



Psychophysiological reactions in dental phobic patients with direct vs. indirect fear acquisition

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Abstract

Dental phobic patients with reported traumatic experiences at onset of dental anxiety were compared to subjects with an indirect fear acquisition in their psychophysiological responses to video scenes showing dental procedures. It has been suggested that individuals with conditioned fear would respond with higher levels of physiological arousal in response to threat compared to subjects with indirect fear acquisition. Although the overall pattern indicates support for this hypothesis, subjects grouped on the basis of their reported fear-etiologies did not statistically differ in recorded muscle tension, heart rate or skin conductance reactions to fear-provoking conditions.

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1. Introduction

Negative dental experiences are often cited as the main cause of dental anxiety and several studies have supported the importance of conditioning in dental anxiety (Berggren & Meynert, 1984; Milgrom, Weinstein, Kleinknecht, & Getz, 1985; Öst & Hugdahl, 1985; Davey, 1989; Locker, Shapiro, & Liddell, 1996; Poulton, Waldie, Craske, Menzies, & McGee, 2000). Dentally anxious individuals are however not a homogenous group regarding etiology and manifestations of their fear of dental

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treatment (Locker, Liddell, & Shapiro, 1999; Willershausen, Azrak, & Wilms, 1999; Abrahamsson, Berggren, & Carlsson, 2000). Rachman (1977) proposed three pathways to fear: conditioning, vicarious learning and exposure to negative information. Rachman further suggested that people with a conditioning background would have more prominent physiological and behavioral reactions than those who acquire their fear along an indirect pathway (vicariously or through negative information). On the other hand, in fears transmitted indirectly, negative cognitions would be most predominant. Rachman also suggested that individuals who have acquired their fear through information are more likely to experience mild than severe fear. Öst and Hugdahl (1985) found no differences in severity between fears acquired directly or indirectly in a clinical sample of dental and blood phobics. In reviewing the literature, they concluded that conditioned fears seem to be more common in clinical samples whilst the indirect ways of acquisition dominate in subclinical samples.

To conceptualize phobic etiology in terms of direct vs. indirect learning is well in line with Wolpe's classification of a classical autonomic conditioned etiology vs. a cognitive etiology of fear (Wolpe, 1981; Wolpe, Lande, McNally, & Schotte, 1985). In a previous study (Berggren, Carlsson, Hagglin, Hakeberg, & Samsonowitz, 1997a) we found that patients with a conditioned etiology reported a more extensive history of avoiding dental treatment than individuals with a cognitively learned reaction. On the other hand, patients with a cognitively learned fear had higher levels of trait anxiety and fear of embarrassment.

There has been a limited number of studies on dental fear that relied on psychophysiological measures as independent variables (Carlsson, Linde, Berggren, & Harrison, 1986), and we believe that psychophysiological responsivity in dental fear is under-researched. However a problem with psychophysiologic investigations of emotional states has been the unclear relationships between different measures. Some authors have thus recommended recordings of more than one physiological variable in one and the same study (Carlsson et al., 1986; Benjamins, 1995).

Recently, there has been an increased interest in non-associative etiology models of phobic fear. Even though it is possible to speculate whether there are parts of dental treatment that you need to learn to be unafraid of, dental fear is considered to be an effect of a learning process and has even been used as an example of the opposite of non-associative phobic fear (Poulton et al., 2000).

It is suggested by both Wolpe (1981) and Rachman (1977) that different etiologies with divergent response pattern may benefit from different treatments of phobic fear and it is thus important to learn more about this relationship. Existing research has both confirmed (Öst, 1985) and contradicted (Jerremalm, Jansson, & Öst, 1986; Taylor & Deane, 1999) these suggestions. Considering that dental fear is a common health care problem with a relatively stable prevalence between 4% and 16% in adult populations (Scott & Hirschman, 1982; Milgrom, Fiset, Melnick, & Weinstein, 1988; Stouthard & Hoogstraten, 1990; Hakeberg, Berggren, & Carlsson, 1992; Moore, Birn, Kirkegaard, Brodsgaard, & Scheutz, 1993; Vassend, 1993; Locker et al., 1999), there are great personal and social-economical profits to be made in optimizing effectiveness in treatments of dental fear.

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