



Elucidating the associations between psychopathy, Gray's Reinforcement Sensitivity Theory constructs, and externalizing behavior [☆]



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ABSTRACT

This study sought to further elucidate the associations between psychopathy and the Fight–Flight–Freeze System (FFFS), Behavioral Inhibition System (BIS), and Behavioral Approach System (BAS) constructs in a large offender sample. More specifically, we examined whether individual differences in these systems would mediate the relationship between psychopathy and externalizing behavior. We used archival data from 823 male and female adult inmates, in which measurements of psychopathy, RST constructs, and externalizing behaviors were available. Path analyses showed that FFFS, over BIS or BAS, mediated the relationship between psychopathy and externalizing behavior. These results further underscore the important role that insensitivity to punishment plays in psychopathy.

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1. Introduction

Psychopathy is a multifaceted condition marked by affective, interpersonal, and behavioral characteristics, including (but not limited to) superficial charm, deceitfulness, lack of remorse, reduced empathic responding, impulsivity, and sensation-seeking (Cleckley, 1941; Hare & Neumann, 2008; Skeem, Polaschek, Patrick, & Lilienfeld, 2011). Although it is estimated that 1% of the general population could be considered psychopathic, approximately 15–20% of the prison population meets the criteria for psychopathy, as measured by the Hare Psychopathy Checklist–Revised (PCL–R; Hare, 1991). It is reasonable to expect there would be a higher proportion of individuals with psychopathy in correctional settings since psychopathy is a risk factor for violence (Leistico, Salekin, DeCoster, & Rogers, 2008; Spidel et al., 2007; Swogger, Walsh, & Kosson, 2007) and those high in psychopathic traits are more likely than others to reoffend after being released into the

community (Leistico et al., 2008; Neumann & Hare, 2008; Quinsey, Rice, & Harris, 1995). There is also some evidence indicating that psychopathy might be associated with poor treatment outcomes, especially among adults (Ogloff, Wong, & Greenwood, 1990; Rice, Harris, & Cormier, 1992; Rock, Sellbom, Ben-Porath, & Salekin, 2013). Furthermore, the types of behaviors associated with psychopathy tend to be characterized as “externalizing” behaviors, or in other words, are behaviors that represent a disposition to express distress outwards by engaging in antisocial behavior and alcohol or drug abuse (Krueger, Markon, Patrick, & Iacono, 2005; Krueger, McGue, & Iacono, 2001).

Some scholars have attempted to understand psychopathy from the perspective of individual differences on psychobiological motivation systems (e.g., Fowles, 2006; Lykken, 1995). One important theoretical framework to be considered is the Reinforcement Sensitivity Theory (RST) originally developed by Gray (1987) and later revised (Gray & McNaughton, 2000). In this revision, three systems are identified: the Behavioral Inhibition System (BIS), the Fight–Flight–Freeze System (FFFS) and the Behavioral Approach System (BAS). FFFS is a threat detection and avoidance system whereas BAS is associated with approach motivation and the drive to seek out positive rewards in the environment. BIS is responsible for assessing risk and conflict between goals and using this information to select either approach or avoidance behavior. Thus, BIS is activated when conflict arises between FFFS and BAS. The revised

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RST distinguishes between fear, which is associated with FFFS, and anxiety, which is associated with BIS. This is a critical distinction, because as stated recently by LeDoux (2014), “As long as we use the term fear to refer to the neural mechanisms underlying both conscious feelings and non-conscious threat processing, confusion will occur” (p. 2873).

Research has shown that Carver and White's (1994) scale, commonly used to measure BIS and BAS under the original RST framework, can also be used to measure FFFS, BIS, and BAS outlined in the revised RST, due to the identification of items to differentiate the BIS and FFFS constructs (Heym, Ferguson, & Lawrence, 2008). There has been recent support for the separation of anxiety (BIS) from fear (FFFS), showing that these two constructs are distinct and that the distinction is consistent across gender (Cooper, Perkins, & Corr, 2007; Perkins, Kemp, & Corr, 2007). Furthermore, the BAS scale is made up of three separate subscales: drive (BAS-DR), reward responsivity (BAS-RR), and fun seeking (BAS-FS). Prior research has shown the three subscales to be related but distinct from one another, with BAS-DR and BAS-RR reflecting core concepts of the reward motivated BAS, while BAS-FS may be equally representative of BAS as it is of general impulsivity (Ross, Millis, Bonebright, & Bailley, 2002; Smillie, Jackson, & Dalgleish, 2006a). For a more thorough review of the development and refinement of Gray's RST, BIS, and BAS, the reader is referred to review articles that detail these topics (see Corr, 2004; Smillie, Pickering, & Jackson, 2006b).

Prior to the distinction made by the RST between fear- and anxiety-related motivations for avoidance, some scholars hypothesized that a weak BIS and strong BAS may underlie some traits and behaviors that are consistent with a psychopathic personality (Fowles, 1988; Lykken, 1995). Known as the low-fear hypothesis, this theory purports that the deviant behaviors often associated with psychopathic traits are attributable to a deficit in fear. For example, the existence of a fear deficit among criminals high in psychopathic traits has been supported by an attenuated fear-potentiated startle response among these individuals (e.g., Patrick, 1994). If the low-fear hypothesis is supported, it is possible that a weak FFFS (i.e., lack of fear) rather than a weak BIS (i.e., lack of anxiety) might be foundational to the behaviors commonly associated with psychopathy. Moreover, Corr (2010) has postulated that FFFS may be the mechanism that best separates “primary” (low-fear) psychopathy from “secondary” psychopathy, which is best identified by an overactive BAS, especially BAS-FS, due to its association with impulsivity.

Several studies have indeed demonstrated that a weak BIS is associated with emotional detachment (or interpersonal and affective) characteristics of psychopathy, whereas a strong BAS is associated with disinhibitory behaviors that characterize the behavioral facet of psychopathy in both community and offender samples using both PCL-R and self-report ratings of psychopathic traits (e.g., Newman, MacCoon, Vaughn, & Sadeh, 2005; Uzieblo, Verschuere, & Crombez, 2007; Wallace, Malterer, & Newman, 2009). In terms of the revised RST, a recent study showed that, in a large sample of undergraduate students, FFFS and BIS were both significantly negatively correlated with primary psychopathy. BAS-DR was positively correlated with primary psychopathy, whereas BAS-FS was positively correlated with secondary psychopathy (Broerman, Ross, & Corr, 2014). Furthermore, it has been proposed that BIS may be of particular importance in explaining the disinhibited behavior associated with psychopathy; according to the RST, BIS is responsible for resolving goal conflicts that arise between the approach motivation versus fear systems (Corr, 2010). Further research into the distinction between fear and anxiety, as outlined by the revised RST, is necessary to clarify the associations between fear, anxiety, and externalizing behavior among those high in psychopathic traits.

In a tentative effort to further elucidate these associations, Hopley and Brunelle (2012) conducted a recent study examining two trait domains, Sensitivity to Punishment and Sensitivity to Reward (SPSRQ; Torrubia, Avila, Molto, & Caseras, 2001), which are conceptually similar to the FFFS, BIS, and BAS constructs. They estimated a series of path models, which revealed that these traits partially mediated the relationship between psychopathy and certain types of substance use. More specifically, impulsive reward seeking (similar to BAS-FS) partially mediated the relationship between psychopathy and stimulant use, whereas sensitivity to anxiety (similar to BIS) partially mediated the relationship between psychopathy and opioid use. However, Hopley and Brunelle (2012) restricted their focus to substance abuse and did not consider a range of externalizing behaviors. Moreover, they used a very small sample ($n = 92$) with limited power for estimating indirect effects. Nonetheless, their results offer preliminary support that individual differences on RST constructs could partially account for the externalizing behavior displayed by those high on psychopathic personality traits.

Although research on psychopathic traits in offender samples has more recently begun to include female participants in offender samples, it is yet unclear to what degree true gender differences exist and what differences are artifacts of biases in the assessment process (Nicholls & Petrila, 2005). This makes it difficult to evaluate differences in psychopathy between males and females, although it has been suggested that male behavioral manifestations of psychopathy are more likely to be violent and impulsive than those of females and that female interpersonal expressions of psychopathy may differ from those of males as well (Forouzan & Cooke, 2005). Psychopathy is generally believed to be less prevalent among females than males. Research using university samples found that psychopathic traits were in fact less endorsed among females than males, but that the association between psychopathic traits and other characteristics was generally similar across gender (Marion & Sellbom, 2011; Miller, Watts, & Jones, 2011). For a more thorough review of the proposed differences in female and male psychopathy, the authors refer the interested reader to review articles on this topic (see Cale & Lilienfeld, 2002; Dolan & Völlm, 2009; Rogstad & Rogers, 2008). The present investigation provides for an opportunity to elaborate on gender differences in the association between psychopathy, RST constructs, and externalizing behavior.

The current study sought to extend existing literature on the associations between psychopathy, BIS, FFFS, BAS, and externalizing behavior within a large offender sample. We examined whether individual differences in BIS, FFFS, and BAS constructs mediated the associations between psychopathy (and its facets) and a range of externalizing behaviors, including conduct problems, substance use, and aggression. Additionally, we explored whether these associations would be different based on gender given the limited research available to directly compare male and female offenders on psychopathy traits and their manifestation. Specifically, we expected that psychopathy would be associated with low FFFS, in accordance with the low-fear hypothesis, as well as high BAS (Corr, 2010; Lykken, 1995; Newman et al., 2005). BAS-FS, especially, was expected to be associated with externalizing behavior, due to its overlap with problematic impulsivity (Corr, 2010). It was further expected that higher levels of all three BAS subscales, and lower levels of FFFS and would partially explain increased externalizing associated with the psychopathic personality (Corr, 2010; Hopley & Brunelle, 2012; Lykken, 1995). Among the PPI factors, we expect Self-Centered Impulsivity to be preferentially associated with externalizing behavior (e.g., Lilienfeld & Fowler, 2006). We further expected fear (FFFS) rather than anxiety (BIS), as a core feature of psychopathy, to underlie the externalizing behavior demonstrated by those with psychopathic traits. This study takes a unique perspective, in that it is

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