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Fear of faces: a psychophysiological investigation of facial affect processing in social phobia

R. Kaye Horley
University of Wollongong

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**FEAR OF FACES:
A PSYCHOPHYSIOLOGICAL INVESTIGATION OF FACIAL AFFECT
PROCESSING IN SOCIAL PHOBIA.**

A thesis submitted in (partial) fulfilment of the
requirements for the award of the degree

DOCTOR OF PHILOSOPHY (CLINICAL PSYCHOLOGY)

from

UNIVERSITY OF WOLLONGONG

by

R. KAYE HORLEY
B.A., Dip. Psych., M.CogSci. (Hons)

Department of Psychology
2004

CERTIFICATION

I, R. Kaye Horley, declare that this thesis, submitted in partial fulfilment of the requirements for the award of Doctor of Philosophy (Clinical Psychology), in the Department of Psychology, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other academic institution.

R. Kaye Horley

31 August, 2004.

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Most importantly, I would like to thank my husband and boys who gave of their love.

Abstract

Social phobia (SP) is a common anxiety disorder that has received little research attention, particularly from a psychophysiological perspective. SP is characterised by a fear of evaluation by others in social contexts. Theoretically, this condition has been considered in terms of selective information processing biases towards threat-related social cues. Yet, the mechanisms underlying processing disturbances remain unclear. This thesis explored central and autonomic nervous system functioning in SP for the first time. The studies employed psychophysiological measures with realistic face stimuli pertinent to the evaluative fears of SP. Study 1 employed an objective marker of visual attention (the visual scanpath) to examine directly how individuals with SP ($n = 15$) processed happy, neutral and sad faces and a control geometric figure, compared to age and gender-matched healthy control subjects ($n = 15$). Unlike controls, the scanpaths of social phobia subjects showed an avoidance of eyes, but excessive scanning of non-features. No scanning differences were evident in processing the geometric figure, suggesting that the disturbance was face specific. Study 2 additionally examined attentional responsiveness to an explicit threat-related (angry) face in a SP group ($n = 22$) compared with an age and gender-matched healthy control group and an anxiety control group ($n = 17$), employing concurrent visual scanpath and electrodermal measures. Study 2 confirmed Study 1 findings of hyperscanning of faces and avoidance of eyes in SP and initial findings of face specific deficits in SP. Scanning dysfunction evident in the SP, but not the healthy control or anxiety control groups indicated that the face processing deficits were specific to SP. Contrary to expectation, electrodermal activity in the SP group indicated a similar arousal profile to the control groups and no evidence for an anger specificity in SP was apparent in either the cognitive (eye movements) or autonomic (electrodermal) measures. In Study 3, event-

related potentials were employed to examine the cortical processing of a threat-related (angry) and neutral face stimuli in a SP group (n = 27) compared with an age and gender-matched healthy control group and an anxiety control group (n = 17). The SP group was distinguished from the control groups by faster P2 and P3 component responses to anger, than neutral, as well as larger responses in the N2/P3 orienting complex in posterior regions. Findings were suggestive of an exaggerated orienting response to biologically salient signals of threat. The ERP findings provided important central processing information and the electrodermal findings important autonomic information. However, the most compelling findings from this multimodal study were the face processing disturbances, distinguished by an extended scanpath and avoidance of eyes. Given that face processing is so critical in social communication, these findings have particular relevance for clinical interventions providing for specifically tailored strategies for increasing eye contact.

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