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Hypervigilance in patients with borderline personality disorder: Specificity, automaticity, and predictors

Simkje Sieswerda[a],*, Arnoud Arntz[a], Ingrid Mertens[b], Stefaan Vertommen[b]

[a]*Department of Medical, Clinical, and Experimental Psychology, Maastricht University,
P.O. Box 616, 6200 MD Maastricht, The Netherlands*
[b]*Psychiatrical Institute Sint-Jozef, Leuvensesteenweg 517, 3070 Kortenberg, Belgium*

Abstract

According to cognitive theory, an important factor in borderline personality disorder (BPD) is hypervigilance. The aim of the present study was to test whether BPD patients show schema-related biases, and to explore relations with childhood trauma, schemas, and BPD symptoms. Sixteen BPD patients were compared with 18 patients with a cluster C personality disorder, 16 patients with an axis I disorder, and 16 normal controls. An emotional Stroop task was applied with schema-related and unrelated, negative and positive, supra- and subliminal person-related stimuli. BPD patients showed hypervigilance for both negative and positive cues, but were specifically biased towards schema-related negative cues. Predictors were BPD schemas, childhood sexual traumas, and BPD anxiety symptoms. Both BPD and axis I disorder patients showed a trend for a bias for negative schema-related subliminal stimuli. More attention to hypervigilance in BPD is recommended for clinical practice.
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Introduction

According to the Beckian cognitive model of borderline personality disorder (BPD), an important factor in the development and maintenance of this disorder is cognitive bias (Arntz, 2004; Pretzer, 1990). The model hypothesizes that BPD patients process information through a specific set of three core beliefs or schemas of themselves and others, i.e., 'I am powerless and vulnerable', 'I am inherently unacceptable', and 'Others are dangerous and malevolent'. Needing support in a dangerous world but not trusting others brings BPD patients in a state of hypervigilance. Schema-specific information is highly prioritized or difficult to inhibit in this state, resulting in biases in early information processing phases such as selective attention.

Selective attention has been studied extensively in various disorders, and has been shown to play a crucial role in the etiology and maintenance of pathological anxiety in particular (Kindt & Van den Hout, 2001;

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*Corresponding author. Tel.: +31 43 3881601; fax: +31 43 3884155.

E-mail addresses: simkje.sieswerda@mp.unimaas.nl (S. Sieswerda), arnoud.arntz@mp.unimaas.nl (A. Arntz), vertommen_stefaan@uc-kortenberg.be (S. Vertommen).

Williams, Watts, MacLeod, & Mathews, 1997). In BPD, however, anxiety in general and early biases in particular, have not been paid much attention to by researchers. Physiological affective hyperarousal in BPD has been investigated more often (e.g., Herpertz et al., 2000, 2001a,b; Schmahl et al., 2003), however, with contradictory findings, i.e., from *hypo*-arousal to hyperarousal. The scarcity of selective attention studies of BPD is in contrast with the acknowledgement of anxiety as a significant aspect of BPD already in the earliest papers on 'borderline patients' (Hoch & Cattell, 1959; Stern, 1932), the relation of BPD with childhood trauma (Herman, Perry, & van der Kolk, 1989; Sabo, 1997; Zanarini, 1997), and the relatively high comorbidity of BPD both with anxiety disorders (Zanarini et al., 1998b; Zimmerman & Mattia, 1999) and anxious cluster personality disorders (PDs) (Zanarini et al., 1998a).

Diverging hypotheses exist about the specificity of early biases in BPD. BPD is often conceptualized as a post trauma disorder (Gunderson & Sabo, 1993; Herman et al., 1989), a view that is supported by data on high prevalences of interpersonal childhood traumas in BPD (Herman et al., 1989; Sabo, 1997; Zanarini, 1997). Cognitive-behavioral theories conceptualize these traumas as learning experiences resulting in specific trauma-related cognitive schemas. These schemas facilitate but also bias information processing (Arntz, 2004; Pretzer, 1990), or result in relatively isolated memory structures generating pathological fear behaviors and cognitions (Foa, Steketee, & Rothbaum, 1989). Both views hypothesize specific trauma-related biases in BPD, like these have also been found in patients with post-traumatic stress disorder (PTSD) (McNally, 1998). Other theories on BPD hypothesize structural deficits causing general handicaps in emotional functioning instead of specific biases. Amongst them are Linehan's dialectical model (Linehan, 1993) assuming a general emotional dysregulation, and Kernberg's psychoanalytic theory (e.g., Kernberg, 1967) assuming immature cognitive-emotional functioning in these patients. Studies focusing on biological deficits such as serotonin dysregulation (Coccaro, 1989), limbic system irritability (Andrulonis et al., 1981), or attentional network deficits (Posner et al., 2002) also seem to take this stand.

Previous studies have found evidence for selective attention in BPD but did not resolve the stimulus specificity issue. Waller and Button (2002) investigated emotional Stroop interferences of BPD patients, patients with an anxiety or depressive disorder, and nonpatient controls. They found specific biases in BPD for stimuli related to self-criticism (e.g., failure), but not for stimuli related to criticism by others (e.g., ridiculed). A PD control group was not assessed, so it could not be tested whether the effect was specific for BPD or for PDs in general. Arntz, Appels, and Sieswerda (2000) who also applied an emotional Stroop task did compare BPD patients to other PD patients. They found a bias for emotionally negative stimuli related and unrelated to the BPD schemas in both BPD and cluster C PD (CPD) patients. Bias for emotionally positive stimuli was not investigated, leaving the question unanswered whether BPD patients show a really general emotional bias. The present study, that included control groups for both axis I and II, as well as emotionally positive stimuli, might clarify the specificity issue further. We hypothesized that patients with BPD would show deviating strong attentional biases, in particular for schema-related stimuli.

A second unresolved issue is selective attention in BPD for not consciously perceived, i.e., subliminal stimuli. Schemas characteristically operate unconsciously and automatically (Beck, 1976), therefore, they can be expected to be triggered by subliminal as well as supraliminal stimuli (Williams et al., 1997). Some studies even suggest that early bias for subliminal threats is a better predictor for emotional vulnerability than early bias for supraliminal threats (MacLeod & Hagan, 1992; van den Hout, Tenney, Huygens, & Merckelbach, 1995; Verhaak, Smeenk, van Minnen, & Kraaimaat, 2004). Biases of subliminal stimuli in BPD were not found previously (Arntz et al., 2000) but this might be explained by methodological artifacts, like too short presentation times, no priming by supraliminal stimuli, and too small sample size. The present study applied less stringent calibration resulting in longer presentation times, presented the sub- and supraliminal stimuli mixed instead of blocked, and included more participants. Our hypothesis was that the interference of schema-related subliminal stimuli of patients with BPD would be larger than we would find for the whole group.

A final objective of the present study was to explore potential predictors and consequences of hypervigilance in BPD. We investigated the relation between cognitive bias on the one hand and childhood trauma, BPD schemas, and BPD symptoms on the other hand. The symptom clusters we focused on were disinhibition and negative affectivity (anxiety in particular), which are personality traits characteristic for patients with BPD (Trull, 2001), and identity disturbance, which is another generally acknowledged problem in BPD (e.g., Pretzer, 1990; Kernberg, 1967).