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Health anxiety and cognitive interference: Evidence from the application of a modified Stroop task in two studies

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Abstract

The number of studies using a modified Stroop task in the examination of health anxiety-related cognitive biases is limited, and their results are divergent. The use of research methods that preclude conscious processes is, however, essential. The purpose of the present two studies was to examine whether health anxiety is associated with information processing biases towards illness-related stimuli, as well as whether health anxiety interacts with perceived physical symptoms regarding such biases. In both studies a modified Stroop task was implemented. Fifty-one healthy university students in the first study, and 69 in the second study completed a modified Stroop task and filled out questionnaires regarding mood, state anxiety, health anxiety and perceived symptoms. According to the results of both studies, after controlling for positive and negative mood and state anxiety, individuals with higher levels of health anxiety displayed greater information biases towards illness-related words. Moreover, health anxiety did not interact with perceived physical symptoms, as shown in the second study. The implications of these findings are significant, not only as far as health anxiety is concerned, but also for everyday health-related behaviour.

Keywords: Health anxiety; Perceived symptoms; Information processing; Stroop task

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1. Introduction

Cognitive-affective representations about health and illness are known to be strong predictors of health-related behaviour (Cioffi, 1991; Martin & Leventhal, 2004; Smith & Ruiz, 2004). One such cognitive-emotional factor associated with everyday health-related decision-making and behaviour is anxiety about personal health and the possibility of being ill, or health anxiety. Herein, we present two studies that focus on health anxiety and its relation to cognitive processing of health-related information.

The fear of having an illness, that is health anxiety, is a dimensional construct ranging from mild fear to clinical hypochondriasis (Salkovskis & Warwick, 1986). According to the cognitive-behavioural model, variables such as the cognitive processing of information and cognitive appraisals are significantly involved in the development and maintenance of health anxiety (Warwick & Salkovskis, 1990). Internal information (e.g., bodily sensations, physical symptoms) or external illness-related stimuli (e.g., hearing about an ill friend) have the potential to activate dysfunctional cognitions about health and illness. These in turn result in higher anxiety about personal health and affect health behaviours and decisions (e.g., they provoke an even more catastrophic interpretation of illness-related information; Salkovskis & Bass, 1997; Warwick & Salkovskis, 1990). Several studies, both correlational and experimental (e.g., Hadjistavropoulos, Hadjistavropoulos, & Quine, 2000; Marcus & Church, 2003; Marcus, Gurley, Marchi, & Bauer, 2007; Rief, Hiller, & Margraf, 1998; Smeets, de Jong, & Mayer, 2000) have offered considerable support to this model.

As the cognitive-behavioural model suggests, biased cognitive processing of internal or external illness-related information may be the start point for the elevation of health anxiety (Kellner, 1986; Warwick & Salkovskis, 1990). In fact, several studies have shown that, when people are threatened, they display significant information biases towards information related to the source of their concern (e.g., Block, 2005; Williams, Mathews, & MacLeod, 1996).

For the examination of informational processing, the use of specific research methods (such as visual probe tasks or perception of difficult to read words), which will preclude conscious processes that may interfere with the results (like self-report methods), is needed. Still, the number of studies on health anxiety that use such methods is quite small (Williams, 2004) and their findings are divergent. For instance, Durso, Reardon, and Shore (1991) showed that health anxiety is related to memory biases. Hitchock and Mathews (1992) found that there is an enhanced attentional sensitivity to illness-related information, while Pauli, Schwenzer, Brody, Rau, and Birbaumer (1993) also found attentional bias towards bodily symptoms in high health anxious individuals. More recently, Pauli and Alpers (2002) found memory and attentional biases in patients with somatoform disorders. On the other hand, Brown, Kosslyn, Delamater, Fama, and Barsky (1999), in two samples of hypochondriac patients and healthy or non-hypochondriac controls, did not find strong evidence for perceptual and memory bias. Further, Lees, Mogg, and Bradley (2005) found that high health anxious participants did not show greater attentional bias for health-related cues than low anxious participants.

A commonly used method to assess the extent to which individuals exhibit a non-conscious cognitive processing bias to specific threatening stimuli is the emotional Stroop task (MacLeod, 1991). The emotional Stroop task has been developed as a modification of the original Stroop