The emotional Stroop: a comparison of panic disorder patients, obsessive–compulsive patients, and normal controls, in two experiments

Mirjam Kampman*, Ger P.J. Keijzers, Marc J.P.M. Verbraak1, Gérard Näring, Cees A.L. Hoogduin

Department of Clinical Psychology, University of Nijmegen, P.O. Box 9104, 6500HE Nijmegen, The Netherlands

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Abstract

An emotional Stroop task with four word types (panic threat, obsessive–compulsive threat, general threat, and neutral) and two presentation conditions (supraliminal, subliminal) was used in two experiments. The first experiment involved 21 panic disorder (PD) patients and 20 normal controls; the second experiment 20 PD patients and 20 obsessive–compulsive patients. PD patients, obsessive–compulsive patients, and normal controls did not differ in Stroop interferences. In addition, there were no significant correlations between reduction of PD symptoms and differences between pre- and post-treatment Stroop response latencies.

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* Corresponding author. Tel.: +31-24-3837-820; fax: +31-24-3837-821.
1 Marc Verbraak is now a clinical psychologist at Adhesie, Institute for Mental Health, Almelo, The Netherlands.

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1. Introduction

Recently, several studies have been published concerning disorder-specific attentional biases in automatic and strategic information processing of anxiety disorder patients, using the emotional Stroop paradigm (for a review see Williams, Mathews, & MacLeod, 1996). These studies investigated the hypothesis that anxiety disorder patients are sensitive to and preoccupied with stimuli in their environment that represent their anxious concerns, consciously and unconsciously. For example, when a panic patient gets presented, supraliminarily or subliminally, a panic threat word like heart attack, it causes more interference in response latencies then when stimulated by a neutral word. In current cognitive models attentional bias is not viewed as merely a result of the disorder but rather as a part of its etiology and perseveration. Attentional bias is the shift in attention towards mood- or disorder-congruent stimuli according to some authors (Beck & Clark, 1997; Beck, Emery, & Greenberg, 1985; Williams et al., 1996; Williams, Watts, MacLeod, & Mathews, 1997), or activation of mood-congruent semantic associative networks according to others (Bower, 1987; Williams et al., 1997), both in the early stages of information processing.

According to the above mentioned theories, longer response latencies when color-naming emotionally threatening words reflect this attentional bias. Still, other researchers believe that longer color-naming latencies indicate cognitive avoidance of emotionally valenced information in the later stages of information processing (de Ruiter & Brosschot, 1994).

With the computerized emotional Stroop task stimuli can be presented supraliminarily and subliminally, enabling the detection of biases in information processing that requires consciousness or that not require consciousness. Table 1 gives an overview of previous studies on computerized emotional Stroop interference in obsessive–compulsive disorder (OCD) and panic disorder (PD).

The findings of these studies are rather inconclusive. In PD patients, only one study used subliminal stimuli to test whether conscious awareness of threat stimuli is a precondition for the occurrence of threat interference on the emotional Stroop. In this study, it was found that PD patients had longer response latencies in color-naming panic-related threat words (Lundh, Wikström, Westerlund, & Öst, 1999). In five studies that used supraliminal stimuli, PD patients had longer response latencies on general threat words and panic threat words, compared to neutral words (Lundh et al., 1999; Maidenberg, Chen, Craske, & Bystritsky, 1996; McNally, Riemann, & Kim, 1990; McNally et al., 1992, 1994). However, of these five studies only two found that longer latencies for general threat words and panic threat words compared to neutral words, statistically significant exceeded the response latencies of normal controls (Lundh et al., 1999; Maidenberg et al., 1996).

In OCD patients also, only one study tested whether conscious awareness of threat stimuli is a precondition for the occurrence of threat interference on the emotional Stroop task. The results of this study showed that the response latencies
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