

Non pharmacological techniques in reducing dental anxiety and pain - A Review

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Abstract: Anxiety can be defined as a state of unpleasantness with an associated fear of danger from within or a learned process of one's own environment. Pain isn't the sole explanation behind fear of dentistry. management of pain due to fear and anxiety is more difficult in children than adults. To overcome this, it's usually managed by both pharmacological and non pharmacological techniques. Non pharmacological method of child management are been improvised and used most effectively by every paediatric dentist such as tell-show-do, distraction like audio and visual - audio analgesia, hypnosis, aromatherapy and behavior management. Behaviours modification therapy, for example, relaxation technique, guided imaginary practice, and slow introduction to treatment are generally connected with psychological rebuilding. Hypnodontia is the utilization of hypnosis in dentistry, which was first reported in 1829 to encourage a dental extraction. Essential oils, which are extracted from plants, are utilized to regard ailment and also to improve physical and mental prosperity.

Keywords: Anxiety, Fear, Non pharmacology techniques, Hypnosis, Aromatherapy.

Introduction:

In dentistry, children's uncooperativeness has been conceptualised in various ways (1). Fear is characterized as a person's response to life threatening occasion or unsafe circumstance to ensure his or her life (2). Three distinct terms have been utilized which worries about the possible apprehension: Dental fear (DF), Dental anxiety DA and Dental Phobia (DP). Dental fear is a standout amongst the most continuous regular feelings of trepidation, which is delegated a particular dread as indicated by Diagnostics and Statistics of Psychic Disorders DSM-IV (3). The etiology of dental fear has been talked about in different viewpoints, including a general subject's slant for anxiety and fears, and a reaction to certain particular stimulus. The greater part of patients tend to connect dental apprehensions with painful experiment in childhood [4,5,6] and negative staff conduct [7]; none the less, past overviews have demonstrated that negative experience in adolescence does not really prompt dental fear and shirking of appointments in future (8). Pain isn't the sole explanation behind fear of dentistry. Anxiety or the dread of unknown amid dental treatment is a main consideration and it has been the significant worry for dental practitioners for quite a while (9). Anxiety can be defined as a state of unpleasantness with an associated fear of danger from within or a learned process of one's own environment. It relies upon the capacity to imagine (10). All dental practitioners who treat children occasionally get themselves looked with a fearful youngster in his/her first visit to the dental clinic. Considering the greatness of dental equipment and the originality of the experience, it isn't amazing that the child might be uneasy. The role of a dental specialist is dealing with a youngster with anxiety, so that a child can turn into a cooperative patient in twofold - first of all, to control and treat the issue with which the child reports and besides, to educate the child proper methods for dealing with the anxiety (9). Anxiety is a standout amongst the most widely recognized issues experienced in the dental operator and is a wellspring of test for the Pediatric Dental specialist; the same number of children who are to a great degree restless, absolutely maintain a strategic distance from the dental examination and decline the dental treatment. Dental Anxiety is portrayed as state anxiety as it happens because of the dental treatment procedure and is connected with negative desires which are frequently connected to before horrible encounters, negative mentalities in the family (11), fear of agony and injury and view of an unsuccessful or potentially an excruciating past dental treatment (12). Dental phobia indicates an extreme sort of dental anxiety, and is described by marked and persistent anxiety in connection to either plainly discernible circumstances or objects (e.g. Injections, drilling) or in general to the dental circumstance (13). A phobia is a nonsensical fear of an object/situation that would not regularly leads to inconvenience for many people or it can be persistent, farfetched and serious fear of particular stimulus, prompting the shirking of the apparent peril. The evasion frequently causes significant pain or meddles with social function. A phobia might be a social phobia or a specific phobia; a social phobia might be a dread of being watched accomplishing

something mortifying or humiliating, e.g. in a dental setting, a dread of retching because of unnecessary choking and a specific phobia is a phobia related with a specific object or circumstance. Dental phobia prompts evasion of treatment, which thus leads to decay of oral wellbeing (14). At long last, dentally restless people, due to their avoidant behaviour, frequently have poorer dental health (15,16). Specifically, those individuals who defer going to dental for a drawn out time, regardless of whether encountering impressive agony, may have broad issues that require more unpredictable and complicated treatment (17). On the off chance that patients are not managed properly, it is very conceivable to set up what has been alluded to as an endless loop of dental fear (18,19). Pain appraisal is a basic segment of the dental history and far reaching assessment. Whenever indications of signs and symptoms of orofacial/dental pain are evident, a definite pain evaluation ought to be directed and reported in the patient's record. This assessment helps the dental practitioner to determine a clinical diagnosis, build up an organised treatment plan, and better estimate analgesic prerequisites for the patient (20). Pain is difficult to gauge because of its subjectivity, particularly in children, (21,22) and frequently depends on the report of parents. Pain experienced by youngsters with exceptional medicinal services needs or formative disabilities is all the more difficult to survey precisely and may require use of scales that depend on perceptions, for example, vocalization, outward appearances, and body movements (23-25). While surveying pain in a child, the patient's physiological status ought to be considered. The dental practitioner additionally should represent the power and duration of pain that might be perceived from a given dental procedure (26,27).

Hence management of pain due to fear and anxiety is more difficult in children than adults. To overcome this, it's usually managed by both pharmacological and non pharmacological techniques. In dental surgery the most common way of managing pain is through conscious sedation or general anaesthesia(28). Improvement through pharmacological management has proven as significant patient outcomes, nevertheless it's associated with major risk which can require additional equipment in emergency and cannot be applied for a person who has specific drug allergy or contraindicated for a particular medical condition(29). Side effects such as Fatigue, restlessness and confusion are evident when using pharmacological techniques. Non pharmacological method of child management are been improvised and used most effectively by every paediatric dentist such as tell-show-do, distraction like audio and visual - audio analgesia, hypnosis, aromatherapy and behavior management. The decision of an appropriate non-pharmacological mediation depends on the levels (low, moderate, high or phobic) of dental anxiety displayed by the child. For children presenting low levels of DF or DA, approaches that can be adopted include: tell-show do, voice control, modelling, distraction, memory reconstruction, relaxation training, positive reinforcement, magic tricks, and positive pictures. Children with moderate levels of DF or DA may require more escalated mediations, for example, furnishing them with data on adapting methodologies, while children who show DP could benefit by the complementary utilization of pharmacological and psychological approaches, particularly cognitive behavioral therapy (30).

Behaviour management:

These methods, which depend on learning theories, are an arrangement of intervention used to change the disruptive or uncooperative patients' conduct in the dental office(31-33). On edge anxious patients regularly have unrealistic assumptions about dental treatment. Cognitive therapy is an objective orientated talking therapy, with the target of changing and rebuilding the child negative convictions, to diminish their dental pain and enhance the control of negative contemplations (34). The goal is to enable children to learn new self-administration abilities that they can use to overcome particular undermining stimuli in the dental situation (35). Children learn about the inter-relationship between thoughts, feelings and behaviour, and how they can change how they feel by putting into training what they have learned (36,37). This mind boggling mediation requires the inclusion of particular therapist (e.g. Psychologist), who instruct the patients to deal with their nervousness by growing new abilities (38,39). This considers a better communication of their personal opinions, sentiments, and necessities amid dental treatment (40). Cognitive therapy frequently requires the presents of parents or carers, together with their anxious children (37). Behaviours modification therapy, for example, relaxation technique, guided imaginary practice, and slow introduction to treatment are generally connected with psychological rebuilding (41).

Relaxation breathing:

One exercise which is accepted to be of advantage to relatively every frightful patient is unwinding through paced breathing (42). It is difficult to be tense and to inhale from your abdomen at the same time (43). Because of this, relaxation breathing has been utilized successfully over an extensive variety of circumstances to combat anxiety. In any case, while it is trusted that relaxation breathing can likewise be viable in diminishing perceived pain,(44) the evidence has been more equivocal than that for anxiety reduction. One recent study has demonstrated that relaxation breathing appears to bring down both anxiety and perceived pain (45) This is, maybe, not astonishing as the relationship between more noteworthy anxiety and increased agony discernment is presently entrenched, in the dental literature (46-49) Anxiety is known to upregulate the sympathetic sensory nervous system which, thusly, is accepted to diminish the pain threshold (50).

There are a few minor variation from relaxation breathing. For instance, Milgrom et al. depict a strategy whereby patients are educated to take slow to moderate, deep breaths, holding every breath for around 5 seconds approximately, before gradually exhaling (42). Slow, consistent relaxing for 2– 4 minutes is viewed as viable in reducing a patient's heart rate and making anxious patients detectably more comfortable. Ackley, states that patients ought to be requested to inhale so gradually that if a quill was under their nose it would not move (51). These breathing methods can be instructed effortlessly at the dental clinic and can be practised at home by the patient prior to an initial examination (17). Physiological checking of breathing through a heart rate monitor or some other bio-feedback gadget may be valuable for both the patient and dentist (42), and has shown effectiveness in diminishing dental anxiety and negative emotions with respect to a dental injection (52).

Tell-show-do:

This is the most regularly utilized technique, where the patient is acquainted with the treatment through a steady methodology. In the 'tell' phase, the patient is very much educated on the different strides of the treatment methodology. In the 'show' stage, they get comfortable with the treatment armamentarium, by either taking a gander at them or touching them. In this way, in the 'do' stage, the dental practitioner starts the treatment, with no change to the previous explanation and demonstration (53-55).

Distraction:

Distraction is the technique of diverting the patient's attention from what may be perceived as an unpleasant procedure. Giving the patient a short break during a stressful procedure can be an effective use of distraction prior to considering more advanced behavior guidance technique (56-58). This is the physiological methodology of redirecting the patient's consideration from the debilitating stimuli (e.g. dental treatment). Visual or audio stimuli can be valuable in modifying behaviour, especially in patients indicating mild or moderate traits of anxiety in the dental chair (59,60). Some commonly utilized distractors in the dental office incorporate magic tricks, toys, cartoons, or films, music. They can be given either in the waiting up room or amid dental treatment (61,62). The accomplishment of distraction strategy in medical settings and in adult patients is well documented, however there are very few studies done to assess the viability of distraction technique in pediatric dental patient (9). A meta-analysis of 19 randomized clinical trials found that music treatment decreases agony and nervousness for children experiencing medicinal or dental procedures (63). The consequences of an early study by Corah and colleagues showed that melodic programme at a best case scenario, brought about a placebo effect (59). A recent study on investigation of German dental patients found that despite the fact that music distraction lessened dental anxiety altogether contrasted with a control group, the impact was fundamentally not as much as that delivered by a concise relaxation strategy and that it worked just for somewhat mildly anxious patients, having no clinical pertinence for highly anxious patients (60). Nonetheless, given the simplicity of bringing music distraction into the clinical facility, and the absence of any known injurious impacts, the potential for positive results and expressed patient preference would prescribe it for more deliberate and widespread use (17). A study conducted by Prabhakar et al concluded that Audiovisual distraction technique was more effective during dental treatment in managing anxious pediatric dental patient as compared to audio distraction technique and normal dental setup (9).

Hypnosis:

Hypnosis is defined as condition of altered consciousness, which is affirmed by Neuro physiological changes and can be recognized from meditative states and states of relaxation.(64) The hypnotic condition of consciousness is set apart by an increase alertness of inner awareness and decrease in appraisal of external awareness (65). Amid hypnosis a man goes into a specific frame of mind characterized by centered attention and dis-thoughtfulness regarding unessential stimuli which is not entirely dissimilar to that accomplished when a person is somewhere lost out in dreamland, in a stare off into space, or being invested in a book(66). The dental specialist plans to set up a physiological communication with the patients to decrease their peripheral awareness, by concentrating on evoked thoughts and pictures, keeping in mind the end goal to condition their recognitions, sentiments, thought, and therefore, their behaviour (67,68).Abdeshahi et al propose that hypnosis improves control over stress, pain, muscle strain, discernment, memories, feelings and emotions (69). Within dentistry, the term 'hypnosis' incorporates a wide assortment of techniques, extending from utilization of 'hypnotic language' to make a positive environment and distraction, to profound trance like hypnotic to accomplish more significant outcomes, for example, surgical absense of pain (70).

Hypnodontia is the utilization of hypnosis in dentistry, which was first reported in 1829 to encourage a dental extraction (69). By the turn of the twentieth century, hypnotic proposal moved toward becoming most viewed by numerous dental practitioners as the essential method of patient management and control (71).Within dentistry, hypnosis has both therapeutic and operative uses. Therapeutically, uses include incorporate dental fear and anxiety, broad gag reflex, trigeminal neuralgia pain, benign chronic orofacial pain, temporomandibular joint dysfunction, adaption to dentures, behaviour modification, for example, thumb sucking/bruxism, and as an aide to inhalation sedation. Operative uses include absense of pain amid surgery, control of haemorrhage /salivary stream and absense of pain/quicker postoperative recovery (69, 72, 73). In all cases, hypnosis; changes mental states and enhances comprehension, changes pain observation, manage stress; and balances neurovegetative responses (heart rate, pulse changes, gag reflex, etc.) (72). A few authors have depicted light and deep hypnosis, which can have diverse applications (74). Deep hypnosis sets aside opportunity to accomplish and would not be reasonable for routine dental practice; in any case, it is required for analgesia and to modify behaviours. Coming to a 'light' state it is less demanding and snappier to accomplish, and is all the more regularly utilized as a part of hypnodontia on an everyday premise; for instance, to relax an anxious patient (70).Hypnotic proposal is utilized routinely while dealing with the pediatric patient, with methods, for example, distraction, reframing and symbolism recommendations considered types of hypnosis (75). Hypnotic strategies can be especially powerful for the pediatric or anxious patient in conjunction with inhalation sedation (70). Hypnosis is especially successful in children ages 8– 12 years, in spite of the fact that as youthful as children 4 years old can be responsive. When utilizing hypnosis for analgesia, the patient must achieve deep hypnosis, which requires some time, and have a situation free from distraction and interruption. While hypnosis has been shown to be compelling it should be coordinated to the right patient and, if utilized improperly, can prompt loss of confidence in the dental professional and the treatment process (77). In addition, hypnosis requires specific training and past experience that gave in a standard university curriculum (78). For those dental specialists who are interested to incorporate hypnosis into their clinical practise, training opportunities through nearby dental societies or colleges ought to be looked for (17).

Aromatherapy:

Aromatherapy based treatment alludes to the medicinal or remedial utilization of essential oils consumed through the skin or olfactory framework (79,80). Essential oils, which are extracted from plants, are utilized to regard ailment and also to improve physical and mental prosperity. Despite the fact that the utilization of refined plant materials goes back to medieval Persia, the term "aromatherapy " was first utilized by Rene Maurice Gattefosse in the mid twentieth century. In his 1937 book, *Aromatherapie*, Gattefosse asserted that herbal medicinr could be utilized to treat basically any disease all through the human organ system. Today, aromatherapy based treatment is well known in the United States and around the globe (80).

Albeit numerous cases have been made relating with the advantages of aromatherapy based treatment, most research has concentrated on its utilization to manage depression, anxiety , muscle strain, sleep disturbance , queasiness, and pain (80). A few studies recommend that olfactory stimulation related with aromatherapy based treatment can bring about immediate reduction in pain, and additionally changing physiological parameters, for example, pulse, blood pressure , skin temperature, and brain activity (79). In spite of the fact that the advantages remain questionable, numerous patients and social insurance suppliers are attracted to aromatherapy based treatment on account of its ease and negligible reactions. Essential oils as of now accessible for therapeutic utilize are generally perceived as protected by the United States Food and Drug Administration (FDA). At times, essential oils can cause minor skin irritation at the site of utilization. In the event that ingested in substantial amounts, essential oils can cause phototoxic reactions which can, in uncommon occasions, be deadly (80).

Recently, Aromatherapy is used as a contemporary and alternative medication methodologies, have been considered in dental (81,82,83,84) and medicinal settings.(85,86,87,88) This technique is supporting the idea that common oils can deliver positive pharmacological and physiological impact by the sense of smell (89). For example, the parasympathetic sensory system movement is increased by 12% and sympathetic action is diminished by 16% with orange oil (90). Faturi et al. proclaimed an acute anxiolytic impact of sweet orange essence in rats, and keeping in mind the end goal to discard the possibility that this impact was a consequence of exposure to any other smell, the behavioral response to another *Melaleuca alternifolia* essential oil was likewise surveyed. They bolstered the utilization of orange essential oil by aromatherapists as a tranquilizer (91).

The impact of aromatherapy based treatment on dental anxiety has been assessed in a few studies. Lehrner et al. studied the impact of orange odor and reported enhanced mind-set and less anxiety only in females (83). Five years after the fact, in another study, they analyzed the effect of orange and lavender odor with a music condition and a control condition and exhibited that odors are capable for diminishing anxiety and altering enthusiastic states in dental patient (84). In a cluster randomized controlled trial, Kritsidima et al. clarified lessened condition of anxiety with lavender aroma in dental patients (82). Ndao et al. contemplated the impact of inhalation aromatherapy healing and expressed that respiratory administration of bergamot essential oil did not diminish anxiety, nausea, and pain when added to standard strong care (87). Muzzarelli et al. prescribed that aromatherapy based treatment can be more helpful at a moderate level of anxiety;(92). In an study performed by Maura et al., the impact of sexual orientation and ethnicity on preferences and attitudes in children was researched. They revealed that youngsters are altogether different from adults in their odors and taste preference and they are probably going to utilize essential oils which they find pleasant. They discovered aromatherapy based treatment engaging and worthy for school age children . They presumed that specific essential oils are acknowledged by children, for example, sweet orange or lemon (93).

Conclusion:

Pharmacological technique has some side effects when given among paediatric patients, non pharmacological intervention in reducing dental pain and anxiety has proven good results among children than in adults. It should be used as first line treatment before administration of drugs.

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