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Inhibition of return in patients with obsessive-compulsive disorder

Steffen Moritz[a,*], Adrian von Mühlenen[b]

[a]*Hospital for Psychiatry and Psychotherapy, University Hospital of Hamburg, Klinik für Psychiatrie und Psychotherapie, Martinistraße 52, D-20246 Hamburg, Germany*
[b]*Department of Psychology, University of British Columbia, 2136 West Mall, Vancouver, BC, Canada V6T1Z4*

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Abstract

The present study is aimed at replicating and extending previous results by Nelson et al. [Psychiatry Res. 49 (1993) 183], who found decreased inhibition of return (IOR) in patients with obsessive-compulsive disorder (OCD). Thirty OCD patients, 14 psychiatric, and 14 healthy controls participated in a visual cueing experiment. The task required detection of a target stimulus at one of two possible locations. Prior to the target, an uninformative cue appeared at one of these two locations. The Stimulus Onset Asynchrony (SOA) between the cue and the target was systematically varied. We were especially interested in whether severity of OCD symptoms would be negatively correlated with inhibition for previously occupied locations. In accordance with prior research on healthy participants all groups displayed a comparable response pattern: facilitation at the short SOA condition and increasing IOR for the longer SOA conditions. Medication, comorbid depression, and OCD severity did not consistently moderate these effects.

Keywords: Obsessive-compulsive disorder; Inhibition of return; Disinhibition; Attention

* Corresponding author. Tel.: +49-40-42803-6565; fax: +49-40-42803-2999.
E-mail address: moritz@uke.uni-hamburg.de (S. Moritz).

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1. Introduction

Obsessive-compulsive disorder (OCD) is a multi-faceted psychiatric disease, which is characterized by persistent and distress-causing cognitions (obsessions) that trigger repetitive behaviors or mental acts such as washing and counting in the majority of patients (compulsions). These two psychopathological clusters are usually functionally connected and typically deal with themes of aggression, contamination, symmetry, order and religion (see Summerfeldt, Richter, Antony, & Swinson, 1999).

Cognitive research into the pathogenesis of OCD has mainly focused on executive and inhibitory tasks with a (putative) sensitivity to the frontal lobe (see Cox, 1997; Kuelz, Hohagen, & Voderholzer, in press; Tallis, 1997, for reviews). The interest in frontal lobe functioning stems from a number of behavioral similarities between patients with frontal damage and OCD patients (see Joseph, 1999; Lezak, 1995). Several case studies suggest that acquired brain dysfunctions in the (orbito-) frontal cortex can mimic OCD symptomatology (e.g., Eslinger & Damasio, 1985). Interestingly, pre-existing OCD symptoms have been stopped or attenuated in some cases by frontal brain lesions (Solyom, Turnbull, & Wilensky, 1987). Moreover, a growing number of imaging studies provide evidence for the claim that frontal cortical areas are affected in OCD, especially the anterior cingulate and the orbito-frontal region (Saxena, Brody, Schwartz, & Baxter, 1998).

So far, the cognitive literature on executive processes in OCD has largely remained inconsistent (Cox, 1997; Tallis, 1997). In a recent study (Moritz et al., 2001a) dysfunctions in the Wisconsin Card Sorting Test and the Trail-Making Test B (*set shifting*) were found to be secondary to OCD and rather reflective of comorbid depressive symptoms. There is also indication that disturbances in other tasks sensitive to frontal lobe dysfunction, such as the Stroop task and verbal fluency tasks, are confined to only a subgroup of patients (Moritz et al., 2002). Convergent evidence for a strong and possibly disease-specific dysfunction, however, has been reported for performance in the Delayed Alternation Task (Abbruzzese, Bellodi, Ferri, & Scarone, 1995; Abbruzzese, Ferri, & Scarone, 1997; Cavedini, Ferri, Scarone, & Belodi, 1998; Moritz, Fricke, & Hand, 2001b), which is thought to tap into orbito-frontal functioning. There is also some indication that performance in a number of spatial tasks (mental rotation, visuospatial transformation) is decreased in OCD, although the specificity of dysfunction in this domain awaits further establishment (Moritz, Kloss, Jahn, Schick, & Hand, 2003; see Kuelz et al., in press, for a review).

No conclusive results have emerged for tasks tapping into inhibitory control.[1] Prominent questions for this line of research include whether (a) the emergence of

[1] It may appear artificial to distinguish between executive/"frontal lobe" tasks and tests assessing inhibitory control. While the former tests reflect a more anatomy-based tradition in neurocognitive research, the latter line of research is more concerned with underlying, functionally meaningful processes than with cortical substrates.