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## Emotional intelligence in incarcerated men with psychopathic traits

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### Abstract

The expression, recognition, and communication of emotional states are ubiquitous features of the human social world. Emotional intelligence (EI) is defined as the ability to perceive, manage, and reason about emotions, in oneself and others. Individuals with psychopathy have numerous difficulties in social interaction and show impairment on some emotional tasks. Here we investigate the relation between emotional intelligence and psychopathy in a sample of incarcerated men ( $n=374$ ), using the Psychopathy Checklist—Revised (PCL-R; Hare, 2003) and the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; Mayer, Salovey, & Caruso, 2002). The MSCEIT is a well-validated ability-based emotional intelligence measure that does not rely on self-report judgments of emotional skills. The Hare PCL-R is the gold-standard for the assessment of psychopathy in clinical populations. Controlling for general intelligence, psychopathy was associated with lower emotional intelligence. These findings suggest individuals with psychopathy are impaired on a range of emotional intelligence abilities and that emotional intelligence is an important area for understanding deficits in psychopathy.

### Keywords

emotional intelligence; psychopathy; ability model of emotional intelligence; personality; strategic EI

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The expression and communication of emotional states is an important feature of the human social world. Recognition of facial expressions of many emotions is a human universal (Brown, 1991; Darwin, 1872; Ekman, 1971), and emotional states regulate people's thoughts and behaviors in social interaction. The recognition of the importance and prevalence of emotions and their interaction with thought processes has led researchers to develop the concept of emotional intelligence (EI), generally defined as the ability to perceive, manage, and reason about emotions, in oneself and others, and to use this information adaptively (Mayer & Salovey, 1997; Mayer, Salovey, & Caruso, 2004; Salovey

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& Mayer, 1990). EI has been argued to be a key ability for effective functioning in everyday life and successful management of social relationships. High EI has been associated with better social support and fewer interpersonal problems (Schutte et al., 2001; Mayer et al., 2004), better stress management (Mayer et al., 2004), positive health outcomes (Martins, Ramalho, & Morin, 2010; Schutte, Malouff, Thorsteinsson, Bhullar, & Rooke, 2007), and lower incidence of violence and drug problems, particularly in males (Brackett, Mayer, & Warner, 2004; Mayer et al., 2004). The idea is that the perception and use of emotional information are abilities, beyond general intelligence, that allow individuals to better manage their interpersonal relationships (see Mayer, Roberts, & Barsade, 2008 for a review).

EI and personality traits, such as extraversion and neuroticism, are both important factors affecting the nature and quality of individuals' social relationships (Lopes, Salovey, and Straus, 2003). These results suggest EI impairments may explain some of the variance in social deviance. In particular, psychopathy, a serious personality disorder characterized by deficits in empathy and poor behavior controls in the presence of intact general intellectual functioning, is a condition that may be associated with low EI. Psychopathic traits include glibness, grandiosity, shallow affect, irresponsibility, impulsivity, and poor behavioral controls (Cleckley, 1976), and these traits, assessed by the Psychopathy Checklist-Revised (PCL-R; Hare, 2003), can be separated into two factors comprising interpersonal and affective traits (Affective traits or Factor 1) and impulsive lifestyle and antisocial traits (Impulsive traits or Factor 2). Individuals with psychopathy show chronic difficulties in emotional expression, interpersonal relationships, and adherence to social norms, suggesting possible impairment in EI.

## Models of emotional intelligence

There have been two main approaches to the study of EI (Mayer et al., 2008). Most measures of EI rely on trait assessments: individuals self-report how well or how often they recognize and use emotional information about themselves and others. Trait models rely on individuals to self-assess their emotional abilities, and a number of different scales have been developed (Bar-On, 1997; Kemp et al., 2005; Petrides, 2009; Salovey, Mayer, Goldman, Turvey, & Palfai, 1995; Schutte et al., 1998). These scales typically ask individuals to report on their ability to identify emotions in themselves and others and their propensity to use emotional information in interactions with others, but they also frequently include broader items related to individuals' self concepts or self-esteem. As such, trait EI scales often show significant positive correlations with other personality traits, such as agreeableness (Bar-On, 1997) or conscientiousness (Craig et al., 2009), and general psychological well-being (Brackett & Mayer, 2003; Mayer et al., 2008).

Ability models treat EI as analogous to cognitive intelligence. This approach assesses individuals' abilities on a number of emotional tasks, such as identifying facial expressions or understanding emotional reactions, and compares performance to some criterion (e.g., normative consensus). The Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; Mayer et al., 2002) is a well-studied ability EI measure with strong psychometric properties (Mayer, Salovey, Caruso, & Sitarenios, 2003). The MSCEIT assesses EI in four domains grouped into two areas, experiencing emotions (experiential EI: perceiving emotions and using emotions to facilitate thought), and emotional skills (strategic EI: understanding emotions and managing emotions). The MSCEIT is modestly positively correlated with general intelligence, but it is less strongly associated with personality measures or general psychological well-being than trait EI measures (Brackett & Mayer, 2003; Mayer et al., 2008).

Trait and ability measures of EI show modest positive correlations with one another (Brackett & Mayer, 2003; Brackett, Rivers, Shiffman, Lerner, & Salovey, 2006). The ability model has the advantage of comparing individuals' abilities to a standard criterion and does not rely on individuals' self-assessment of their EI; thus, individuals' meta-knowledge of their EI abilities is not especially relevant. This feature makes the MSCEIT a particularly useful measure for assessing EI in socially deviant and less-educated populations or when impression management is likely.

## Psychopathy and emotional intelligence

Psychopathy is characterized by emotional detachment, and the emotional disturbances seen in psychopaths have long been considered key features of the disorder (Cleckley, 1976; Hart & Hare, 1996). In contrast to other serious mental disorders, individuals with psychopathy show normal intelligence and lack general cognitive impairments (Hare, 2003).

Individuals with psychopathy present with a number of emotional deficits that may be related to impaired EI. These individuals are characterized by a general lack of empathy and insight into the emotional states of others, deficits in moral emotions such as remorse and guilt, and seeming indifference to situations that typically produce feelings of shame and embarrassment in normal individuals (Blair, 2005; Blair, Leonard, Morton, & Blair, 2006; Cleckley, 1976; Hare, 2003; Morrison & Gilbert, 2001). Furthermore, individuals with psychopathy evidence poor behavioral controls and impulsivity, suggesting they may have diminished ability to regulate their own emotional states (Kiehl, 2006; Newman & Lorenz, 2003; Newman, Schmitt & Voss, 1997; Patterson & Newman, 1993).

Psychopathy is also associated with a variety of abnormalities in emotional processing, including failure to show normal response differentiation to emotional and neutral words (e.g., Blair et al., 2006; Kiehl, Hare, McDonald, & Brink, 1999; Lorenz & Newman, 2002; Williamson, Harpur, & Hare, 1991), impaired recognition of emotional faces, particularly fear expressions (Blair, Colledge, Murray, & Mitchell, 2001; Blair, et al. 2004; Dolan & Fullam, 2006; Montagne et al. 2005; but see Kosson, Suchy, Mayber & Libby, 2002; Glass & Newman, 2006 for counter evidence), and abnormal reactions to emotional stimuli and events (Blair, Jones, Clark, & Smith, 1997; Flor, Birbaumer, Hermann, Ziegler, & Patrick, 2002; Patrick, Bradley, & Lang 1993; Patrick, Cuthbert, & Lang, 1994; but see Newman, Curtin, Bertsch & Baskin-Sommers, 2010 for counter evidence under threat-focused conditions).

The presence of emotional detachment and emotional processing abnormalities has motivated researchers to investigate the relation between psychopathy and EI. Among undergraduates, trait EI has been found to be negatively associated with psychopathic traits, particularly along the "secondary psychopathy" (Levenson, Kiehl, & Fitzpatrick, 1995) dimension characterized by impulsivity, aggression, and neuroticism (Ali, Amorim, & Chamorro-Premuzic, 2009; Grieve & Mahar, 2010). Ability EI, as assessed by the MSCEIT, has also as been found to be negatively associated with psychopathic traits among undergraduates (Lishner, Swim, Hong, & Vitacco, 2011; Visser, Bay, Cook, & Myburgh, 2010; Vidal, Skeem, & Camp, 2010). Vidal and colleagues (2010) found this relationship was carried by the impulsive antisociality factor of the Psychopathic Personality Inventory—Revised (PPI-R; Lilienfeld & Widows, 2005; and was strongest for the component branches of strategic EI (their sample only included men). In contrast, Lishner and colleagues (2011), assessing psychopathic traits using the Self-Report Psychopathy-III Scale (SRP-III; Paulhus, Neumann, & Hare, in press), found negative correlations in men across both psychopathy factors and all components of ability-based EI; the correlations among women's scores were near zero and non-significant. Visser and colleagues (2010), reporting

only total scores from the SRP-III, found negative correlations for both men and women across components of ability EI.

These studies raise the possibility that psychopathy is associated with EI deficits; however, by sampling undergraduates, the correspondence with clinical psychopathy remains unclear. Self-report measures of psychopathic traits do not correlate highly with scores on clinical measures, particularly for the interpersonal and affective features of psychopathy that are central to the disorder (Cauffman, Kimonis, Dmitrieva, & Monahan, 2009; Edens & McDermott, 2010). To date, we know of one study that has assessed clinical psychopathy among incarcerated men using the PCL-R (Malterer, Glass, & Newman, 2008) and EI. However, this study used a trait measure of EI rather than an ability-based measure of EI. Malterer et al. (2008) report that individuals with psychopathy scored lower on EI traits assessing attention to one's feeling and regulation of one's mood. Notably, the effect sizes in this study were lower than those reported in studies of undergraduates. This result could be due to the differences in population and psychopathy assessment or to the use of a self-report trait EI measure. Thus, the question of whether EI ability deficits are present in clinical psychopathy remains unanswered.

To date, we are not aware of any studies that have assessed EI using an ability measure (i.e., MSCEIT) with incarcerated men with psychopathy assessed using the PCL-R (Hare, 2003), the most widely accepted diagnostic instrument for psychopathy. Here we test the hypothesis that clinical psychopathy in incarcerated men will be associated with reduced abilities-based EI. Difficulties in experiential EI (perceiving emotions and facilitating thought) should be particularly associated with affective psychopathic traits (Factor 1) that reflect their diminished emotional experience. Difficulties in strategic EI (understanding and managing emotions) should be particularly associated with impulsive psychopathic traits (Factor 2) that may reflect their poor emotional management and behavior control.

## Method

### Participants

Three-hundred and seventy-four adult male inmates were recruited from a medium/maximum security correctional facilities in New Mexico. Participants' ages ranged from 18–60 ( $M=34.2$ ;  $SD=9.34$ ). Ethnic/racial composition was 57.2% “Hispanic or Latino”, 29.4% “White”, 6.7% “Black or African-American”, 5.9% “American Indian or Alaska Native”, and 0.8% were of mixed ethnicity. Participants were classified based on self-selection to these categories.

Participants were excluded from participation if they were over 60 years of age; had a history of seizures, epilepsy, or psychosis; had experienced a loss of consciousness exceeding 30 minutes; or other major medical problems. In addition, all participants were required to show fluency in English at or above a grade four reading level as well as an estimated IQ at or above 70.

Participants were paid \$1.00/hr for their time, which is consistent with hourly wages in the correctional system. The study was approved by the Human Research Review Committee at the University of New Mexico, and all participants provided written informed consent.

### Materials

**General Intelligence**—A two subtest form of the Wechsler Adult Intelligence Scale (WAIS-III, Wechsler, 1997) was used to collect a full scale IQ estimate. The two subtests, Vocabulary and Matrix Reasoning, have shown to provide a reliable estimate of full scale IQ (Ryan, Lopez, & Werth, 1999). One individual did not complete the IQ assessment.

**Mental Health Disorders**—Participants were comprehensively evaluated for comorbid Axis I disorders via the Structured Clinical Interview for DSM-IV-TR Research version, Patient Edition (SCID-I/P; First, Spitzer, Gibbon, & Williams, 1997). Participants with a history of psychosis ( $n=4$ ), including Bipolar Disorder and Major Depressive Disorder with psychotic features, a history of Bipolar disorder ( $n=7$ ), and/or any current Axis I disorder ( $n=19$ ) were excluded from further analysis (total  $n=29$ ), for a total sample of 345. Excluding these individuals did not substantively affect the distribution of psychopathy scores in this sample (i.e., individuals with and without an Axis I diagnosis did not differ in total psychopathy scores ( $t(372)=1.31$ ,  $p=.19$ ,  $r=.07$ ). Interviews were administered by trained research assistants. Six individuals did not complete the SCID-I assessment. Institutional file reviews of these latter individuals found no evidence of any Axis I history other than substance use disorders. Thus they were retained in all analyses.

**Psychopathy**—All participants were evaluated for psychopathy using the Psychopathy Checklist—Revised (PCL-R; Hare, 2003), the most widely accepted diagnostic instrument for the assessment of psychopathy. The assessment includes a semi-structured interview that provides assesses participants' school, family, work, and criminal history, as well as their interpersonal and emotional skills. All participants signed a release form allowing the researcher to review their official criminal record located on site at the correctional facility. Criminal files typically contain intake reports including a biopsychosocial interview completed by the department of corrections and a chronological history of arrests and convictions. Files were reviewed prior to completion of the PCL-R interview and were used as a source of collateral information for scoring.

The PCL-R consists of 20 items, each of which is scored on a 3-point scale: 0 'doesn't apply', 1 'applies somewhat', and 2 'definitely applies' to the individual. Scores range from 0 to 40; the diagnostic cutoff for psychopathy is 30 (Hare, 1991). Double ratings were conducted on 17.1% of the sample, and reliability was high: intraclass correlation coefficient (ICC)=.94 for total scores. The ICC was calculated using a two-way random effects model on average measures with an absolute agreement definition.

Psychometric analyses of the PCL-R have shown that the scale can be meaningfully separated into two factors, each of which has two facets (Hare, 2003; Harpur, Hare, & Hakstian, 1989). The interpersonal/affective factor (Affective traits or Factor 1) contains interpersonal elements (Facet 1), such as manipulative behavior and pathological lying, and affective elements (Facet 2), such as shallow affect and lack of empathy. The social deviance factor (Impulsive traits or Factor 2) contains lifestyle characteristics (Facet 3) such as impulsivity and a parasitic lifestyle, and antisocial characteristics (Facet 4), such as poor behavioral controls and a criminal history (Hare, 1991).

**Emotional Intelligence**—The Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; version 2.0, Mayer et al. 2002) is a 141-item computerized or paper/pencil assessment that is individually administered to each participant and is designed to assess ability to perceive, understand, use and manage emotions to assist thought and action. The MSCEIT is reliable and valid (Mayer et al., 2003), and produces a total score (global EI), two area scores, and four branch scores. Each branch is composed of two separate tasks.

**Experiential Emotional Intelligence:** The experiential EI area assesses the degree to which an individual identifies emotional experiences, compares this experience to other situations or feelings, and understands how these emotions interact with thought. It is composed of two branches, perceiving emotions (Branch 1) and facilitating thought (Branch 2).

The perceiving emotions branch (B1) asks individuals to estimate the extent to which facial expressions and landscapes embody various emotional states. The tasks are based on evidence that the ability to perceive consensual emotional content in visual stimuli is strongly associated with empathic ability (Mayer, DiPaolo, & Salovey, 1990). The faces task presents participants with a picture of a face and asks them to rate, on a scale of 1 to 5, how the person in the picture feels on five distinct emotions (e.g., happiness, fear, surprise, disgust, excitement) based on their facial expression. The pictures task presents the participant with a landscape or other image and asks them to rate, on a scale of 1 to 5, to what extent the image expresses distinct emotions (e.g., happiness, sadness, fear, anger, disgust).

The facilitating thought branch (B2) asks individuals to rate emotional utility and describe emotional experience. The facilitation task asks individuals to rate the utility of different moods in a particular situation. For example, the participant is asked *“What mood(s) might be helpful to feel when creating new, exciting decorations for a birthday party?”* and asked to rate (separately) the usefulness of (e.g.) annoyance, boredom, and joy. The sensations task gives individuals a scenario, for example *“Imagine feeling guilty that you forgot to visit a close friend who has a serious illness. In the middle of the day, you realize you completely forgot to visit your friend at the hospital. How much is the feeling of guilt like each of the following?”*, and asks them to compare an emotion (here, guilt) to various sensations (e.g., cold, blue, sweet) in a cross-modality matching task.

**Strategic Emotional Intelligence:** The strategic EI area assesses the degree to which an individual can understand and manage emotions in oneself and others. It is also composed of two branches, understanding emotions (Branch 3) and managing emotions (Branch 4).

The understanding emotions branch (B3) asks individuals questions about emotional progressions and combinations. The changes task assesses the respondent’s ability to recognize how emotions transition from one to another (e.g., anger into rage). The respondent is given a brief scenario, for example *“Marjorie felt more and more ashamed, and began to feel worthless. She then felt \_\_\_\_\_.”*, and asked to choose the best response among available options (e.g., overwhelmed, depressed, ashamed, self-conscious, or jittery). The blends task measures a participant’s ability to combine simple emotions into more complex feelings. For example, *“A feeling of concern most closely combines the emotions of \_\_\_\_\_?”* The participant is asked to choose one correct response out of five choices of combinations of emotions, such as “love, anxiety, surprise, anger”, “surprise, pride, anger, fear”, or “anxiety, caring, anticipation”.

The managing emotions branch (B4) asks individuals to consider various scenarios and predict the emotional effects of various actions. The emotional regulation task uses hypothetical situations that involve emotional regulation. For example, given a scenario such as *“Maria woke up feeling pretty well. She had slept well, felt well rested, and had no particular cares or concerns. How well would each action help preserve her mood?”*, participants are asked to rate the effectiveness of a series of responses, such as *“She got up and enjoyed the rest of the day”*. The emotional management task asks participants to evaluate the effectiveness of actions with outcomes that involve other people. For example, *“John developed a close friend at work over the last year. Today, that friend completely surprised him by saying he had taken a job at another company and would be moving out of the area. He had not mentioned he was looking for other jobs. How effective would John be in maintaining a good relationship, if he chose to respond in each of the following ways?”*. The participant is then asked to rate the effectiveness of various actions such as *“John felt good for him and told his friend that he was glad he got the new job. Over the next few weeks, John made arrangements to ensure they stayed in touch.”*

**Scoring:** The MSCEIT is scored online by MHS, Inc. (www.mhsassessments.com). Because we were interested in potential deficits in EI in individuals with psychopathic traits compared to individuals without such traits, we used the general consensus scoring method, which is derived from comparing the individual's score to a group of 5000 individuals in the normative database. This scoring method is reliable (Mayer et al., 2003). We report standardized scores based on  $M=100$  and  $SD=15$ . Reliability in our sample was high for the EI areas (global: Cronbach's  $\alpha=.93$ ; experiential: Cronbach's  $\alpha=.92$ ; strategic: Cronbach's  $\alpha=.87$ ) and branches (B1: Cronbach's  $\alpha=.91$ ; B2: Cronbach's  $\alpha=.75$ ; B3: Cronbach's  $\alpha=.77$ ; B4: Cronbach's  $\alpha=.83$ ).

## Procedure

This study was conducted as part of a larger research project. In total, the participants completed eight to fifteen hours of materials over the course of five to six visits. The assessments pertinent to the present research took between six to eight hours and were typically administered on the first four appointments with the participant. Assessments took place in private assessment rooms, and the short form of the WAIS-III and the SCID I were typically administered within the first two sessions, the MSCEIT during the third session, and the PCL-R during the fourth session. Participants were paid for their time as they progressed through the research study.

## Results

Table 1 reports means and standard deviations on EI, IQ, and psychopathy for the total sample. One inmate scored 3.65 SDs below the mean on the global EI measure and was excluded from all analyses. This individual also scored high on psychopathy (PCL-R=30); including him in the analyses strengthens the negative relations between psychopathy and EI reported below. All reported  $p$ -values are two-tailed, and we report point-biserial  $r$ s as measures of effect sizes where appropriate.

### Are inmates in general impaired on emotional intelligence?

Overall total IQ estimates for the inmate sample ( $M=95.7$ ,  $SD=13.20$ ) were near the standardized mean of 100 for the general population (although this difference was significant, one-sample  $t(343)=6.10$ ,  $p<.001$ ,  $r=.31$ ). However, global EI scores for the inmate sample ( $M=87.7$ ,  $SD=13.96$ ) were substantively below the standardized mean of 100 (one-sample  $t(344)=16.34$ ,  $p<.001$ ,  $r=.66$ ). This effect was larger for strategic EI (one-sample  $t(344)=27.38$ ,  $p<.001$ ,  $r=.83$ ) than experiential EI (one-sample  $t(344)=3.55$ ,  $p<.001$ ,  $r=.19$ ). These results suggest that overall the prison population may have lower EI, and may be different from the normative sample used for standardizing the MSCEIT.

### Is the typical positive relation between general intelligence and emotional intelligence present in the inmate sample?

As expected, general intelligence (total IQ) was positively correlated with global EI ( $r(344)=.51$ ,  $p<.001$ ; Table 2), including both experiential and strategic areas of EI. Similar positive correlations were found examining vocabulary and matrix reasoning scores separately (Table 2). Age was significantly correlated with global EI ( $r(345)=.11$ ,  $p=.04$ ); however, analysis of the experiential and strategic EI areas revealed differing effects (Table 2). Age was uncorrelated with experiential EI ( $r(345)=-.02$ ,  $p=.66$ ), but was significantly positively correlated with strategic EI ( $r(345)=.20$ ,  $p<.001$ ). This pattern of results is typical for the MSCEIT (Mayer et al., 2004), suggesting EI manifests similarly in our inmate population as in the general population.

Also as expected, general intelligence was uncorrelated with total psychopathy scores ( $r(344)=.04, p=.44$ ) and for both affective traits (Factor 1:  $r(344)=.09, p=.10$ ) and impulsive traits (Factor 2:  $r(344)=-.02, p=.64$ ). Age was significantly negatively correlated with total psychopathy scores ( $r(345)=-.18, p=.001$ ). Consistent with previous research (Harpur & Hare, 1994), this effect was driven by impulsive traits (Factor 2:  $r(345)=-.29, p<.001$ ), not affective traits (Factor 1:  $r(345)=-.05, p=.32$ ).

### Are individuals with psychopathic traits impaired on emotional intelligence?

Correlational analyses demonstrated some evidence for a negative relation between psychopathy and EI. Total psychopathy scores were modestly but significantly correlated with strategic EI, but not global EI or experiential EI (Table 3). Analysis of the psychopathy components revealed a significant zero-order correlation between strategic EI and impulsive traits (Factor 2) but not affective traits (Factor 1); these correlations were significantly different from one another ( $t(341)=2.25, p=.025$ ). Similarly, impulsive traits, but not affective traits, were significantly correlated with both branches of strategic EI; the difference between the impulsive traits correlation and the affective traits correlation was significant for the understanding emotions branch (B3;  $t(341)=2.62, p=.009$ ) but not the managing emotions branch (B4;  $t(341)=1.49, p=.14$ ).

As is typical in the PCL-R assessment, affective and impulsive traits were significantly positively correlated,  $r=.50, p<.001$  (Hare, 2003). Thus, to further examine the relative contributions and potential interaction of affective and impulsive traits in predicting strategic EI, we conducted a series of hierarchical regressions, with affective and impulsive traits entered simultaneously as predictors in the first step, and the interaction term (affective \* impulsive) in the second step. Table 4 shows the hierarchical regression results for strategic EI and its component branches. Although correlated, the variance inflation factors for affective and impulsive traits were acceptable ( $\leq 1.34$ ), indicating that beta weights for these predictors can be stably estimated.

Affective and impulsive psychopathic traits together accounted for a modest but significant amount of the variance in strategic EI ( $F(2,342)=4.90, p=.008, R^2=.03$ ). Consistent with the zero-order correlations, only impulsive traits were a significant unique predictor ( $\beta=-.19, p=.003$ ). The affective traits and impulsive traits coefficients were significantly different from one another ( $t(342)=2.20, p=.03$ ). The interaction of affective and impulsive traits did not account for significant additional variance in the model ( $F(1,341)=1.44, p=.23, R^2=.004$ ) and thus interpreting a main effect of impulsive traits is appropriate.

This basic pattern of results held for the two component branches of EI, except that affective and impulsive traits as a whole did not reach conventional statistical significance ( $p=.055$ ) in accounting for variance in managing emotions (B4; Table 4), although impulsive traits were a significant unique predictor ( $\beta=-.14, p=.03$ ). The difference between regression coefficients for affective traits and impulsive traits was significant for understanding emotions (B3;  $t(342)=2.56, p=.01$ ), but not for managing emotions (B4;  $t(342)=1.39, p=.16$ ).

### Do the associations between psychopathy and EI hold after controlling for general intelligence?

General intelligence was robustly correlated with all measures of emotional intelligence (Table 2); because of this relationship, we also conducted analyses of the association between psychopathy and emotional intelligence, controlling for general intelligence. After controlling for general intelligence, there was a modest negative relation between global EI and total psychopathy scores (partial  $r=-.11, p=.05$ ; Table 3). There was no relation between total psychopathy scores and experiential EI (partial  $r=-.06, p=.30$ ), but there was a



significant negative relation with strategic EI (partial  $r=-.16$ ,  $p=.003$ ). Only the managing emotions branch (B4) showed a significant correlation with total psychopathy scores (partial  $r=-.14$ ,  $p=.01$ ). For global EI, only impulsive traits showed a significant partial correlation, after controlling for general intelligence. Although only impulsive traits showed significant zero-order correlations with strategic EI and its component branches, after controlling for general intelligence, both affective and impulsive psychopathic traits were significantly negatively correlated with strategic EI and the managing emotions branch (B4). Impulsive traits were also significantly correlated with the understanding emotions branch (B3) of strategic EI.

Thus, the associations between impulsive psychopathic traits and strategic EI were consistent after controlling for general intelligence. However, significant associations between affective psychopathic traits and strategic EI and the managing emotions branch emerged after partialling out variance associated general intelligence. To test the robustness of this apparent result, we ran a second series of hierarchical regressions where total IQ was entered as a control variable in the first step, followed by the psychopathy factors (affective and impulsive traits) in the second step, and the interaction term (affective \* impulsive) in the third step (Table 5). These results were consistent with the zero-order correlational (Table 3) and initial hierarchical regression (Table 4) analyses. When controlling for general intelligence, affective and impulsive psychopathic traits together account for a modest but significant amount of additional variance in strategic EI ( $F(2,340)=5.51$ ,  $p=.004$ ,  $R^2$  change=.02; Table 5). However, only impulsive traits emerge as a significant unique predictor ( $\beta=-.14$ ,  $p=.009$ ), and the interaction of affective and impulsive traits did not account for significant additional variance in strategic EI ( $F(1,339)=0.52$ ,  $p=.47$ ,  $R^2$  change=.001). Thus, these results are consistent with the above analyses suggesting only impulsive (factor 2) traits have a robust (negative) association with strategic EI. This basic pattern of results held for the two component branches of strategic EI, except that impulsive traits did not reach statistical significance as a unique predictor of the managing emotions branch (B4) after controlling for general intelligence,  $p=.08$ ; Table 5).

## Discussion

Recognition of and inferences about other people's emotional states is a necessary part of successful human interaction. Individuals with psychopathy have numerous difficulties in social interaction and show impairment on many emotional tasks. This study collected EI and psychopathy data on a sample of incarcerated men ( $n=374$ ), and the thorough assessment battery allowed us to screen out participants with current mental disorder diagnoses, histories of psychosis or traumatic brain injuries, and low IQ. Despite recent interest in the relation between psychopathy and EI (Ali, et al., 2009; Grieve & Mahar, 2010; Lishner, et al., 2011; Malterer, et al., 2008; Vidal, et al., 2010; Visser, et al., 2010), the current study is the first to use a clinical assessment of psychopathy (PCL-R) in a sample with a substantial number of individuals scoring in the clinical psychopathy range (incarcerated population) and an ability measure of EI (MSCEIT).

The inmate sample scored lower on EI than the normative sample on which standardized MSCEIT scores are based (they also scored slightly lower on general IQ than the population mean). This association was stronger for strategic EI than experiential EI. We included IQ as a control for general intelligence in our analyses. There was not strong evidence for an association between psychopathy and global EI: the zero-order correlation was non-significant, and a modest but significant association emerged only after controlling for general intelligence. Furthermore, the results for the two areas of EI, experiential and strategic, showed distinct patterns, arguing against an overall association of psychopathy with EI in general.

There was no evidence of an association between psychopathy and experiential EI, and thus the hypothesis that experiential EI would be primarily related to affective psychopathic traits was not supported. Previous research has reported negative associations between affective and interpersonal traits and ability EI in undergraduates (Lishner et al., 2011), but this finding is not consistent (cf. Vidal et al., 2010). Reports on the relation between affective traits and trait EI are similarly mixed (Ali et al., 2009; Grieve & Mahar, 2010; Malterer et al., 2008).

In contrast, psychopathy was consistently, though modestly, related to strategic EI. Individuals with psychopathy scored lower on strategic EI, particularly the managing emotions branch, than did individuals without psychopathy. Total psychopathy, affective trait, and impulsive trait scores were also negatively correlated with strategic EI, after controlling for general intelligence, although once again the effect size was modest. Hierarchical regression analyses generally supported the hypothesis that strategic EI was primarily associated with impulsive psychopathic traits. Although the impulsive traits have been viewed as the “less emotional” component of psychopathy, this component assesses a number of traits that reflect individuals’ ability to manage responses to and relationships with others in socially appropriate ways. EI may play an important role in individuals’ abilities to manage social situations effectively. Indeed, the relation between impulsive-type traits and EI is consistent across both ability (Lishner et al., 2011; Vidal et al., 2010) and trait (Ali et al., 2009; Grieve & Mahar, 2010) measures.

Psychopathy is defined and identified by consistent and enduring patterns of behaviors, that is, by a specific collection of personality traits (Cleckley, 1976), and researchers have argued that psychopathy can be understood as a configuration of traits from more general structural models of personality, such as the Big Five (Lynam & Derefinko, 2005). This approach to psychopathy is consistent with broader models of personality psychopathology (Widiger & Frances, 2002) and dimensional analytic strategies that we employed in this study. EI is also associated with personality traits, such as high extraversion and agreeableness and low neuroticism, although these associations are relatively modest for measures of ability EI (Mayer et al., 2008). Nevertheless, personality traits likely play an important role in how EI is expressed across a range of interpersonal interactions. The observed associations between psychopathic traits and strategic EI suggests that further research on how personality traits influence the use and management of emotional information is warranted.

EI is a broad concept, and the debate continues over precisely how EI should be defined and conceptualized (Zeidner, Roberts, & Matthews, 2008). We chose to assess EI with the MSCEIT, a well-validated ability-based measure. Like all measurement decisions, this choice may limit our ability to observe other conceptually and theoretically important relationships between EI and psychopathy.

To the extent that psychopathy is assessed based on interpersonal or emotional skills, there is the potential for predictor-criterion overlap between the PCL-R and the MSCEIT. However, the PCL-R and the MSCEIT were developed independently, and in different populations, and thus share little methodological variance; furthermore, neither is a self-report measure. The most straightforward potential for overlap comes from the assessment of psychopathic traits concerning emotions, i.e., lack of remorse and guilt, shallow affect, callousness and lack of empathy. However, these traits are grouped on the Factor 1 component of psychopathy (interpersonal and affective traits), and we did not find consistent evidence of association between these affective psychopathic traits and EI. Consistent association between psychopathy and EI was only found for the impulsive/behavioral traits (Factor 2). Regression analyses indicated that these impulsive traits were a significant

unique predictor of strategic EI, even with shared variance with affective/interpersonal (Factor 1) traits taken into account. For these reasons, we think a substantive role of predictor-criterion overlap in explaining these results is unlikely.

EI has been generally conceptualized as an ability or trait that enables individuals to successfully and cooperatively manage interactions with others. As such, high EI has been associated with positive outcomes such as better social support and stress management, more avoidance of interpersonal arguments and fights, and lower rates of substance abuse (Mayer et al., 2004). However, the ability to use emotional information and the ends to which this ability is put are logically distinct. In principle, one could use EI to manipulate others to one's own ends. However, the MSCEIT, and other EI measures, are designed only to assess positive outcomes of the use of emotional information. Current assessments of EI are not value-neutral with respect to outcomes. They do not assess the ability or willingness of individuals to use emotional information for manipulation or personal gain.

Little research has examined EI in terms of manipulative gains. Austin, Farrelly, Black, and Moore (2007) found that individuals who scored higher on Machiavellianism, an interpersonal strategy that relies on the use of deception, manipulation, and exploitation, endorsed statements about successful emotional manipulation of others (e.g., 'I know how to play two people off against each other'), even as they scored lower on ability (MSCEIT) and trait (EQi, Bar-On, 2002) EI (see also Ali et al., 2009). Machiavellianism and psychopathy are positively correlated (Mealey, 1995; Ali et al., 2009), although they are separate constructs (Paulhus & Williams, 2002). These findings suggest that individuals high in Machiavellianism, and/or psychopathy, may show greater EI in manipulating others than normal individuals do. However, Austin and colleagues (2007) used a self-report measure of emotional manipulation; whether high Machiavellian individuals are actually better than others at emotional manipulation, rather than just reporting that they are, remains an open question.

We studied psychopathy in an incarcerated sample. In a sense, these are "unsuccessful" psychopathic individuals—they have landed themselves in prison. However, our incarcerated individuals with psychopathy self-report numerous crimes for which they were never arrested, charged, or convicted. On the whole, many of them are quite "successful" in engaging in criminal activity in that they serve prison time for a relatively small fraction of their offenses. Whether this track record distinguishes psychopathic and non-psychopathic inmates remains an open question, one that we are actively investigating. The vast majority of inmates self-report engaging in numerous criminal acts for which they are never punished. It is possible that psychopathic inmates are more "successful" at criminal activity than non-psychopathic inmates; if data showed that psychopathic inmates served time for a smaller proportion of their offenses than non-psychopathic inmates, this hypothesis would be supported.

Another caveat is that many previous studies have linked psychopathy with impairments in identifying or reacting to specific emotions, such as fear (e.g., Blair et al., 2001). The MSCEIT is designed as a general measure to assess emotional abilities across a range of emotions, but it remains possible that the impairments of individuals with psychopathy, including reasoning about emotional information, are more specific. The presence of impairments that are emotion-specific (or situation-specific; see Newman et al., 2010) in psychopathy may be one reason why we failed to find an association between experiential EI and psychopathy. Examining reasoning about moral emotions (remorse, guilt) in individuals with psychopathy may be particularly fruitful.

This study suggests there is a modest but significant association between clinical psychopathy and ability EI, and it adds to a growing literature on this topic. All of these investigations found some relationship between psychopathic traits and impaired EI. Future research should explore the specific nature of this relationship.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Descriptive statistics for key variables.

Measure	Mean	SD	Minimum	Maximum	n
Age	34.0	9.33	18	60	345
<b>General Intelligence</b>					
Full-scale IQ estimate	95.7	13.20	72	137	344
Vocabulary Scores	32.7	11.56	4	65	344
Matrix Reasoning Scores	16.0	4.81	4	25	344
<b>Emotional Intelligence (EI)</b>					
Global EI (MSEIT Total Scores)	87.7	13.96	56.0	117.2	345
Experiential EI area	96.9	16.18	36.3	130.9	345
Perceiving Emotions (B1)	103.1	16.20	54.4	134.3	345
Facilitating Thought (B2)	91.6	15.27	55.8	127.1	345
Strategic EI area	83.9	10.93	43.0	113.4	345
Understanding Emotions (B3)	83.6	11.74	41.2	113.8	345
Managing Emotions (B4)	85.8	12.24	52.3	111.7	345
<b>Psychopathy</b>					
PCL-R total scores	20.8	6.87	3.2	38.9	345
Affective traits (Factor 1)	6.0	3.28	0	16	345
Impulsive traits (Factor 2)	12.6	3.80	1.1	20	345

Note. Full-scale IQ estimate and EI scores are based on a standardization of M=100, SD=15.



**Table 2a**  
Zero-order correlation coefficients among age, general intelligence, and emotional intelligence scales.

	Age	General Intelligence			Emotional Intelligence							
		Vocabulary	Matrix Reasoning	Total IQ	Global EI	Experiential EI	Strategic EI	B1	B2	B3	B4	
<b>General Intelligence</b>												
Vocabulary	.33											
Matrix Reasoning	-.15 <sup>c</sup>	.32										
Total IQ	.09 <sup>a</sup>	.79	.80	---								
<b>Emotional Intelligence</b>												
Global EI	.11 <sup>b</sup>	.56	.30	.51	---							
Experiential EI	-.02 <sup>a</sup>	.35	.23	.35	.88	---						
Strategic EI	.20	.63	.30	.55	.89	.59	---					
Perceiving Emotions (B1)	-.08 <sup>a</sup>	.25	.22	.28	.75	.88	.48	---				
Facilitating Thought (B2)	.02 <sup>a</sup>	.36	.18	.32	.80	.88	.55	.58	---			
Understanding Emotions (B3)	.15 <sup>c</sup>	.64	.27	.54	.77	.52	.86	.44	.47	---		
Managing Emotions (B4)	.20	.47	.25	.43	.79	.52	.86	.40	.52	.52	---	

N=344. All  $p < .001$  unless otherwise noted.

<sup>a</sup> non-significant ( $p > .05$ ).

<sup>b</sup>  $p < .05$ .

<sup>c</sup>  $p < .01$ .

Total IQ was estimated from the Vocabulary and Matrix Reasoning sub-tests. Experiential EI is composed of the Perceiving Emotions branch (B1) and the Facilitating Thought branch (B2); Strategic EI is composed of the Understanding Emotions branch (B3) and the Managing Emotions branch (B4). Global EI is composed of all four branches.

Table 3

Zero-order and partial correlation (controlling for general intelligence) coefficients (and two-tailed  $p$ -values) between emotional intelligence scales and psychopathy components for all inmates.

	Psychopathy					
	Total Scores		Affective Traits		Impulsive Traits	
	$r$	partial $r$	$r$	partial $r$	$r$	partial $r$
Global EI	-.07 (.20)	<b>-.11 (.05)</b>	-.01 (.84)	-.07 (.21)	-.10 (.06)	<b>-.10 (.05)</b>
Experiential EI	-.04 (.51)	-.06 (.30)	-.01 (.91)	-.04 (.42)	-.03 (.54)	-.03 (.61)
Perceiving Emotions (B1)	-.01 (.91)	-.02 (.66)	.04 (.48)	.01 (.89)	-.02 (.75)	-.01 (.80)
Facilitating Thought (B2)	-.05 (.36)	-.07 (.22)	-.05 (.40)	-.08 (.14)	-.03 (.60)	-.02 (.69)
Strategic EI	<b>-.11 (.05)</b>	<b>-.16 (.003)</b>	-.04 (.48)	<b>-.11 (.05)</b>	<b>-.16 (.003)</b>	<b>-.18 (.001)</b>
Understanding Emotions (B3)	-.06 (.27)	-.10 (.08)	.01 (.82)	-.04 (.48)	<b>-.13 (.02)</b>	<b>-.13 (.01)</b>
Managing Emotions (B4)	-.10 (.06)	<b>-.14 (.01)</b>	-.05 (.36)	<b>-.10 (.05)</b>	<b>-.13 (.02)</b>	<b>-.13 (.01)</b>

Note.  $N=344$ . Significant results ( $p < .05$ ) are marked in **bold**. Factor 1 and factor 2 were significantly positively correlated,  $r = .50$ ,  $p < .001$ .

**Table 4**

Hierarchical regressions predicting types of strategic emotional intelligence (EI) from psychopathy.

EI Type	Step	Variable	R <sup>2</sup> Change ( <i>p</i> )	$\beta$	<i>p</i>	Semipartial <i>r</i>
<b>Strategic EI</b>						
	1	<b>Psychopathy Factors</b>	<b>.03 (.008)</b>			
		Affective Traits (F1)		.06	.36	.05
		Impulsive Traits (F2)		-.19	<b>.003</b>	<b>-.16</b>
	2	<b>Interaction</b>	<b>.004 (.23)</b>			
		Affective (F1)* Impulsive (F2)		.06	.23	.06
<b>Understanding Emotions (B3)</b>						
	1	<b>Psychopathy Factors</b>	<b>.02 (.02)</b>			
		Affective Traits (F1)		.10	.10	.09
		Impulsive Traits (F2)		-.18	<b>.004</b>	<b>-.15</b>
	2	<b>Interaction</b>	<b>.003 (.34)</b>			
		Affective (F1)* Impulsive (F2)		.05	.34	.05
<b>Managing Emotions (B4)</b>						
	1	<b>Psychopathy Factors</b>	<b>.02 (.055)</b>			
		Affective Traits (F1)		.02	.75	.02
		Impulsive Traits (F2)		-.14	<b>.03</b>	<b>-.12</b>
	2	<b>Interaction</b>	<b>.005 (.18)</b>			
		Affective (F1)* Impulsive (F2)		.07	.18	.07

Note. n=344. Affective (Factor 1) and impulsive (Factor 2) psychopathic traits were significantly positively correlated,  $r=.50, p<.001$ . Variance Inflation Factor (VIF) for Affective traits=1.34, VIF for Impulsive traits=1.34.

**Table 5**

Hierarchical regressions predicting types of strategic emotional intelligence (EI) from psychopathy, after accounting for general intelligence.

EI Type	Step	Variable	R <sup>2</sup> Change ( <i>p</i> )	$\beta$	<i>p</i>	Semipartial <i>r</i>
<b>Strategic EI</b>						
	1	<b>Control Variable</b>	.30 (<.001)			
		General Intelligence		.55	<.001	.55
	2	<b>Psychopathy Factors</b>	.02 (.004)			
		Affective Traits (F1)		-.02	.68	-.02
		Impulsive Traits (F2)		-.14	.009	-.12
	3	<b>Interaction</b>	.001 (.47)			
		Affective * Impulsive		.03	.47	.03
<b>Understanding Emotions (B3)</b>						
	1	<b>Control Variable</b>	.29 (<.001)			
		General Intelligence		.54	<.001	.54
	2	<b>Psychopathy Factors</b>	.01 (.04)			
		Affective Traits (F1)		.03	.54	.03
		Impulsive Traits (F2)		-.13	.01	-.11
	3	<b>Interaction</b>	.001 (.59)			
		Affective * Impulsive		.02	.54	.02
<b>Managing Emotions (B4)</b>						
	1	<b>Control Variable</b>	.18 (<.001)			
		General Intelligence		.43	<.001	.43
	2	<b>Psychopathy Factors</b>	.02 (.03)			
		Affective Traits (F1)		-.05	.42	-.04
		Impulsive Traits (F2)		-.10	.08	-.08
	3	<b>Interaction</b>	.002 (.37)			
		Affective * Impulsive		.04	.37	.04

Note. n=344. Impulsive (Factor 1) and affective (Factor 2) traits were significantly positively correlated,  $r=.50$ ,  $p<.001$ . Variance Inflation Factor (VIF) for Affective traits=1.35, VIF for Impulsive traits=1.34.