Reinforcement sensitivity and maternal style as predictors of psychopathology


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Abstract

This study examined the effect of reinforcement sensitivity and adverse parenting on adult psychopathology. One hundred eighty-one undergraduates completed a battery of self-report scales measuring Behavioral Inhibition System (BIS) sensitivity, Behavioral Approach System (BAS) sensitivity, maternal care, maternal overprotection, depression, anxiety, psychopathy, and substance abuse. Hierarchical regression analyses were conducted to test the hypotheses. Higher BIS and lower care scores predicted anxiety and depression; lower BAS, higher BIS, and lower care scores predicted anhedonic depression. Higher BAS and lower BIS scores predicted drug abuse and primary psychopathy; higher BAS, lower BIS, and lower care scores predicted alcohol abuse. Higher BAS and lower care scores predicted secondary psychopathy. Exposure to low maternal care predicted anxiety, depression, alcohol abuse, and secondary psychopathy after partialling out BIS and BAS sensitivity. In addition, some support was found for the hypothesis that BIS sensitivity mediates the effect of maternal overprotection on anxiety.

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1. Introduction

Reinforcement Sensitivity Theory (RST; Gray, 1991, 1994; Pickering & Gray, 1999) is a biologically-based theory of personality that proposes individual differences in reinforcement sensitivity. These differences are proposed to reflect individual variation in the activity of two basic brain subsystems – the Behavioral Inhibition System (BIS) and the Behavioral Approach System (BAS). The BIS responds to cues of punishment by motivating withdrawal behavior, whereas the BAS responds to cues of reward by motivating approach behavior. Individual differences in BIS and BAS are theorized to represent fundamental dimensions of personality. Furthermore, RST assumes that normal personality variation lies on a continuum with psychopathology. Thus, individuals at the far poles of the BIS and BAS dimensions are hypothesized to be at increased risk for developing psychopathology (Pickering & Gray, 1999).¹

Several predictions regarding the relationship between RST and psychopathology have been proposed by Gray and others (e.g., Fowles, 1994, 2001; Gray, 1991, 1994). For example, Gray (1991) proposed that anxiety and neurotic depression (i.e., depression with comorbid anxiety) were the result of high BIS activity. Gray (1991) also proposed that psychotic depression (i.e., depression without anxiety) was the result of low BAS activity, whereas substance abuse was theorized to result from high BAS activity (Gray, 1994). Similarly, Fowles (1994, 2001) has proposed that substance abuse results primarily from a dominance of BAS over BIS. In addition, the Fowles-Gray-Lykken theory of psychopathy (Fowles, 2001; Gray, 1991; Lykken, 1995) predicts that primary psychopathy – which is characterized by undersocialization, impulsivity, aggression, and relatively low levels of anxiety (Blackburn, 1975) – results from low BIS and normal BAS. The theory also predicts that secondary (or neurotic) psychopathy – which is characterized by undersocialization, impulsivity, aggression, and relatively high levels of anxiety and depression (Blackburn, 1975) – results from high BAS and normal BIS.

In recent years, support for many of these predictions has been found using self-report measures of BIS and BAS; however, some of the evidence has been mixed. For example, Johnson, Turner, and Iwata (2003) conducted an epidemiological study and found that higher BIS scores predicted lifetime diagnoses of both anxiety and depressive disorders. They also reported that higher BAS scores predicted lifetime diagnoses of drug abuse and dependence. They did not, however, find evidence that lower BAS scores were associated with depression or that higher BAS scores were associated with alcohol abuse. In contrast, Loxton and Dawe (2001) reported that both higher BAS and lower BIS scores were associated with alcohol abuse, and Kasch and colleagues found that depressed participants reported both higher levels of BIS and lower levels of BAS than did non-depressed controls (Kasch, Rottenberg, Arnow, & Gotlib, 2002). Thus, while there is support for many RST predictions, some questions remain regarding the relationship between RST and psychopathology.

One looming question is whether depression is primarily the result of high BIS functioning, low BAS functioning, or a combination of the two. We proposed examining the associations between BIS, BAS, and subtypes of depressive symptoms as a means of resolving this issue. Because anxiety and depression are thought to share a common negative affective component (Clark & Wat-

¹ This paper is based on the unrevised BIS/BAS theory, and not Gray and McNaughton's (2000) update (for a summary, see Corr, 2004).
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