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The causes, signs and symptoms of dental anxiety

"Dental anxiety and fear are common and potentially problematic, both for the patient and for the dental team in managing such patients.

Dental fear still presents a major barrier to the uptake of dental treatment.

Dental anxiety does not solely affect patients, general dental practitioners identify treating nervous patients as a major source of stress.

Facts

- ✓ About 12% of people are affected by an anxiety disorder in a given year.
- ✓ Between 5% and 30% are affected over a lifetime.
- ✓ Females are affected about twice as often as in males and generally begin before age 25 years.

The most common anxiety disorders are:-

Specific phobias, which affect nearly 12%,
Social anxiety disorder, which affects 10%.

Research :-

20% Having high fear of dentistry of which 2/3 of these acquired in early childhood (Milgrom et al, JADA 1988)
25% Of adult – fear of injections (Milgrom et al, JADA 1997)
30% Are somewhat or very nervous or terrified of going to the dentist. (Dioonne et al , JADA 1998)

23 million are willing to go to the dentist if GA and IHS more readily available

What is anxiety?

According to:
Penguin Dictionary of Psychology - it is *"A vague, unpleasant, emotional state with qualities of apprehension, dread, distress and uneasiness"*

Kagan and Havemann 1976 – "A vague, unpleasant feeling accompanied by the thought that something undesirable is about to happen"

American Psychology Association – "Anxiety is an emotion characterized by feelings of tension, worried thoughts and physical changes like increased blood pressure."

Anxiety may also occur in response to a specific stimulus.

What is fear?

Fear relates to a known or understood threat or danger. It leads to a flight-or-fight situation. Fear is a reaction to current events. Dental fear is a reaction to threatening stimuli in dental situations.
Fear is judged as rational or appropriate and irrational or inappropriate.
An irrational fear is called a phobia

Hence phobia is a type of anxiety disorder, defined by a persistent fear of an object or situation. The phobia typically results in a rapid onset of fear and is present for more than six months.

Anxiety disorders

are a group of mental disorder characterized by significant feelings of anxiety and fear.
Anxiety is a worry about future events, and fear is a reaction to current events. These feelings may cause physical symptoms, such as a fast HR and shakiness
There are several anxiety disorders, including generalised anxiety disorder specific phobias social anxiety disorder separation anxiety disorder panic disorder, Agoraphobia and Obsessive-Compulsive Disorders The disorder differs by what results in the symptoms. People often have more than one anxiety disorder.
The cause of anxiety disorders is a combination of genetic and environmental factors.

How is anxiety manifested?

Physiological component
Cognitive component
Behavioural component

1.The Physiological component - associated with e.g.:-
Increased HR, Dryness of the mouth, Increased perspiration, 'Butterflies' in the stomach
Flushed face & Increased muscle tension

e.g. Activity HR changes
According to Simpson et al. in their paper "Physiologic responses of children to initial dental experience, 1974, found that when a child visit the dentist for the first time the following changes where noted in relation to their heart rate:-

Dentist changes in white coat	heart rate increased by +10
Dentist says "I am a dentist"	heart rate increased by +15
Dental chair elevation	heart rate increased by +12
Lamp adjustment	heart rate increased by +10
End of examination	heart rate increased by -3

2. Cognitive component -
Feelings of apprehension, Dread Expectations of failure, Catastrophising, Depression, Low self-esteem

"… My brain goes at a thousand miles an hour, everything from trying not to think about it to thinking about it, aspects of it as to will he slip, won't he slip, what's he gonna say, I cannot even begin to describe the number of thoughts that go through my head…"

"…I think the trouble is in waiting rooms you have too much time to ponder, to think about what's going to happen to you…"

3.Behavioural component
Avoidance –
"… that's why I don't go to the dentist regularly, unless you call about every ten years regularly…"

"… I do everything you're supposed to do except visit the dentist. I change my toothbrush regularly, I always buy a good make of toothbrush and toothpaste, I clean my teeth regularly, I use mouthwash and.. I brush not just my teeth but my gums as well. Yeah it's all avoidance"[5]

Disruptive behaviour (esp. in children),
Increased muscle tension,
Non-verbal signs

Elliot Gale 1972 in his paper "Fear of the Dental Situation" - made a list of the most feared (HF) to the least feared (LF) dental situations:-

Situation	**LF group**	**HF group**
D is pulling your tooth	1	2
D is drilling your tooth	2	1
D tells you you have bad teeth	3	3
D holds syringe and needle in front of you	4	6
D is giving you a shot	5	4
Having a probe placed in a cavity	6	5
Thinking about going to the D	15	12
D cleans your teeth with steel probe	14	16
Getting in car to go to the D	16	15
D looks at your chart	17	17
D asks you to rinse your mouth	24	24
D tells you he is through	25	25

Ratings of fear in the dental situation indicate that high fear and low fear patients rank the fears associated with the dental situation in about the same way ($p = 0.98$). Also, the attitude of the dentist is important to the patient, and may, partially, determine his attitude toward dentistry.

Anxiety as a response to specific situations

Generally, individual differences in how people perceive different situations. There are differences too, between dentists and patients as to what might be stressful - Dentist prepares a local anaesthetic or/and squirts water in your mouth is rated more stressful by the patients then by the dentist.

What causes anxiety?

1. Learning
2. Observation
3. Generalisation
4. Learned Preparedness

1.Learning

A model of dental anxiety

Pain → *Fear*
Pain + Dental Setting → *Fear* (Classical conditioning)
Avoidance of Dental Setting → *Fear reduction* (Operant conditioning)

Why doesn't it apply to all?

If a painful event is preceded by several non-painful events, anxiety may not manifest itself.
Latent inhibition hypothesis (Davey, 1989)

2.Observation

'Learning' to be anxious by hearing from others about their traumatic experience
Tricky to demonstrate empirically

Anxious patients are more likely to have parents/ relatives who are themselves anxious about visiting the dentist - Kent and Croucher (1998)

3.Generalisation

Fear of dentists may be generalising from other settings e.g. doctors / hospitals
How?

- Setting
- Appearance
- Task

Learned Preparedness

This is the idea that we are evolutionarily prepared to be phobic of certain things. 'Programmed' to be fearful of animals /situations that in the past would have reduced our chance of survival"

*Anxiety becomes a **phobia** when:*

It has a marked impact on the individual's lifestyle in terms of their:
physical well-being, social life (avoiding going out, meeting friends etc) and/or behaviour otherwise (limiting travel, avoiding certain areas etc)

Assessment of Anxious patient

Establish level of dental anxiety. This can be done by e.g. Questionnaires, Behavioural assessments ect.

Questionnaires

Modified Dental Anxiety Scale (Humphris et al 1993)
Modified Child Dental Anxiety Scale (Wong et al 1998)
Indicator of Sedation Need (IOSN)
Children's Experiences of Dental Anxiety Measure (CEDAM) (Newton et al 2017)

Behavioural Assessment + / - / ?

Walking into the dental surgery
Making an appointment
Entering the room
Sitting in the chair
Sitting back in the chair
Light shining on mouth
Tolerating things in your mouth

Examination
X-rays
Local Anaesthesia
Scaling
Polishing
Drilling
Filling
Extraction

How to approach a patient who is anxious

Choosing between methods

Level of anxiety	Methods which could be used	
Mild	Voice control Positive reinforcement Tell-Show-Do	Distraction Non-verbal communication
Moderate	Voice control Positive reinforcement Tell-Show-Do	Distraction Non-verbal communication Modelling
Severe	Modelling Relaxation	Hypnosis

Low level of anxiety – examples of interventions which could be used:-

Voice control
Distraction
Positive reinforcement
Tell-Show-Do
Enhancing Sense of control
    Stop signal
    Allowing choices
Memory reconstruction
Environment change

Voice Control
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
Some (dated) evidence that distraction is effective particularly with children if
Sound rather than vision dependent
Contingent on behaviour
Cognitive distraction (e.g. try and think of X, Y, Z) OK for adults but only if they understand it is likely to reduce anxiety
Magic trick ? (Peretz & Gluck 2005)

Reinforcement and Punishment
Reinforcement
Any consequence which results in an *increase* in behaviour
Positive - increases behaviour by its application
Negative - increases behaviour by its removal (contingent escape)

Punishment
Any consequence which results in a *decrease* in behaviour
Positive - decreases behaviour by its application
Negative - decreases behaviour by its removal

Tell Show Do

Tell: explanation of instruments and procedure
Show: demo procedure up until use of instrument with inanimate object?
Do: follows immediately after the show phase

Enhancing patient's sense of control

Patient control / stop signals reduce anxiety even if person does not end up using the signal
Offering choices
Modelling - Based on the idea that we learn appropriate behaviours by observing others
Used extensively with children
Best if the model is live (rather than filmed) similar to patient in age, gender, anxiety status (mild) and if they enter and exit without adverse consequences and are rewarded for appropriate behaviour

Memory Reconstruction (Pickrell et al 2007)

Pickrell et all sought to 'restructure' memory of dental treatment to help children develop positive memories and cooperate more fully with the dentist at future visits.
They showed that the child's behaviour did improve by memory reconstruction and that restructuring memory may be effective in reducing fear for future treatment.

Guided imagery

involves patients mentally taking themselves to a pleasant or relaxing place. This technique removes the focus on the dental procedure and can usefully be combined with relaxation techniques.

Environmental change

Fox & Newton –
They tried to determine the impact of viewing positive images of dentistry prior to a dental appointment on the anticipatory dental anxiety levels of children attending for dental treatment and concluded that viewing positive images of dentistry and dentists results in short-term reductions in anticipatory anxiety in children.

Kritsidima et al reviewed the effect of lavender scent on anticipatory anxiety in dental patients. They found that although anxiety about future dental visits seems to be unaffected, lavender scent reduces state anxiety in dental patients.

Moderate level interventions

As above, plus:
Preparatory information

Systematic desensitisation

Systematic desensitizsation involves gradually exposing a fearful individual to the aspect of dentistry they find frightening while encouraging them to use relaxation strategies to reduce their anxiety. For example, for a patient who is fearful of injections, the dental practitioner may first show him or her the syringe and explain its parts and purpose (e.g. most dental syringes are long and thin to allow access to the rear of the mouth) until the patient is able to view and hold the syringe with little to no anxiety. Next, the dental practitioner may place the syringe with the needle capped in the patient's mouth to

simulate the injection, holding the syringe in place for the length of a typical injection. The patient should be encouraged to use relaxation strategies to manage the inevitable anxiety caused by this exercise, and this step is repeated until the patient expresses little to no anxiety. The dental practitioner may then place the syringe with the needle uncapped, reassuring the patient that they will not move ahead with the injection without the patient's permission. Similar to the 'cap-on' step, the patient practices relaxation skills and the step is repeated until the patient feels little to no anxiety. Finally, the dental practitioner – with the patient's permission – may proceed with the injection, replicating the location and length of time demonstrated in the previous steps.

Systematic desensitisation has been shown to be effective in reducing fear/anxiety in dentally anxious patients.

Cognitive restructuring –

Cognitive restructuring aims to alter and restructure the content of a person's negative cognitions as well as to enhance the individual's control over such thoughts. The process involves identifying the misinterpretations and catastrophic thoughts often associated with dental fear, challenging the patient's evidence for them, and then replacing them with more realistic thoughts.

Patient:-
"I am worried that I will just collapse in the surgery. I can feel the blood rushing up to my face and my head begins to spin and I think I'm going to go, and if I collapsed in the surgery well I don't know what would happen"

"Examples - Dentist/nurse reply"
"Yes, a lot of people who are anxious about going to the dentist worry that they might faint. Has it ever happened to you?

What is it about fainting that would really worry you- are you afraid you might hurt or your self or what people might say?

I have seen a lot of people who are anxious like you, and well I can't remember any that actually did faint. Having said that if you did faint we would very quickly make sure you were safe and comfortable.

How much does it worry you, say on a scale of 1 to 10, where 10 is the highest level of worry you can imagine?

Resources for patients

Leaflets
Word of mouth
Photographs of instruments
MP3 recordings of dental sounds
Instruments to look at and touch
DVDs – injection, drilling

Remember:-

Too little or too much information can be detrimental

Information must be age related and personality important
Try and focus information on:-

- Sensory expectations
- Coping strategies

Conclusion

Dental anxiety and fear are common.
How to manage patients with dental anxieties should always be based on an understanding of the particular patient, their particular history, their particular concerns, and their particular capacity for change.

This deeper understanding requires first identifying the patient's concerns and anxieties, then exploring the bases for them, and then working with the patient to manage their fears and anxieties so that a phased treatment plan can be successfully carried out.

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