Social and emotional intelligence moderate the relationship between psychopathy traits and social perception

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ABSTRACT

This research explored how psychopathy relates to individuals’ ability to discriminate trustworthy and untrustworthy faces and faces displaying Duchenne versus non-Duchenne smiles. Participants (N = 150) categorized faces as trustworthy or untrustworthy in Study 1. Participants (N = 151) categorized faces as displaying Duchenne or non-Duchenne smiles in Study 2. Participants in both studies then completed measures of psychopathy, emotional intelligence, and social intelligence. In Study 1, higher levels of secondary psychopathy were associated with reduced trustworthiness detection for individuals lower in emotional intelligence. In Study 2, higher levels of primary psychopathy were associated with reduced accuracy at discriminating Duchenne from non-Duchenne smiles for individuals lower in emotional and social intelligence. Independent of social and emotional intelligence, higher levels of secondary psychopathy were associated with reduced accuracy in discriminating trustworthy from untrustworthy faces and Duchenne from non-Duchenne smiles; primary psychopathy was unrelated to trustworthiness and smile discrimination accuracy. These studies suggest that the relationship between psychopathy and accurate identification of trustworthiness and affiliation cues in faces is influenced by the dimension of psychopathy and levels of emotional and social intelligence, respectively. Implications of these findings are discussed.

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1. Introduction

Psychopathy is a personality construct marked by several characteristics, including boldness (e.g., low fear), disinhibition (e.g., poor impulse control), and a lack of empathy (Skeem, Polaschek, Patrick, & Lilienfeld, 2011). Research has linked higher levels of psychopathy with negative psychosocial outcomes, such as increased violent behavior and alcohol use (Neumann & Hare, 2008). One common conceptualization of psychopathy involves the distinction between primary versus secondary psychopathy. Specifically, primary psychopathy, thought to have a moderate genetic component, is associated with callous and manipulative behavior, superficial relationships, and a lack of negative affect (Skeem et al., 2011). Primary psychopathy is often defined by weak reactivity of the defensive fear system and is evidenced by reduced fear-potentiated-startle response when viewing aversive pictorial stimuli (Benning, Patrick, & Iacono, 2005) along with reduced amygdala activity to fearful stimuli (Birbaumer et al., 2005). Alternatively, secondary psychopathy, believed to be more strongly associated with environmental causes (e.g., abuse or rejection), is associated with neuroticism, impulsivity, emotional reactivity, and aggression (Lynam, Whiteside, & Jones, 1999; Morrison & Gilbert, 2001). Secondary psychopathy is defined by a disinhibition component (i.e., externalizing propensity) and is evidenced by impaired performance on frontal lobe tasks (i.e., tasks assessing self-regulation; Morgan & Lilienfeld, 2000). Additionally, secondary psychopathy is associated with fewer stable relationships and reduced adaptive functioning (e.g., antisocial behavior; Poythress & Skeem, 2005).

1.1. Psychopathy and emotion recognition

One reason why individuals higher in psychopathy may experience maladaptive psychosocial consequences is that they may process emotional information communicated by others differently than less psychopathic individuals (Lykken, 1995). Indeed, numerous studies demonstrate that individuals higher in psychopathy as an overarching construct demonstrate reduced accuracy in identifying basic facial expressions of emotion, most notably for expressions of fear and sadness (Blair, Colledge, Murray, & Mitchell, 2001; Blair et al., 2004; Montagne et al., 2005). This suggests that individuals with higher levels of psychopathy struggle to recognize others’ distress cues, which may contribute to their increased antisocial behavior (Blair, 1995).
Nonetheless, the relationship between psychopathy and emotion recognition accuracy may be more complex when considering the dimensions of psychopathy separately. Whereas much of the previously reported findings explored the relationship between psychopathy as a unitary construct and emotion recognition accuracy, recent research indicates that primary and secondary psychopathy may be differentially related to emotion recognition accuracy. For example, Del Gaizo and Falkenbach (2008) found that primary psychopathy is associated with more accurate perception of fearful faces, whereas secondary psychopathy was unrelated to emotional expression recognition accuracy. Conversely, Prado, Treeby, and Crowe (2015) found that although higher levels of both primary and secondary psychopathy were associated with reduced accuracy in identifying a variety of facial expressions, this deficit was actually more pronounced for individuals scoring higher in primary relative to secondary psychopathy. The inconsistency across these studies further demonstrate the need to assess psychopathy as a multi-dimensional construct when exploring its relation to social perception accuracy, at least in the context of emotion recognition.

1.2. Psychopathy and complex social perception

Initial research seems to indicate that psychopathy is associated with emotion recognition impairments and that such impairments may be moderated by type of psychopathy. However, this research has not yet explored how psychopathy may be related to more nuanced aspects of social perception. The human face is an extremely dynamic social stimulus that not only communicates emotion, but also information regarding an individual’s motives and intentions (e.g., Parkinson, 2005). Thus, one of our primary goals was to determine how psychopathy may relate to more nuanced kinds of social perception: the ability to identify trustworthiness (or lack thereof) as well as the ability to discriminate between genuine (Duchenne) smiles and posed (non-Duchenne) smiles in faces.

We thought it prudent to explore these two forms of social perception for several reasons. First, the ability to discriminate trustworthy and untrustworthy faces and Duchenne versus non-Duchenne smiles are more nuanced kinds of social processing tasks (compared to recognition of basic facial or vocal emotions). Discrimination accuracy for basic facial expressions of emotion (e.g., anger versus happy facial expressions) tends to be greater than for social judgments related to trustworthiness and untrustworthiness and Duchenne versus non-Duchenne smiles (Bernstein, Young, Brown, Sacco, & Claypool, 2008; Sacco & Hugenberg, 2012; Young, Slepicka, & Sacco, 2015). Thus, the latter two kinds of social judgment tasks are likely more complicated or require processing more cues in order to reach an accurate categorization. An important extension of the existing literature offered in the current studies is the ability to determine how psychopathy is related to these more nuanced kinds of social judgments.

Additionally, accurate social perception in these two domains has important social consequences. Evaluations of trustworthiness are important for establishing and maintaining social relationships, given that trustworthiness is one of the most critical factors in interpersonal relationships (Rempel, Holmes, & Zanna, 1985). Cues to a person’s trustworthiness are readily communicated via the characteristics of an individual’s face (e.g., jaw width, brow prominence; Todorov, Pakrashi, & Oosterhof, 2009; Young et al., 2015), and perceptions of trustworthiness based on facial structure are formed very rapidly and exhibit significant inter-rater agreement (Willis & Todorov, 2006). Importantly, some research demonstrates that facial appearance predicts actual trustworthiness in interpersonal contexts (Stirrat & Perrett, 2010). Given that past research has linked higher levels of psychopathy to an inability to maintain important social relationships, and because trust is one of the most important factors in interpersonal relationships, higher levels of psychopathy may be associated with reduced accuracy in identifying trustworthy and untrustworthy targets from facial structural cues.

Furthermore, Duchenne smiles are spontaneous facial signals that communicate that a person is experiencing genuine positive affect and an interest in affiliation and cooperation, whereas non-Duchenne smiles are displayed to facilitate deception and mask underlying negative affect (Lustgarten, Sacco, & Young, 2015). Past research indicates that those with an acutely activated affiliation goal demonstrate an increased ability to discriminate Duchenne from non-Duchenne smiles so as to identify individuals who would be most likely to satiate their need to affiliate (Bernstein et al., 2008). It is possible that individuals scoring higher in psychopathy have trouble establishing and maintaining social relationships because they have a reduced ability to accurately discriminate facial signals of affiliation (Duchenne smiles) versus non-affiliation (non-Duchenne smiles). That is, to the extent that an individual can identify individuals who are trustworthy and are genuinely interested in affiliation, they would be more likely to effectively establish and maintain positive social relations. Such a capacity may be deficient in those scoring high in psychopathy, which could help explain past research demonstrating their reduced ability to maintain critical social relationships with others (Baird, 2002).

Relatively few studies have explored how various forms of psychopathy may relate to social perception outcomes (cf., Del Gaizo & Falkenbach, 2008; Prado et al., 2015). The studies that have explored different facets of psychopathy, specifically primary versus secondary, have produced contradictory results related to basic facial expression identification accuracy. No work has yet explored how dimensions of psychopathy relate to more nuanced categories of social perception. As such, the current work investigates how primary versus secondary psychopathy relate to social perception accuracy in the context of trust detection and the ability to detect affiliative intent. To the extent that the current results confirm or disconfirm the conflicting results relating psychopathy subtypes to basic emotion recognition, this work stands to offer clarification to this important area of inquiry.

1.3. Moderating roles of emotional and social intelligence

Finally, the current studies intend to fill a gap in the literature by examining potential moderating variables with respect to the relationship between psychopathy and social perception accuracy to clarify when higher levels of psychopathy may or may not be linked to deficits in social perception accuracy. As such, the current program of research not only assesses individuals’ level of psychopathy (both primary and secondary) but also individuals’ levels of trait social and emotional intelligence as potential moderators. We chose to assess social and emotional intelligence for two primary reasons: 1) social and emotional intelligence have been found to predict social perception accuracy, and 2) aspects of emotional and social intelligence have been associated with psychopathy.

Trait emotional intelligence is best described as a constellation of emotion-related self-perceptions and dispositions located at the lower levels of personality hierarchies (Petrides & Furnham, 2003; Petrides, Pita, & Kokkinaki, 2007). We chose to assess trait emotional intelligence for a number of reasons. First, trait emotional intelligence is related to life satisfaction (Martinez-Pons, 1997), affect intensity (Dawda & Hart, 2000), marital satisfaction (Schutte et al., 2001), and mood management behavior (Ciarrochi, Chan, & Bajgar, 2001). Thus, emotional intelligence is a critical component of affect regulation and relationship maintenance, which are considerable deficits in those scoring higher in psychopathy. Importantly, higher levels of emotional intelligence have been linked to increased efficiency and accuracy in identifying facial expressions of emotion (Austin, 2004; Petrides & Furnham, 2003). Past work has also demonstrated that individuals scoring higher in psychopathy also demonstrate reduced emotional intelligence (Malterer, Glass, & Newman, 2008; Petrides, Vernon, Schermer, & Veselka, 2011; Porter, ten Brinke, Baker, & Wallace, 2011), with secondary psychopathy being more consistently associated with emotional intelligence deficits than primary psychopathy (Ali, Amorim, & Chamorro-Premuzic, 2009;
Grieve & Mahar, 2010). Thus, because emotional intelligence is associated with positive relational outcomes, adaptive emotion regulation strategies, and increased ability to accurately identify facial expressions of emotion, and because higher levels of psychopathy, particularly secondary psychopathy, are associated with reduced emotional intelligence, emotional intelligence may be a critical moderator between higher levels of psychopathy and reduced accuracy in discriminating nuanced social signals related to trust and affiliation.

Social intelligence is composed of social information processing abilities, social skills, and social awareness (Silvera, Martinussen, & Dahl, 2001). We considered trait social intelligence as an additional moderating variable for two reasons. First, past research demonstrates that higher levels of social intelligence are associated with more accurate decoding of nonverbal cues (Barnes & Sternberg, 1989), including greater accuracy at identifying basic facial expressions of emotion (Petrides, Mason & Sevdalis, 2011). Additionally, social intelligence is associated with enhanced social perceptiveness and behavioral flexibility (Zaccaro, Gilbert, Thor, & Mumford, 1992). Second, there is preliminary evidence that individuals scoring higher in psychopathy demonstrate reduced affective theory of mind, which is considered highly related to social intelligence (Shamay-Tsoory, Harari, Aharon-Peretz, & Levkowitz, 2010). It is also the case that psychopathic individuals demonstrate impaired reasoning with respect to social contract rules and precautionary rules, which represent significant social intelligence deficits (Ermer & Kiehl, 2010). Thus, the fact that social intelligence has been linked to reduced accuracy in decoding nonverbal behavior coupled with research demonstrating that psychopathy is associated with lower levels of certain facets of social intelligence suggests that social intelligence may moderate the relationship between psychopathy and the ability to discriminate facial cues associated with trust and affiliation.

1.4. The current studies

In the current paper, we report two studies in which we explored the relationship between psychopathy and social perception, as well as the potential moderating roles of emotional and social intelligence. In Study 1, participants completed a face categorization task in which they viewed trustworthy and untrustworthy faces and were tasked with determining which faces were trustworthy and untrustworthy, respectively. In Study 2, participants completed a face categorization task in which they viewed Duchenne (genuine) and non-Duchenne (fake) smiles and were tasked with determining whether the faces displayed real versus fake smiles, respectively. Participants in both studies then completed questionnaires assessing their levels of psychopathy (primary and secondary), trait emotional intelligence, and trait social intelligence. Because secondary psychopathy has been linked to lower emotional intelligence (Grieve & Mahar, 2010) and reduced accuracy at identifying basic facial emotional expressions (Prado et al., 2015), we hypothesized that secondary psychopathy would be associated with a broad impairment in social perception accuracy. Thus, we hypothesized that higher levels of secondary psychopathy would be related to reduced accuracy in discriminating trustworthiness from untrustworthiness in faces (Study 1) and discriminating real from fake smiles (Study 2). While it is possible that primary psychopathy could be associated with more accurate social perception (Del Gaizo & Falkenbach, 2008), only one previous study found such an effect, and it was specific to fearful facial expressions. Moreover, another study found the opposite pattern of results (general impairment in facial expression identification accuracy for individuals higher in primary psychopathy; Prado et al., 2015). As such, we did not have a strong hypothesis regarding the relationship between primary psychopathy and accurate discrimination of complex social signals related to trustworthiness and affiliative intent. Furthermore, because both social and emotional intelligence are associated with improved social perception accuracy (Barnes & Sternberg, 1989; Petrides & Furnham, 2003), we hypothesized that higher levels of these traits may act as protective factors in the relationship between psychopathy and accurate social perception.

2. Study 1

2.1. Method

2.1.1. Participants

One hundred fifty (150) participants (75 men, 75 women; Mean age = 33.56 years, SD = 10.81 years) volunteered to complete the study procedures via an online study link. One hundred twenty-two (122) participants self-identified as Caucasian, nine participants self-identified as African American, six participants self-identified as Hispanic, 12 participants self-identified as Asian, and one participant self-identified as Native American. Participants were paid $1.50 for their participation. Participants were individuals located throughout the contiguous United States who have research participation accounts through Amazon’s Mechanical Turk Survey Tool. They can view study descriptions posted online and volunteer to participate based on the study description.

2.1.2. Materials

2.1.2.1. Trustworthy–untrustworthy categorization task. This task included 34 Caucasian male faces (17 trustworthy, 17 untrustworthy). These faces had been normed in previous research, such that half of the faces were consensually judged to be high in trustworthiness, and half of the faces were consensually judged to be low in trustworthiness, by an independent sample of participants. These stimuli did not differ along other salient dimensions, such as facial attractiveness (for additional details regarding stimulus validation, see Seepian, Young, Rule, Weisbuch, & Ambady, 2012). Participants viewed the faces one at a time in a randomized order and were simply asked to indicate whether they believed each face was trustworthy or untrustworthy. Consistent with past research exploring trust discrimination accuracy (Young et al., 2015), we adopted a signal detection framework for analyzing participants’ responses (Green & Swets, 1966). We coded HITs as any trial in which a participant categorized a trustworthy face as trustworthy and coded False Alarms (FAs) as any trial in which a participant categorized an untrustworthy face as trustworthy. We used HITs and FAs to compute each participant’s d’prime (d’), where higher values are indicative of a greater ability to accurately discriminate trustworthy from untrustworthy faces, as well as each participant’s criterion (β), where higher values are indicative of participants’ requiring more evidence to report that a face is trustworthy.1

2.1.2.2. Psychopathic Personality Inventory—Short Form (PPI). The PPI (Lilienfeld & Andrews, 1996) consists of 56 questions and contains 8 subscales (7 questions per subscale): Machiavellian Egocentrism (“I often tell people only the part of the truth they want to hear.”), Social Potency (“I am a good conversationalist.”), Fearlessness (“I would find the job of movie stunt person exciting.”), Coldheartedness (“I once become deeply attached to people I like.” Reverse scored), Impulsive Non-conformity (“I’ve always considered myself to be something of a rebel.”), Blame Externalization (“A lot of people in my life have tried to stab me in the back.”), Carefree Nonplanfulness (“I generally prefer to act first and think later.”), and Stress Immunity (“I can remain calm in situations that would make many other people panic.”). Participants respond to each item using a 4-point Likert scale (1 = False, 2 = Mostly False, 3 = Mostly True, 4 = True). For the PPI, we computed participants’ average level of primary psychopathy traits (i.e., fearless dominance) by

1 As is common in signal detection analyses, adjustments to the data were made to address the problem of empty cells: 0% was adjusted to 5%, and 100% was adjusted to 95% (see Hugenberg, Miller, & Claypool, 2007). Alternate adjustments yielded nearly identical results.
summing the Social Potency, Fearlessness, and Stress Immunity subscales and converting this to a z score ($\alpha = .81$). We computed participants’ average level of secondary psychopathy traits (i.e., self-centered impulsivity) by summing the Machiavellian Egocentricity, Impulsive Nonconformity, Blame Externalization, and Carefree Nonplanfulness subscales and converting this to a z score ($\alpha = .87$); higher scores reflect greater levels of primary and secondary psychopathy, respectively (Lilenfeld & Andrews, 1996).

2.1.2.3. Trait Emotional Intelligence Questionnaire—Short Form (EI). The EI (Petrides, 2009) consists of 30 questions that measure global trait emotional intelligence (“Expressing my emotions with words is not a problem for me.”). Participants respond using a 7-point Likert scale ($1 = \text{Completely Disagree}; 7 = \text{Completely Agree}$). We computed each participant’s average level of trait emotional intelligence ($\alpha = .92$), with higher scores reflecting greater emotional intelligence.

2.1.2.4. Tromso Social Intelligence Scale (SI). The SI (Silvera et al., 2001) contains 21 questions assessing three domains of social intelligence (7 items per subscale): Social Information Processing (“I can predict other people’s behavior.”), Social Skills (“I often feel uncertain around new people who I don’t know.”), and Social Awareness (“People often surprise me with the things they do.”). Participants respond to each item using a 7-point Likert scale ($1 = \text{Completely Disagree}; 7 = \text{Completely Agree}$). We computed each participant’s average level trait social intelligence ($\alpha = .91$), such that higher scores reflect greater social intelligence.

2.1.3. Procedure

Participants were recruited through Amazon’s Mechanical Turk survey tool. This survey tool has been used effectively in both social and clinical science research (e.g., Buhmester, Kwang, & Gosling, 2011; Shapiro, Chandler, & Mueller, 2013). Participants read a brief description of the study, and those interested in participating were directed to an online consent form. Those who consented to the study were then redirected to a link utilizing Qualtrics survey software. Participants first completed the trust categorization task. Following this task, participants completed the PPI, EI, and SI in a randomized order. Following completion of these questionnaires, participants completed a brief demographics questionnaire (e.g., gender, age, race) and were directed to a study debriefing form. Once participants completed the study, they were given a six-digit code, which they could redeem for their participation.

2.2. Results

Prior to analyses, initial data screening revealed no concerns regarding missing data nor significant violations of normality (see Table 1 for descriptive statistics). Correlations are presented in Table 2. Participants’ primary psychopathy score was negatively correlated with their secondary psychopathy score, $r(148) = -.169$, $p = .039$, suggesting that these two variables are conceptually unique. Participants’ secondary psychopathy scores were negatively correlated with their $d^*$ score, $r(148) = -.311$, $p < .001$, such that higher levels of secondary psychopathy traits predicted a reduced ability to discriminate between trustworthy and untrustworthy faces. Although directionally similar, participants’ primary psychopathy scores were not significantly correlated with their $d^*$ score, $r(148) = -.138$, $p = .091$. Additionally, participants’ primary psychopathy scores were positively correlated with both their emotional intelligence, $r(148) = .486$, $p < .001$, and social intelligence, $r(148) = .545$, $p < .001$; thus, higher levels of primary psychopathy were associated with higher levels of emotional and social intelligence. Conversely, participants’ secondary psychopathy scores were negatively correlated with both their emotional intelligence, $r(148) = -.571$, $p < .001$, and social intelligence, $r(148) = -.433$, $p < .001$; thus, higher levels of secondary psychopathy were associated with lower levels of emotional and social intelligence.

Although participants’ levels of emotional and social intelligence were positively correlated, $r(148) = .682$, $p < .001$, only emotional intelligence was associated with participants’ $d^*$ scores, $r(148) = .235$, $p = .004$, such that higher levels of emotional intelligence were associated with an enhanced ability to discriminate trustworthy from untrustworthy faces. The correlation between social intelligence and $d^*$ was non-significant, $r(148) = .105$, $p = .201$. Additionally, participants’ criterion ($j_3$) was significantly positively correlated with their $d^*$, $r(148) = .333$, $p < .001$, indicating that those who set a higher threshold for indicating that a face was trustworthy demonstrated greater discrimination of trustworthy and untrustworthy faces. However, primary psychopathy traits, secondary psychopathy traits, social intelligence, and emotional intelligence were all unrelated to criterion ($all ps > .300$).

To examine moderating effects, regression models were analyzed using psychopathy traits as the predictor, emotional and social intelligence as moderators (in eight separate models), and $d^*$ as the outcome. The analyses were conducted in the PROCESS Macro for SPSS based on procedures described by Hayes (2013). Results are presented in Table 3. In the model involving primary psychopathy as the predictor

### Table 1

<table>
<thead>
<tr>
<th>Study 2 Mean variables</th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
<th>Skewness</th>
<th>Kurtosis</th>
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<td>Primary psychopathy</td>
<td>50.591</td>
<td>12.777</td>
<td>22–84</td>
<td>–191</td>
<td>.127</td>
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<tr>
<td>Secondary psychopathy</td>
<td>56.722</td>
<td>11.207</td>
<td>31–85</td>
<td>.024</td>
<td>–474</td>
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<td>Emotional intelligence</td>
<td>147.192</td>
<td>30.590</td>
<td>64–210</td>
<td>-.029</td>
<td>–546</td>
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<td>Social intelligence</td>
<td>4.597</td>
<td>.892</td>
<td>1.81–6.86</td>
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<td>.057</td>
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<tr>
<td>$d^*$</td>
<td>.998</td>
<td>.003</td>
<td>–1.282–3.280</td>
<td>.220</td>
<td>–.085</td>
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<td>Criterion</td>
<td>1.410</td>
<td>.850</td>
<td>.259–3.869</td>
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### Table 2

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<th>3.</th>
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<td>–</td>
<td>–</td>
<td>–</td>
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<td>Secondary psychopathy</td>
<td>–1.69*</td>
<td>–</td>
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<td>–</td>
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<tr>
<td>Social intelligence</td>
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<td>–</td>
<td>–</td>
<td>–</td>
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</tr>
<tr>
<td>$d^*$</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Criterion</td>
<td>–.044</td>
<td>–.080</td>
<td>–.002</td>
<td>–.014</td>
<td>.333***</td>
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<th>3.</th>
<th>4.</th>
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<tr>
<td>Primary psychopathy</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Secondary psychopathy</td>
<td>.162*</td>
<td>–</td>
<td>–</td>
<td>–</td>
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<td>–</td>
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<td>.482***</td>
<td>–</td>
<td>–</td>
<td>–</td>
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<tr>
<td>$d^*$</td>
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<td>–</td>
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<tr>
<td>Criterion</td>
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<td>.034</td>
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*a* $p < .05$  
**$p < .01$**  
***$p < .001$***
Table 3
Regression models predicting $d'$ in Study 1.

<table>
<thead>
<tr>
<th>Predictors</th>
<th>$\beta$</th>
<th>SE</th>
<th>$R^2$</th>
<th>$\Delta R^2$</th>
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<tr>
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<td></td>
<td></td>
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<tr>
<td>Primary psychology</td>
<td>-.331***</td>
<td>.058**</td>
<td>.139***</td>
<td></td>
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<tr>
<td>Emotional intelligence</td>
<td>.396***</td>
<td>.002***</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Primary psychopathy × Emotional intelligence</td>
<td>.042</td>
<td>.002</td>
<td>-</td>
<td>.002</td>
</tr>
<tr>
<td>Model</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Primary psychology</td>
<td>-.278**</td>
<td>.063**</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Social intelligence</td>
<td>.257***</td>
<td>.071**</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Primary psychology × Social intelligence</td>
<td>.199**</td>
<td>.045**</td>
<td>-</td>
<td>.039**</td>
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<tr>
<td>Model</td>
<td></td>
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<td>Secondary psychology</td>
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<td>Emotional intelligence</td>
<td>-.086</td>
<td>.002**</td>
<td>-</td>
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<tr>
<td>Secondary psychopathy × Emotional intelligence</td>
<td>-.324**</td>
<td>.002**</td>
<td>-</td>
<td>-.101**</td>
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<td>Model</td>
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<tr>
<td>Secondary psychology</td>
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<td>.058**</td>
<td>-</td>
<td></td>
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<tr>
<td>Social intelligence</td>
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<td>.065**</td>
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<tr>
<td>Secondary psychopathy × Social intelligence</td>
<td>.145</td>
<td>.061</td>
<td>-</td>
<td>.020</td>
</tr>
</tbody>
</table>

Note: Each model shows the main effects in the initial step and the interaction in the second step.

* $p < .05$

** $p < .01$

*** $p < .001$

and emotional intelligence as the moderator, there was a significant main effect for emotional intelligence, $b = .009$, $se = .002$, $p < .001$. The interaction was not significant in this model. Using social intelligence as the moderator, there was a significant main effect for primary psychopathy, $b = -.728$, $se = .225$, $p = .002$, and for social intelligence, $b = .196$, $se = .070$, $p = .006$. There was also a significant interaction between primary psychopathy and social intelligence to predict $d'$, $\Delta R^2 = .039$, $b = .113$, $se = .045$, $p = .013$. Fig. 1 illustrates this interaction at 1 SD above, 1 SD below, and the mean of social intelligence. Post-hoc simple effects analysis revealed that at $-1$ SD and mean levels of social intelligence, there were significant negative effects of primary psychopathy on $d'$, $b = - .307$, $p < .001$. However, at $+1$ SD level of social intelligence, there was no significant effect of primary psychopathy score on $d'$, $b = -.104$, $p = .140$. Thus, individuals with the poorest discrimination accuracy were those with high primary psychopathy and low social intelligence. For individuals high on primary psychopathy, having high social intelligence appeared to buffer their social perception deficits.

In a model with secondary psychopathy as the predictor and emotional intelligence as the moderator, there was a significant main effect for secondary psychopathy, $b = -1.386$, $se = .287$, $p < .001$. There was also a significant interaction between secondary psychopathy and emotional intelligence in predicting $d'$, $\Delta R^2 = .101$, $b = .008$, $se = .002$, $p < .001$. Similar to the previous model, simple effects analysis revealed significant negative effects of secondary psychopathy on $d'$ only at $-1$ SD and mean levels of emotional intelligence, $b = -.442$, $p < .001$. Thus, individuals with the poorest discrimination accuracy were those with high secondary psychopathy and low emotional intelligence (Fig. 2). For those with relatively high secondary psychopathy, having high emotional intelligence appeared to also buffer their social perception deficits. Similarly, with social intelligence as the moderator, there was a significant main effect for secondary psychopathy, $b = -.741$, $se = .293$, $p = .013$. There was also a trend for an interaction between secondary psychopathy and social intelligence in predicting $d'$, $\Delta R^2 = .020$, $b = .111$, $se = .061$, $p = .071$. Simple effects analysis revealed a similar pattern to the previous models, where there were significant negative effects of secondary psychopathy on $d'$ at $-1$ SD and mean levels of social intelligence, $b = -.330$, $p < .001$.

2.3. Discussion

Study 1 revealed that individuals scoring high in secondary psychopathy traits demonstrated significantly reduced accuracy in discriminating trustworthy from untrustworthy faces. Given that assessing trustworthiness in others is critical for establishing and maintaining social relationships (Rempele et al., 1985), individuals higher in secondary psychopathy exhibiting a reduction in detecting trust in others could represent a deficit that contributes to their lesser ability to successfully navigate social relationships. Nonetheless, Study 1 indicated that higher levels of social and emotional intelligence play a critical moderating role in the presence of social perception deficits in individuals scoring high in psychopathy. For individuals higher in primary psychopathy, higher levels of social intelligence seem to improve accuracy in discriminating trustworthiness from untrustworthiness in faces. Additionally, for those individuals higher in secondary psychopathy, higher levels of both social and emotional intelligence seem to be a protective factor in accurately discriminating between trustworthy and untrustworthy faces.

Fig. 1. Interaction between primary psychopathy and social intelligence in predicting $d'$.

Fig. 2. Interaction between secondary psychopathy and emotional intelligence in predicting $d'$.

2 Results for models involving emotional intelligence as the moderator remained significant when controlling for social intelligence. Similarly, for models involving social intelligence as the moderator, results remained significant when controlling for emotional intelligence. The only exception involved the interaction between primary psychopathy and social intelligence, whereby the inclusion of emotional intelligence as a covariate resulted in a nonsignificant interaction, $p = .059$, although the pattern of results remained similar. In addition, there were no changes in the results when considering gender as a covariate.
Although the results of this study are informative, it must be noted that the nature of the social perception task allows us to draw only limited inferences regarding accuracy in social perception. Specifically, the trustworthy and untrustworthy faces used in this study were rated as such by consensus from an independent sample of participants (Slepian et al., 2012). Therefore, it cannot be confirmed that the individuals rated as trustworthy are truly more trustworthy than the individuals rated as untrustworthy. Rather, Study 1 assessed the extent to which psychopathy is related to sensitivity to consensual judgments about target faces with respect to trustworthiness. Based on this distinction, the results of Study 1 demonstrate that those scoring higher on psychopathy (specifically secondary psychopathy) show reduced sensitivity to consensual judgments of trustworthiness and that higher social and emotional intelligence may protect against this lack of sensitivity among individuals higher in psychopathy.

To extend the results of our first study to more objective facial cues, Study 2 utilized a different dependent measure of social perception that would allow us to track accuracy in social perception; namely, discrimination of Duchenne versus non-Duchenne smiles. Human smiles can vary morphologically and motivationally (Parkinson, 2005). The Duchenne smile involves largely involuntary activation of both the zygomaticus major and orbicularis oculi muscles, which raise the cheeks and cause wrinkling around the corners of the eye, respectively. This type of smile is spontaneous and indicative of a genuine experience of joy. Conversely, non-Duchenne smiles recruit only the zygomaticus major muscle and are produced voluntarily. Importantly, only Duchenne smiles are associated with cooperative intentions and behaviors (e.g., Brown & Moore, 2002; Mehu, Grammer, & Dunbar, 2007). Conversely, non-Duchenne smiles are more variable in their social communicative meaning; they can be used to communicate non-cooperative intent and untrustworthiness (Krumhuber et al., 2007). It is often the case that even if not produced with malicious intentions, non-Duchenne smiles are designed to be misleading and to mask disingenuous intent (Biland, Py, Allione, Demarchi, & Abric, 2008).

Thus, the human face communicates both veridical signals of affiliative and cooperative intent (Duchenne smiles) as well as deceptive signals that may mask disingenuous intent (non-Duchenne smiles). The extent to which one can accurately differentiate these social signals would be facilitative of social interactions and relationships. Thus, Study 2 tasked participants with viewing target faces displaying either Duchenne smiles or non-Duchenne smiles and instructed participants to identify which smiles were real and fake, respectively. Similar to Study 1, we anticipated that individuals scoring higher in secondary psychopathy would be particularly inaccurate at this social perceptual task. Additionally, we predicted that trait social and emotional intelligence might again act as moderating variables, such that those higher in psychopathy would demonstrate less inaccuracy at differentiating real versus fake smiles so long as they possessed higher levels of social and/or emotional intelligence.

3. Study 2

3.1. Method

3.1.1. Participants

One hundred fifty-one (151) participants (87 men, 64 women; Mean age = 32.81 years, SD = 9.63 years) volunteered to complete the study procedures via an online study link. One hundred twenty-two (122) participants self-identified as Caucasian, eight participants self-identified as African American, five participants self-identified as Hispanic, nine participants self-identified as Asian, five participants self-identified as “Other,” and one participant chose not to provide ethnicity information; one additional person did not provide a response to this demographic question. Participants were paid $1.00 for volunteering to complete the study, and were again recruited from Amazon’s Mechanical Turk survey community.

3.1.2. Materials

3.1.2.1. Duchenne non-Duchenne smile categorization task. In this task, participants saw the same male target throughout. However, this target was either displaying a real (Duchenne) smile or a posed, non-Duchenne smile on each trial. These stimuli were borrowed from previous research that utilized a trained actor, familiar with the Facial Action Coding System (FACS; Ekman, Friesen, & Hager, 2002), to contract single facial action units. Images of this actor were created, such that the actor generated a series of Duchenne and non-Duchenne smiles at various intensities; additionally, half of the non-Duchenne smiles involved deliberate manipulation of the eyes while half did not. The individual images were coded by a trained FACS coder to validate the authenticity of Duchenne smiles and inauthenticity of non-Duchenne smiles, and it was demonstrated that Duchenne smiles were rated as more authentic than non-Duchenne smiles (see Del Giudice & Colle, 2007 for additional details regarding stimulus generation and validation). For the current study, we used 10 Duchenne smile stimuli and 10 non-Duchenne smile stimuli (5 of which involved manipulation of the eyes and 5 of which did not). During the smile categorization task, participants saw each of these smile stimuli one at a time in a randomized order. Participants were asked to indicate whether they believed the person was displaying a real smile or a fake smile, via keyboard button press. Consistent with past research exploring smile discrimination accuracy (Bernstein et al., 2008), we adopted a signal detection framework for analyzing participants’ responses (Green & Swets, 1966). We coded HITs as any trial in which a participant categorized a Duchenne smile as real and coded False Alarms (FAs) as any trial in which a participant categorized a non-Duchenne smile as real. We used HITs and FAs to compute each participant’s prime of a prime (d’), where higher values are indicative of a greater ability to accurately discriminate real smiles from fake (i.e., posed) smiles, as well as each participant’s criterion (β), where higher values are indicative of participants’ requiring more evidence to report that a smile is real.3

3.1.2.2. Questionnaires. We again utilized the same questionnaires as in Study 1 (see Study 1 materials for details regarding specific questionnaires) as well as the same scoring procedures: the Psychopathic Personality Inventory—Short Form (PPI; Lilienfeld & Andrews, 1996); primary psychopathy α = .92; secondary psychopathy α = .86), the Trait Emotional Intelligence Questionnaire—Short Form (ETI; Petrides, 2009; α = .95), and the Tromsø Social Intelligence Scale (SI; Silvera et al., 2001; α = .90). In all cases, higher scores reflect higher levels of primary psychopathy traits, secondary psychopathy traits, emotional intelligence, and social intelligence, respectively.

3.1.3. Procedure

Similar to Study 1, participants were recruited through Amazon’s Mechanical Turk survey tool. Participants read a brief description of the study, and those interested in participating were directed to an online consent form. Participants who consented to the study were then redirected to a Qualtrics link to complete all study procedures. Once participants completed the study, they were given a six-digit code, which they could redeem for their compensation. Mechanical Turk automatically pays each participant who enters his/her redemption code.

Participants first completed the Duchenne Non-Duchenne smile categorization task. Following this task, participants completed the PPI, ETI, and SI in a randomized order on a between-participants basis. Following the completion of these questionnaires, participants completed a brief

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3 Similar to our first study, adjustments to the data were made in Study 2 to address the problem of empty cells: 0% was adjusted to 5%, and 100% was adjusted to 95% (see Hugenberg et al., 2007). Alternate adjustments yielded nearly identical results.
demographics questionnaire (e.g., gender, age, race) and were directed to a study debriefing form.

3.2. Results

Prior to analyses, initial data screening revealed no concerns with missing data, nor any significant violations of normality (see Table 1 for descriptive statistics). Correlations are presented in Table 2. Unlike Study 1 where primary and secondary psychopathy traits were negatively correlated, participants’ primary psychopathy scores were positively correlated with their secondary psychopathy scores, r(149) = .162, p = .047. However, because in both cases primary and secondary psychopathy traits were weakly correlated with one another, they appear to be tapping into conceptually different constructs. Similar to Study 1, participants’ secondary psychopathy scores were negatively correlated with their d’ score, r(149) = −.166, p = .042, such that higher levels of secondary psychopathy traits were associated with a reduced ability to discriminate between real and fake smiles. Although directionally similar, participants’ primary psychopathy scores were not significantly correlated with their d’ score, r(149) = −.126, p = .122. Additionally, participants’ primary psychopathy scores were positively correlated with both their emotional intelligence, r(149) = .555, p < .001, and social intelligence, r(149) = .482, p < .001; thus, higher levels of primary psychopathy were associated with higher levels of emotional and social intelligence, respectively. Conversely, participants’ secondary psychopathy scores were negatively correlated with both their emotional intelligence, r(149) = −.470, p < .001, and social intelligence, r(149) = −.416, p < .001; thus, higher levels of secondary psychopathy were associated with lower levels of emotional and social intelligence.

Participants’ levels of emotional and social intelligence were positively correlated, r(149) = .795, p < .001. However, unlike Study 1, neither emotional intelligence, r(149) = .015, p = .859, nor social intelligence, r(149) = .085, p = .299, were significantly correlated with d’ scores. Additionally, participants’ criterion (β) was significantly positively correlated with their d’ score, r(149) = .300, p < .001, such that participants who required more evidence to indicate that a face was real demonstrated greater sensitivity in discriminating between real and fake smiles. Nonetheless, primary psychopathy traits, secondary psychopathy traits, social intelligence, and emotional intelligence were unrelated to participants’ criterion (all ps > .510).

Similar to Study 1, we used regression models (a total of eight separate models) to examine the moderating effects of emotional and social intelligence on psychopathy and d’. Results are presented in Table 4. In the model involving primary psychopathy as the predictor and emotional intelligence as the moderator, there was a significant main effect for primary psychopathy, b = −.741, se = .310, p = .018. There was also a trend for an interaction between primary psychopathy and emotional intelligence in predicting d’, ΔR² = .023, b = .004, se = .002, p = .039. Simple effects analysis revealed that at −1 SD and mean levels of emotional intelligence, there were significant negative effects of primary psychopathy on d’, b = −.296, p = .001. However, at +1 SD level of emotional intelligence, there was no significant effect of primary psychopathy on d’, b = −.059, p = .582. Using social intelligence as the moderator, there was a significant main effect for primary psychopathy, b = −.978, se = .345, p = .005, and for social intelligence, b = .196, se = .092, p = .034. There was also a significant interaction between primary psychopathy and social intelligence to predict d’, ΔR² = .034, b = −.166, se = .071, p = .021. Again, simple effects analysis revealed significant negative effects of primary psychopathy on d’ at only −1 SD and mean levels of social intelligence, b = −.364, p = .001. Fig. 3 illustrates that individuals with the poorest discrimination accuracy were those with high primary psychopathy scores and low social intelligence, similar to findings from Study 1.

In models involving secondary psychopathy, there were no significant main effects or interaction effects for either emotional or social intelligence in predicting d’, contrary to Study 1.

3.3. Discussion

Consistent with our first study, higher secondary psychopathy was associated with reduced social perception accuracy; specifically, a reduced ability to accurately differentiate Duchenne from non-Duchenne smiles. Given the value of being able to discriminate others displaying genuine affiliative and cooperative intent from those engaging in more deceptive social communication, it is perhaps not surprising that individuals higher in secondary psychopathy displayed reduced accuracy in this task, given research demonstrating that they have difficulty maintaining healthy social relationships (Grieve & Mahar, 2010). Furthermore, Study 2 revealed that individuals higher in primary psychopathy, who also possess higher levels of social and emotional intelligence, demonstrated better smile discrimination than individuals higher in primary psychopathy but who had lower levels of social and emotional intelligence. However, higher levels of social and emotional intelligence did not seem to contribute to smile discrimination accuracy.
for individuals higher in secondary psychopathy traits, contrary to findings from Study 1.

4. General discussion

4.1. Psychopathy and social perception

The two studies presented here expand upon previous research linking psychopathy to poorer social perception in several critical ways. Specifically, these studies explored how primary and secondary psychopathy relate to nuanced social perception of facial cues such as trustworthiness and affiliation, rather than basic emotional expressions (Del Gaizo & Falkenbach, 2008). The current studies also explored the moderating role of trait levels of social and emotional intelligence in understanding the relationship between psychopathy and social perception, given that past research has linked higher levels of these two traits to more accurate social perception (Barnes & Sternberg, 1989; Petrides & Furnham, 2003), and that psychopathy has been linked to lower levels of social and emotional intelligence (Ali et al., 2009; Shamay-Tsory et al., 2010).

In two studies, we document a general pattern whereby individuals with higher secondary psychopathy (i.e., disinhibition, unstable relationships) demonstrate reduced social perception accuracy, specifically, a reduced ability to distinguish trustworthy from untrustworthy faces as well as a reduced ability to distinguish real from fake smiles. Primary psychopathy (i.e., callousness, lack of empathy, manipulativeness), on the other hand, was not directly related to individuals’ ability to accurately distinguish signals of trustworthiness or differentiate real and fake smiles. Unlike past research demonstrating that higher primary psychopathy is associated with enhanced emotion recognition accuracy, whereas secondary psychopathy is unrelated to emotion processing accuracy (Del Gaizo & Falkenbach, 2008), we found that only secondary psychopathy was associated with reduced social perception accuracy with respect to trust and smile discrimination. One potential reason for the discrepancy between our findings and prior work could be related to the type of stimuli utilized in each study. Specifically, Del Gaizo and Falkenbach (2008) explored the relationship between primary and secondary psychopathy as it relates to accuracy in basic facial expression recognition (e.g., fear, anger, disgust, sadness). However, the current studies utilized more nuanced social stimuli; specifically, discriminating trustworthy in faces and subtle cues associated with affiliative intent (Duchenne versus non-Duchenne smiles). Thus, although higher primary psychopathy may be associated with better basic emotion recognition accuracy, such enhanced perceptual accuracy may not translate into greater accuracy for perception of more nuanced social stimuli, which are themselves more complex kinds of social information to accurately discriminate. Furthermore, given that past research has linked secondary psychopathy to reduced emotional intelligence (Grieve & Mahar, 2010) and poorer functioning in social relationships (Baird, 2002), it may not be surprising that the current studies demonstrated poorer social perception accuracy with respect to detecting trustworthiness and affiliative intent for those higher in secondary psychopathy, as detecting these cues would be critical for social relationship maintenance (Rempel et al., 1985).

4.2. The moderation roles of emotional and social intelligence

Nonetheless, the current findings suggest that higher levels of both primary and secondary psychopathy traits are associated with varying levels of social perception inaccuracies, depending on individuals’ levels of social and emotional intelligence. Across both studies, higher social intelligence seemed to buffer individuals from the negative relationship between primary psychopathy and social perception accuracy. Furthermore, in Study 1, higher social and emotional intelligence had a protective influence on social perception accuracy for individuals higher in secondary psychopathy. In our second study, higher emotional intelligence also buffered individuals from the relationship between primary psychopathy and social perception inaccuracy. Unlike Study 1, however, we found no buffering effect of social and emotional intelligence on social perception for individuals higher in secondary psychopathy. Given that higher levels of emotional intelligence are associated with affect regulation and more efficient and accurate identification of basic emotional expressions (e.g., Austin, 2004), it is sensible that even at high levels of psychopathy, higher levels of emotional intelligence buffered against deficits in discriminating facial cues of trust and affiliation. Additionally, given that higher social intelligence is associated with more accurate decoding of nonverbal cues (Barnes & Sternberg, 1989), it is reasonable that even at higher levels of psychopathy, higher levels of social intelligence buffered against deficits in discriminating facial cues associated with trust and affiliation.

Collectively, these findings suggest that secondary psychopathy traits may be linked to poorer social perception outcomes but that higher levels of social and emotional intelligence may act as protective factors for some forms of social perception (i.e., the ability to distinguish trustworthy from untrustworthy social targets). Furthermore, primary psychopathy seems to be linked to poor social perception outcomes to the extent that an individual has lower social, and to a lesser extent, emotional intelligence. Indeed, in both studies, to the extent that an individual had higher social intelligence, higher levels of primary psychopathy traits were not associated with social perception deficits. Additionally, primary psychopathy was only associated with poorer social perception if individuals had lower levels of emotional intelligence.

The current research suggests that compared to emotional intelligence, social intelligence plays a larger role in protecting against social perception inaccuracy for individuals scoring higher in both primary and secondary psychopathy traits. This pattern may in part be due to the social perception tasks participants were asked to complete. Where-as past research has looked at the ability to distinguish between basic facial expressions of emotion, the current research assessed individuals’ ability to detect genuine versus deceptive social signals from others’ faces (i.e., trustworthiness versus untrustworthiness, genuine affiliative intent versus disingenuous smiling), which may be better served by higher levels of social, rather than emotional intelligence. Given that social intelligence is associated with social information processing abilities, social skills, and social awareness (Silvera et al., 2001), higher trait social intelligence may be critical for the social discrimination tasks utilized in the current studies.

Additionally, higher social and emotional intelligence were more consistent moderators of social perception deficits for primary as opposed to secondary psychopathy. Given that secondary psychopathy is associated with more adverse psychosocial outcomes (Lynam et al., 1999), perhaps secondary psychopathy represents a more severe deficit, making it more challenging for higher social and emotional intelligence to buffer against social perception inaccuracy. Indeed, in both studies, only secondary psychopathy was associated with poorer social perception, independent of social and emotional intelligence, suggesting that social perception inaccuracy may be more common for those high in secondary psychopathy.

In both studies, psychopathy, social intelligence, and emotional intelligence were unrelated to participants’ criterion (β), or response bias with respect to discriminating trust and affiliative facial cues. These results suggest that psychopathy levels, social intelligence, and emotional intelligence influence sensitivity (the ability to discriminate between social stimulus types) but not response biases. Importantly, sensitivity and criterion are different constructs that represent different aspects of decision-making (Green & Swets, 1966). Thus, psychopathy may be related to reduced sensitivity not because individuals scoring higher in psychopathy have a different threshold for responding to social stimuli, but perhaps because they are not as capable of using the diagnostic information that differentiates the stimuli as...
effectively (e.g., not as aware that the creasing around the eyes is the most diagnostic cue to differentiating real from fake smiles; Ekman et al., 2002).

4.3. Research limitations and future directions

While interesting, the results of the current study are not without limitations. Data collection was exclusively online using Amazon’s Mechanical Turk survey tool. As with any form of online data collection, this reduces experimental control and introduces sampling bias into the participant selection process. Nonetheless, past research suggests that Mechanical Turk samples are not simply more diverse than other internet samples, but much more diverse than typical American college samples, which are the most common sampling method in psychology (Buhrmester et al., 2011). It is possible that this diverse sampling method provided a more representative range of the constructs of interest in these studies than would have been available using more traditional data collection methods.

Furthermore, the stimuli used in our studies were still images of faces, which may be lacking in ecological validity. For example, judgments of trustworthiness are often obtained through evaluations of individuals’ past behaviors as well as verbal and nonverbal cues (Boone & Buck, 2003; Wood, 2006), whereas smiles are often dynamic, rather than static displays (Lustgraaf et al., 2015). Nonetheless, the fact that psychopathy predicted differences in individuals’ ability to accurately discriminate among these social targets is consistent with past research on thin-slices of behavior, specifically, the ability of lay individuals to make impressively accurate social judgments from minimal information (Ambady & Rosenthal, 1992). Future research might benefit from determining if the current results replicate with more complex, dynamic, and ecologically valid stimuli.

Finally, there are limitations with respect to the results themselves that warrant future research. For example, although higher social and emotional intelligence buffered individuals higher in secondary psychopathy from accuracy deficits in discriminating trustworthy from untrustworthy faces (Study 1), neither provided the same benefit when those higher in secondary psychopathy were tasked with discriminating Duchenne from non-Duchenne smiles. Additionally, in Study 2, both social and emotional intelligence buffered those with higher primary psychopathy from accuracy deficits in discriminating Duchenne from non-Duchenne smiles. However, in Study 1, only social intelligence buffered those higher in primary psychopathy from accuracy deficits in discriminating trustworthy from untrustworthy faces. Thus, future research might benefit from determining why trait social and emotional intelligence provide a benefit for primary versus secondary psychopathy for one type of social stimulus, but not the other. Furthermore, the positive association between primary psychopathy and emotional intelligence across studies is somewhat counterintuitive and warrants further investigation. Future studies may benefit from exploring how different components of emotional intelligence relate to primary psychopathy.

Additionally, our results demonstrated some inconsistency in the relationship between primary and secondary psychopathy. Specifically, these two constructs were moderately negatively correlated in Study 1, but weakly positively correlated in Study 2. This inconsistent relationship has been documented in prior research, with some documenting a negative correlation and some documenting a lack of correlation between the two factors (Smith, Edens, & Vaughn, 2011). Thus, there does seem to be empirical evidence that primary and secondary psychopathy are independent constructs. However, future research would benefit from understanding the conditions under which they are likely to be positively related, negatively related, or unrelated to one another. It would also be important to replicate these findings across the two factors with other measures of psychopathy.

Future studies might also benefit from conducting this research with individuals from a clinical or forensic population. The current studies were conducted in a non-clinical sample, and it is likely the case that the majority of participants had sub-clinical levels of psychopathy. As such, it would be important to determine if the effects on more complex social perception documented in the current studies were similar, or perhaps even stronger, in a clinical or forensic sample of individuals defined by increased levels of psychopathy.

5. Conclusion

In the two studies, we found that higher secondary psychopathy was associated with a reduced ability to discriminate trustworthy from untrustworthy faces as well as to discriminate real from fake smiles. These social perception deficits were moderated by participants’ levels of social and emotional intelligence, such that those with higher levels of psychopathy did not demonstrate social perception deficits to the extent that they had higher levels of social or emotional intelligence. Nonetheless, these buffering effects were more consistent for those demonstrating higher primary, rather than secondary psychopathy.

References


