Cueing of visual attention by emotional facial expressions: The influence of individual differences in anxiety and depression

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Abstract

Theoretical models on the development of anxiety disorders and depression have postulated mood-congruent information processing biases as a cognitive vulnerability factor. Hierarchical models of these disorders suggest shared and distinct cognitive processing biases in at-risk individuals. In the present study, attentive processing of emotional facial expressions was investigated in a large group of participants ($N = 144$) that were tested on tension/stress, anxiety, and depression symptoms. In a modified version of the exogenous cueing paradigm, spatial attention was cued by an angry, sad, happy, or neutral facial expression that correctly or incorrectly predicted the location of a target. Results showed no main or interaction effects of emotional expression and individual differences on attentional cueing. The absence of any attentional cueing effects is discussed in relation to population characteristics and previous null-results in the attentional bias literature.

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1. Introduction

An important theme in research on emotional disorders is the distinction between normal and biased orienting of attention towards emotional information. Given the importance of emotional information in guiding our actions, it has been argued that emotionally-laden stimuli demand attention in everyone (e.g., Eccleston & Crombez, 1999; Mogg & Bradley, 1998). This claim holds in particular for threatening information which requires fast attentional orienting to the source of danger in order to maximize the chances of successful responding (Lang, Bradley, & Cuthbert, 1997; Öhman, Flykt, & Lundqvist, 2000). In patients with emotional disorders, this tendency to orient attention towards emotional information is often enhanced. It has been robustly demonstrated that anxiety patients have an attentional bias in favour of threat-related information (see Mogg & Bradley, 1998; Williams, Watts, MacLeod, & Mathews, 1997). In depressed individuals the empirical data on attentional bias is less robust. However, there are indications for an attentional bias in favour of negative information and reduced attention for positive information at later stages of information processing (see Suslow & Dannlowski, 2005).

Cognitive theories have proposed that biased attention for emotional information plays an important role in the aetiology of clinical anxiety and depression (Beck, 1967, 1976; Williams et al., 1997). More specifically, individuals with a heightened predisposition for anxiety and depression would also be characterized by attentional biases which might contribute to an enhanced emotional reactivity to stress. Research on attentional bias and anxiety vulnerability has mostly focused on high trait anxious individuals. Trait anxiety is a personality factor that predisposes anxious responding to stressful and novel situations (Spielberger, 1966). Trait anxiety is generally measured by the State and Trait anxiety Inventory (STAI; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). Research on attentional bias in depression vulnerability has mostly examined dysphoric individuals. These individuals are often selected on the basis of their scores on the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961).

Importantly, research on attentional bias in anxiety- and depression-vulnerability has thus far been largely independent from each other. This is problematic for two main reasons. First, studies in personality constructs underlying anxiety and depression have acknowledged the high comorbidity between anxiety and depression by proposing that similar personality constructs underlie anxiety and depression. In the influential tripartite model, Clark and Watson (1991) proposed that negative affect (or general distress) underlies both anxiety and depression, with depression being additionally related to lack of positive affect or anhedonia and anxiety being related to somatic hyperarousal. Other models have further refined the taxonomy of personality factors unique for each disorder, but also incorporate the idea of shared general distress in anxiety and depression (e.g., Brown, Chorpita, & Barlow, 1998; Zinbarg & Barlow, 1996).

A second, related problem of separate research into anxiety and depression, involves the high correlation between measures for anxiety and depression (see Beuke, Fischer, & McDowall, 2003). Therefore, in many studies on attentional bias using for instance the STAI or BDI it is unclear whether results can be attributed to the contribution of anxiety or depression. Furthermore, it has been noted that heightened anxiety or depression scores may mask the effects of the other construct. For instance, in clinical studies on depression the inclusion or exclusion of individuals with heightened anxiety strongly influenced attentional bias (Musa, Lépine, Clark, Mansell, & Ehlers,
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