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Experience fear in pediatric dentistry

A graduation project is submitted to the council of college of dentistry in partial fulfillment of the requirement for the degree of bachelor in college of dentistry

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Introduction

Fear in pediatric dentistry arises from factors like past negative experiences, the perceived pain of procedures (like injections), unfamiliar environments, and the anxiety of parents or peers, leading to disruptive behavior, avoidance of care, and poor long-term oral health. Overcoming this fear involves early and positive exposure to the dental office, parent-child communication, age-appropriate behavior management techniques by dentists, and familiarization with the environment through visits and pretend play **(Klingberg G, et al.,2022).**

Dental fear and anxiety (DFA) are problems that dentists encounter on a daily basis when working with both children and adult patients. With a prevalence of 9% in pediatric dentistry, they pose a major challenge for any physician who encounters patients of that age **(Klingberg and Broberg, 2019; Dahlander et al, 2019).**

Fear is an unpleasant feeling caused by danger, which leads to metabolic or organ function changes, and it ultimately changes behavior . Dental fear is the fear of dentistry felt by the person who is receiving dental treatment from a health care professional . Amongst all the fears, dental fear is ranked fourth, becoming a major public health problem **(Marks I.,2020)**

The cause of dental fear in children is multifactorial as it can be related to one's personality or previous painful experience, age, gender, parental dental fear, or general fear. Fears are usually mild, age-specific, and can go away as age increases. In contrast, a phobia is an extreme form of fear which persists throughout life. In children, dental fear hinders behavior management, which causes avoidance of dental situations and deterioration of

oral hygiene. According to Kleinberg *et al.*, not all children who have dental fear show behavior management problems, and on the other hand, not all children showing behavior management problems have to be fearful .

Dental anxiety and fear (DFA) in children has been recognized in many countries as a public health dilemma .Among other physical problems seen after birth and persisting into adolescence, toothache due to dental caries often begins in infant. Despite great progress in dental health through dentistry, most youths require dental treatment of various forms **(Milgrom et al, 2019)** found that, patients for fear of dental treatment missed appointments 3 times more than other patients. They did find that as age increased, fear and anxiety decreased, measured through physiological responses to critical reaction symptoms, such as patients'muscle tension when sitting in the dental chair; further, that younger women expressed more DF than older women, while men reporting DF was unrelated to age. Patients with dental fear and anxiety can sometimes make the procedure extremely stressful for dental staff, which, in turn, can disrupt interpersonal relationships in the office, as well as the relationship between the patients, parents and doctors, which is a key factor in solving DFA problems and shaping behaviour in the dental office**(Hakeberg et al., 2019; Klingberg and Broberg, 2020; Brahm et al., 2022).**

Aim of The Study

To study dental anxiety and fear in children

Chapter one

Review of Literature

1.1 Definition Dental Fear

Anormal emotional reaction to one or more specific threatening stimuli within the dental situation, while dental anxiety (DA) denotes a state of apprehension that something dreadful will happen in relation to dental treatment, coupled with a sense of losing control. Dental phobia represents a severe type of DA and is characterized by marked and persistent anxiety in relation either to clearly discernible situations/objects (e.g., drilling, injections) or to dental situations in general investigated whether these patients'fear was related to the nature and the characteristics of dental care. While concluded that clinicians needed to assess the situation of the patient, rather than actual pain under any circumstances, when assessing DF**(Klingberg and Broberg, 2020)**.

1.2 Mechanism Fear In Pediatric Dentistry

The mechanisms behind are primarily psychological and environmental, stemming from learned responses to negative experiences, conditioned reactions to stimuli like needles or sounds, and indirect influences from parents and the dental setting itself. These can include both direct factors like pain or fear of specific procedures and indirect factors such as a parent's own anxiety or the clinic's appearance **(Caprara et al.,2023).**

1.2.1 Direct mechanisms

Conditioned fear a child can develop a fear response to the dental office after a negative experience, associating it with pain or discomfort.Specific stimuli Certain elements in the dental environment can trigger fear, such as the sound of the dental drill, the sight of a needle, or even the smell of the clinic.

Pain and discomfort: A child's perception of pain or the expectation of it, as well as a history of painful treatments, is a major contributor to dental fear.Invasiveness of procedures: Procedures like injections or extractions are frequently cited as significant sources of fear.Dental office environment: The physical setting, including the dental chair and other equipment, can be intimidating to a child**(Nelson et al.,2019).**

1.2.2 Indirect mechanisms

Parental and family influence parent's fear or anxiety about the dentist can be passed to the child, and the way parents talk about the dentist can influence the child's fear. the parent's own anxiety and the way they talk about dental visits. This transmission can be learned through direct observation, with children internalizing their parents' negative attitudes and behaviors regarding dental care, leading to a cycle of anxiety that can impact the child's oral health and future behavior **(Boynes et al.,2022).**

Verbal threats and deception Parents or dental staff using negative language or being deceptive can increase a child's fear and anxiety.Vicarious learning: Children may develop fears by observing the fearful reactions of other children or even parents during dental appointments.

Age and disposition younger children may be more susceptible to fear, and an individual child's predisposition for anxiety can play a role.Aesthetic

concerns: Older children and adolescents may experience anxiety related to how they will look after certain dental procedures **(Armfield and Heaton .2020).**

1.3 Factors Related to Fear

1.3.1 Gender:

Few author's have found no gender differences in children's and adolescent dental fear whereas others reported that girls were more fearful that the component of dental fear was more in adolescent girls than in boys from his longitudinal study that when self-efficacy, fear of danger and death and the number of dentists visited were checked for, the girls, reportedly had peer ratings and medical fears which can be predictors of dental anxiety and the boys with dental fear or anxiety may be more responsive to stress during treatment **(Majstorovic et al.,2020; Van Meurs et al.,2023).**

1.3.2 Psychosocial Factors:

Personality traits differ in children with and without dental fear and is directly related to general fear, low self-esteem, shyness and timid nature, and pessimism and exhibiting negative emotions that children from low socio-economic strata participated in less leisure activities and had worst social interactions **(Gustafson et al.2020).**

1.3.3 Age of Fear Acquisition:

The prevalence of fear differs from 6% to 56% . The other determinants for this are previous frightening experiences which could either have been painful or embarrassing and also a previous history of dental anxiety. The

developmental stage of a child also plays a role on the development of fear and the younger children in their pre-operative period, do not cope with the dental treatment **(Piaget, 2019; Ten Berge et al.,2022).**

1.3.4 Environmental and situational factors

Unfamiliar clinic environment the strange smells, sounds, and people in a dental office can trigger anxiety. The noise of the drill and unfamiliar equipment can be particularly intimidating .Lack of control.The feeling of helplessness in the dental chair can be a major source of anxiety for children. Giving children a sense of control, such as using a "stop" signal, can alleviate this **(Feigal.2021).**

Poor rapport with the dentist a strong, positive relationship between the child and the dental team is crucial for minimizing fear(fig.1). A calm, friendly, and non-judgmental attitude from the dentist helps build trust type of procedure: More invasive procedures, such as extractions or injections, tend to cause higher levels of anxiety than simpler treatments.Lack of distraction Children often focus on their fear when they have nothing to distract them. Visual or auditory distractions, such as cartoons or music, are effective behavioral management techniques **(Nelson et al.,2019).**

Figure.1 positive relationship between the child and Dentist in clinic

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1.4 Signs of Dental Fear In Children

Include behavioral changes like crying, tantrums, or clinging to a parent, and physical symptoms such as a rapid heart rate, sweating, shaking, or feeling nauseous(fig.2). Other indicators can be avoidance-related, like refusing to open their mouth or difficulty sleeping the night before an appointment **(Aartman et al.,2019).**

Figure.2 Common Signs of Dental Anxiety

1.4.1 Behavioral signs

- Resistance and acting out: Tantrums, crying, or general crankiness.
- Clinginess: Clinging to a parent in the waiting room.
- Withdrawal: Becoming unusually quiet or withdrawn.
- Refusal to cooperate: Not opening their mouth during an exam or appointments being canceled frequently (fig.3) **(Efron and Sherman.2020)**

Figure.3 Child not opening their mouth

1.4.2 Physical signs

- Cardiovascular: Rapid heartbeat, shaking, or feeling lightheaded.
- Gastrointestinal: Stomach aches, queasiness, or "butterflies" in the stomach(fig.4).
- Autonomic: Excessive sweating, flushed cheeks, or a dry mouth

(Horenstein AHeimberg RG .2020).

Figure.4 Butterflies in the stomach

1.5 Vicious Cycle of Dental Fear

Illustrates how dental fear leads to avoiding care, causing oral health to worsen, which then makes future dental treatment more painful and aversive, reinforcing the initial fear and perpetuating the cycle(fig.5). This avoidance of regular check-ups results in a need for emergency, invasive treatments when problems become unbearable **(Alvesalo et al.,2020).**

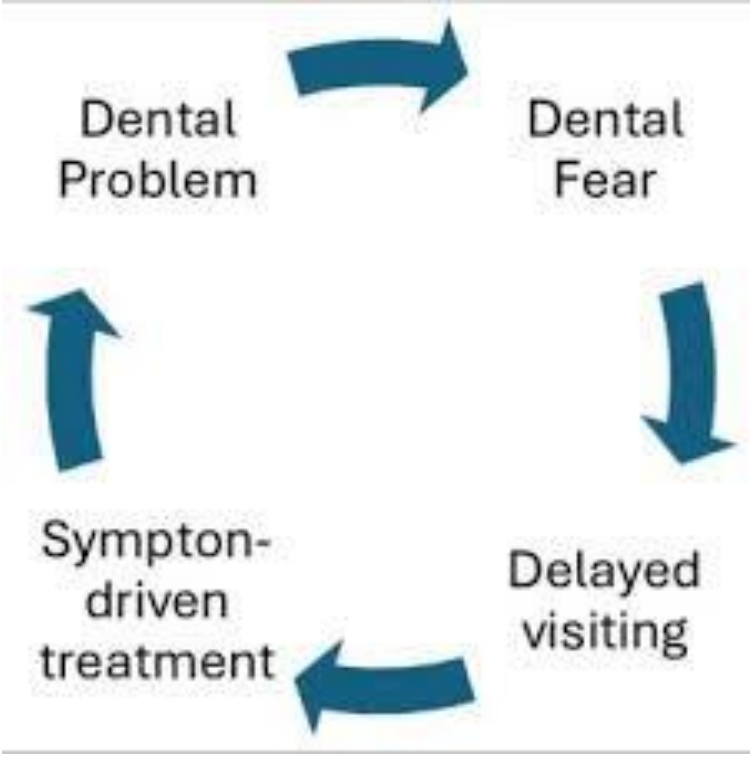

Figure.5 vicious cycle of dental fear

1.6 Management of Fear

The management of fear/phobic patients is dependent upon the severity of the condition and the treatment that needs to be undertaken. The medical history of the patient also influences management. It is important to control anxiety in patients who have systemic disease that is aggravated or triggered by stress, for example hypertension, epilepsy or asthma. The spectrum of patient management varies from psychological or behavioral approaches to the use of pharmacological agents such as anxiolytic drugs or general anesthesia **(Longman and Ireland, 2021).**

Nearly two thirds of dentists believe that treating an anxious patient present a challenge to them in everyday practice. Identifying these patients and putting appropriate measures in place is essential.Patients displaying

behaviors such as frequent cancellation, delaying or rescheduling appointments may be doing so because of dental fear and anxiety **(Armfield et al., 2020).**

1.7 Strategies For Dental Fear and Anxiety Management

1.7.1 Behavior modification

Based on the principles of learning, both in terms of classical conditioning or operant conditioning and of social learning. It aims to change undesirable behavior in certain situations through learning. The strategies involve relaxation along with guided imagery and adjuvant use of physiological monitoring using biofeedback, hypnosis, acupuncture, distraction, positive reinforcement, stop-signaling, and exposure-based treatments, such as systematic desensitization, “tellshow-do”, and modeling **(Appukuttan, 2019).**

An important principle underlying cognitive behavior therapy (CBT) is its focus on the 'here and now' as what started a problem is often not the same as what is keeping it going . In contrast to other psychotherapies, CBT is a short-term therapy, with treatment typically lasting six to ten 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 (that is, working hypotheses about the client's problems), as well as receiving feedback **(Saatchi et al.,2019).**

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 **(Newton et al., 2020).**

The efficacy of CBT for a range of psychological problems is now well established, most notably for depression and anxiety-related disorders (including phobias) 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' . Both cognitive and behavioral interventions have been shown to be successful in reducing dental anxiety and increase dental attendance **(Berggren et al., 2018; Willumsen et al,. 2020).**

1.7.2 Relaxation therapies

A diverse set of practices aimed at eliciting a relaxation response, including a reduction in overall physical arousal symptoms. The phobic individual implements a particular mental relaxation technique (e.g., slow breathing, counting, relaxation swallowing) to reduce stress **(carter et al., 2022).**

Relaxation therapies can enhance trust and give patients the feeling of control over their psychological state. These methods can be very effective in motivated and cooperative patients, and can be used before and during a

treatment appointment. These techniques are safe, have no side effects, and give patients more control over their anxiety level **(Hmud and Walsh, 2020).**

A simple method for promoting relaxation is paced breathing, where patients inhale using deep diaphragmatic breathing, hold for 5 seconds, then exhale over 5 seconds. This slow paced breathing can be combined imagery-based methods with the use of particular words, visual images or thoughts that are linked with the breathing rhythm, for example using a cue word such as "CALM" on the exhalation cycle. With repeated practice, patients can move more quickly into the relaxed state. Relaxation and breathing techniques have been used successfully with patients who are fearful of receiving dental treatments, and can be easily taught to patients and applied quickly in a dental environment **(Hainsworth et al, 2022).**

1.7.3 Distraction

The most significant reductions in anxiety related behavior are found when the distracting material is made contingent on cooperative behavior. Children who were shown cartoons which were stopped if they became uncooperative, showed less than half the levels of disruptive behavior in comparison to children who were shown cartoons regardless of their behavior **(Filcheck et al., 2019).**

If the child is playing with a toy in the waiting room, it is possible that the toy might also serve to distract the child in the dental chair. Virtual reality

techniques which involve the use of coloured glasses to experience a three-dimensional computer-generated images during dental treatment, have been shown to engage and relax adults, but less positive results for children **(Sullivan et al., 2019).**

Suitable music has been shown to influence human brain waves, leading to deep relaxation and alleviating pain and anxiety. Music distraction is a noninvasive technique in which the patient listens to pleasant music during a stressful procedure. The effect is believed to be a combination of relaxation and distraction that in turn reduces the activity of the neuroendocrine and sympathetic nervous systems. It has been successful in both pediatric and adult dental patients **(White, 2021; Moola et al., 2021)**

1.7.4 Computer-assisted relaxation learning

The treatment of dental fear, computer-assisted relaxation learning (CARL) is a self-paced treatment for dental phobic individuals for treating needle phobia. The program begins by introducing its purpose, followed by activities and videos on how to cope with their fear. The program is based on the theory of systematic desensitization . As CARL is self-paced, it may perhaps aid in treating patients who wish to learn to cope without therapists, thereby improving access to oral health care **(Carter et al.,2022).**

Chapter Two

Conclusion and Suggestion

2.1 Conclusion

Pediatric dental fear, affecting 20-50% of children, is a critical barrier to oral health, rooted in fear of injections, pain, or the sound of the drill, often worsened by parental anxiety. Early identification, proactive behavioral management, and positive reinforcement are essential to mitigate long-term avoidance and ensure a comfortable experience. It is the duty and responsibility of the dentist to provide excellent dental care to these patients with special needs as well. Management of these patients should be an integral part of clinical practice, as a substantial proportion of the population suffers from anxiety and fear. Therapy should be customized to each individual following proper evaluation, and should be based on the dentist's experience , degree of anxiety, patient intellect, age, cooperation, and clinical situation.

2.2Suggestion

1. Early Familiarization recommends a first visit by age one or when the first tooth emerges to establish a "dental home" early.
2. Child-Centric Environment seek offices with colorful decor, waiting room play areas, and ceiling-mounted TV to maintain a welcoming atmosphere.
3. Parental Presence most contemporary practices encourage parents to stay in the room for exams, as their presence provides immediate security for the child.
4. Clinical Interventions for severe anxiety, options like nitrous oxide (laughing gas) are safe, fast-acting sedatives that reduce fear without lingering effects.

References

(A)

- Aartman IHA, van Everdingen T, Hoogstraten J, Schuurs AH. 2019 Self report measurements of dental anxiety and fear in children: A critical assessment. J Dent Child.;22:252–8.
- Alvesalo, I., Murtomaa, H., Milgrom, P., Honkanen, A., Karjalainen, M.and Tay, K.M., 2020. The dental fear survey schedule: a study withFinnish children. International journal of paediatric dentistry, 3(4),pp.193-198.
- Appukuttan J.M., Heaton L.J. 2019Management of fear and anxiety in the dental clinic: A review. Aust. Dent. J.;58:390–407.
- Armfiled SD,(2022) Behavior guidance forthe pediatric dental patient. The Reference Manual of Pediatric Dentistry.Chicago, Ill.: American Academy of Pediatric Dentistry, 292-310

(B)

- Berggren, U. and Meynert, G., 2018. Dental fear and avoidance: causes,symptoms, and consequences. Journal of the American DentalAssociation (2022), 109(2), pp.247-251.
- Brahm C.-O., Lundgren J., Carlsson S.G., Nilsson P., Hultqvist J., Hägglin C. 2022 Dentists' Skills with Fearful Patients: Education and Treatment. Pt 2Eur. J. Oral Sci.;121:283–291.
- Boynes, S.G., Abdulwahab, M., Kershner, E., Mickens, F. and Riley, A.,2022. Analysis of parental factors and parent-child communication with35pediatric patients referred for nitrous oxide administration in a ruralcommunity health center setting. Oral Biol Dent, 2, p.10

(C)

- Carter, A.E., Carter, G., Boschen, M. and AlShwaimi, E. (2022) GeorgeR. Pathways of fear and anxiety in dentistry: A review. World J ClinCases.;2(11):642-653. doi:10.12998/wjcc.v2.i11.642
- Caprara, H.J., Eleazer, P.D., Barfield, R.D. and Chavers, S. (2023)Objective measurement of patient's dental anxiety by galvanic skinreaction. J Endod, 29(8):493–496

(D)

- Dahlander, A., Soares, F., Grindefjord, M. and Dahllöf, G., 2019. Factorsassociated with dental fear and anxiety in children aged 7 to 9 years.Dentistry journal, 7(3), p.68.

(E)

- Efron, L.A. and Sherman, J.A. (2020) Five tips for managing pediatricdental anxiety. Dent Today, 24:104–105.

(F)

- Farhat-McHayleh, N., Harfouche, A. and Souaid, P. (2019) Techniquesfor managing behavior in pediatric dentistry: comparative study of livemodelling and tell-show-do based on children's heart rates duringtreatment. J Can Dent Assoc, 75,283.
- Feigal, R.J. (2021) Guiding and managing the child dental patient: Afresh look at old pedagogy. J Dent Educ, 65(12), 1369-7

(G)

- (Gustafson DDF,Gale, E.N., 2020. Fears of the dental situation. Journal of DentalResearch, 51(4), pp.964-966.

(H)

- Hainsworth, J.M., Moss, H. and Fairbrother, K.J. (2022) Re-laxation andcomplementary therapies: an alternative ap-proach to managing dentalanxiety in clinical practice. Dent Update; 32, 90-2, 4-6.
- Hakeberg M., Berggren U., Grondahl H.-G. 2016 mechanisms behind fear of Dental Health in child Patients with Dental Anxiety. Community Dent. Oral Epidemiol.;21:27–30. Horenstein A
- Heimberg RG 2020 "Anxiety disorders and healthcare utilisation: A systematic review" Clin Psychol Rev
- Jackson, D.L.,Wash, G.A. (2020) Pharmacokineticsand clinical effects of multidose sublingual triazolam in healthyvolunteers . J Clin Psychopharmacol 26 (1): 4 – 8

(K)

- Kling, H., Westbrook, D. and Kirk, J. (2022) An introduction tocognitive behavioral therapy: skills and applications.
- Klingberg G, Berggren U, Noren JG. 2017 Dental fear in an urban Swedish population; prevalence and concomitant factors. Community Dent Health.;11:208–14.

(L)

- Longman and Ireland 2021.Emotional contagion of dental fear to children: the fathers' mediating rolein parental transfer of fear. International journal of paediatric dentistry,22(5), pp.324-330.

(M)

- Majstorovic, M., Veerkamp, J.S. and Skrinjaric, I., 2020. Reliability andvalidity of measures used in assessing dental anxiety in 5-to 15-year-oldCroatian children. European journal of paediatric dentistry, 4(4), pp.197-202.
- Marks I. 2020 The development of normal fear: a review. J Child Psychol Psychiat allied disciplines. (28):667–697.
- Milgrom, P., Fiset, L., Melnick, S. and Weinstein, P., 2019. Theprevalence and practice management consequences of dental fear in amajor US city. The Journal of the American Dental Association, 116(6),pp.641-647

- Moola, D., Liddell, A., Dempster, L. and Shapiro, D., 2021. Age of onset of dental anxiety. Journal of dental research, 78(3), pp.790-796.

(N)

- Nelson, T., Sheller, B., Friedman, C. and Bernier, R. (2019) Educationaland therapeutic behavioral approaches to providing dental care forpatients with autism spectrum disorder. Spec Care Dentist, 35(3), 105-13.
- Newton, T., Asimakopoulou, K., Daly, B., Scambler, S. and Scott S.(2020) The management of dental anxiety: time for a sense of proportion?Br Dent J, 213(6), 271–274.

(P)

- Piaget J (2019). The Psychology of Intelligence. New York, Routledge &Kegan Paul Inc.Translated from Piaget J (2012) La Psychologie del'Intelligence. Paris, Armand Colin.

(S)

- Saatchi, M., Abtahi, M., Mohammadi, G., Mirdamadi, M. and Binandeh,E.S., 2019. The prevalence of dental anxiety and fear in patients referredto Isfahan Dental School, Iran. Dental research journal, 12(3), p.248.
- Sullivan, J.R., Barbosa, T.D.S., de Freitas, C.N., de Sousa, K.G.,Gavião, M.B.D., Leal, S.C., Mialhe, F.L. and Castelo, P.M. (2019)Assessment of anxiety and stress markers in children submitted toeducational strategies and ART-restoration: A randomized clinical trial.Arch. Oral Biol, 97, 191–197. doi: 10.1016/j.archoralbio.2018.10.032

(T)

- Ten Berge MQ. Dental fear among a young adult population. Int Dent J 2021;51(2): 62-67. Weiner AA, Sheehan DV. Etiology of dental anxiety:psychological trauma or CNS chemical imbalance? General Dentistry1990; 38(1):39-43

(V)

- Van Meurs P, Howard K, Versloot J, Veerkamp JS & Freeman R.(2023)Child coping strategies, dental anxiety and dental treatment: the influenceof age, gender andchildhood caries prevalence. Eur J Paediatr Dent :173–78.

(W)

- White A.(2021) Etiology of dental anxiety:psychological trauma or CNS chemical imbalance? General Dentistry ;38(1):39-43.

- Willuma, A. and Worrel, M. (2020) Cognitive behavior therapy. In Ayers S,Baum A, McManus C., Cambridge handbook of psychology, health andmedicine. 2nd ed. pp 340–343. Cambridge: Cambridge University Press.

(Y)

- Yon, M., Chen, K. J., Gao, S. S., Duangthip, D., Lo, E., & Chu, C. H.(2020) An Introduction to Assessing Dental Fear and Anxiety inChildren. Healthcare (Basel, Switzerland), 8(2), 8

وزارة التعليم العالي والتطور العلمي
جامعة المستقبل
كلية طب الأسنان

تجربة الخوف في طب أسنان الأطفال

يتم تقديم مشروع التخرج إلى مجلس كلية طب الأسنان في استيفاء جزئي
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