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Anxiety Levels Associated With Noise In The Dental Clinic Among Children OF Age Group 6-15 Years

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Abstract

Introduction

Dental fear usually refers to a normal unpleasant emotional reaction to specific threatening stimuli occurring in situations associated with dental treatment, while dental anxiety is an excessive and unreasonable negative emotional state experienced by dental patients. These psychological states consist of apprehension that something dreadful is going to happen in relation to dental treatment. Dental fear and dental anxiety are often used indistinctly in the scientific literature, but they represent different progressive degrees of the same psychological condition. The terms dental fear and anxiety (DFA) will be used throughout this review when we refer to strong negative emotions associated with dental treatment among children. Dental treatment can be perceived as a painful and agonic experience, it can exert influence in the behavior of human beings, especially in children. This could be due to factors such as anxiety, and fear,which, together with anguish generated during dental treatment, can turn a rapid and successful visit into negative experience. Fear or anxiety due to noise produced in the dental clinic is rated third among reasons to avoid dental visits.Dental anxiety is a significant problem for patients and dental care providers.Quite a large number of studies have been conducted to identify the potential anxiety provoking stimuli present in the dental setting. These stimuli include the sight of the needle, smell of different dental materials, noise produced in dental clinic and various aspects of the drill such as its appearance, sound and feeling.The present study is aimed at one such factor that is noise in the dental clinic and its effect on patient's anxiety.

Aim*: The aim of the present study was to determine anxiety levels associated with noise in a dental clinic.*

Materials and Method

A Survey questionnaire based on Corah's dental anxiety was distributed among the participants .The first part included demographic information such as name, age, gender, and school. The second part of the

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survey included questions aimed at patient's feelings toward noise in the dental clinic and its possible link to dental anxiety. The data was collected and analysed using Microsoft excel.

Result: *This study concludes that the noise produced in dental clinic is anxiety provoking and significantly contributes to avoidance of dental treatment.*

Conclusion

Simply asking the patient straightforward questions regarding their dental status may predict the clinical examination results. Patients tend to be familiar with their dental status. This could help the dental practitioner to accomplish more effective time and patient management. It can be concluded from the present study that the prevalence of dental anxiety and fear was relatively more in this south Indian Tamil speaking population and male children were more anxious about dental visits.

Keywords: *anxiety, noise, children, fear ,dental clinic*

I. Introduction:

Anxiety is defined as an emotional response and/or physiological response to known and/or unknown causes that may range from a normal reaction to extreme dysfunction. Dental anxiety is a significant problem for patients and dental care providers.Fear of the dental practice is one of the widespread distressing problems for dentists and public. [1]Fearful patients might neglect oral hygiene and delay treatment. Patients with high level of dental anxiety typically also report social and psychological disability. Dental fear may be distinguished from dental anxiety by the situational boundaries within which it occurs. Fear is generally regarded as a physiological, behavioural and emotional response to a feared stimulus whereas anxiety is a feeling of dread or worry focused on, yet temporally prior to, exposure to a feared stimulus. Fear and anxiety are highly related and are often used interchangeably in the fear literature. [2] Children who have dental anxiety tend to avoid necessary dental treatment and once in the dental chair they are often difficult to treat. Avoidance of dental treatment owing to anxiety is common and appears to be associated strongly with significant deterioration of oral and dental health, leading to a vicious cycle of cumulative anxiety and increase in avoidance. Over recent decades, clinical practice of dentistry has moved ahead with major advances in techniques, technologies and materials at the same time public awareness of oral health has improved. [3] Despite these gains, anxiety related to dental environment is a problem suffered by many patients. Dental anxiety has been ranked fifth among commonly feared situations. Given its high prevalence, it is not unexpected that patients with dental anxiety avoid dental visits. [4]

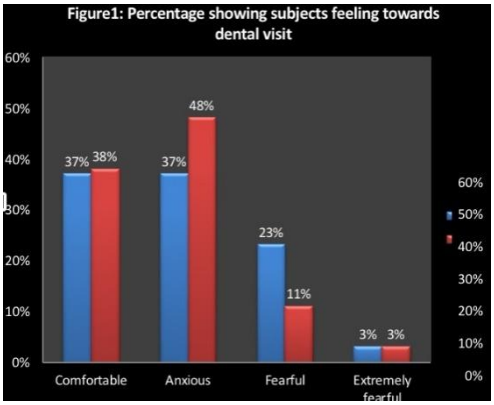
Anxious children demand considerable dedication and expertise in child management techniques from the dentist and dental staff. Although many management techniques are successful, the present trend is moving toward non-invasive techniques, which are successfully used in medical setting. [5]Quite a large number of studies have been conducted to identify the potential anxiety provoking stimuli present in the dental setting. These stimuli include the sight of the needle, smell of different dental materials, noise produced in dental clinic and various aspects of the drill such as its appearance, sound and feeling. [6]The present study is aimed at one

such factor that is noise in the dental clinic and its effect on patient's anxiety.

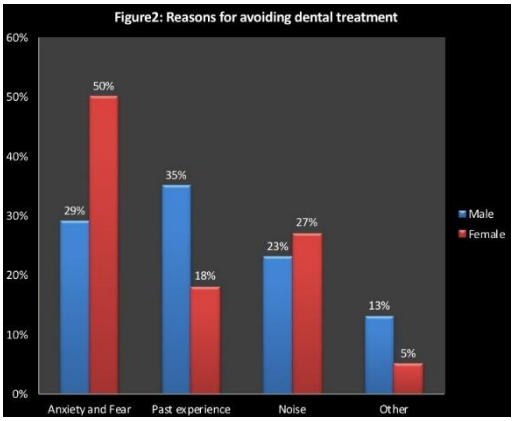
II. Materials and method

A Survey questionnaire based on Corah's dental anxiety was distributed among the participants .The first part included demographic information such as name, age, gender, and school. The second part of the survey included questions aimed at patient's feelings toward noise in the dental clinic and its possible link to dental anxiety. The data was collected and analysed using Microsoft excel.

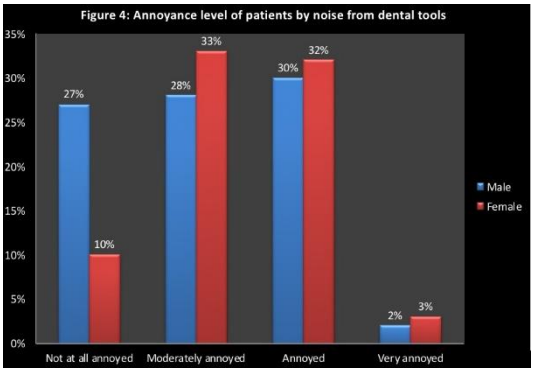
III. Results:



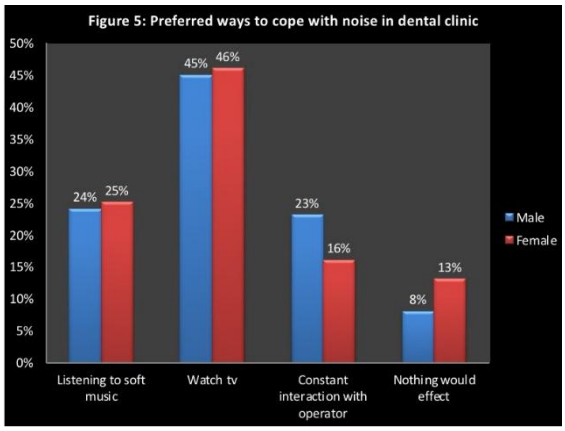
From the graphs, it can be clearly stated that when compared to males, majority of females (50%) avoid dental visits because of anxiety and fear figure 1 and figure 2. From figure 1 it can also be seen that anxiousness is the feeling felt by about 48% of the people visiting a dental clinic.



It is clear from the above graph that noise is the only reason that both males (21%) and females (27%) are on par with each other. Also, males (50%) tend to feel more anxiety and fear when compared to the females (27%).



Around 33%of the males find it moderately annoying due to the noise produced. Also, about 32% of the males find it annoying



Patient satisfaction is one of the most important meters to assess health care quality, so to cope with the noise in the dental clinic 46% of the females prefer to watch TV and 45% of the males do too.

IV. Discussion

Prevalence of dental anxiety in the present study was found to be 53.5%, which suggests that despite the technological advances made in modern dentistry, anxiety associated with dental treatment was widespread in the study population. Prevalence was higher than that reported in other studies [7] in which the prevalence rates ranging from 3 to 32% were observed in the patients attending dental clinics. This difference can be attributed partly to the methodological differences, cultural differences or geographical variation.

The present study was aimed at determining the effect of noise in dental clinic and its effect on children in the age group 6-15 years. In dentistry, researchers have focused on the effect of noise in the dental clinic on dental professionals, who are exposed to high noise levels for extended periods. [8] Study done by Folmer linked noise from tools used in the dental clinic, such as hand pieces, to induce-hearing loss.[9] This study as well as other studies have concentrated on professionals working in dental clinics, ignoring the effect of such noises on the patients[10]. Even though exposure is limited to the treatment time, which may not induce hearing loss,

there are indications that dental anxiety, related to fear is aroused by dental equipment/instruments which tend to be a source of patient discomfort. [11]

Males were found to be more dentally anxious when compared to females. Anxiety levels for the age group when compared for dental anxiety did not reveal statistically significant difference. Anxiety scores were higher for the subjects above 20 years of age. Almost similar results have been reported by Thomson et al [12] and Stabholzet al, have reported that anxiety was higher among subjects in the age group 35-44 years. None of the studies showed statistically significant difference.[13]

The sense of fear to stimuli varies noticeably because each individual has special fear responses due to different stimuli during dental treatments[14]. This study revealed that hearing the high levels of noise was the most common reason for anxiety due too dental procedures. This is consistent with previous studies.[15][16]

In another study performed at the Oxford Hospital and Oxford School of Dentistry,Bangalore, Karntaka,12 the level of noise of the devices for teaching dentistry was measured by a microphone placed near the operator's ear in a distance of 6 inches from the main noise's source to simulate the auditive position[17][18]. The minimal intensity and the maximal intensity of noise were assessed for 30 s with the dental devices triggered only during the cutting moments, when the intensity of noise ranged from 64 to 97 dB[19]. Although those methods are different from those of the present study, the findings are similar, showing that in some moments the arising noise is so high, which makes the environment of learning dentistry with loud frequencies of noise determine the loss of hearing with time, psychological stress and physical stress.[21]

Similar to the present study, an evaluation was carried out in private practices and in the public service from Jundiaí, SP, Brazil[22]. The measurements were made by a decibelimetre triggered for 5 min. At first, it assessed the environment noise to determine the BT level of noise. After that, the high-speed hand pieces of three different trademarks were used in a distance of 20 cm by different professionals in their dental offices[23]. It was observed that the level of noise at BT was lower in all measurement times, not exceeding the mean of 67.1 dB, whereas when the high speed was triggered the mean of 83.1 dB was reached. This result was not different from the present study, where the noise level was 67.39 dB at BT and 82.38 and 80.99 dB at the first and second hours, respectively[24]. Although these levels of noise never exceeded 85 dB, they increased from the first hour to the second hour during which the noise became higher with the use of dental devices. [25]

In cognitive coping strategy child is encouraged to think positive about the treatment which is known as positive restructuring. According to a study done by Van Meurs *et al*. (2005) the older children use cognitive strategies and younger children use more of behavioral coping strategies. Evidence supports that coping skills in case of pain and anxiety can be taught to children to overcome dental anxiety.

A wide variety of techniques are available in managing a child with dental anxiety such as tell-show-do, relaxation, distraction, systematic desensitization, modeling, audio analgesia, hypnosis. Among all these techniques, behavior management techniques such as papoose board and hand over mouth technique can be successful, but the attitude of parents and dental professional toward these techniques are changing. Now non-aversive techniques like distraction are becoming more popular. In the present study, 45% children preferred

watching TV to cope with noise followed by listening music of their own choice . Observations by Aitken *et al*. have shown that audiovisual distraction was most effective means of managing the anxious children. Reduction of anxiety in the audiovisual distraction technique may be attributed to a variety of reasons. According to Klein and Winklestein this will help the children to gain control over the unpleasant stimulus and give them a feeling of being in a familiar environment. Secondly, the child seeing the audiovisual presentation will have multi-sensory distraction as he/she will tend to concentrate on the TV screen thereby blocking the sight of dental treatment, the sound of the program will help the child to eliminate the unpleasant dental sounds such as the sound of handpiece. Other than distraction techniques there are various other methods through which child can cope with anxiety. Coping can be categorized into behavioral and cognitive type.

V. Conclusion

Simply asking the patient straightforward questions regarding their dental status may predict the clinical examination results. Patients tend to be familiar with their dental status. This could help the dental practitioner to accomplish more effective time and patient management. It can be concluded from the present study that the prevalence of dental anxiety and fear was relatively more in this south Indian Tamil speaking population and male children were more anxious about dental visits. Among the dental procedures, tooth drilling and local anaesthetic injection, were most common reasons for anxiety. More information should emerge in this field since specialties in dentistry are becoming more available to the public, and except for paediatric dentistry, none has given adequate attention regarding patient management prior to and during specific dental treatments. The inclusion of behaviour sciences in dental curriculum and the integration of ethical considerations in the field of dental educations could help to improve the scenario.

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