

**Abstract**

Lundgren, J. 2003. *Dental Fear. Psychophysiology, Cognition and Behavior* Department of Psychology, Göteborg University, Box 500, SE 405 30 Göteborg, Sweden.

The general aim of this thesis was to advance our understanding of the etiology, phenomenology and treatment of dental fear and of how these entities interrelate. Subjects were 127 adult patients applying for treatment of severe dental anxiety. In **Study I**, simultaneous registration of Heart Rate (HR), Skin Conductance (SC) and forehead muscle tension (EMG) among dental phobic patients during exposure of fear relevant video scenes were compared with the reactions of control subjects. Results indicated that responses reflected degree of dental fear, at least in terms of HR and EMG. **Study II** examined whether subjects with assumed conditioned fear etiology responded with greater physiologic activity to dental video scenes than subjects with indirect fear acquisition. Subjects with conditioned etiology responded to the test situation with weakened electrodermal responsivity and initial heightened forehead muscular variability compared with subjects with indirect fear etiology. The recording of EMG and HR showed interpretable patterns during the injection and drilling scenes, suggesting that subjects with conditioned etiology were more affected by these scenes. The aim of **Study III** was to find clinically and theoretically significant subgroups according to recorded physiological fear reactions. Cluster analyses revealed one cluster per physiological outlet that responded strongly to all scenes and one cluster with relatively weak responses throughout the period. In other words, although there seemed to be overall agreement between subjects regarding how fearful each scene was, subjects had individual response patterns that reflected fear. A pattern of relatively low activation in EMG, HR and SC was paralleled by lower self reported general fear and dental fear. **Study IV** investigated whether different treatment modalities (relaxation vs. cognitively oriented therapies) aimed at 'matching' the two types of etiologies would result in differential treatment effects. Furthermore it was tested whether greater treatment effects are achieved when the treatment method fits the patient's psychophysiological response pattern than when it does not. Results gave no firm support for differentiated treatment effects when fear etiology was matched with treatment modality. Neither was the hypothesis that relaxation treatment is superior to cognitive treatment in physiological reactors supported despite significant reductions in psychophysiological fear reactions and self reported fear in subjects characterized by stronger physiological arousal who underwent treatment focused on relaxation.

**Key words:** Heart Rate, Skin Conductance, Electromyography, Dentistry, Fear, Etiology

---

Jesper Lundgren, Department of Psychology, Göteborg University, Box 500, SE 405 30 Göteborg, Sweden. Telefax: +46 (0)31 741 34 50, E-mail: [jesper.lundgren@odontologi.gu.se](mailto:jesper.lundgren@odontologi.gu.se)