

Dental Fear and Anxiety (DFA): An Overview

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Abstract

Dental Fear and Anxiety (DFA) is the fear and anxiety an individual associates with going to the dentist. Researchers are encouraged to find and eliminate DFA since this will improve oral health and quality of life in the long run. Understanding the biology behind fear and anxiety can greatly help us in the management approaches. The amygdala is referred to as a "fear centre," and it has been found that fear and anxiety share overlapping neural circuits. As a result, DFA can impact both the patient-dentist relationship and the dental treatment strategy. This article thus aims to discuss the causes of DFA, and also the ways we can overcome it. Dental anxiety is caused by various fears, including fear of pain, blood-injury fears, lack of trust, and so on. It leads to the avoidance of dental care. Psychotherapeutic interventions, pharmaceutical interventions, or a combination of both can be used to manage dental anxiety. On the patient front, they should discuss their fears with the dentist, try to distract themselves, and employ breathing exercises or other mindfulness techniques like those mentioned in the article.

Introduction

Dental fear and dental anxiety (DFA) refer to the strong negative feelings associated with dental treatment, whether or not the criteria for diagnosing dental phobia are met [1]. It occurs in a large proportion of children and adolescents and is a significant dilemma in the practice of pediatric dentistry [2]. A review of studies in children and adolescents published in 2007 found that DFA rates ranged from 6% to 20% in 12 different population groups, with 11% [1]. DFA is significantly associated with infrequent use of dental services, avoidance, and delay of dental treatment. It may also be a risk factor for higher rates of tooth decay [3]. Thus, research to identify and eliminate DFA can improve oral health and quality of life. Understanding the mechanisms responsible for developing a child's DFA will help appropriate design interventions. Knowing a child's DFA level can help the dental staff adapt treatment and behavior to suit the child's specific needs and aid us in teaching children how to use effective coping strategies [4]. DFA is very commonly seen in people of all age groups. Syringes, the sound of rotary instruments, and other sharp tools used in dentistry can induce fear and anxiety in any individual. Children, on the other hand, who are naïve and do not truly understand the need for dental intervention, become more anxious in the dental clinic setting. Shaping a child early and providing proper behavior guidance reduces the chance of DFA in adults and leads to better oral health.

Further research to understand the mechanisms underlying fear and anxiety should be explored before working on remedial management approaches. Fear is commonly attributed to the limbic part known as the amygdala, also referred to as a "fear center" [5] [as shown in Figure 1]. The primary role of fear and anxiety is to indicate danger, threat or motivational conflict and elicit appropriate adaptive responses [6]. While "fear" and "anxiety" are often used interchangeably, prevailing scientific theory suggests that they are distinct, with different triggers and separate brain circuits. However, according to a recent study by Juyoen Hur, fear and anxiety share overlapping neural circuits [7].

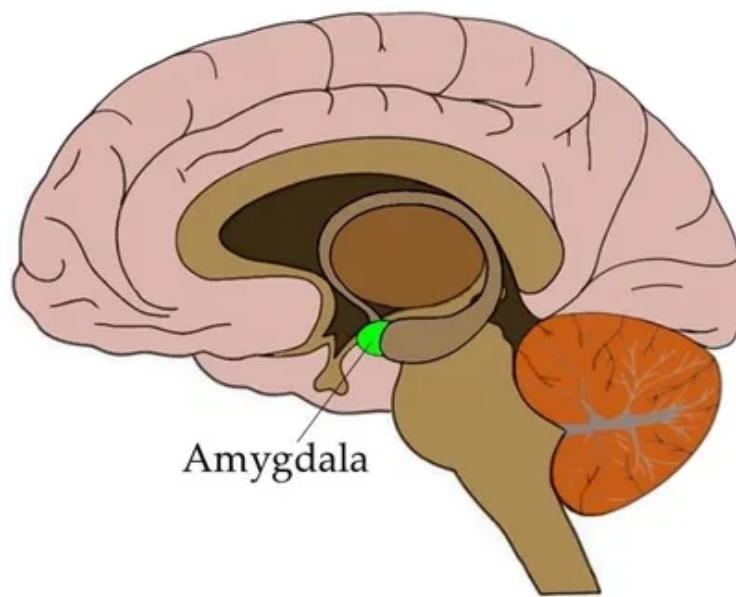


Figure 1. The Amygdala or the “fear center” of the brain [8].

Some patients fear certain stimuli associated with dental treatment. This can affect the patient-dentist relationship and the dental treatment plan; therefore, the level of anxiety and anxiety of patients should be assessed before the dental treatment [9].

Shim et al. found that the prevalence of DFA was estimated to be 10%, with a decrease in prevalence with age [10]. It was more frequently seen in females and was related to dental pain [10]. Though, it can exist in any individual irrespective of their age or gender. In a study by Erten et al., they found that the most felt autonomic response was increased heart rate, and the most fear-producing stimuli were the sight of the needle (25.1%) and the injection sensation (24.1%). And of the patients, 10.5% avoided calling for an appointment, and 4.9% canceled or did not appear for the appointment because of DFA [9]. Ragnarsson found out that people with higher education reported less dental fear [11].

Dental anxiety may occur because of multiple factors such as negative or traumatic experiences, especially in childhood (conditioning experiences), lack of understanding, exposure to scary portraits of dentists in the media, etc. [12][13][14][15]. Anxiety can also be triggered by sensory triggers such as sounds of drilling and screaming, the smell of eugenol, and also sensations of high-frequency vibrations in the dental setting [16][17][18].

Some common fears that give rise to dental anxiety are the fear of pain, blood-injury fears, lack of trust, fear of mercury poisoning, fear of radiation exposure, fear of choking and/or gagging, a sense of helplessness on the dental chair, and lack of control during dental treatment [19].



Figure 2. The Vicious Cycle of Dental Anxiety [20].

Dental anxiety and phobia lead to avoidance of dental care. This is a common problem in dental offices. This avoidance thus leads to the deterioration of their dental status which can eventually result in development of an inferiority complex [as shown in Figure 2]. Thus, It is very essential to develop suitable, evidence-based therapies for these patients; otherwise, they can be a significant source of stress for the dentist. These patients should be identified as soon as possible and their concerns addressed. The presence of anxiety, fear, or phobia might be shown during the initial encounter between the dentist and the patient.

In such situations, subjective evaluation by interviews and self-reporting on fear and anxiety scales and objective assessment of blood pressure, pulse rate, pulse oximetry, finger temperature, and galvanic skin response can significantly enhance the diagnosis and enable categorization of these individuals as mildly, moderately, or highly anxious or dental phobics [21].

Management of Dental Anxiety

Dental anxiety can be managed with psychotherapeutic interventions, pharmacological interventions, or both, depending on the degree of dental anxiety, patient characteristics, and clinical situations. Psychotherapeutic interventions are behavioral or cognitive. Pharmacologically, these patients can be managed with sedation or general anesthesia.

Behavior modification therapies aim to change unacceptable behaviors through learning and involve muscle relaxation and relaxed breathing, as well as guided imagery and physiological monitoring by biofeedback, hypnosis, acupuncture, distraction, positive reinforcement, stop-signaling, and exposure-based treatments, such as systematic desensitization, “tell-show-do,” and modeling [19].

Cognitive strategies aim to modify and restructure the content of negative perceptions and improve the ability to control negative thoughts. The patient’s focus is directed away from their worries about the feared situation by using different cognitive techniques, such as encouragement, altering expectations, distraction, guided imagery, focusing attention, and thought stopping [19][22].

Cognitive-behavioral therapy (CBT) combines behavioral and cognitive therapy and is currently the most accepted and effective psychological treatment for anxiety and phobia. When patients are unable to respond

and cooperate well with psychotherapeutic interventions, are not willing to undergo these types of treatment, or are considered dental-phobic, pharmacological therapies such as sedation or general anesthesia should be sought [23][24].

Advice for the Patients

There are a variety of techniques that patients might use to conquer their fears and anxieties. Some of them are listed below [as shown in Figure 3].



Figure 3. Few methods to overcome DFA.

1. Speak up:

Discussing your fears with your dentist is the key to dealing with dental anxiety. Once your dentist knows what your fear is, they can better work with you to identify the best ways to help you feel less anxious and more comfortable. If the dentist doesn't take your fear seriously, approach another dentist.

If the lack of control is one of your main stressors, actively engaging in discussions with your dentist about treatments can reduce your stress. Ask your dentist to explain what is happening at each step of the procedure. This way, you can prepare yourself mentally for what lies ahead. If you feel pain even under local anesthesia, talk to your dentist. Some patients feel embarrassed because of their pain tolerance or don't want to interrupt the dentist during the procedure. Talk to your dentist about the pain before it starts, so they know how to communicate with you and help you feel more comfortable.

2. Distract yourself:

You can imagine yourself at your happy place and picture yourself on a beach or a relaxing garden. Though, distracting yourself from an examination or operation may seem impossible when you're nervous, but a few things can help distract you. Wear headphones. If the sound of the drill bothers you, bring headphones so you can listen to your favorite music or audiobooks.

Non-pharmacological anxiety management interventions such as music listening are increasingly used in dental care [25]. Some dental offices even have TVs or DVD players. Keep your hands busy by squeezing a stress ball or playing with a small hand-held object, like a gyroscope or fidget spinners. Fidget spinner, kaleidoscope, and virtual reality seem to be effective distraction methods and can be recommended as effective approaches to help alleviate children's dental anxiety during certain dental procedures [26].

3. Use mindfulness techniques:

To combat stress effectively, you need to activate your body's natural relaxation response. Try deep breathing exercises to help release tension in your muscles. Breathing exercises have shown to be an effective way of reducing DFA [27]. Count your breaths. Inhale slowly, then exhale for the same number of movements. Do this five times while waiting for your appointment or during breaks while you're in the dental chair.

Conclusion

Dental Fear and Anxiety (DFA) occurs in a large proportion (an average of 11%) of children and adolescents. Research to identify and eliminate DFA can improve oral health and quality of life. Knowing a child's DFA level can help dental staff adapt treatment and behavior to suit the child's needs. Dental anxiety and phobia lead to avoidance of dental care, which is a common problem in dental offices. These patients should be identified as soon as possible and their concerns addressed. Management of Dental Anxiety can be managed with psychotherapeutic interventions or pharmacological interventions. In such cases, dentists and their teams play a critical role in helping out the patients overcome it. Dental practitioners should empathise with the patient so that they can help them out with their dental concerns in a better way. Also, the health policymakers could play a role in this, as dentistry has quite evolved from the older era to a time where it is mostly painless, so proper awareness of the mass is essential. Encouraging school dental camps may also benefit children by providing early exposure to dental treatments and awareness, which may be good in the long term. Furthermore, more research and studies on DFA management should be encouraged so that novel management approaches can be developed, which will eventually help us give better oral health care for each individual.

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