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Social phobics do not see eye to eye: A visual scanpath study of emotional expression processing

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Abstract

Clinical observation suggests that social phobia is characterised by eye avoidance in social interaction, reflecting an exaggerated social sensitivity. These reports are consistent with cognitive models of social phobia that emphasize the role of interpersonal processing biases. Yet, these observations have not been verified empirically, nor has the psychophysiological basis of eye avoidance been examined. This is the first study to use an objective psychophysiological marker of visual attention (the visual scanpath) to examine directly how social phobia subjects process interpersonal (facial expression) stimuli. An infra-red corneal reflection technique was used to record visual scanpaths in response to neutral, happy and sad face stimuli in 15 subjects with social phobia, and 15 age and sex-matched normal controls. The social phobia subjects showed an avoidance of facial features, particularly the eyes, but extensive scanning of non-features, compared with the controls. These findings suggest that attentional strategies for the active avoidance of salient facial features are an important marker of interpersonal cues in social phobia. Visual scanpath evidence may, therefore, have important implications for clinical intervention.
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Keywords: Social phobia; Anxiety; Face processing; Emotion; Eye movements; Visual scanpaths

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1. Introduction

Social phobia is an anxiety disorder that is characterised by fear of negative evaluation in social situations. One of the most striking observations in clinical studies of social phobia is the avoidance of eye contact in social interactions (Greist, 1995; Marks, 1969; Öhman, 1986) that may be a consequence of these fears. Since Darwin (1872/1955), psycho-evolutionary research has shown that the eyes are the most fear-inducing feature in situations of social appraisal by others (Öhman, 1986).

Cognitive models of anxiety (Beck & Emery, 1985) provide a useful conceptual framework for understanding the likely link between fear of negative evaluation and active avoidance of salient facial features (such as the eyes) in social phobia. These models propose that socially phobic individuals have a selective bias towards processing information that contains a potential threat to oneself, affecting normal attentional strategies and the perception of social stimuli and interactions. Evidence from cognitive paradigms, including dichotic listening and modified Stroop, is consistent with the notion of biases towards potentially threatening interpersonal information in social phobia (for review, see Logan & Goetsch, 1993).

Nevertheless, clinical observations of interpersonal dysfunctions in social phobia, and eye contact avoidance in particular, have not been verified empirically, nor has the psychophysiological basis of eye avoidance been examined. This was the first study to use an objective marker of visual attention (the visual scanpath) to examine directly how individuals with social phobia process interpersonal (facial expression) stimuli, compared to healthy subjects.

Accurate social perception involves the integration of several basic components, and the ability to perceive emotional expressions in others is a particularly important component. Both the perception and expression of facial affect provides the basis for interpersonal communication. Face and facial emotion processing relies on the integrity of visuomotor and visuospatial information processing systems (Bruce & Young, 1986). It is through these systems that we acquire emotional information, and signal social involvement, empathy, control, dominance and interpersonal adequacy. Argyle (1983, p. 80) has highlighted the “central importance” of eye movements in social interaction, both to receive and to send information. In this study, visual scanpath recording provided information on both eye movement and eye fixation parameters.

Visual scanpath studies have shown that healthy subjects produce a regular pattern of eye movement and fixations to face stimuli. Subjects focus in particular on the salient facial features of eyes, nose and mouth, producing scanpaths that represent an inverted triangle in shape (Mertens, Siegmund, & Grüsser, 1993; Walker-Smith, Gale, & Findlay, 1977). Of these features, the greatest attention is usually paid to the eyes, as the most revealing source of information about emotional expression in social interactions (Lundqvist, Esteves, & Öhman, 1999).

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