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Selective processing of linguistic and pictorial food stimuli in females with anorexia and bulimia nervosa

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Abstract

Purpose

This study investigated subjects with eating disorders' selective attention to linguistic and pictorial representations of food stimuli in a version of the Stroop color-naming task. If subjects with eating disorders' attention really are biased by food stimuli, one would expect equally delayed color-naming latencies to food pictures as previous studies have found to food words.

Method

Twenty females with eating disorders (anorexia nervosa, bulimia nervosa, or a combination of both) and 24 female controls identified the color of Stroop versions of linguistic and pictorial representations of color, food, emotional, and neutral stimuli.

Results

The eating disorder group was slower than the controls in identifying the color of all words (including the food words) and the pictures depicting food stimuli (but not any of the other pictures). The eating disorder group was also slower in identifying the color of both food and emotional than neutral stimuli, both for the linguistic and pictorial stimuli.

Conclusion

These findings indicate that females with bulimia and anorexia nervosa's biased attention to food stimuli are not restricted to linguistic representations. The delayed responses to the emotional words and

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pictures suggest that processing of negative emotional stimuli, in addition to dysfunctional concerns about stimuli related to food and eating, is important in the maintenance of eating disorders.

Keywords: Selective processing; Anorexia nervosa; Bulimia nervosa

1. Introduction

According to cognitive models of eating disorders, strong concerns with stimuli related to food, eating, body shape, and weight are important in the maintenance of anorexia (Garner & Bemis, 1982) and bulimia (Fairburn, 1981) nervosa. Studies using a modification of Stroop's (1935) color-naming task have shown that women with such eating disorders are slower in naming the ink color of words related to eating disorder symptoms than neutral words (for a review of these studies, see Faunce, 2002). This finding is thought to be a result of an automated processing of word meaning which interferes with naming the color of words in general (e.g., Posner & Snyder, 1975) and self-relevant stimuli in particular (Wells & Matthews, 1994).

The purpose of this study was to compare subjects with eating disorders' and nonclinical controls' selective attention to pictorial and linguistic representations of food stimuli. If persons with eating disorders' attention really are biased by these stimuli, one would expect that pictures depicting food stimuli should elicit similar delays in color-naming latencies as linguistic stimuli. In a graphical adaptation of the Stroop task, Walker, Ben-Tovim, Paddick, and McNamara (1995) found that women with eating disorders were slower in naming the color of line drawings depicting female body shapes ranging from extremely thin to extremely obese compared to color-naming latencies to line drawings of sport balls which also varied in size. The significance of this finding is however not clear as also controls were slower in naming the color of the female shapes and the study did not include a comparison with linguistic stimuli.

A number of studies have investigated attentional bias on pictorial adaptations of the Stroop task in phobics. Neither Lavy, van den Hout, and Arntz (1993) nor Merckelbach, Kenemans, Dijkstra, and Schouten (1993) found delayed color-naming latencies to phobic compared to neutral pictures. This could, however, be attributed to the experimental setup which enabled subjects to perform the color-naming task without attention to the pictures, since the pictures were presented at another part of the screen than the color stimuli subjects were to name the color of. In contrast, when pictures of spiders were presented against a background color, both Lavy and van den Hout (1993; in the pretreatment phase of the study) and Kindt and Brosschot (1997) found that spider phobics used longer time in identifying the color of spider than neutral pictures, comparable to what was obtained to words.

The purpose of this study was also to assess if attentional bias in subjects with eating disorders generalize to other emotionally salient stimuli. There are reports suggesting that negative emotional stimuli modulate selective attention in subjects with eating disorders (e.g., McManus, Waller & Chadwick, 1996). Thus, in this study females with eating disorders and controls were presented with linguistic and pictorial representations of color, food, and negative emotional and neutral stimuli in an adaptation of the Stroop task and asked to identify the color the words were typed in and the background color the pictures were presented against. The prediction was that it would take subjects with eating