The psychology of care and cure in dental anxiety

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As Hill (2012) has demonstrated in a companion paper in this series, dental anxiety is prevalent and has an impact on the quality of life, and the quality of dental treatment performed – both in terms of limiting attendance for treatment and in the treatment likely to be performed (Milgrom *et al*., 2010). Furthermore, until recently services for people with dental fear and anxiety have largely focused on extreme levels of dental fear (dental phobia) and adopted a pharmacological management strategy. In this article I would like to take as a key premise the view that all patients have some level of anxiety about their treatment. From this it follows that it is helpful for the dental team to assess the patient's level of anxiety and intervene proportionately. Patients with low levels of dental anxiety may require only low level interventions involving enhancing the environment and reducing the degree of uncertainty involved in treatment. Those patients with moderate levels of dental anxiety may require more intensive interventions, such as the provision of information on coping strategies. Finally for the phobic dental patient, I will outline the role that Cognitive Behavioural Therapy can play in overcoming dental fear.

Key words: Dental anxiety, Cognitive Behavioural Therapy

ASSESSMENT OF DENTAL ANXIETY

Methods for the assessment of dental anxiety in both children and adults have been summarised by Buchanan (2012) in an earlier paper in this series. For the dental setting, brief questionnaire scales can be used as the basis for treatment planning and are acceptable both to patients and the dental team (Humphris et al., 2006; Hull and Humphris, 2010).

INTERVENTIONS FOR INDIVIDUALS WITH LOW LEVELS OF ANXIETY

Given the relationship between the development of dental anxiety and the experience of traumatic dental treatment, and further the role of latent inhibition in ameliorating the impact of negative events (Davey, 1989), it seems likely that dental anxiety may be prevented by the avoidance of negative experiences and the promotion of positive experiences for children attending the dental surgery. Examples of such approaches could include encouraging a warm and welcoming child friendly environment (some examples of how such an approach could be adopted are given below), explicit acclimatisation visits for children where no invasive treatment dental treatment is performed, and the use of fluoride supplements to inhibit caries and thus prevent invasive treatment (Marinho et al., 2002). However there is little evidence to confirm or refute the ability of such an approach to prevent future dental anxiety.

For children attending with low levels of dental fear approaches that can be adopted include:

- *Rapport building*. For example the use of a magic trick. Peretz and Gluck (2005) used a magic trick to encourage children who on a previous visit to the dental surgery had refused to enter the dental surgery, to sit in the dental chair and have a radiograph. The simple use of the trick increased co-operation when compared to no intervention or the use of Tell-Show-Do. It is unclear the mechanism of action for this technique but one element may be the rapport building involved.

- *Voice control*. There are a number of studies to demonstrate that children respond best to a moderately loud voice with a deep tone. Greenbaum *et al*., (1990) studied the effect of the loudness of the dentist's voice on the disruptive behaviour of 40 children aged between 3 and 7 years. They found that issuing commands in a loud voice was more effective in reducing disruptive behaviour than using a normal voice level. The children who received loud commands reported finding the interaction more pleasurable than the normal voice level group.

- *Distraction*. Several types of distraction have been reported in the literature, including the use of video-taped cartoons, audio-taped stories and video games. Distraction techniques have been found to be as effective as relaxation based techniques, and superior to no intervention. Audio-taped distractions are more effective than video-taped, possibly since they allow children to close their eyes and hence avoid the feared stimulus (Ingersoll *et al.*, 1984). The most significant reductions in anxiety related behaviour are found when the distracting material is made

contingent on co-operative behaviour. Children who were shown cartoons which were stopped if they became uncooperative, showed less than half the levels of disruptive behaviour in comparison to children who were shown cartoons regardless of their behaviour (Filcheck *et al.*, 2004). Here the effectiveness of the technique may be the result of the rewarding properties of the cartoons.

- *Modelling*. Modelling has been used extensively with children and is generally most effective if the observed child is similar in age, gender and level of dental anxiety to the child watching, if the child enters and leaves the surgery without adverse consequences, and if the child is seen to be rewarded for non-anxious behaviour (Wardle, 1982).

- *Memory reconstruction*. Pickrell *et al*., (2009) designed an intervention based on an understanding of the processes of human memory which involved using positive images to help children reconstruct their memory of dental treatment. The intervention comprised four components. Firstly the visual component, pictures taken previously of the child smiling during the dental procedure were shown back to the child as a visual reminder about the dental experience. Secondly verbalisation, the child was asked how he/she would explain to the parents how well they handled the dental appointment. Thirdly 'concrete example', the child was asked to recall a good example of their improved behaviour in the dental setting. This would lead to the fourth component, the sense of accomplishment. The distinctive feature of this intervention is the fact that it is employed after the dental procedure and seeks to tackle the cognitions around the dental experience.

- *Environmental change*. Three studies have sought to make the dental environment more attractive to children attending the dental surgery (Shapiro *et al* 2007; 2009; Fox & Newton 2006). For example, Fox and Newton (2006) reported decreased state anxiety following exposure to positive images of the dental surgery as opposed to neutral images prior to treatment. Based upon theories of social learning and cognitive reconstruction, the authors aimed to provide positive cognitions concerning a trip to the dental clinic, in non-phobic children.

For adult patients with low levels of dental fear the following approaches to providing an anxiety reducing environment can be suggested:

- Enhancing the sense of control. Uncertainty is anxiety provoking, and can be reduced by providing preparatory information and by enhancing an individual's sense of control over the situation. One widely used technique to do this is the stop signal which has been shown to be effective in dental settings and a wide variety of other medical settings (Wardle, 1982; Richardson *et al*., 1999)

- Cognitive distraction, in which the patient is encouraged to think about something other than the dental situation, has been shown to be effective in adults. Evidence suggests that the technique is only useful if the patient is informed that it is likely to reduce anxiety (Corah *et al*., 1979)

- Environmental change. The smell of lavender in the dental waiting area has been shown to reduce immediate fear about treatment, but not the underlying cognitions about dental treatment in adults (Kritsidima *et al*., 2010). This demonstrates the importance of considering both the immediate response to the setting and more long term cognitions underlying the patient's reaction to dental treatment.

INTERVENTIONS FOR INDIVIDUALS WITH MODERATE LEVELS OF ANXIETY

The adoption of all the approaches identified for individuals with low levels of anxiety will help to create a calm and welcoming environment. In addition, individuals with moderate levels of dental anxiety may benefit from the provision of preparatory information. Reviews of the effectiveness of preparatory information suggest that information on three aspects of the treatment are important:

- Information about what will happen (procedural information)
- Information about what sensations the individual will experience (sensory information)
- Information about what the individual can do to cope with the situation (coping information).

There is some limited evidence that the amount of information given should be tailored to the characteristics of the individual, most notably their locus of control. Individuals with an internal locus of control show greater benefit in terms of anxiety reduction from the provision of information, than individuals with a more external locus of control.

INTERVENTIONS FOR INDIVIDUALS WITH HIGH LEVELS OF ANXIETY

Pharmacological management, including relative analgesia, conscious sedation and general anaesthesia

Pharmacological approaches to the management of patients with dental phobia are well established. There is an ongoing need for such services when individuals delay treatment to the point where they are in severe pain or have otherwise compromised their oral health. However, in general, pharmacological approaches are seen as less acceptable in the management of dental fear when compared to psychological techniques both by individuals with extreme dental fear and members of the general public (Newton *et al*., 2003; Forbes *et al*., 2012).

Hand over mouth and other forms of physical restraint

While there is a general consensus in the United Kingdom that the use of the Hand Over Mouth technique is not appropriate in any circumstances, there is a still a proportion of US and UK dentists who report using other forms of physical restraint when working with children who are dentally anxious (Peretz and Gluck 2002; Newton *et al*., 2004). The use of the technique can be seen as a form of punishment, may be deemed socially unacceptable and fails to develop new coping skills in the child (Newton, 2009).

Cognitive Behavioural Therapy

Cognitive Behavioural Therapy (CBT) is an example of a brief psychological therapy with proven effectiveness. CBT, a talking therapy, is a synthesis of Behaviour Therapy and Cognitive Therapy. By merging behavioural therapies and cognitive therapy, CBT uses both behaviour modification techniques and cognitive restructuring procedures to change maladaptive beliefs and behaviours (Atkinson *et al*., 1996). Behavioural aspects of CBT include learning relaxation skills, conducting mini-experiments and systematic desensitisation (constructing a hierarchy of situations that elicit varying and increasing degrees of anxiety or fear and then progressing through the hierarchy in a relaxed, non-anxious). Cognitive therapy (Beck, 1976) on the other hand, is based primarily in the analysis of people's cognitions (e.g. thoughts, beliefs, interpretations). The idea here is that the way people think about events plays a central role in their emotions (e.g. anxiety) and physiological responses (e.g. excessive perspiration) and paves the way to establishing and maintaining unhelpful behaviours such as avoidance (Thorpe and Salkovskis, 1995). Cognitive therapy therefore, aims to facilitate a new understanding (cognitive restructuring) that the feared stimuli are unlikely to be dangerous and in turn that avoidance or other safety behaviours are not required (Kirk and Rouf, 2007).

An important principle underlying CBT is its focus on the 'here and now' as what started a problem is often not the same as what is maintaining it (Eagle and Worrel, 2007). In contrast to other psychotherapies, CBT is a short-term therapy, with treatment typically lasting six to 10 sessions. Other characteristics of CBT which set it apart from other therapies include the collaborative nature and structured approach of CBT and asking clients to complete homework. Sessions involve assessment, collaborative goal setting, presenting and reviewing formulations (i.e. working hypotheses about the clients problems), as well as receiving feedback. Homework is a key aspect of CBT as performing tasks in between sessions enables the client to apply CBT techniques in a more natural environment and put what has been learnt in sessions into practice.

The efficacy of CBT for a range of psychological problems is now well established, most notably for depression and anxiety related disorders including phobias (NICE, 2004) but also for a diverse range of psychological disturbances. CBT has been reported to be "*the psychological therapy with the most solid and wide evidence base for efficacy and effectiveness*" (Westbrook *et al*., 2007). Both cognitive and behavioural interventions have been shown to be successful in reducing dental anxiety and increase dental attendance (de Jongh *et al.*, 1995; Berggren *et al*., 2000; Willumsen *et al*., 2001a,b). These positive effects have been shown to be maintained over time (Willumsen *et al*., 2003).

A recent meta-analysis indicated that psychological interventions for dental phobia significantly reduced self-reported dental anxiety and increased dental attendance, with medium to large effect sizes (Kvale *et al*., 2004). Approximately 77% of participants were seeing the dentist regularly after four years or more.

DISSEMINATION OF METHODS - TRAINING FOR THE DENTAL TEAM

Knowledge of behavioural principles in the management of dental anxiety and disruptive behaviour of other origin is relatively low on average amongst dentists. A recent survey has demonstrated low general knowledge of behavioural principles despite widespread reported use of such methods, and expressed confidence in using such methods (Saeed *et al*., in press). There is a need for greater training and dissemination of effective psychological approaches amongst all members of the dental team. To this end the team at the King's College London Dental Institute Health Psychology Service have developed a manual of procedures in the behavioural management of individuals with dental anxiety, and provide training for the dental team in this approach (Newton *et al*., 2011).

This article has proposed a model of dental anxiety management based on an initial assessment followed by proportionate interventions based on the level of dental anxiety identified. There are elements of the dental practice which can be modified to enable all patients to experience treatment more comfortably, whereas for those with moderate or severe levels of fear more structured psychological and pharmacological interventions are required.

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