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Emotional reactivity and self-regulation in relation to personality disorders

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ABSTRACT

Associations of both reactive and regulative temperamental features with personality disorders (PDs) are investigated in a sample of 162 normal controls and 89 psychiatric inpatients. Reactive and regulative temperamental features were assessed by means of the BIS/BAS Scales and the Attentional Control Scale. Dimensional PD scores were obtained by using the ADP-IV. All PDs were characterized by low levels of effortful control, cluster C PDs by high BIS and cluster B PDs by high BAS. For several PDs, BIS and effortful control interacted: BIS was only related to severe PD pathology if effortful control was low. Clinical implications of these findings are discussed.

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1. Introduction

Several authors have highlighted associations with temperament as promising avenues for understanding psychopathology (Muris & Ollendick, 2005; Nigg, 2006). Until recently, most research attention has been devoted to reactive aspects of temperament (i.e. affective-motivational reactivity). Several studies have shown that extreme (diminished as well as elevated) levels of temperamental reactivity are associated with psychopathology: high levels of behavioural inhibition system (BIS) reactivity with anxiety, depression, alcoholism and eating disorders; low levels of BIS with psychopathy; high levels of behavioural activation system (BAS) reactivity with substance abuse, manic episodes, conduct problems; low levels of BAS with depression (Bijttebier, Beck, Claes, & Vandereycken, 2009).

The contribution of temperament to vulnerability for psychopathology should, however, not be viewed as merely guided by emotional reactivity. Current theories of vulnerability for psychopathology also emphasize the influence of effortful processes that enable persons to modulate their emotional reactions (Nigg, 2006). As such, the risk associated with temperamental reactivity can be decreased, making effortful control a protective factor.

Given that individual differences in reactive and regulative temperament are supposed to underlie enduring personality dimen-

sions, reactive and regulative temperament can be expected to have relevance for DSM-IV Axis I clinical disorders, and certainly for DSM-IV Axis II personality disorders (PDs). Nonetheless, in contrast to the relevance of both aspects of temperament in recent theories of vulnerability to pathology, only few studies explored their combined influence to PD symptoms, which is the aim of the present study.

In Gray's (1987) Reinforcement Sensitivity Theory (RST), reactivity to immediate incentive contexts is conceptualized in terms of motivation systems of avoidance (BIS) and approach (BAS). The BIS is sensitive to stimuli that signal conditioned aversive events (punishment), non-reward, and novelty. It inhibits behaviour that may lead to negative or painful outcomes (Fowles, 1980). In terms of individual differences in personality, higher BIS sensitivity is reflected in higher proneness to anxiety (Carver & White, 1994) and is related to the personality trait of Neuroticism (Nigg, 2006). The BAS (Fowles, 1980) is sensitive to signals of unconditioned reward, non-punishment and escape from punishment. In terms of individual differences in personality, elevated BAS sensitivity is reflected in elevated proneness to engage in goal-directed efforts and to experience positive feelings (Carver & White, 1994) and is related to the personality trait of Extraversion (Nigg, 2006). Over the years, RST developed to include a third major system: the fight-flight system (FFS: Gray, 1987). Whereas the BIS responds to conditioned aversive stimuli, the FFS responds to unconditioned aversive stimuli. In 2000, Gray and McNaughton presented a major revision of RST (Corr, 2008). The BAS is now assumed to be responsive to (un)conditioned positively valenced stimuli. The Fight/Flight/Freeze System (FFFS) adopts

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the punishment system role that was originally ascribed to the BIS. Finally, the BIS is now believed to be responsible for the resolution of goal conflict in general (reactive control), i.e. to regulate situations in which both the BAS and the FFFS have been activated (Bijttebier et al., 2009).

Only a handful of studies have investigated patterns of reactivity associated with Axis II PDs. High levels of BIS have been related to all cluster C PDs (Caseras, Torrubia, & Farré, 2001; Farmer & Nelson-Gray, 1995; Fullana et al., 2004; Pastor et al., 2007), cluster A paranoid and schizotypal PDs (Gilbert, Boxall, Cheung, & Irons, 2005; Pastor et al., 2007) as well as cluster B borderline PD; whereas low levels of BIS have been related to cluster B antisocial and narcissistic PDs (Fowles, 1980; Pastor et al., 2007). High levels of BAS have been related to all cluster B PDs (Carver & White, 1994; Farmer & Nelson-Gray, 1995; Harmon-Jones, 2003; Pastor et al., 2007; Quay, 1993) as well as the cluster A paranoid and schizotypal PDs (Pastor et al., 2007), which reflects – according to Fowles (1992) the tendency toward positive schizophrenia symptoms in these PDs. Finally, low levels of BAS have been described in cluster A schizoid and cluster C-avoidant PDs, which are both characterized by low levels of extraversion (Pastor et al., 2007).

Current theories of psychopathology (Nigg, 2006) not only emphasize the role of temperamental reactivity, but also the influence of effortful processes that enable persons to regulate their emotional reactivity and as such decrease the risks associated with reactivity (Bijttebier et al., 2009). The notion of effortful control (EC; Rothbart, 1989) includes both behavioural forms of self-control as well as attentional processes (e.g., the ability to voluntarily focus or shift attention) and is related to the personality trait Conscientiousness (Nigg, 2006). As far as we know, few studies have focussed on the association between (lack of) EC and PDs. Hoermann, Clarkin, Hull, and Levy (2005) compared three subgroups of borderline patients with different levels of EC with respect to symptoms, interpersonal relations and personality organization. Subgroup 1 (high EC), exhibited the fewest problems in symptoms, interpersonal functioning and personality organization, whereas subgroup 3 (low EC) was characterized by the most problems in these areas. Subgroup 2, high in some aspects of EC and low in others, was situated between groups 1 and 3.

Both reactive and effortful dimensions of temperament have been related separately to PDs. However, integration of both dimensions in one study is needed to investigate their joint influence on PDs and test current theorizing about temperament and psychopathology. The work of Depue and Lenzenweger (2005) offers a clear theoretical framework to understand the influence of both reactive and regulative features on personality disturbance. The reactive dimensions (BIS and BAS) of temperament provide the qualitative emotional content of contemporaneous behaviour, and the regulative dimension (EC) of temperament modulates the probability of elicitation of all the reactive systems. For example, the antisocial PD is characterized by a high ratio of BAS/BIS reactivity and a low level of EC.

Our aim is to investigate the joint – interactive or additive – influence of reactive and effortful dimensions of temperament on PDs. In the first case (interactive), EC acts as a moderator on the association between temperamental reactivity and PDs, so they may not be studied separately. In the second case (additive), reactivity and EC each play a unique role and have additive effects on personality psychopathology.

Based on the literature, we expect that high levels of BIS are related to cluster A, B (e.g., borderline, histrionic) and C PDs; and low levels of BIS to cluster B antisocial and narcissistic PDs. High levels of BAS are considered to be related to all cluster B PDs. Fewer hypotheses can be formulated concerning the joined (additive or interactive) influence of both reactive and regulative features on PDs. Based on the literature on anxiety problems (Muris &

Ollendick, 2005), we may expect that cluster C PDs are not only determined by the main effects of BIS and EC, but also by their interaction (BIS \times EC), meaning that high BIS only determines problematic cluster C PDs if EC is low. In the same line of reasoning and referring to research on conduct disorders (Uzieblo, Verschueren, & Crombez, 2007), the cluster B antisocial PD is not only determined by the main effects of BAS and EC, but also by their interaction (BAS \times EC), meaning that high BAS only determines the antisocial PD if EC is low. These studies, suggest in both cases an interactive effect instead of solely an additive effect of BIS/BAS and EC on PDs.

2. Method

2.1. Participants and procedure

The total sample consisted of 251 participants (55.4% females). One hundred and sixty two (56.2% females) participants were recruited in the Flemish-speaking Belgian population and 89 (53.9% females) participants were recruited in a general admission unit of an inpatient psychiatric clinic. All participants were provided with an envelope holding informed consent documents and questionnaires. Participants willing to participate provided written informed consent, completed the questionnaires and returned the documents to the researcher in a sealed envelope. There were no significant gender differences in the patient and the normal control group [$X^2(1) = 0.11$, *n.s.*]. The mean age of the total sample was 37.84 years ($SD = 16.16$) and there were no significant age differences between patients and normal controls [$F(1, 247) = 0.15$, *n.s.*]. Overall, 4.4% participants received only elementary education, 42% secondary education, 34.4% higher education and 19.2% university education. Patients more often received only elementary education compared to normal controls, and normal controls followed more often secondary, and certainly more higher and university education than patients [$X^2(3) = 11.99$, $p < 0.01$]. Finally, with respect to marital status, 49.1% of the participants were married, 10.8% divorced, 0.4% widowed, and 39.2% not married. Patients were more often divorced than normal controls, and normal controls were more often married than patients [$X^2(3) = 21.39$, *n.s.*]. We preferred to include both normal controls and psychiatric patients in one sample to enlarge the variability in the level of personality psychopathology. The prevalence of the different categorical PD diagnoses were as follows for normal controls/patients: paranoid (1.2%; 14.6%), schizoid (0%; 10.1%), schizotypal (1.2%; 9%), antisocial (0.6%; 6.7%), borderline (1.9%; 37.1%), histrionic (0%; 11.2%), narcissistic (0%; 0%), avoidant (0.6%; 28.1%), dependent (0.6%; 14.6%), and obsessive-compulsive (3.1%; 27%) PDs.

2.2. Instruments

Temperamental reactivity was assessed by means of the *Behavioural Inhibition System and Behavioural Activation System Scales* (BIS/BAS Scales; Carver & White, 1994). The BIS/BAS scales consist of seven items related to BIS (seven items; $\alpha = 0.82$ in the present study) and 13 items related to BAS ($n = 13$; $\alpha = 0.77$). All items were judged on a four-point scale from “1” (I strongly agree) to “4” (I strongly disagree).

Effortful control was measured by means of the *Attentional Control Scale* (ACS; Derryberry & Reed, 2002). The ACS comprises 20 items, tapping individual differences in attentional control. Items are summed to yield a total score. The total measure of attentional control is internally consistent ($\alpha = 0.86$). It is positively related to indices of positive emotionality such as extraversion ($r = 0.40$) and

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