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Original Research Article

The effects of alpha binaural beat music and audio-visual information on anxiety and pain levels in patients undergoing mini-screw application: An in-vivo study

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Abstract

Aim: To assess the impact of audiovisual content and alpha binaural beat music on patients' anxiety and pain during mini-screw implantation.

Materials and Method: A random selection of thirty adult patients undergoing active orthodontic treatment were scheduled for application of mini-screws for additional anchorage. These patients were divided into three groups at random: Group 1 received audiovisual information and music with an alpha binaural beat; Group 2 received audiovisual information and music with a normal beat; and Group 3 received neither intervention nor control. Just before the mini-screw placement procedure, the Spielberger STAI was used to assess the patient's anxiety levels. Following the implantation of a mini-screw, postoperative pain (PP) was measured using a 100-mm horizontal visual analogue scale (VAS) and the modified short-form McGill pain questionnaire (SF-MPQ). SPSS v23 was used to analyse data. A 5% ($p \leq 0.05$) threshold for significance was maintained.

Result: State, trait and total anxiety scores showed statistically non-significant difference. The mean VAS score difference was statistically significant (highest in group 3 and lowest in group 1). Difference in sensory & affective domain score of the three groups were found to be statistically significant (highest in group 3 and lowest in group 1).

Conclusion: After a mini-screw is inserted, alpha binaural beat music and audiovisual content can significantly reduce pain, but not anxiety.

Keywords: Anxiety, Orthodontic treatment, Pain

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1. Introduction

Anxiety is a significant problem during dental procedures for both patients and clinicians.[1] Patients who experience anxiety are generally less satisfied with dental care, less cooperative during procedures, and more likely to miss or cancel appointments.[2-3] According to surveys, the worst parts of orthodontic treatment are pain and the general anxiety that comes with having a fixed appliance. These are the main reasons why people want to stop their orthodontic treatment.[4-5]

Mini-screw anchorage is typically positioned in the attached gingiva and is required for biomechanical reasons. Surgical procedures, including mini-screw application and orthognathic surgery, are cited as a major source of anxiety and are linked to pain expectations.[6-7] Pharmacological interventions such as NSAIDs are frequently prescribed to relieve pain following the insertion of a mini-screw or following the initial placement of an arch wire. Usually, it takes several doses to relieve the pain, and there are worries that it may have a detrimental impact on tooth movement.[8] Furthermore, the effects of NSAIDs seem to be temporary, as there is no change in pain after six hours and only a significant reduction after two hours.[9] Pain and distress in dental patients have also been successfully reduced by non-pharmacological interventions that have been tried.[10]

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For the relief of orthodontic pain, various methods have been tried, including low-level laser therapy, vibratory devices, chewing aids, brainwave music, cognitive behavioural therapy, and post-treatment text messaging.[11-15] It seems that music has many positive effects on the brain, including the capacity to calm and relax.[16] Additionally, it was found that music therapy was a successful non-pharmacological method of managing pain following surgery.[17-19] Brainwave entrainment devices became widely available after Oster's 1973 article[20] on the characteristics of the binaural beat. One ear is exposed to a sound of constant frequency and intensity, while the other ear is exposed to a sound of slightly different frequency and intensity.

The resulting pulsations, referred to as "binaural beat" or "binaural tone," are produced by the brain and have the same amplitude and localization as the sounds that are perceived. There has only been one study[12] in the field of orthodontics that used binaural beats. The authors of that study used binaural tones that were specifically tailored based on an EEG analysis. They came to the conclusion that when it came to treating orthodontic pain, brainwave music worked better than both a control and cognitive behavioural therapy.

Patients' anxiety and stress levels can be lowered by providing them with information prior to a medical procedure so they know what to expect.[21] Wright et al. found that during early orthodontic treatment, verbal communication paired with thorough written information increased patient compliance but had no impact on patients' anxiety levels related to the treatment. Srai and colleagues, however, showed that giving verbal or multimedia-only information about the bonding process did not substantially lower anxiety levels.[22-23]

Therefore, the purpose of this study was to assess how patients' anxiety and pain levels were affected by audiovisual information and alpha binaural beat music while undergoing mini-screw application.

2. Materials and Methods

The data (mean VAS score) from an earlier study by Aly AE et al.[24] was used to estimate the sample size. With a 90% power and a 0.05 α error, the estimated sample size for each group was nine. We retained the sample sizes at ten per group to account for possible dropouts.

Based on the requirement for additional anchorage in the Department of Orthodontics at a Dental Hospital, thirty patients were chosen at random from among those undergoing active fixed orthodontic treatment and were prescribed mini-screw applications. The interradicular space between the maxillary second premolar and first molar had to be at least 5 to 6 mm, measured by IOPA using the paralleling technique, and all teeth had to have a probing depth of less than 4 mm. Gingival and plaque indices had to be less than or equal to 1. The exclusion criteria included evidence of bone loss, systemic disorders, long-term use of any medication that may affect pain or anxiety, and prior experience with mini-screw placement.

Prior to the study, participants were informed about the objectives of the research, the intervention strategies, the likely risks and benefits, the guarantee of confidentiality for any information disclosed, and the importance of voluntary participation. Every patient gave their informed consent, and the Institute's Ethical Committee gave its ethical approval. The effects of audiovisual information and alpha binaural beat music on anxiety and pain levels in patients undergoing mini-crew application were assessed in this prospective, randomised controlled trial.

A simple randomization (chit system) was used to assign patients (total = 30) in a 1:1:1ratio, into one of the three groups:

1. Group 1: Patients receiving alpha binaural beat music and audiovisual information.
2. Group 2: Patients receiving normal music and audiovisual information
3. Group 3: No intervention/ control group

While study participants saw a video of a patient receiving a mini-screw application accompanied by either normal music or alpha binaural beat music, control group participants only heard spoken information.

Under infiltrative local anaesthesia, orthodontists carried out all procedures using about 2.0 mL, or slightly less than one quarter of the anaesthetic cartridge. A screwdriver was carried along with the sterile implant. Without making an incision or removing any soft tissue from the attached gingival prior to insertion, self-drilling mini-screws (8 mm length, 1.5 mm diameter; Rabbit Force System) were inserted into the posterior buccal inter-radicular region in accordance with suggested guidelines. Following surgery, no analgesic or antibiotic prescriptions were given, and patients were advised to practise proper oral hygiene.

The American Association of Orthodontics and the American Association of Oral and Maxillofacial Surgeons recorded a video, which was included with the audiovisual materials. The duration of the video was 4 minutes and 41 seconds. The mini-screw insertion, topical antisepsis, and local anaesthetic injection processes were all demonstrated in the video. The same researcher gave patients audiovisual information prior to mini-screw application, and during mini-screw placement, all patients were instructed to close their eyes and listen to music in accordance with group distribution. Just before the mini-screw placement procedure, the Spielberger STAI was used to gauge the patient's level of anxiety.

The Oner and LeCompte10-adapted questionnaire was utilised. The 20 statements on the state anxiety scale (STAI-S) ask patients about their current feelings. Respondents rate their level of anxiety on a scale from one ("not at all") to four ("very much so"). In order to gauge how a person typically feels, the trait anxiety scale (STAI-T) includes 20 questions with ratings ranging from one ("almost never") to four ("almost always"). Scores for each subscale fall between 20 and 80. Patients were given instructions by the researcher on how to complete the questionnaire, and each questionnaire also included written instructions.

Following the implantation of a mini-screw, postoperative pain (PP) was measured using a 100-mm horizontal visual analogue scale (VAS) and the modified short-form McGill pain questionnaire (SF-MPQ). Patients completed the SF-MPQ by rating each of the four affective (uncomfortable, strange, frustrating, annoying) and seven sensory (pressure, sore, aching, throbbing, tight, pulling, miserable) descriptors on a 4-point severity response scale (0 = no pain, 1 = mild pain, 2 = moderate pain, and 3 = severe pain). The total intensity values for the sensory, affective, and total descriptors were added up to create three different pain scores.

The VAS scale had a range of 0 to 10, where 0 represented "no pain at all" and 10 represented "the worst imaginable pain." Following the insertion of a mini-screw, patients were instructed to draw a line perpendicular to the VAS line at the location that best expressed the degree of their pain.

2.1. Statistical analysis

SPSS v23 software was used to analyse data. A 5% threshold for significance was maintained. The Shapiro-Wilk test was used to evaluate the normality of the data. The findings of the normality assessment indicated that the three variables under investigation—the SF-MPQ, VAS score, and STAI—all had a normal distribution. One-way ANOVA was used to compare the STAI, VAS score, and SF-MPQ between the three groups; post hoc Tukey was used for pairwise comparisons.

3. Results

The Spielberger State-Trait Anxiety Inventory (STAI) revealed that group 3 had the highest state anxiety score, followed by group 2, and group 1 had the lowest state anxiety score. Nevertheless, there was no statistically significant difference between the three groups' state anxiety scores. Group 1 had the highest trait anxiety score, followed by group 2 and group 3, but there was no statistically significant difference between the three groups' trait anxiety scores. The three groups' total anxiety scores were not significantly different, with group 3 having the highest total anxiety score, group 2 having the second-lowest, and group 1 having the lowest total anxiety score.**(Table 1)**

A statistically non-significant difference in state anxiety scores was observed between groups 1 and 2, between groups 1 and 3, and between groups 2 and 3. This was revealed by a pairwise comparison of the STAI scale among the three groups. The trait variable and total anxiety score showed similar outcomes (**Table 2**). Group 3 had the highest mean VAS score, followed by group 2, and group 1 had the lowest mean VAS score; this difference was statistically significant. When the mean VAS score was compared pairwise, it was found that group 3's VAS score was significantly higher than group 1's VAS score (p=0.002). (**Table 3**)

Three groups' responses to the Short-form McGill Pain Questionnaire (SF-MPQ) were compared. The three groups' differences in sensory domain scores were statistically significant, with group 3 having the highest mean score, group 2 having the second-lowest, and group 1 having the lowest. Group 3 had the highest mean affective domain score, followed by group 2, and group 1 had the lowest; there was a statistically significant difference in the affective scores of the three groups. Group 2 had the lowest total SF-MPQ score, while group 1 had the highest; there was a statistically significant difference between the three groups' total SF-MPQ scores. (**Table 4**)

Pairwise comparison of SF-MPQ among three groups was also done. Mean sensory domain score was significantly higher in group 3 as compared to group 1 (p=0.001). Mean affective domain score was significantly lower in group 1 as compared to group 2 (p=0.006) and group 3 (p<0.001). Total SF-MPQ score was significantly lower in group 1 as compared to group 2 (p=0.003) and group 3(p<0.001). Also, group 3 showed significantly higher total SF-MPQ score than group2. Three groups did not show a significant difference in gender distribution. (**Table 5**)

Table 1: Comparison of Spielberger State-Trait Anxiety Inventory (STAI) among three groups

STAI	Group 1		Group 2		Group 3		p-value
	Mean	SD	Mean	SD	Mean	SD	
State	25.80	6.02	34.30	12.15	37.10	11.52	0.053
Trait	35.30	6.24	35.00	8.15	33.70	4.19	0.839
Total anxiety	61.10	10.88	69.30	18.64	70.80	13.09	0.293

One-way ANOVA test

Table 2: Pairwise comparison of STAI scale among three groups

STAI	Group 1 vs Group 2	Group 1 vs Group 3	Group 2 vs Group 3
State	0.173	0.052	0.816
Trait	0.994	0.843	0.893
Total anxiety	0.430	0.912	0.371

Post Hoc Tukey test

Table 3: Comparison of mean VAS score among three groups

Groups	Mean	SD	p-value	Pairwise comparison
Group 1	13.20	8.57	0.003*	Gr 1 vs Gr 2: 0.364 Gr 1 vs Gr 3: 0.002* Gr 2 vs Gr 3: 0.066
Group 2	20.90	11.34		
Group 3	34.00	16.23		

One-way ANOVA test; Post Hoc Tukey test; * indicates significant difference at p≤0.05

Table 4: Comparison of Short-form McGill pain questionnaire (SF-MPQ) amongthree groups

SF-MPQ	Group 1		Group 2		Group 3		p-value
	Mean	SD	Mean	SD	Mean	SD	
Sensory	10.90	3.21	14.50	4.09	17.30	3.23	0.002*
Affective	5.10	2.69	8.40	2.22	10.20	1.40	<0.001*
Total	16.00	5.03	22.90	3.28	27.50	3.95	<0.001*

One-way ANOVA test; * indicates significant difference at p≤0.05

Table 5: Pairwise comparison of SF-MPQ among three groups

SF-MPQ	Group 1 vs Group 2	Group 1 vs Group 3	Group 2 vs Group 3
Sensory	0.076	0.001*	0.198
Affective	0.006*	<0.001*	0.171
Total	0.003*	<0.001*	0.050*

Post Hoc Tukey test; * indicates significant difference at p≤0.05

4. Discussion

Dental anxiety is a set of signs of sympathetic hyperfunction that occur during a dental visit. Orthodontic pain is a common reaction in both children and adults, increasing dental anxiety and influencing orthodontic outcomes. Preventing or managing pain and anxiety is critical for ensuring patient comfort during treatment.

While pharmaceuticals are the first line of treatment for orthodontic pain, many non-pharmacological methods have been used in an attempt to alleviate orthodontic discomfort. Noninvasive psychotherapeutic management techniques are always preferred because they help to avoid side effects. Cognitive-behavioral therapy, music therapy, a pre-operative video, relaxation techniques, proper breathing techniques, dietary changes, exercise, aromatherapy, hypnosis, and massage are some of the methods used. The reviewed clinical evidence on the aforementioned methods demonstrates the efficacy of non-pharmacological interventions for the treatment of preoperative anxiety, allowing them to be used in patients of various ages, types of disease, and surgery.[25]

Distraction with audio and videos is a simple non-pharmacological management technique that directs attention away from noxious stimuli. Binaural beats, first described by Dove in 1939, are an auditory illusion that occurs when two different pure-tone sine waves are presented to each ear at a constant intensity and frequency.

We conducted this prospective and randomised controlled trial to determine the effects of alpha binaural beat music and audiovisual information on anxiety and pain levels in patients undergoing mini-crew application. In our study, we used three scales to assess anxiety and pain levels in patients undergoing mini-implant placement: the SF-MPQ, the Spielberger State-Trait Anxiety Inventory (STAI), and the Visual Analogue Scale.

Despite the fact that inter-radicular mini-screw placement is a simple procedure, patients may be uncomfortable because it is slightly invasive. We hypothesised that showing the entire procedure to patients in an animated video while playing binaural beat music would reduce anxiety and perceived pain more significantly. As a result, we assessed state and trait anxiety levels prior to miniscrew placement, as well as pain levels following miniscrew placement.

The study group's state and trait anxiety levels were not significant, even when the STAI scale was compared

pairwise among three groups. There was no statistically significant difference in state anxiety score.

Pain perception after mini-screw placement was assessed in all three groups using the VAS and SF-MPQ scales. The mean VAS score of the three groups differed significantly, with group 3 reporting the most pain and group 1 reporting the least. In the SF-MPQ evaluation, both the sensory and affective aspects revealed significantly higher pain levels in group 3 than in group 1.

Many studies have used auditory alpha range stimulation and found positive effects (primarily on anxiety, pain, and mood enhancement) along with an increase in alpha power[16,26,27-28] While some studies discovered entrainment effects after only a short period of stimulation, others rejected binaural beats as a potential source of brainwave entrainment.[29-31] A 2019 meta-analysis[32] found that binaural beat exposure is an effective way to affect cognition, anxiety levels, and pain perception, but it is highly dependent on the exposure time, moment of exposure, and the type of sound used to mask the binaural beat.Although the results were insignificant, the lesser anxiety in our test group could be due to the soothing effect of music on the human brain.

Calik Koseler et al.[33] conducted a study to assess changes in patients' anxiety and perceived pain levels after receiving audiovisual and verbal information about miniscrew application. They concluded that using an audiovisual method to inform patients about mini-screw placement increased anxiety but did not change pain perception. This contradicts our findings, most likely because the effect of alpha binaural beat music was not evaluated alongside audio-visual information in previous studies.

The current study found no statistically significant difference in anxiety scores between female and male patients in either group. Farzanegan F and Huang R found that dental anxiety,[34] also known as state anxiety,[35] is more common in women. Other studies[36-38] have found no link between gender and dental or state/trait anxiety levels.

This aspect of our study suggests that alpha binaural and audio-visual can have a significant pain-relieving effect regardless of gender. One limitation of our study was that the binaural beat exposure was too short (5 minutes), and a longer exposure could have improved the results.

5. Conclusions

1. Alpha binaural beat music and audiovisual information were found to significantly reduce pain in patients following mini-screw placement.
2. There was no significant reduction in patient anxiety levels before mini-screw placement.

6. Source of Funding

None.

7. Conflict of Interest

None.

References

1. Humphris G, Crawford JR, Hill K, Gilbert A, Freeman R. UK population norms for the modified dental anxiety scale with percentile calculator: adult dental health survey 2009 results. *BMC Oral Health*. 2013;13:29.
2. Armfield JM, Stewart JF, Spencer AJ. The vicious cycle of dental fear: exploring the interplay between oral health, service utilization and dental fear. *BMC Oral Health*. 2007;7:1.
3. Thickett E, Newton JT. Using written material to support recall of orthodontic information: a comparison of three methods. *Angle Orthod*. 2006;76(2):243-50.
4. Vaid N, Pratik P, Donald F. Orthodontic pain management: Is it time to protocolize analgesic use?. *APOS Trends in Orthod*. 2017;7(4):155-6.
5. Monk AB, Harrison JE, Worthington HV, Teague A. Pharmacological interventions for pain relief during orthodontic treatment. *Cochrane Database Syst Rev*. 2017;11(11):
6. Maggirias J, Locker D. Psychological factors and perceptions of pain associated with dental treatment. *Community Dent Oral Epidemiol*. 2002;30(2):151-9.
7. Caumo W, Schmidt AP, Schneider CN, et al. Risk factors for postoperative anxiety in adults. *Anaesthesia*. 2001;56(8):720-8.
8. Krishnan V. Orthodontic pain: from causes to management--a review. *Eur J Orthod*. 2007;29(2):170-9.
9. Angelopoulou MV, Vlachou V, Halazonetis DJ. Pharmacological management of pain during orthodontic treatment: a meta-analysis. *Orthod Craniofac Res*. 2012;15(2):71-83.
10. Burghardt S, Koranyi S, Magnucki G, Strauss B, Rosendahl J. Non-pharmacological interventions for reducing mental distress in patients undergoing dental procedures: Systematic review and meta-analysis. *J Dent*. 2018;69:22-31
11. Farzanegan F, Zebarjad SM, Alizadeh S, Ahrari F. Pain reduction after initial archwire placement in orthodontic patients: a randomized clinical trial. *Am J Orthod Dentofac Orthop*. 2012;141(2):169-73.
12. Huang R, Wang J, Wu D. The effects of customised brainwave music on orofacial pain induced by orthodontic tooth movement. *Oral Dis*. 2016;22(8):766-74.
13. Ren C, McGrath C, Yang Y. The effectiveness of low-level diode laser therapy on orthodontic pain management: a systematic review and meta-analysis. *Lasers Med Sci*. 2015;30(7):1881-93.
14. Wang J, Wu D, Shen Y. Cognitive behavioral therapy eases orthodontic pain: EEG states and functional connectivity analysis. *Oral Dis*. 2015;21(5):572-82.
15. Fleming PS, Strydom H, Katsaros C. Non-pharmacological interventions for alleviating pain during orthodontic treatment. *Cochrane Database Syst Rev*. 2016;12(12):
16. Phneah SW, Nisar H. EEG-based alpha neurofeedback training for mood enhancement. *Australas Phys Eng Sci Med*. 2017;40(2):325-36.
17. Kulkarni S, Johnson PC, Kettles S, Kasthuri RS. Music during interventional radiological procedures, effect on sedation, pain and anxiety: a randomised controlled trial. *Br J Radiol*. 2012;85(1016):1059-63.
18. Lee JH. The Effects of Music on Pain: A Meta-Analysis. *J Music Ther*. 2021;58(3):372.
19. Oster G. Auditory beats in the brain. *Sci Am*. 1973;229(4):94-102.
20. Huang TL, Charyton C. A comprehensive review of the psychological effects of brainwave entrainment [published correction appears in Altern Ther Health Med. 2008;14(6):18.
21. Patel JH, Moles DR, Cunningham SJ. Factors affecting information retention in orthodontic patients. *Am J Orthod Dentofacial Orthop*. 2008;133(4):S61-7.
22. Aly AE, Hansa I, Ferguson DJ, Vaid NR. The effect of alpha binaural beat music on orthodontic pain after initial archwire placement: A

randomized controlled trial. *Dental Press J Orthod*. 2023;27(6):e2221150.
23. Le Scouarnec RP, Poirier RM, Owens JE, Gauthier J, Taylor AG, Foresman PA. Use of binaural beat tapes for treatment of anxiety: a pilot study of tape preference and outcomes. *Altern Ther Health Med*. 2001;7(1):58-63.
24. Aly AE, Hansa I, Ferguson DJ, Vaid NR. The effect of alpha binaural beat music on orthodontic pain after initial archwire placement: A randomized controlled trial. *Dental Press J Orthod*. 2023;27(6):
25. Wang R, Huang X, Wang Y, Akbari M. Non-pharmacologic Approaches in Preoperative Anxiety, a Comprehensive Review. *Front Public Health*. 2022;10:854673.
26. Ecsy K, Jones AK, Brown CA. Alpha-range visual and auditory stimulation reduces the perception of pain. *Eur J Pain*. 2017;21(3):562-72.
27. Nawaz R, Nisar H, Voon YV. The effect of music on human brain; Frequency domain and time series analysis using electroencephalogram. *Ieee Acc.* 2018;20(6):45191-205.
28. Padmanabhan R, Hildreth AJ, Laws D. A prospective, randomised, controlled study examining binaural beat audio and pre-operative anxiety in patients undergoing general anaesthesia for day case surgery. *Anaesthesia*. 2005;60(9):874-7.
29. Gao X, Cao H, Ming D. Analysis of EEG activity in response to binaural beats with different frequencies. *Int J Psychophysiol*. 2014;94(3):399-406.
30. Wahbeh H, Calabrese C, Zwickey H. Binaural beat technology in humans: a pilot study to assess psychologic and physiologic effects. *J Altern Complement Med*. 2007;13(1):25-32.
31. Yıldırım E, Karacay S. Evaluation of anxiety level changes during the first three months of orthodontic treatment. *Korean J Orthod*. 2012;42(4):201-6.
32. Garcia-Argibay M, Santed MA, Reales JM. Efficacy of binaural auditory beats in cognition, anxiety, and pain perception: a meta-analysis. *Psychol Res*. 2019;83(2):357-72.
33. Calik Koseler B, Yilanci H, Ramoglu SI. Does audiovisual information affect anxiety and perceived pain levels in miniscrew application? - a within-person randomized controlled trial. *Prog Orthod*. 2019;20(1):29.
34. Prabhat KC, Maheshwari S, Verma SK, Gupta ND, Balamani A, Khan MT, Singh RK. Dental anxiety and pain perception associated with the use of miniscrew implants for orthodontic anchorage. *J Ind Orthod Soc*. 2014;48(3):163-7.
35. Kazancioglu HO, Tek M, Ezirganli S, Demirtas N. Does watching a video on third molar surgery increase patients' anxiety level?. *Oral Surg Oral Med Oral Pathol Oral Radiol*. 2015;119(3):272-7.
36. Corah NL. Development of a dental anxiety scale. *J Dent Res*. 1969;48(4):596.
37. Srai JP, Petrie A, Ryan FS, Cunningham SJ. Assessment of the effect of combined multimedia and verbal information vs verbal information alone on anxiety levels before bond-up in adolescent orthodontic patients: a single-center randomized controlled trial. *Am J Orthod Dentofac Orthop*. 2013;144(4):505-11.
38. Spielberger C., Gorsuch R., Lushene R., Vagg P.R., Jacobs G. Consulting Psychologists Press; Palo Alto, CA: 1983. Manual For the State-Trait Anxiety Inventory (Form Y1 – Y2)

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