



Startle modulation in non-incarcerated men and women with psychopathic traits

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Abstract

Past research has demonstrated that individuals with psychopathic characteristics are under-responsive to aversive stimuli, however, much of this work has failed to include non-incarcerated samples, or to examine gender differences in this relationship. Additionally, few studies have examined the role of specific personality characteristics, as they relate to both psychopathic behavior and emotional responsiveness. The current study assessed emotional modulation of the startle response in a community sample of 108 men and women (99 with usable startle data) during perception of emotion-laden photographs. Consistent with previous work, men reporting high levels of psychopathy failed to show the typical increase in the startle response when exposed to aversive photographs, but only when responses were elicited relatively early in picture viewing (i.e., 2.0 s as compared to 4.5 s post-photograph onset). Additionally, both genders showed a significant effect of harm avoidance and anxiety on modulation of the startle response, such that individuals reporting low levels of each trait failed to show significant responses to aversive photographs. These results suggest that while deficits in emotional processing extend to non-incarcerated samples, the relationship may be influenced by additional factors including gender, personality, and attributes related to incarceration.

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1. Introduction

A number of theorists have proposed that psychopathy is the result of a selective deficit in one's ability to experience negative emotion or process threatening cues (Lykken, 1995; Patrick, Bradley, & Lang, 1993). In support of this theory, psychopaths consistently demonstrate under responsiveness to a variety of aversive stimuli (e.g., electric shock, unpleasant photographs Hare, 1965; Patrick et al., 1993), however, most studies have focused exclusively on samples of incarcerated men. Given the increasing interest in psychopathic behavior in women and non-incarcerated, potentially more "successful" psychopaths, it seems appropriate to extend investigation to community samples of men and women.

The present study examined the relationship between psychopathy, personality characteristics related to psychopathy, and affective modulation of the eye blink startle response in a community sample of men and women. The affective startle response is a highly replicable psychophysiological measure of emotional processing in humans and other animals (for review see Bradley, Cuthbert, & Lang (1999); Davis, Walker, & Lee (1999)), as evidenced by a linear trend for affective valence, whereby startle is suppressed while viewing pleasant stimuli and heightened when processing aversive stimuli. Thus, the affective startle response is thought to reflect activation of the defensive motivational system, such that a "match" between an aversive foreground stimulus (e.g., a picture of an aimed gun) and the startle response (which also is aversive) will augment the startle response, whereas, a "mismatch" (e.g., startle elicited while viewing an attractive model) will inhibit the response (Lang, Bradley, & Cuthbert, 1998).

1.1. Psychopathy, personality, and emotional modulation of the startle response

In contrast with studies of non-psychopathic controls, recent work has reported that both incarcerated (Herpertz, Werth, Lukas, Qunaibi, & Schuerkens, 2001; Patrick et al., 1993) and community samples (Benning, Patrick, & Iacono, 2005; Vanman, Mejia, Dawson, Schell, & Raine, 2003) of psychopathic men fail to show a significant augmentation of the startle response when processing aversive stimuli. However, psychopathy is believed to be composed of two distinctive factors: emotional detachment (Factor-1 Hare, 1991, p. 76); and antisocial behavior (Factor-2 Hare, 1991, p. 76), with some evidence that the relationship between psychopathy and affective modulation of the startle response is related specifically to level of emotional detachment (Benning et al., 2005; Patrick et al., 1993). Therefore, deficits in affective processing might be more parsimoniously explained by the presence of a specific personality characteristic or set of characteristics instead of a general tendency toward psychopathic behavior.

Consistent with this idea, abnormal modulation of the startle response has been linked with Factor-1 related personality characteristics, including low levels of anxiety (Corr, 2002; Sutton, Vitale, & Newman, 2002), fearfulness (Cook, Hawk, Davis, & Stevenson, 1991), and harm avoidance (Corr, Kumari, & Wilson, 1997; Corr, Wilson, Fotiadou, Kumari, & Gray, 1995), with individuals endorsing low levels of these traits failing to show significant potentiation of the startle response to aversive stimuli. Conversely, little is known about the role of Factor-2 related personality characteristics. Two studies have reported that impulsivity is not significantly related to modulation of the startle response (Corr et al., 1995; Kumari, Corr, Wilson, Kaviani, & Thornton, 1996), however, there are no published investigations of the relationship between

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