Psychopathic traits and their relation to facial affect recognition

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ABSTRACT

The limited set of studies available on facial affect recognition in psychopathic individuals not only differ in their findings but also reveal that the stimuli used to portray emotions have little ecological validity. The present study looks at the relationship between the degree of psychopathic traits and emotion recognition in a sample of undergraduate men, using dynamic representations of emotions. Results suggest that high levels of antisocial behaviors are associated with poorer performance and a specific impairment in the recognition of sadness. In contrast, callous affect is positively correlated with identifying sadness expressions and predicts a heightened sensitivity to facial affect. The ability to recognize signs of vulnerability can be seen as an adaptive strategy developed by psychopathic individuals to manipulate others. Mechanisms underlying criminal behavior appear to be associated with deficits in emotional processing. The study highlights the influence of distinct facets of psychopathy in facial affect recognition.

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1. Introduction

The psychopathic personality is defined as a unique blend of interpersonal, affective, and behavioral traits (Blair, Mitchell, & Blair, 2005; Cleckley, 1976; Hare, 1996) and has long been associated with both violent behavior and recidivism (Hare, 1996; Hemphill, Templeman, Wong, & Hare, 1998). A severe affective dysfunction, involving both emotional processing and emotional experience, appears to be at the core of psychopathy, contributing to its association with violence (Blair, 2005; DeLisi, Umphress, & Vaughn, 2009; Wilson, Juodis, & Porter, 2011). Psychopathic individuals seem to be incapable of comprehending the emotions of others, which impairs development of empathy and social cognition, and increases the likelihood that they will develop antisocial behaviors (Blair, 2005). The central role attributed to emotion recognition deficits in psychopathic violence underlines the importance of increasing our understanding of the relationship between psychopathy and emotional processing (Blair et al., 2005; Wilson et al., 2011).

1.1. Psychopathy and facial affect recognition

Previous studies that have looked at facial affect recognition (FAR) in relation to psychopathy report conflicting results. Some studies suggest that psychopathy is associated with a general deficit in FAR (Dolan & Fullam, 2006; Hastings, 2005; Wai & Tilipoulos, 2012) while others

suggest that psychopathic individuals are incapable of distinguishing specific emotions, in particular emotions of distress, including sadness and fear (Blair, Colledge, Murray, & Mitchell, 2001; Fullam & Dolan, 2006; Stevens, Charman, & Blair, 2001). In contrast, several researchers have suggested that high-psychopathy groups perform as well or even better than low-psychopathy groups on FAR tasks (Glass & Newman, 2006; Pham & Philippot, 2010).

In an attempt to determine if there are subtle recognition deficiencies, some researchers have also measured psychopathic individuals' sensitivity to emotional expressions using dynamic paradigms. In these paradigms, emotions evolve throughout multiple stages of graduated intensity, from a neutral affect to a prototypical expression, with each intermediate image presented for a few seconds. Blair's work has been of particular importance in this area. For example, Blair et al. (2001) reported that children with psychopathic traits require more intense expressions to correctly identify sadness. However, using a similar technique, data obtained with a community sample suggests that the level of psychopathy is not associated with emotion recognition (Seara-Cardoso, Neumann, Roiser, McCrory, & Viding, 2011).

We suggest that these divergent results regarding FAR and psychopathy can be largely attributed to variations and limits in the FAR tasks used, the different types of samples considered, as well as the conceptualization of psychopathy.

1.1.1. Methodological limits of FAR tests

It is important to take into consideration the methodological limits of recognition tests. The most important problem concerns the emotional stimuli used, which are often static and consequently less reliable

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(Goeleven, De Raedt, Leyman, & Verschuere, 2008). Criticism in this area has also focused on the lack of discriminating power, for example, in cases where participants are offered unlimited viewing time, which allows for extensive cognitive analysis instead of capturing a relatively automatic recognition process (Kosson, Suchy, Mayer, & Libby, 2002). As well, most studies use prototypical expressions, which exaggerate the way emotions are expressed in everyday life (Tottenham et al., 2009). These tasks are problematic because not only are the stimuli easily identifiable, they are also prone to the plateau effect (Kosson et al., 2002; Pham & Philippot, 2010). Multiple authors recommend the use of more ecological paradigms that rely on dynamic facial expressions (Barbeau, Joubert, & Felician, 2009; Kosson et al., 2002).

1.1.2. Sample composition

Some authors highlight the importance of sample composition in studies of FAR (Dawel, O'Kearney, McKone, & Palermo, 2012). For instance, it is difficult to generalize results in this area given the heterogeneity of sample populations in different studies (Dolan & Fullam, 2006; Kosson et al., 2002). A significant number of studies that have identified emotion recognition deficits among psychopathic individuals have used forensic samples of psychiatric patients or criminalized individuals. Such samples make it challenging to distinguish the respective influence of psychiatric disorders, psychopathic traits, and the mechanisms underlying criminal behavior when assessing the ability to recognize emotions (Kosson et al., 2002; Pham & Philippot, 2010). A large amount of research has also been conducted using samples of children with psychopathic traits. It is important to avoid too rapid generalization of results obtained with such samples, as deficits associated with psychopathy may be more severe during childhood (see Dadds et al., 2009; Dawel et al., 2012). Developmental differences may be explained by the fact that, as they age, psychopathic individuals acquire alternate strategies that allow them to respond more appropriately, thus improving their ability to recognize emotions (see Contreras-Rodríguez et al., 2014; Gordon, Baird, & End, 2004).

In the most recent meta-analysis of FAR in psychopathic individuals, Dawel et al. (2012) emphasize that the current data is even more difficult to interpret because adult samples are almost exclusively forensically identified, while child studies use samples from healthy community or clinical populations. In their opinion, in order to reconcile the actual data, both age and sample source should be considered. We need "[…] to conduct more studies investigating emotion recognition deficits associated with psychopathic traits in adult community samples. This would provide valuable data to be compared with child community samples (to test for developmental differences) and adult forensic samples (to test for sample source effects)" (p.2302).

1.1.3. Conceptualizing and measuring psychopathy

Finally, divergences in this area of research may be explained by the way psychopathy is conceptualized. As opposed to the perspective viewing psychopathy as a quantifiable dimension (level of psychopathic traits), most studies conceptualize psychopathy as a taxon (psychopaths vs non-psychopaths) and thus fail to take into account the influence of the various elements of the psychopathic personality (Factor 1; interpersonal and affective facets; Factor 2; impulsive and antisocial lifestyle facets) on the ability to recognize emotions. Given the evidence that there are differences in etiology, the distinctions captured by these components should allow us to better understand the nature of the relationship between psychopathy and FAR (Dawel et al., 2012; Del Gaizo & Falkenbach, 2008; Habel, Kühn, Salloum, Devos, & Schneider, 2002). Therefore, studies should report results for the different psychopathic components separately (Dawel et al., 2012).

1.2. The current study

The current study is part of a larger investigation related to emotion recognition, involving both men and women. However, for several reasons explained below (see Section 2.1), this particular research will focus solely on the males in the sample in order to examine FAR in relation to psychopathy. It is structured around three parameters: a more ecological FAR task, a non-forensic sample, and a dimensional measure of psychopathy. The main goal is to better understand the relationship between the elements of the psychopathic personality and the ability to recognize emotions, taking into account emotional categories and intensity levels. The secondary objective is to enhance the ecological validity of the method used, by incorporating animated synthetic characters.

2. Method

2.1. Participants

In order to study psychopathy in the community, we used a sample of undergraduate students. Research using noninstitutionalized samples is important as the results are generalizable to more individuals (Del Gaizo & Falkenbach, 2008) and allow for comparison with forensically identified groups (Dawel et al., 2012). It also allows collection of data on non-criminal, functional psychopathic individuals, who may manage to live within the general community (Dawel et al., 2012; Glenn & Raine, 2014). Initially, 129 undergraduates - predominantly female - were recruited as part of a larger study. The literature does suggest, however, that the manifestation of psychopathic traits differs by sex (for a review, see Verona & Vitale, 2006) and that women generally obtain higher scores on FAR tasks (Thayer & Johnsen, 2000). Current data also raise the possibility that psychopathic women may not express the same emotion deficits as men (Sutton, Vitale, & Newman, 2002). For these reasons, analyses were only conducted with males in the sample ($N = 38$). They were between the ages of 20 and 56 years ($M = 27.92$, $SD = 8.18$) and predominantly Caucasian (71.1%).

2.2. Instrument

Psychopathy was measured using the French version of the Self-Report Psychopathy Scale-III (SRP-III-R12; Paulhus, Neumann, & Hare, 2009). The instrument consists of 64 items answered on a five-point Likert scale that ranges from "strongly disagree" to "strongly agree." It has four subscales, including *interpersonal manipulation* and *callous affect*, which reflect Factor 1 (F1) of the PCL-R (Hare, 1991), and *antisocial behaviors* and *erratic lifestyle* which correspond to Factor 2 (F2). The SRP-III-R12 has good psychometric properties, corroborated in clinical, forensic, and community samples and is correlated with several other measures of psychopathy (for a review, see Lilienfeld & Fowler, 2006).

2.3. FAR task

Synthetic characters were created with BehaVR Solutions using the *POFA* (Ekman & Friesen, 1976) and the *FACS* (Ekman, Friesen, & Hager, 2002). The morphing technique was adopted to create dynamic facial expressions: a continuum is created between two prototype expressions in which a neutral stimulus gradually evolves to provide a fully expressed emotion (process described in Calder et al., 1996; Rowland & Perrett, 1995). We obtained facial expressions of emotion evolving from 0% to 40%, 60%, or 100% for six emotions (happiness, sadness, anger, disgust, surprise, fear). The facial expressions, in addition to being of varying intensities, were also presented from different angles and were presented by six characters of diverse ethnic origins.[1] Using morphing technology, 324 animations of 2.5 s each were created (see Fig. 1 for an example). The resulting synthetic characters demonstrated good validity (Cigna, Guay, & Renaud, 2015; Joyal, Jacob, Cigna, Guay, & Renaud, 2014), similar to that in the work of Ekman (Biehl et al., 1997).

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[1] These parameters were not included in the analyses as they were not befitting to the aims of the study.