

AWARENESS REGARDING IMPACT OF MUSIC ON PATIENTS ANXIETY DURING DENTAL TREATMENTS

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ABSTRACT

Music reduces stress and increases physical energy, depending on the tempo, melody, and genre of music we listen to. Even from the emergency room to the physical therapy practice, music can ease stress, improve immune and hormone production, elevate mood, and reduce pain. Dentists can use music for more outcome of the patients and using music during sedation improves recovery rate after the procedure. The study aims to know the awareness among patients having anxiety during dental treatments. Cross sectional questionnaire survey conducted among dental patients. Information of question was obtained from the questionnaire using survey planets and data represented in MS Excel and statistical analysis was done using SPSS software. The results were collected and then analysed through SPSS software. Descriptive statistical analysis was carried out and chi square test was used and p value was calculated. About 86% patient felt relaxed while listening to music while compared to other time in the clinic 84% patient felt reduction in the pain which listening to music in dental clinic 92% thought that music reduces the anxiety level and distract patients while getting treated in clinic 36% patient felt anxious during dental treatments. Most of the patients feel anxious while getting treated in the dental clinics. music plays a major role in reducing anxiety. While getting treated many of the patients felt that music helps in distracting during pain. Many of the patients suggested practicing music therapy in dental clinics.

Key words - anxiety level, dental treatment, dental patient, music therapy

1.INTRODUCTION :

Dental treatment and dental environment have many different cognitions among people, feeling anxiety and discomfort during dental treatments (Kwon, Kim and Park, 2006). Dental uneasiness that may emerge during dental extraction method can convolute the methodology just as limiting the conceivable outcomes of having an effective technique. Dental anxiety is manifested through restlessness, extreme emotional tension, its emphasis at placing the patient in the dental chair and becomes paroxysmal when various dental procedures are carried out (Corah *et al.*, 1981). Music is clinically recognised to influence biological responses such as blood pressure, heart rate, respiratory rate, cardiac out, muscle tone, entrainment the body to calm or to

accelerate positive reinforcement during dental treatment . Stress levels shoot up as a result of administration of anesthesia , combination drugs which can be interrupted by distraction of thoughts leading to patient satisfaction (Kern *et al.*, 2013). Anxiety of the patient may result in failure to provide excellent dental care to misdiagnose or to carry out an improper treatment (Gordon *et al.*, 2013). Other treatment medications like anti-depression of benzodiazepines which have side effects like sedation, dizziness, weakness, and unsteadiness.

Music acts as an anxiolytic partner on patients to alleviate pain such as in case of uterine curettage there by nullifying the painkiller's effect (Magee and Davidson, 2002). Music therapy has proven its impact on medical conditions like depression , dementia , autism and other neurological disorders, reducing the activity of neuroendocrine and sympathetic nervous systems thus relieving anxiety (Michel and Chesky, 1995). Administration of local anesthesia involving usage of syringes increases dental anxiety as a result of which patients find it difficult to sit for a dental treatment. In light of the root and fundamental wellsprings of dread, dental anxiety patients can be sorted into four gatherings: the ones that are on edge about a specific boosts, the ones that are incredulous of dental clinicians, the ones that are generally on edge about most things, and the ones that startle that health related crises may happen during their dental treatment (Michel and Chesky, 1995; Maulina, Djustiana and Shahib, 2017). Dental uneasiness indicates a condition of fear that something awful will occur in the dental treatment and is combined with the feeling of losing control on the sight of needle syringe, sound of hand piece , root canal therapy and oral surgery (Appukuttan *et al.*, 2015). Dental extraction has been distinguished as one of dental medications that can possibly instigate dental uneasiness. This may be conceivable because of the organization of neighborhood anesthesia which included the use of a syringe. Dental uneasiness that may emerge during dental extraction method can convolute the methodology just as limiting the conceivable outcomes of having an effective technique. So as to limit the possibilities of these indications to happen and the sprinting dental system, dental specialists have been attempting to apply mediation techniques that are relied upon to lessen dental nervousness level, in particular hypnodontic, sedation, and sound therapy. The utilization of sound or music as a therapeutic apparatus has been known for at some point. One of the most utilized music kinds in the medication field is old style music. Because of its quieting and calming rhythm, traditional music has been notable for its viability in lessening uneasiness .Music is accepted to diminish uneasiness by either having an unwinding or interruption impact that thusly decreases movement of the neuroendocrine and sympathetic sensory system lowering the anxiety, pain, tension, and stress levels leading to achievement of higher patient compliance.

Music-guided deep breathing actively engages the patient in the relaxation process, in contrast to using music listening for distraction.(Zhu *et al.*, 2015) This may increase the patient's perception of control. Anxiety reduction in children during the preprocedural period suggested that music therapy is able to increase desirable behavioral responses and decrease levels of distress. Dental care units or clinics or hospitals consider including music therapy services offered by a trained music therapist for highly anxious patients and for children.(Pande, Chahande and Radke, 2017). This study aims in analysing the impact of dental patients during dental treatment.

2.MATERIALS AND METHODS

A cross- sectional questionnaire study was conducted among 100 participants on april 2020 in Chennai district. A self structured questionnaire is created and distributed among the participants. Hypertensive patients , cardiac failure patients , deaf patients were excluded from the study. The set of questionnaires includes demographic data of the participants and questions based on the awareness on impact of music on dental patients.The participants were asked to fill the Google forms. The results and data collection were analysed using SPSS software. The sample method used is a simple random sampling method. The descriptive

analysis was carried out and chi square test was used for inference and p value calculated. The obtained results are converted into pie charts and graphs accordingly.

3.RESULTS AND DISCUSSIONS:

In this study we came to know that 51.25% female and 48.75% male dental patients , patients 99.38% of Dental patients likes music ,73.75% of patients feel calm and relaxed while listening to music 45.63% of patients felt normal which going to dentist for treatment , 32.50% patients got increased anxiety by seeing forceps an injections in Dental clinics , 85.63% patient felt relaxed while listening to music while compared to other time in the clinic, 65% visited dentists who practiced music therapy , 92.59% though that music reduces the anxiety level and distract patients while getting treated in clinic . 48.75% patients male and 51.25% patients female (Figure 1)

99.38% of patients like music and 0.63% won't like music (Figure 2) . 73.75% of people felt calm and relaxed while listening to music and 26.25% of patients felt annoyed while listening to music (Figure 3) . 45.63% of patients felt normal while going to the dentist for treatment, 35.63% of patients felt anxious and 18.75% of patients felt extremely anxious (Figure 4) . 25% responded that factors increase anxiety because of instrument sound , 22.5% responded that the clinical environment made them feel anxious , 20% responded that during treatment they felt anxious ,32.5% of the respondents were anxious on seeing injection and forceps (Figure 5). 85.63% of patients felt relaxed while listening to music in the clinic and 14.38 % most felt relaxed (Figure 6) . 65% patients visited dentists who practice music therapy and 35% patients didn't visit (Figure 7) . 92.50% of patients thought that music reduces anxiety level and distract patients while listening to music while getting treated in a dental clinic and 7.50% patients don't think (Figure 8) . Bar graph depicting the association between gender and music therapy should be practised by a dentist in a clinic Chi square test shows $p = 0.721$, so ($p > 0.05$ indicates statistically not significant) (Figure 9) . Bar graph depicting the association between gender and music that reduces anxiety level and distracts patients in clinics Chi square test shows $p = 0.928$, so ($p > 0.05$ indicates statistically not significant) (Figure 10) . Bar graph depicting the association between gender and people how they felt when they listen to music while in a dental chair Chi square test shows $p = 0.19$, so ($p < 0.05$ indicates statistically significant) (Figure 11) . Bar graph depicting the association between gender and people felt relaxed in a dental clinic while listening to music Chi square test shows $p = 0.889$, so ($p > 0.05$ indicates statistically significant) (Figure 12) .

Music therapy practice in dental medicine has reduced the anxiety and pain in patients'. Dental anxiety in patients has created a fear towards dental procedures thereby forcing them to neglect dental treatments. (Fukayama and Yagiela, 2006) Music can influence overall dental attitude and music interventions is non pharmacological technique which is cost effective and easily accepted by patients (Ainscough, Windsor and Tahmassebi, 2019) Many studies shows that music decrease in anxiety level equally effective or even to a greater extent than the administration of benzodiazepines (Tamgadge, 2017) Studies suggested that music might reveal certain pleasant positive feeling and reduces anxiety and also have effect on blood pressure (Klingberg and Broberg, 2007) Awareness regarding dental treatment is increasing, academicians and practitioners are the people who come across many oro - dental cases. Oral soft and hard tissues arise due to disturbance in the development systemic conditions have manifestations in the oral cavity. Although encouraging, this methodology also needs further research and investigation as effective protocols are achieved by improving the knowledge of the general population at an early stage .(Kashyap *et al.*, 2014)With increasing age, people tend to develop more systemic diseases and oral health problems. (Preethikaa and Brundha, 2018)Patients visiting dental clinics may have systemic medical conditions and are on medication or without medication. Many of these systemic conditions have manifestations in the oral cavity (Gordon *et al.*, 2013)The most visible effects of music therapy in dental medicine are visible on the biggest anxious and on the female patients without the existence of distinctions in age until senescence, when dental anxiety level

decreases - dental practices seems to be less painful .Music is believed to reduce anxiety by either having a relaxing or distraction effect that in turn reduces activity of the neuroendocrine and sympathetic nervous system.Children while listening to music offers an obedient behaviour making the work of a dentists easier. (Kalaiselvi and Brundha, 2016; Shreya and Brundha, 2017). The findings indicated that music listening significantly decreased anxiety and music therapy paves a favorable outcome ranging from a simple euphoric effect exclusively or placebos to equal to or upper effects of other psychotherapeutic methods although association of the music therapy with other relaxation therapy (Khosla, 2017; Shreya and Brundha, 2017)Previously our team had conducted numerous clinical trials (citation (Rosenthal, Shachat and Walker, 2003))(Brundha, Pathmashri and Sundari, 2019) ((Book, 2019; Timothy, Samyuktha and Brundha, 2019)(Kumar, Ashok Kumar and Brundha, 2016; Prashaanthi and Brundha, 2018)(Preethikaa and Brundha, 2018; Hannah *et al.*, 2019)and lab animal studies (Citation (Kalaiselvi and Brundha, 2016; Shreya and Brundha, 2017; Gowthaman, Swetha and Gopala Krishnan, 2019; Hannah *et al.*, 2019) (Preethika and Bruntha *et al* , 2918) (Shreya and Bruntha *et al* , 2017) (Kalaiselvi and Brundha *et al* , 2016) (Harsha and Bruntha *et al* , 2017) (Ravichandran and Brundha *et al* , 2016) (Balaji and Brundha *et al* , 2016) in-vitro students (Sarvesh Kumar and Bruntha *et al* . , 2018) (Bruntha M *et al* . , 2015) over the past 5 years. Now we are focussing on epidemiological surveys. The idea for this survey stemmed from the current interest in our community.

4.CONCLUSION:

This survey shows that dental patients are aware of the impact of music and experienced tranquility, reduced anxiety and reduction in pain, listening to music while in dental chairs. Therefore music therapy provides an easy and comfortable way to carry out the dental procedures. Thus we conclude that the majority of the patients suggested the use of music in clinics during dental treatment to reduce anxiety.

5.AUTHOR CONTRIBUTION :

Mathivathani contributed to data acquisition and drafting the manuscript. Dr.A.K.Anjali , contributed to the concept and design , validation of data collection , critical revision and proofreading of the manuscript was contributed by Lakshminarayanan Arivarasu.

6.CONFLICT OF INTEREST:

Authors declare no potential conflict of interest.

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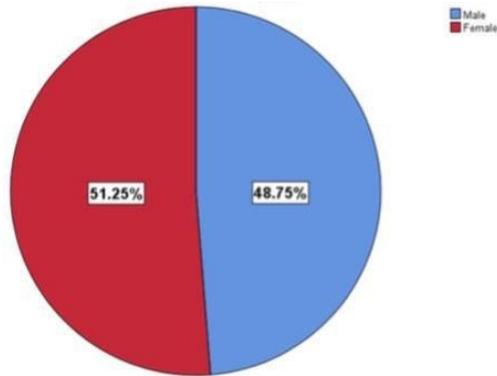


Figure 1 . Pie chart showing the percentage distribution of gender. Among the total participants, 48.75% were male (blue) and 51.25% were female (red). Female participants were more compared to male.

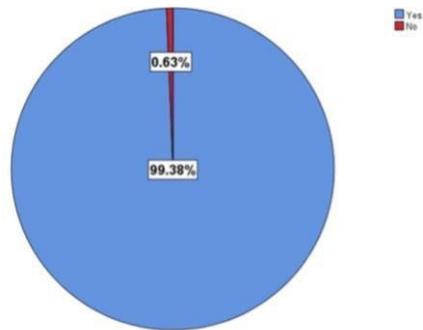


Figure 2 . Pie chart showing the percentage distribution of awareness among people where 99.38% were aware (blue) and 0.63% of the participants were not aware (red). Majority of the respondents liked to hear music.

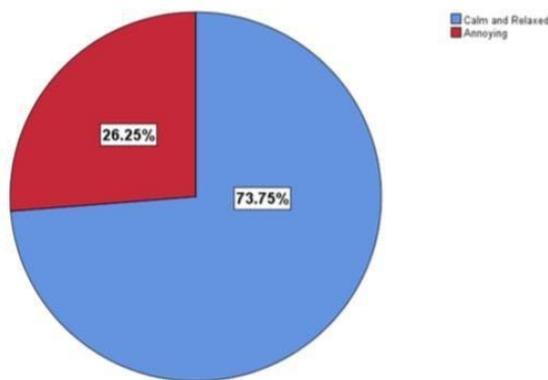


Figure 3. Pie chart showing the percentage distribution of awareness among the participants where 73.75% of participants felt calm and relaxed (blue) and 26.25% responded that hearing music was annoying (red). Majority of respondents felt calm and relaxed.

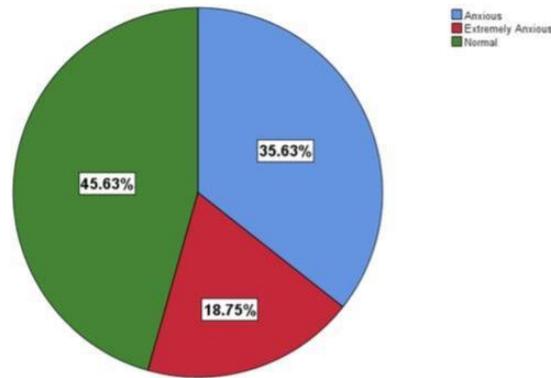


Figure 4 . Pie chart showing the percentage distribution of awareness among participants on how the patients felt on visiting the dental clinics where 45.63% of the participants felt normal (green), 35.63% of the respondents felt anxious (blue) and 18.75% of them felt extremely anxious (red). Majority of the respondents were not anxious about visiting dental clinics.

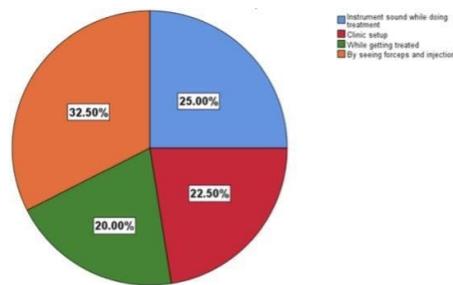


Figure 5 . Pie chart showing the percentage distribution of awareness to factors that increase the anxiety level in dental clinics where 25% responded that sound of the instruments made them feel anxious (blue), 22.5% responded that the clinical environment made them feel anxious (red), 20% responded that during treatment they felt anxious (green) and 32.5% of the respondents were anxious on seeing injection and forceps (orange). Majority of respondents were anxious about seeing forceps and injection.

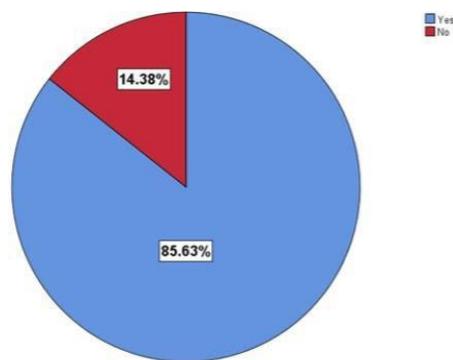


Figure 6 Pie chart showing the percentage distribution of awareness of participants on how they felt on hearing music while in the dental chair where 85.63% of the respondents felt relaxed (blue) and 14.38% of the

respondents felt disturbing (red). Majority of the respondents felt calm and relaxed on hearing music while carrying out a dental procedure.

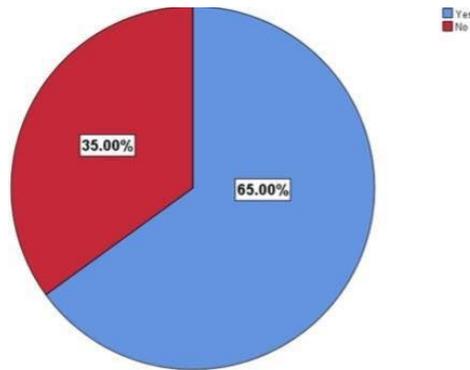


Figure 7 . Pie chart showing the percentage distribution of awareness among participants who are aware of dental clinics practicing music therapy where 65% were aware (blue) and 35% were not aware (red). Majority of the participants were aware of dental clinics practicing music therapy

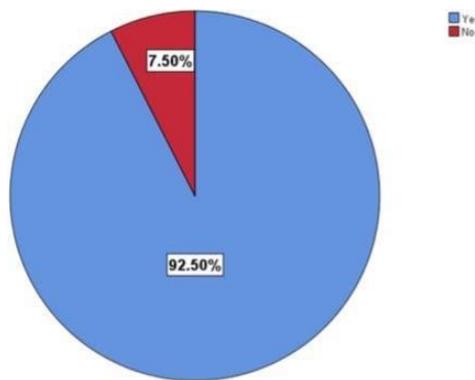


Figure 8. Pie chart showing the percentage distribution of awareness among participants who think music distracts attention from the procedures carried out while in the dental chair where 92.5% participants were aware that music distracts (blue) and 7.50 % were not aware (red). Majority of the respondents were aware that music distracts attention from the procedures carried out while in the dental chair.

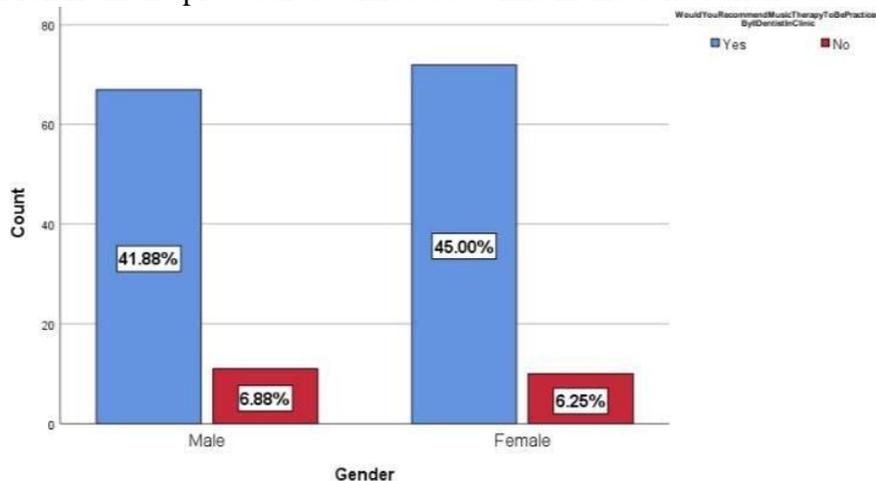


Figure 9. Bar graph depicting the association between gender and music therapy should be practised by a dentist in a clinic where blue denotes yes and red denotes no , X axis represents gender and Y axis represents the number of respondents. Chi square test shows $p = 0.721$, so ($p > 0.05$ indicates statistically not significant). So there is not any significant association between gender and people recommend music therapy to be practised by dentists in clinics, but females recommend more than males.

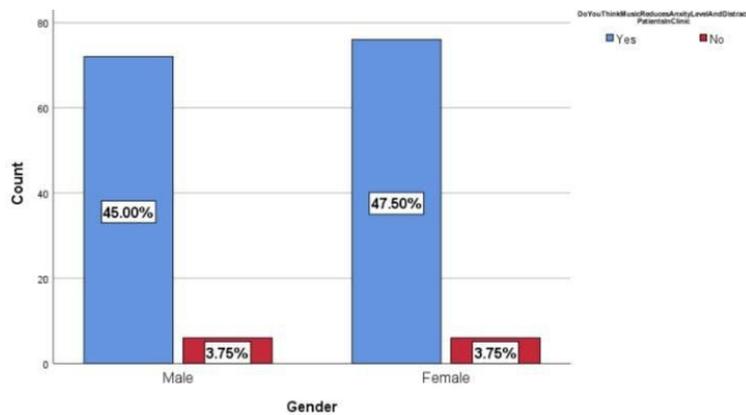


Figure 10. Bar graph depicting the association between gender and music that reduces anxiety level and distracts patients in clinics where blue denotes yes and red denotes no . X axis represents the gender and Y axis represents the number of respondents. Chi square test shows $p = 0.928$, so ($p > 0.05$ indicates statistically not significant). So there is no significant association between gender and music that reduces anxiety level and distracts patients in clinics, depicting females think that music reduces anxiety level and distracts patients in clinics more than males.

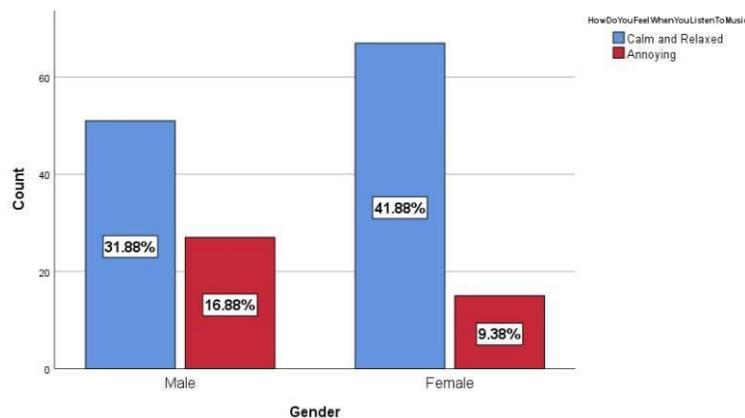


Figure 11. Bar graph depicting the association between gender and people how they felt when they listen to music while in a dental chair where blue denotes calm and relaxed and red denotes annoying . X axis represents the gender and Y axis represents the number of respondents. Chi square test shows $p = 0.19$, so ($p > 0.05$ indicates statistically not significant). So there is no significant difference between gender and people feeling calm and relaxed while listening to music, showing females feeling more calm and relaxed while listening to music than males.

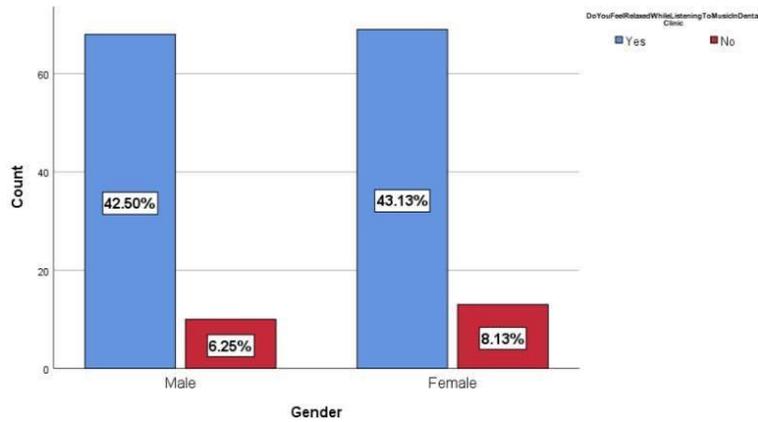


Figure 12 . Bar graph depicting the association between gender and people felt relaxed in a dental clinic while listening to music where blue denoted yes and red denoted no. X axis represents the gender and Y axis represents the number of respondents. Chi square test shows $p=0.889$, ($p>0.05$ indicates statistically not significant). So there is no significant association between gender and people feeling relaxed while listening to music in dental clinics, but females feel comparatively more relaxed than males.