

## Imagery and Interpretations in Social Phobia: Support for the Combined Cognitive Biases Hypothesis

Colette R. Hirsch, David M. Clark, Institute of Psychiatry, King's College, University of London  
Andrew Mathews, University of California, Davis

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Cognitive-behavioral models of clinical problems typically postulate a role for the combined effects of different cognitive biases in the maintenance of a given disorder. It is striking therefore that research has tended to examine cognitive biases in isolation rather than assessing how they work together to maintain psychological dysfunction. The combined cognitive biases hypothesis presented here suggests that cognitive biases influence each another and can interact to maintain a given disorder. Furthermore, it is proposed that the combined effects of cognitive biases may have a greater impact on sustaining a given disorder than if the biases operated in isolation. The combined cognitive biases hypothesis is examined in relation to imagery and interpretation in social phobia. Individuals with social phobia experience negative images of themselves performing poorly in social situations, and they also interpret external social information in a less positive way than those without social anxiety. Evidence of a reciprocal relationship between imagery and interpretations is presented, and the mechanisms underlying the combined effects are discussed. Clinical implications and the potential utility of examining the combined influence of other cognitive biases are highlighted.

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COGNITIVE-BEHAVIORAL MODELS OF PSYCHOPATHOLOGY often postulate roles for more than one cognitive bias in the maintenance of a given

disorder. Furthermore, these models often imply bidirectional effects, where one bias or its results influences another bias or the effects of that second bias, and vice versa. It also seems likely that, given that a person may be processing information in more than one system at any one time, these processes and their results may combine to maintain a disorder. The alternative possibility, that cognitive biases always act in isolation, seems implausible, so that at least some combined effects seem correspondingly quite likely. Despite the fact that the cognitive-behavioral models of psychological disorders often postulate such combined processes, clinical psychological research has tended to examine cognitive processes in isolation. Even when different biases are assessed within the same study, they are often not examined with a view to how their combination might maintain disorders (although there are some notable exceptions, e.g., [Watkins & Teasdale, 2004](#); [Wells & Papageorgiou, 1998](#)). We propose that a number of biased cognitive processes often operate simultaneously and/or in succession and that these cognitive processes are likely to work together in various ways serving to maintain specific emotional disorders. In the present paper we focus on one specific disorder—social phobia—and consider how two types of biased cognitive process act in combination and may help to maintain the disorder.

Individuals with social phobia exhibit a number of cognitive biases related to threatening information, including biased attention, selective interpretation, negative self-imagery, and elevated subjective risk (see [Hirsch & Clark, 2004](#), for review). Most research on cognitive processes in social phobia has examined processes in isolation (e.g., [Roth, Anthony, & Swinson, 2001](#)), which provides important information about the biases

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Address correspondence to Dr. Colette Hirsch, Po77, Institute of Psychiatry, De Crespigny Park, London SE5 8AF, UK; e-mail: [c.hirsch@iop.kcl.ac.uk](mailto:c.hirsch@iop.kcl.ac.uk).

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that exist but does not elucidate the role one bias has on another. Some researchers have investigated more than one bias within the same study (e.g., [Brendle & Wenzel, 2004](#); [Mansell & Clark, 1999](#); [Wenzel, Finstrom, Jordan, & Brendle, 2005](#)); although highly informative, these studies do not provide information about the causal role one bias has during the operation of another. In order to assess causality, it is necessary to manipulate one process and then assess its impact on another cognitive process (e.g., [Hirsch, Clark, Mathews, & Williams, 2003](#); [Hirsch, Mathews, Clark, Williams, & Morrison, 2003](#)). The current paper focuses on negative biases of interpretation and self-imagery in the maintenance of social phobia. To anticipate, we argue that these processes combine to maintain social phobia, although we also argue that such combinations of cognitive biases are not confined to imagery and interpretation and probably apply equally to other cognitive biases and to other psychological problems.

The proposal that cognitive biases work together will be referred to as the combined cognitive biases hypothesis: that cognitive biases do not operate in isolation, but rather (a) can influence each another and/or (b) can interact so that the impact of each on another variable (e.g. social anxiety) is influenced by the other. Via both these mechanisms we argue that combinations of biases have a greater impact on disorders than if individual cognitive processes acted in isolation.

### Imagery and Interpretation in Social Phobia

#### MENTAL IMAGERY IN PSYCHOLOGICAL DISORDERS

Reports of spontaneous mental images are common in the anxiety disorders ([Beck, Laude, & Bohnert, 1974](#)) and often appear to embody clients' distorted beliefs about the dangerousness of feared situations. In comparison with verbal propositional representations, images are thought to have a special link with emotion. [Vrana, Cuthbert, and Lang \(1986\)](#) reported that imagining fearful stimuli elicited more physiological activity than when the same information was thought about in verbal form, although this comparison was not balanced for order of presentation. More recently, [Holmes and Mathews \(2005\)](#) required volunteers to either imagine unpleasant events or listen to the same descriptions while thinking about their verbal meaning. Participants in the imagery condition reported more anxiety and rated new descriptions as more emotional than those in the verbal condition.

Mental images are cognitive representations of perceptual information that are not the product of

current external sensory input. Images can comprise any or all sensory modalities (e.g., visual, sound, tactile; [Horowitz, 1970](#)). [Hackmann \(1999\)](#) noted that, within the clinical context, images most typically encompass a range of sensory qualities. The visual modality is the most common imagery modality reported, albeit not exclusively in a range of psychological problems including agoraphobia ([Day, Holmes, & Hackmann, 2004](#)), body dysmorphic disorder ([Osman, Cooper, Hackmann, & Veale, 2004](#)) and cravings ([May, Andrade, Panabokke, & Kavanagh, 2004](#)).

#### MENTAL IMAGERY IN SOCIAL PHOBIA

Evidence also suggests that social phobia is associated with negative self-imagery. [Hackmann, Surawy, and Clark \(1998\)](#) asked clients with social phobia and nonclinical controls to recall a recent social situation in which they had felt anxious. They were then asked about the presence of any imagery that may have occurred at the time. Clients with social phobia were more likely to report spontaneous images than control volunteers. These clients also reported that when images were experienced during social situations, they believed that the image was an accurate representation of how they appeared to others, although in retrospect they recognized that the image may have been more negative in content than how they would have actually been perceived by others. The content of these images appeared to be a visualization of their feared outcomes, including the way in which they feared that they appeared to others.

An example of negative self-imagery is that reported by a client who had to give a presentation at work. He had an image of himself looking bright red with terrified eyes, as if he was a rabbit caught in headlights, unable to speak clearly and "looking really pathetic." In the study reported by [Hackmann et al. \(1998\)](#), an independent assessor, who had not been informed about group allocation, also rated images reported by participants with social phobia as more negative than those reported by control nonphobic participants.

[Hackmann, Clark, and McManus \(2000\)](#) conducted another semistructured interview with clients with social phobia to determine whether a particular event was associated with the first occurrence of the image. Almost all of the clients identified a specific, embarrassing, or humiliating experience related to their reported image. Again, the image appeared to represent the person's fears about the most negative aspects of the original situation. The events linked to the image were mainly dated around the onset of the social phobia, although clients had often not made an explicit link

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