empathy Quotient and the Lie scale. Although stimulus-associated rating paradigms such as the MET are potentially influenced by the same confounds, these measures are thought to be more objective, although the validity of these paradigms needs to be further addressed in future studies. Indeed, the present results suggest that self-report measures were more susceptible to biased responding than stimulus-associated measures such as the MET. Future studies could address this question by using psychophysiological methods such as facial electromyography or functional neuroimaging to further investigate emotional responses as indices of empathic concern towards another person (Cox et al., 2012; Singer & Lamm, 2009).

In the present study, educational background accounted for a significant amount of variance in cognitive empathy although the participant groups were comparable with regard to general intelligence. Low levels of education is a common finding in studies comparing inmates with non-criminal controls, and seems to account for emotion recognition differences between these groups (e.g., Pham & Philippot, 2010). This finding might point to the importance of the social background during childhood for the acquisition of a conceptual framework of social emotions. In other words, education might be a protective factor for social cognitive deficits found in criminal offenders. However, caution is warranted regarding the interpretation of the ANCOVA results as the correlations found do not imply causality.

Another possible interpretation for the inconsistent findings in the literature might be that callous-unemotional traits are especially relevant during childhood development and thus impact social development. Assessment during adulthood might be more influenced by the history of delinquency, imprisonment, and violence experienced by the individual

(Glass & Newman, 2006), thus masking the potentially weaker effects of differences in personality. This would explain why impaired emotion recognition was found more consistently in children and adolescence with psychopathic traits (Blair, 2001; Blair et al., 2001) than in adults with psychopathy. With an adapted version of the RMET, Sharp (2008) found reduced performance in children (aged 9–13 years) with conduct problems, and Jones, Happe, Gilbert, Burnett, and Viding (2010) found reduced affective empathy in boys with psychopathic tendencies, while in another study RMET performance did not correlate with levels of psychopathy in adults (Richell et al., 2003). In accordance with the amygdala theory of psychopathy (Blair, 2005), Richell et al. (2003) suggested that the development of prefrontal cortical regions during adolescence may compensate for reduced amygdala functioning associated with psychopathic traits, which might explain why adult psychopaths are less impaired than children with psychopathic traits. Alternatively, adult psychopaths may be more proficient at dissimulating coldheartedness than children or juveniles with callous-unemotional traits. Self-report questionnaires that purportedly measure psychopathic traits seem to differentiate less well with regard to the affective components of the condition than with regard to antisociality as recent research with male inmates shows (Malterer, Lilienfeld, Neumann, & Newman, 2010). The fact that we did not observe any significant correlation between the Lie scale of the EPI and the performance-related empathy tasks (MET, RMET) renders this interpretation unlikely, however.

In comparing psychopathy with autism, Blair (2008) argued that cognitive perspective taking was intact and emotional empathy only partly diminished in psychopaths (namely with regard to fearful and sad emotional states). The meta analysis on the decoding of facial expressions and psychopathy by Wilson and colleagues (2011) attests to the possibility that any deficits of psychopaths regarding the identification of negative emotional states are more likely to emerge in verbal tasks than in nonverbal ones (such as those involving categorization or matching tasks). Interestingly, as early as in the 1940s Hervey Cleckley pointed to the relevance of lexical processes as he used the analogy of semantic aphasia to describe the lack of emotional response in his psychopathic patients: “The patient semantically defective by lack of meaningful purpose and realization at deep levels does not, of course, strike sane and normal attitudes merely by chance. His rational power enables him to mimic directly the complex play of human living.” (Cleckley, 1976, p. 383). Consequently, the observation of nondefective emotion processing and empathic functioning among psychopaths in the present study may represent successful mimicry on behalf of the psychopaths (possibly due to obvious demand characteristics or simplicity of the empathy tasks). We need to be careful, however, that we do not immunize our argument: If psychopaths did not show the emotional empathy deficits that we expected this would be the case because they mimicked the emotions so proficiently. But if the deficits of empathy believed to be the core psychopathology in psychopaths are more

subtle and masked by their the proficient intellectual abilities, it seems worthwhile exploring these masked deficits using more comprehensive and more demanding empathy tasks in the future, possibly linking overt response measures with physiological assessments.

The present study has some limitations. The mean PCL-R score found in the present study was comparable to the average of the PCL-R scores reported in previous studies investigating detained criminal offenders in German-speaking countries (Borchard, Gnoth, & Schulz, 2003; Mokros, Osterheider, Hucker, & Nitschke, 2011). It is possible, though, that a sample with more pronounced psychopathic traits could have produced different results. In addition, although the ratings in the MET are stimulus-related, these ratings are still subjective and thus future studies should validate these subjective emotional responses with more objective, for example, psychophysiological measures. The role of educational background should be more thoroughly investigated in future studies. Finally, although the control group did not report any criminal history or showed evidence for psychopathy, future studies should more thoroughly assess these domains in healthy controls.

In summary, the present study indicates that criminal offenders show impairments in cognitive and emotional empathy performance rather than on global self-report ratings of empathy. The level of psychopathy as assessed with the PCL-R was not associated with cognitive or emotional facets of empathy. The independence of emotional empathy functioning from the level of psychopathic traits was contrary to our hypothesis. The results have some practical implications. First, the results do not suggest the application of the empathy measures employed for individual diagnostics within forensic settings. Secondly, adding psychophysiological to the present behavioral measures might help to overcome the limitations associated with measures based on self-report.

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