

# Dental anxiety, fear and phobia

Mike Gow shines some light on dental phobias – and explains how the new International Society of Dental Anxiety Management can help

This paper is an introduction to dental anxiety, fear and phobia for all of the dental team – please encourage them all to read it!

The Adult Dental Health Survey 2009 – First Release was recently published by the NHS Information Centre, Dental and Eye Care Team (2010).

The study included an in-depth survey of dental anxiety and exposes a very real problem. The last survey, in 1998 (Walker & Cooper 2000) revealed that 24% of dentate adults reported 'always feeling anxious about going to the dentist'. This concurred with the statistic made by the British Dental Association (1995) that one adult in three has moderate to severe fear of dental procedures. The Adult Dental Health Survey 2009, however looks more closely at what people are specifically anxious about regarding dentistry, and how different populations are affected (gender, age, socio-economic).

The study used the Modified Dental Anxiety Scale (MDAS) (Humphries 1995) to measure anxiety. This scale was modified from the original published by Corah (1969).

The MDAS includes a series of questions asking participants to rate the level of anxiety that they would feel if they were in particular dental situations. These include needing to go for dental treatment, sitting in a dentist's waiting room, waiting to have a tooth drilled, waiting to have a scale and polish, and waiting to have a local anaesthetic injection in the gum.

This important study has revealed that nearly half of

the adult population has a moderate or extreme dental anxiety, with higher levels of dental anxiety among younger adults. With high incidence of 'extreme anxiety' relating to injections and drilling (28% and 30%), this presents a very real issue for the provision of routine dentistry on a day-to-day basis for most dental practices. This highlights the problem as a major barrier to dental health in the UK population, and also emphasises that the problem does not seem to be getting any better.

With an increase in anxiety in younger adults, this is an issue that seems to be on the increase. The findings of a greater incidence among females than males may be correct – but it is also very possible that females are more likely to be honest about feelings of anxiety, whereas males may be more inclined to deny or attempt to 'hide' any perceived 'weakness'.

There also seemed to be a slightly higher incidence among people belonging to lower socio-economic groups. This again is a significant fact for the NHS, as these patients are perhaps more likely to present to NHS rather than private facilities for treatment.

The true incidence of dental phobia is in fact very difficult to measure as most of these patients do not present unless for emergency treatment.

With these new statistics demonstrating that there is an ongoing problem regarding dental anxiety, fear and phobia, what better time to look into these in some depth in an attempt to better understand what they are and what as dentists we can do to help the many patients we help who have these problems?

## Exposing anxiety

The main findings from the 2009 Adult Dental Health Survey included:

- 36% of adults were classified as having moderate dental anxiety
- 12% of adults were classified as having extreme dental anxiety
- 30% of all adults were extremely anxious about having a tooth drilled
- 28% of all adults were extremely anxious about having an injection
- There was a clear pattern towards overall higher levels of dental anxiety among younger adults
- Extreme dental anxiety was more prevalent among women than men, 17% compared with 8% respectively

There were differences between socio-economic groups in terms of the proportion of adults suffering from extreme dental anxiety:

- 14% of adults from routine and manual occupation households had extreme dental anxiety, compared with 10% of adults from managerial and professional occupation households.

## Defining anxiety

Anxiety, fear and phobia are words which often seem to be interchangeable in the literature and by common use

however there are some important differences (Kleinhaus et al 1986).

- Anxiety – Reaction to an unknown, ill-defined, or not immediately present danger
- Fear – Reaction to a known or perceived threat or danger. Leads to activation of the 'fight or flight' response.
- Phobia – Persistent, unrealistic and intense fear of specific stimulus, leading to the avoidance of the perceived danger. The avoidance often causes significant distress or interferes with social or role functioning.

A phobia may be a social phobia or it may be a specific phobia. A social phobia may be a fear of being observed doing something humiliating or embarrassing, e.g. in a dental setting – a fear of vomiting as a result of excessive gagging. A specific phobia is a fear associated with a particular object or situation.

According to the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)* (American Psychiatric Association 1994), dental phobia (aka odontophobia, dentophobia, or dentist phobia) is one of the specific phobias.

The diagnostic criteria of specific phobia include:

- A marked and persistent fear of the specific object or situation that is excessive or unreasonable
- An immediate anxiety response upon exposure to the feared stimulus, which may take the form of a panic attack
- Recognition that the fear is excessive or unreasonable
- Avoidance of the anxiety-producing situation
- The phobia interferes with normal functioning or causes marked distress.

#### What are the signs that a patient may be anxious/fearful/phobic?

The dentist can observe physiological and behavioural signs given by the patient during the consultation. But it is also very useful if your nurse and receptionist can pick up on these as well, so they can inform you that a patient is anxious – giving you a better chance to make a good first impression.

**Physiological:** Three physiological observable indicators are:

- 1) Sweating palms of hands, forehead, upper lip. You can assess the palm of the hand subtly during your handshake
- 2) Pulsation in the carotid and temporal arteries.
- 3) Depth and speed of respiration

**Behavioural:** Anxious and fearful patients display more movement in the waiting room, and when sitting in the chair. Signs include:

- 1) Fidgeting with hands or objects
- 2) Sitting on the edge of the chair, leaning forwards
- 3) Rapidly thumbing through magazines
- 4) Pacing
- 5) Changing position frequently or pacing
- 6) Frequent visits to bathroom.

#### Impact

The impact of dental phobia on a person's daily life is wide ranging and dynamic. *The Impact of Dental Anxiety on Daily Living* was described by Cohen et al in 2000.

They describe the physiological impacts, which include the signs and symptoms of fight/flight response, and feelings of exhaustion after the appointment. Also described are the behavioural impacts, which do not only include avoidance, but also affect eating behaviours, oral hygiene, self-medication, and crying/aggression.

The main impact on general health is thought to be sleep disturbance, but social interactions, performance at work, self-esteem/self confidence, and both established and new personal relationships are also greatly affected.

#### Factors involved in dental phobia

So what general and specific factors are involved in dental phobia? The exact fear and phobia is unique to each patient, depending on what caused them and this often involves more than one factor. It is important to identify what general and/or specific factors are involved in each subject's phobia.

#### General factors

Emotional factors – including anxiety, guilt, shame, embarrassment, and loss of self-esteem – are common in people with dental phobia. This may also include a fear of letting someone (even a friend or stranger, but

also a GMP, GDP etc) even see their teeth, or fear of what the dentist will say or think about the condition of their teeth.

There may even be issues involving a fear of failure. Intense embarrassment due to poor dental status or perceived neglect, often with fear of negative social evaluation is a major complaint for patients with dental fear or phobia.

Embarrassment is perhaps the most common concern voiced by people who have not been to a dentist in a very long time, and this may be a particular problem if they are self-conscious about how their teeth look. The mouth is an intimate part of the body. People may feel ashamed or embarrassed to have a stranger looking inside.

Dental treatments also require multiple people in close physical proximity. During a treatment, the hygienist's, assistant's or dentist's face may be just a few inches away. This can make people anxious and uncomfortable, especially if they also have fears (either exaggerated or real) about halitosis.

Many people feel the dentist might judge or lecture them based upon the state of their teeth. It may come as a surprise to some that the days when 'the lecture' was part-and-parcel of a visit to the dentist are gone. This is a vicious circle in dental phobia: whatever caused the phobia initially (be it painful or traumatic experiences, either physiological or psychological) leads to avoidance, which in turn means no access to professional dental care, usually resulting in poorer oral health, and at some stage the results of this 'neglect' are perceived to be so embarrassing that it's totally impossible to see a dentist, even when in pain.

General procedure phobia extends to areas such as invasion of bodily space, intimate examinations, loss of control, feelings of helplessness and so on. It is important to be aware that it is possible that this may, among other things, stem from earlier abusive experiences that do not necessarily even involve needles or dentistry.

Mistrust of dental personnel can lead to a fear of unnecessary or wrong treatment. The importance of trust and other dentist/patient relationship interaction is discussed by Kroeger (1988) and Freeman (2000).

There can also be a 'fear of catastrophe' whereby the patient believes that the procedure may threaten their life. This includes fear of allergy, heart attack, cerebral aneurysm, and gagging or choking to death. They are hypersensitive about bodily sensations, such as sweating, heart palpitations, and breathing. See Milgrom et al (1995), p90 for more information.

There are several specific procedure phobias:

#### General needle phobia

Needle phobia or 'belonephobia' can be a general fear of all needles. This can be severe enough in some cases to warrant people being sedated due to the fear and anxiety that the thought and/or sight of a needle causes. With modern medicine more and more reliant upon the use of needles for blood tests and the administration of drugs, the issue of needle phobia is becoming an increasingly important one for doctors, dentists, therapists nurses, carers and patients. Lamb (2006) describes four main possible categories of needle phobia: Vaso-vagal, associative, resistive, and hyperalgesic.

#### Dental needle phobia

'It is ironic that the very procedure that allows patients to be treated virtually free of pain is the one that they often fear the most,' write Milgrom et al (1995, p148).

The Adult Dental Health Survey UK 1988 stated that 8% reported fear of injections (Todd & Lader 1991), and in 1998 that 14% reported fear of injections (Walker & Cooper 2000).

#### General and dental needle phobia

Obviously the initial consultation, assessment and history will highlight the nature of the patient's fear or phobia. Should it become apparent that the patient has specific concerns with the needle (either in isolation or combined with other specific or general factors) this should be investigated further. Milgrom et al (1995, p231) detail the importance of assessing the nature of the needle phobia.

#### Adverse reactions to local anaesthetics

An adverse effect is an untoward reaction to the administration of local anaesthetics and includes allergic reactions, systemic toxic reactions, psychogenic

effects or drug interactions (Milgrom et al 1995 p237). True allergy to local anaesthetics is very rare.

Often, 'adverse effects' following a dental injection are due to somatic manifestations of fear and symptoms may include palpitations, dizziness, nausea, tremor, sweating, pallor, and fainting. It should be emphasised to the patient that this is not an allergy, and you should not change to a different anaesthetic agent (eg. one with no adrenalin/epinephrine) as this may strengthen the patient's belief that they cannot tolerate that drug. Interestingly, there are a small number of people who are not fearful of the injection itself, but who are fearful or dislike the feeling of numbness itself.

#### Blood phobia

This extends to bleeding in self and others, the sight of blood, images of blood, and even gory films.

In a dental setting, it is more likely to result in anxiety about situations such as an oral surgery (e.g. extraction) or where blood is withdrawn using a needle rather than a substance being injected.

Blood phobia is different from the other specific procedure phobias, which cause the phobic person to experience intense anxiety, increased blood pressure, agitation and panic in the presence of the stimulus. In blood phobia the typical response is the reverse (a drop in blood pressure and heart rate – often accompanied by fainting).

Approximately 4% of the normal population has a degree of blood phobia. It has in many ways a degree of reflexive defensive response that serves to reduce blood loss and produce immobility in the face of injury.

Perhaps surprisingly given the nature of the symptoms, the more usual approach to specific phobias – desensitisation and relaxation-based techniques – can still be useful.

Other techniques may include an integration of Ost et al's (1989) 'applied tension' which involves the subject tensing the muscles in their arms, legs and chest until they feel a warm sensation in their face, and then letting the tension go. This will raise their blood pressure and heart rate, which counters the symptoms and reduces the likelihood of fainting. The technique is often used in conjunction with desensitisation, as it keeps the subject in contact with the stimulus.

#### Other phobias

Other specific phobias include – but are not limited to – the drill, extraction, pain, the dentist, losing control, the dental chair, noises, smells, gagging, numbness, and mercury in amalgam fillings. Each of these topics could justify a paper in their own right and are outside the scope of this brief overview paper.

It is worth expanding on the issue of 'pain' as it is commonly raised as a specific concern. A survey by Woolgrove et al (1980) concluded that out of 243 patients, 54% indicated fear of the dentist. 30% of these expressed fear of pain.

Wadle (1982) reports that the most common reason was actually the expectation of pain, regardless of previous experience. Obviously, good clinical and local anaesthetic techniques are essential in effective pain management.

#### What can cause dental phobia?

The aetiology of dental phobia is likely to be multifactorial in most cases. The following is a summary of some of the more common factors.

#### Preparedness

De Silva (1988) suggested that fears such as heights, spiders, or snakes may indicate an innate predisposition or preparedness to anxiety. We may be prepared by evolution to fear things that were or may be dangerous. By being naturally fearful of (for example) poisonous spiders, our ancestors survived to pass on their DNA (including the 'prepared phobia') to the next generation.

It is unfortunate for dentistry that dental surgeries and procedures seem to incorporate some very potent 'prepared' stimuli and situations (instruments that could cause pain or injury, invasion of personal space and of bodily boundaries, surrender of control and submission to a dominant other).

On this account dental phobias could be argued to be as 'prepared' as spider phobias. This would also explain why the majority of people have some level of anxiety regarding the stimuli and situations associated with the dental surgery.

**How the Pavlovian theory works**

Initially innocuous stimulus – conditional stimulus (CS)  
– followed by  
Traumatic event – unconditional stimulus (US)  
Produces fearful response – unconditional response (UR)  
Following this pairing (especially if repeated) CS can then  
evoke a conditional response (CR) (similar to UR) even  
without US.

**The behavioural (or learning) theory**

You will recognise the behavioural theory – or ‘a bad previous experience’ – as one of the most common explanations given by patients for their phobia. Indeed, Bernstein et al (1979) described a painful or unpleasant previous experience being a major cause of dental phobia.

The dental phobia may be the result of learned association between pain and the dentistry. Multiple exposures to traumatic experiences may be needed for the development of a phobia.

‘Pavlovian (or classical) conditioning’ is widely accepted as a significant cause of phobia by several sources (Lautch 1971, ter Horst & De Wit 1993)

In their classic demonstration of the acquisition of a phobia in an 11-month-old boy (‘Little Albert’) Watson & Rayner (1920) presented the child with a white rat (CS) that initially produced the positive response of reaching out to touch it. However, the experimenters then produced a loud noise (US) behind Little Albert’s back by hitting a metal bar with a hammer. Not surprisingly, this startled the child and when the procedure was repeated for a second time the child began to cry and show signs of fear (UR).

On subsequent occasions when the rat (CS) was shown to Albert, he showed a fear response (CR) and began to cry, trying to crawl away to escape. This acquired fear (phobia) was also said to have generalised to fur coats, and even the beard on a Father Christmas mask.

It is easy to see how a process of this sort could lead to both general and specific phobias in dental settings. If aspects of the dental surgery or the procedures being carried out are associated with a traumatic event those formerly innocuous stimuli may become the focus for a later phobic response.

For example:

**CS:** Dental procedure in dental surgery (no fear from child, with no previous painful experience or no expectations)

**US:** Painful experience with procedure

**UR:** Fearful response

Repeated exposure to **CS** (prospect of dental procedure in dental surgery) leads to **CR:** a fearful response

So why do learned fear responses (phobias) persist?

If a CS is repeatedly presented without being paired with the US, a process of extinction takes place and the CS is no longer able to evoke the CR.

For example, if Little Albert was to have been repeatedly exposed to the white rat (CS) without reinforcing pairings with the US (loud noise) the laws of Pavlovian conditioning would predict that the strength of the fear response (CR) to the white rat alone would diminish and disappear (extinguish) quite quickly.

There is a similar problem with a more cognitive account of the phobia – surely each time the rat was presented there would be an opportunity for cognitions about it to change: it is not really dangerous, no disease has ensued, it doesn’t attack; in fact it is a perfectly harmless animal. Similarly for modelling – there would surely be occasions over time where other people would model perfectly calm and non-phobic reactions to the phobic object or situation.

So why do phobias persist? The clue lies in the definition of phobia, which says that the fear leads ‘to the avoidance of the perceived danger’. Extinction (loss of the phobia) does not occur because the phobic individual avoids the feared object or situation and so does not have any opportunity for extinction (or for changed cognitions or new modelling experiences).

In fact the very act of avoiding is rewarding in its own right and so, learning theory would say, is continuously strengthened, not weakened. If the phobic individual is presented with the possibility of encountering the feared object or situation, anxiety

rises to uncomfortable levels – which causes a reduction in the unpleasant feelings (negative reinforcement), and makes the avoidance response more likely on future occasions (and also prevents exposure to the CS, thereby preventing extinction).

Phobics, in other words, do not ‘reality-test’.

**Modelling**

A fear or phobia may develop by observing another individual’s fearful response to an object/situation (especially if the individual is ‘significant’ e.g. a family member). Fear is then associated when that person comes into contact with the object/situation.

In this way, by a process of social contagion, whole groups (especially whole families) may develop a particular phobia. Forgione and Clarke (1974) reported that relatives of dentally anxious patients had more negative attitudes to dentistry themselves.

**Cognitions**

Ideas, thoughts and beliefs about the phobic object may develop and be elaborated over time. In some cases, these cognitions can be the sole aetiology of the phobia: hearsay, hearing stories about extractions and fillings, or other people’s accounts of painful experiences, anaesthetic not working.

A similar process may occur with cartoons, TV programmes and films depicting a negative emotion in conjunction with dental treatment. Another example is the parent giving detrimental comments while their child is in the chair such as: ‘I wouldn’t let you do that to me,’ or: ‘Sit still Albert, or the dentist will use his big needle to give you an injection and pull out your teeth.’

It can be beneficial if you see such a pattern arising in the parent/guardian’s comments to either quietly discuss this with them, or politely suggest that they may be more comfortable waiting in the lounge until the end of the appointment. Alternatively take appropriate notes and endeavour to bring only the child into the surgery room at the next visit by using suggestions like: ‘Albert, are you big enough to come on your own with me today?’

**Biological differences**

Some people may (due to biological differences) have, or believe they have lower pain thresholds.

**Expectation**

Kleinknecht and Bernstein (1978) suggested that anxiety may lead to an increase in pain experienced, and that pain will heighten anxiety. Anxiety and expectation may therefore affect pain tolerance and threshold.

**Uncertainty**

Uncertainty itself can provoke anxiety and ‘fear of the unknown’ (Epstein & Roupenian 1970). This anxiety usually does not progress to become a phobia if it is the only factor.

**How can dental anxiety/fear/phobia be managed?**

GDC guidance states that: ‘Dentists have a duty and patients have a right to expect adequate and appropriate pain and anxiety control [and also that]... in assessing the needs of an individual patient, due regard should be given to all aspects of behavioural management before deciding to prescribe or proceed with treatment.’

There are several techniques and methods available that can help manage dental anxiety. The techniques employed should be those that are most appropriate in each case, rather than the one that the professional happens to have trained in.

Some examples of dental anxiety management techniques include:

- Conscious sedation - inhalation, intravenous, oral
- General anaesthetics
- Psychological techniques/therapy
- Communication, rapport and trust building skills
- Behavioural techniques
- Relaxation techniques
- Cognitive behavioural therapy
- Clinical techniques and skills: eg pain management techniques, local anaesthetic techniques
- Desensitisation techniques
- Hypnosis
- Neurolinguistic programming
- Acupuncture
- Homeopathy

• Use of technology (eg air abrasion, the wand, the dental button, b-Calm, etc).

Obviously there are also several other appropriate management techniques. A dentist or appropriate healthcare professional can train in any of these techniques at appropriate training centres/institutions, however historically there may have been missed opportunities for professionals focused on only a narrow range of these skills to benefit from techniques, understandings and skills from the others.

It seems obvious that the future of effective dental anxiety management is in utilising the right combination of pharmacological, psychological, technological, behavioural, relaxation, clinical, and self help skills for a particular patient and, importantly, teaching these skills to appropriate healthcare professionals and undergraduates in order to build an effective dental anxiety management team.

**The International Society of Dental Anxiety Management**

The International Society of Dental Anxiety Management (ISDAM) is a newly formed society that will consist of a large global network of dentists, dental nurses, hygienists, therapists, psychologists, medical doctors and other healthcare professionals who have a role in helping patients overcome their anxieties, fears and phobias and associated factors (eg. emotional, psychological, etc.) related to dentistry using pharmacological, psychological, behavioural, technological and clinical techniques and skills.

ISDAM courses and events will draw on the experience of many professionals from all fields of dental anxiety management. It is important to note that ISDAM will not ‘reinvent the wheel’ with regards to replicating training courses that are currently appropriately given by other societies and institutions (eg conscious sedation, hypnosis, etc). ISDAM will be a means of ‘cross pollination’ between these societies while introducing more understanding about the psychology and behavioural aspects of dental anxiety, fear and phobia and its management.

Members of ISDAM will receive regular newsletters with information, techniques, details of relevant new technologies, case reports, details of ISDAM events and also relevant courses (sedation, hypnosis, etc) run by other appropriate bodies.

The first ISDAM conference is planned to take place in the UK during 2011.

To register your interest in this conference and/or in becoming a member of ISDAM, please email [dentalanxiety@hotmail.com](mailto:dentalanxiety@hotmail.com) or visit [www.isdam.com](http://www.isdam.com).



Dr Mike Gow leads the dental anxiety clinic at the award-winning Berkeley Clinic in Glasgow and is also the creator of the website, [www.whatfear.com](http://www.whatfear.com).

Mike graduated from Glasgow University Dental School in 1999 and has since obtained a Masters in Hypnosis Applied to Dentistry from UCL. In December 2008, he won the Best Young Dentist for Scotland and the UK at the Dentistry Awards. A founding member of ISDAM, Mike has just been awarded a Postgraduate Certificate in Dental Anxiety Management from the University of Edinburgh, and was shortlisted for Private Dentist of the Year at the 2010 Private Dentistry Awards.

Mike has recently contributed a chapter to Dr Arthur Weiner’s book *The fearful dental patient*. Readers of *Dentistry* can use the promotional code VB165 when they order online at [www.wiley.com](http://www.wiley.com), via email at [cs-books@wiley.co.uk](mailto:cs-books@wiley.co.uk) or by phone at 01243 843294.

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