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Throwing more light on the dark side of psychopathy: An extension of previous findings for the revised Reinforcement Sensitivity Theory

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ABSTRACT

Despite previous studies of psychopathy and the motivational systems of the Reinforcement Sensitivity Theory (RST) of personality, few have examined psychopathy in light of the revised RST model. In a large sample ($N = 779$) of young adults, we expand on Hughes, Moore, Morris, and Corr's (2012) preliminary findings relating primary/secondary psychopathy to revised RST's three systems: Flight-Flight-Freeze System (FFFS), Behavioral Inhibition System (BIS), and Behavioral Approach System (BAS). Converging results between Hughes et al. and the current study emphasize three major findings: (1) primary psychopathy is negatively related to the BIS as well as the FFFS; (2) primary psychopathy is positively related to goal-driven behavior of the BAS; and, (3) secondary psychopathy is positively related to impulsivity reflected in the BAS. The FFFS was incrementally predictive of primary but not secondary psychopathy. No evidence for a BAS × BIS interaction in psychopathy was found. Results are discussed in terms of future research directions.

1. Introduction

Researchers have differing opinions regarding the construct of psychopathy (e.g., the importance of criminality or antisociality, Hare & Neumann, 2010; the importance of fearlessness or social dominance, Lynam & Miller, 2012). Still, the distinction between primary and secondary psychopathy, though a debated issue, has long been considered to represent a basic dichotomy in the psychopathy literature. Originally proposed by Karpman (1941, 1948), this two-type model suggests separate etiologies, despite some similarities in behavioral expression. Primary psychopathy is believed to stem from genetic influences resulting in emotional deficits, whereas secondary psychopathy has been associated with environmental factors such as abuse (Lee & Salekin, 2010). Additionally, primary psychopathy is characterized by a lack of fear/anxiety (Lykken, 1995), whereas secondary psychopathy is thought to represent a greater vulnerability to experience higher levels of negative affect in general (Vassileva, Kosson, Abramowitz, & Conrad, 2005).

Reinforcement Sensitivity Theory (RST) is a model of motivation that is not only reflected in basic personality research (see Corr, 2008; Corr, DeYoung, & McNaughton, 2013), but has drawn the interest of psychopathology researchers as well. RST may help explain basic distinctions in personality disorders (see Ross, Keiser, Strong, & Webb, 2013), including psychopathy, which has been a particular focus. Because primary and secondary psychopathy have been theorized to be related to fearlessness and reckless behavior, respectively, researchers have recently revived interest (see Newman, MacCoon, Vaughn, & Sadeh, 2005; Ross et al., 2007) in original formulations by Lykken (1995) and Fowles (1980) for RST in underpinning psychopathy (Corr, 2008). Research based on Gray's (1975) original model of RST has focused on two primary motivational systems: the Behavioral Inhibition System (BIS) and the Behavioral Approach System (BAS). In the original RST formulation, the BIS is sensitive to cues of punishment and inhibits goal-directed behavior in the presence of such cues. Thus, high BIS activation is theorized to contribute to processes that, eventually, cause the experience of anxiety. In contrast, the BAS is sensitive to signals of reward, leading to increased goal-directed behavior in the presence of such cues. High BAS activation is theorized to be related to the trait of reward sensitivity and impulsivity (e.g., Carver & White, 1994). Although Gray (1987) originally posited the BIS and BAS as independently functioning systems (the separable subsystems hypothesis), Corr (2001) calls attention to the possibility that they have interdependent effects on inhibitory and appetitive motivation (the joint subsystems hypothesis). This position is consistent with a more nuanced understanding of reward and punishment effects, as contained in the Gray–Smith Arousal-Decision Model of behavior (Gray & Smith, 1969).

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Ross et al. (2007) investigated the relationship between the original RST model, focusing only on BIS (partly measured via measures of anxiety) and BAS, and primary and secondary psychopathy in an undergraduate sample. Using multiple measures of psychopathy, they found that both primary and secondary psychopathy were positively related to BAS activity, but only primary psychopathy was related (negatively) to BIS activity. These results support the conceptualization of primary psychopathy as being related to low anxiety. Subsequent studies have supported this initial finding (Hundt, Kimbrel, Mitchell, & Nelson-Gray, 2008; Kimbrel, Nelson-Gray, & Mitchell, 2007; Ross, Benning, Patrick, Thompson, & Thurston, 2009; Uzieblo, Verschuere, & Crombez, 2007).

While the results of these studies demonstrate an important feature of the relationship between psychopathy and RST, it is necessary to recognize the significant changes made to RST by Gray and McNaughton (2000), which have been largely ignored in psychopathy research. In their revision, they emphasize the role of the Fight-Flight-Freeze System (FFFS, relating to fear) and distinguish its role from that of the BIS (relating to anxiety). According to the revised RST, the FFFS mediates reactions to all aversive stimuli, leading to avoidance and escape behaviors, whereas the BIS is activated by conflicting stimuli and is responsible for resolving goal conflict. These changes to RST call for adjustments in interpretation of the relationship between RST and psychopathy, especially in the differentiation of FFFS-fear and BIS-anxiety that are conflated in previous studies of psychopathy and 'anxiety' (see Corr, 2010). In common with other studies, Ross et al. (2007) focused only on the BIS and BAS, without consideration of a separate FFFS. Specifically, in the case of Ross et al. their use of multiple measures of BIS included explicit measures of anxiety, which may have limited the construct comprehensiveness of their assessment of BIS.

In a recent study, Hughes, Moore, Morris, and Corr (2012) used an undergraduate sample to examine the relationships between psychopathy and the BAS, BIS, and FFFS using Heym, Ferguson, and Lawrence's (2008) revised scoring of Carver and White's (1994) BIS/BAS scales. In accordance with Corr (2010), they reported that both primary and secondary psychopathy, as measured by the Levenson Self-Report Psychopathy (LSRP) Scales (Levenson, Kiehl, & Fitzpatrick, 1995), exhibited a negative association with BIS activation. Primary psychopathy was also shown to be positively related to the BAS Reward Responsiveness and BAS Drive facets, and negatively related to BAS Fun-Seeking; and, also found was a negative correlation with FFFS-fear. In addition to a negative association with BIS, secondary psychopathy was positively related to Fun-Seeking (impulsivity) reflecting the non-planning and rapid responding of this psychopathy sub-type. Consistent with Gray and McNaughton's (2000) reformulation, the BIS represents a cognitive mechanism that detects and resolves goal conflict, and is not simply a measure of anxiety; as such it might be expected to be involved in all psychopathy sub-types.

These results are intriguing though not wholly consistent with previous studies for the BIS and BAS in relation to primary and secondary psychopathy; but, they do suggest dissociation between the FFFS and BIS, vis-à-vis psychopathy. Previous studies with the exception of Hughes et al. (2012) have ignored the distinction between FFFS-fear and BIS-anxiety. Similarly, few studies have focused their analyses on the separate factors of the BAS. When Hughes et al. parsed BAS into subcomponents, they found positive relationships of the BAS-Drive and Reward Responsiveness with primary, and BAS-Fun-Seeking (Impulsivity) with secondary psychopathy. Consistent with Hughes et al. we believe that BAS activation (see Ross et al., 2007) is common to both primary (predatory approach) and secondary (impulsive) psychopathy, and that BIS activity is negatively related to primary psychopathy. Rather than expecting a negative relationship for BIS activity with secondary psychopathy, however, recent findings suggest a null or possibly weak positive relationship (see Ross et al., 2009; Ross, Bye, Wrobel, & Horton, 2008; Vassileva et al., 2005) which would be consistent with Karpman's (1941, 1948) original, *neurotic* conceptualization of secondary psychopathy.

In the current study, we use the same design and measures as Hughes et al. (2012) to examine the relationship of primary and secondary psychopathy to RST constructs in the revised RST model. However, we examined the generalizability of these results using a much larger sample to mitigate the effects of sampling bias. Specifically, within the revised RST model, we sought to answer four questions. One, do RST measures distinguish between primary and secondary psychopathy? Two, does the FFFS provide incremental predictive validity beyond the BIS in assessing psychopathy? Three, which components of the BAS are linked to primary psychopathy and which to secondary psychopathy, after common psychopathy variance is accounted for? And, four, do BIS and BAS have interactive effects on psychopathy?

2. Method

2.1. Participants

The university student sample consisted of 779 participants (47.4% female and 52.6% male) with an average age of 19.73 (Sd = 2.77). The racial composition was American Indian (6.8%), African-American (5.6%), Caucasian (83.8%), and Asian or Pacific Islander (3.8%).

2.2. Materials

Behavioral Inhibition and Activation Scales (BIS/BAS; Carver & White, 1994): The BIS/BAS scales are a 20-item questionnaire designed to measure the sensitivity of these two motivational systems according to Gray's (1987) theory. The BIS scale consists of 7 items measuring apprehensive anticipation (e.g., "I worry about making mistakes"). Internal consistency of the BIS scale was .75. For analysis purposes, the BIS scale was divided into a 4-item BIS and a 3-item FFFS scale, consistent with Heym et al.'s (2008) suggestion and similar, independent findings by Poythress et al. (2008). The BIS and FFFS can be distinguished at the item level. For example, an item on the BIS would be "I feel worried when I think I have done poorly on something", whereas an item on the FFFS would be "Even if something bad is about to happen, I rarely experience fear or nervousness". Consistent with previous investigations (see Heym et al., Ross & Keiser, 2011), internal consistency for the revised BIS scale was .67; for the FFFS, it was .59. In addition, the BAS is composed of three subscales: BAS Drive (DR); BAS Fun-Seeking (FS); BAS Reward Responsiveness (RR). All items are Likert scaled (4 points) with anchors of "strongly agree" and "strongly disagree". Internal consistency was .78 for BAS total score, .70 for BAS RR, .71 for BAS DR, and .71 for BAS FS. In this study, we used a BAS total score, which is at the theoretical level of measurement indicative of an overall BAS construct. Although a global BAS index, in the absence of a subscale or facet analysis, may obscure relations between the BAS and related constructs (Corr & McNaughton, 2008; Corr et al., 2013), we report zero-order correlations for a BAS total (see Campbell-Sills, Liverant, & Brown, 2004) as well as subscale scores.

Levenson's Self-Report Psychopathy (LSRP) Scales (Levenson et al., 1995). The LSRP were used to assess psychopathic attitudes and beliefs via self-report. Twenty-six items comprise two subscales designed to measure both factors of the PCL-R in noninstitutionalized young adults. The primary psychopathy subscale consists of 16 items measuring an inclination to lie, lack of remorse, callousness, and manipulativeness, e.g., "For me, what's right is whatever