Does music during dental treatment make a difference?

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Introduction

Dental treatment and the surrounding dental environment may elicit many different cognitions and emotions among people. For the majority, these feelings include anxiety and discomfort when facing a situation of dental care. For the fearful patient a visit to the dental office is very difficult and usually postponed as long as possible (1, 2, 3). It often means irregular dental visiting habits with only emergency dental treatments or even sometimes total avoidance which leads to the deterioration of oral health as well as increased feelings of anxiety, shame and inferiority. This is why it is of great significance to diagnose anxiety on time and handle the anxious patient properly. Treatment of dental anxiety and choosing the right method of managing this disorder is not always easy. Therefore more and more important for the dentist is to develop the skill of assessing of patients' behaviour, the reasons for their problems and seeking for suitable methods of treatment (4,5,6).

Music is a set of information, which in the form of impulses, reaches the human nervous system. By affecting the metabolism it can change our behavior, develop emotions or bring memories to our minds. It can also influence our brain waves and in this way change our condition. It is well known that suitable music also has many relaxation benefits and by changing the moods, which alerts brain chemistry, it can have a positive influence on a patient by making concentration easier, fostering patience and above all easing anxiety (7).

The purpose of this study was to answer the question: Is it possible to eliminate the stress connected with a visit to a dental office by music? As well this study seeks to assess whether music influences dental patients' tension, behaviour and treatability and whether these effects depend on sex, age, kind of dental treatment or the level of patients' dental anxiety.

Materials and Methods

200 adult patients (120 women and 80 men between the age of 18-72 years) were divided into 2 equal groups. 100 patients listened to classical music during the treatment (picture.1, 2, 3.) while another 100 were not. Everyone of them had completed one anonymous questionnaire prior the treatment which contained questions based on Corah's Dental Anxiety Scale (CDAS) and another containing questions based on the Dentist Rating of patients' adjusment to initial treatment (DR) and the Patient Rating of tension (PR) just after the treatment has been finished.

CDAS (table.1.) consists of four items, each of which the patient rates on a 1 to 5 point scale from calm to terrified. The four dental situations include appointment tommorrow, sitting in the waiting room, sitting in the dental chair just before the treatment and before the scaling. The patient is asked to imagine being in the situations described. The score for these items thus adds up to total varying from 4 to 20. There are three levels of anxiety: low(from 4 to 7 points), medium(8-11) and high (12-20) (8).

In the Dentist Rating of patients' behaviour and treatability the dentist assesses the patient's adjusment to treatment by giving the score from 1 to 6 points(from the patient being totally relaxed to the patient refusing the treatment). There are three levels of patients' treatability: low (from 5 to 6 points), medium(3-4) and high(1-2) (4).

In the Patient Rating, which is the rating of the degree of tension experienced during dental examination and treatment, the patient answers the question: "How would you describe your tension during the dental treatment today?" by giving the score from 1 (calm and relaxed) to 7 (extremely tense and upset). There are three levels of patients' tension: low(from 1 to 2 points), medium(3-4) and high(5-7) (4).

Other questions refered to patients' age, sex and kind of dental treatment (tooth extraction (dental surgery), drilling(conservative dentistry), preparing the tooth for the crown

(prosthetics)). All data obtained were computerized and calculated by the Student's t-test. The chi-square test was used to determine differences of proportions.

Results

The mean result in the group of patients treated without music in PR was 2,7±0,5 and in DR 2,5±0,3 in comparison to 1,9±0,3 in PR and 1,9±0,3 in DR in the group of patients treated with music (Figure.1.). Low level of tension during the treatment according to PR was shown by 47% of patients, medium by 44% and high by 9% in the group treated without music (Figure.2.) while in the second group 79% of patients showed low and 21% medium level of tension (Figure.3.). According to DR among patients who weren't listening to music 50% showed high adjusment to treatment and 50% medium (Figure.4.) while in the second group 88% were highly and 12% medium adjusted to the dental situation (Figure.5.). In the first group tension among patients with low level of anxiety was 1,7±0,2, with medium 2,4±0,2 and with high 3,4±0,4 while in the second one 1,7 ±0,1 among patients with low level of anxiety, 2±0,3 with medium and 2,5±0,5 with high (Figure.6.). According to DR patients with low level of dental anxiety who were listening to music received 1,7±0,1 points, with medium 1,9±0,2, with high, 1±0,3 and patients who weren't listetning to music with low level of anxiety obtained 1,8±0,2, with medium 2,4±0,3 and with high 2,8±0,4(Figure.7.). The lower level of tension in the second group was observed also in all kinds of treatment (from 1,7±0,5 to 2,1±0,6 in PR and from 1,8±0,5 to 1,9±0,6 in DR) (Figure.8.), in all age groups (2±0,4 in PR and from 1,8±0,5 to 1,9±0,4 in DR), among women (2±0,5 in PR and 1,9±0,4 in DR) as well as among men (1,9±0,5 in PR and 1,8±0,4 in DR) (Figure.9.).

Discussion

For over 100 years it has been known that suitable music has strong influence on human brain waves and in this way leads people into states of deep relaxation. Researches prove that classical music is the most relaxing style (7,9,10,11). The results of our study seem to prove that fact. The group of patients treated by music showed lower level of tension (1,9±0,3 in PR) and better treatability (1,9±0,3 in DR) in comparison to the second group of patients (7). It is worth noticing that among the first group 9% of people had high level of tension while among patients who were listening to music there wasn't even one person with such tension; moreover 79% of people showed low level of stress. These patients were also better adjusted to the situation in the dental office. The influence of relaxation music on the reduction of stress symptoms is not completely known, however there are no doubts that it reaches the human nervous system and starts a number of positive chemical changes in our bodies,

resulting in lower level of tension . It is visible in the fact that the reduction of stress by music mostly appears among patients with medium and high levels of anxiety. The level of tension among patients with high level of anxiety who weren't listening to music was 3,4 while in the same group of patients who were listening to music it was only 2,5. It was also observed in the study that the relaxation features of music don't depend on sex, age or kind of dental treatment. All results and conclusions obviously show that therapy by music is a worth dentists' attention and can be a good tool in the fight against dental anxiety.

Conclusions

- Patients who were listening to music during the dental treatment showed lower level of tension, better treatability and better adjusment to all kinds of teatment.
- Especially among patients with medium and high levels of anxiety music had a significant influence on their fear and comfort during the dental visit.
- Music had the biggest influence on better adjusment to dental treatment among patients with high and medium levels of anxiety.
- The differences in tension levels among patients undergoing various kinds of treatments by music weren't satistically significant.
- The influence of music on patients' relaxatian in all age and sex groups wasn't statistically significan't.
- Music seems to be a very useful tool in making the dental treatment more pleasant for the patient.

Summary

Music has many relaxation benefits and by changing the moods it can have a positive influence on a dental patient. The purpose of the study was to assess whether the music influences dental patients' tension, behaviour and treatability. 100 patients were listening to classical music during the treatment while another 100 weren't. Everyone of them has completed an anonymous questionnaire based on CDAS, PR, DR before the treatment and just after the treatment has been finished. In the group treated without music low level of tension during the treatment according to PR was shown by 47% patients, medium by 44% and high by 9% while in the second group 79% of patients showed low and 21% medium level of tension. In the first group the level of tension among patients with high level of

anxiety was 3,4±0,4 while in the second one 2,5±0,5. Patients who were listening to music during the dental treatment showed lower level of tension, better treatability and better adjusment to treatment. Although all kinds of treatment result in different levels of tension patients who were listening to music showed lower level of tension in all cases.

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Figure.1. Mean results in PR and DR obtained in both groups of patients.

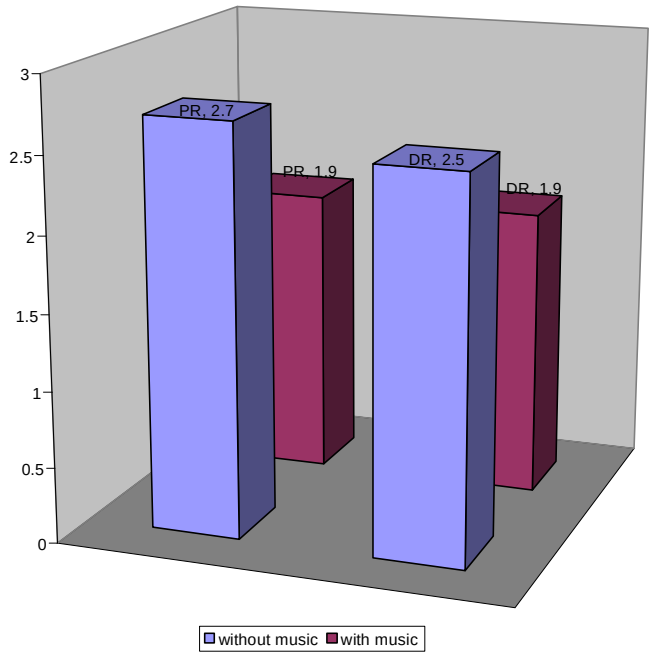


Figure.2. PR in the group of patients treated without music..

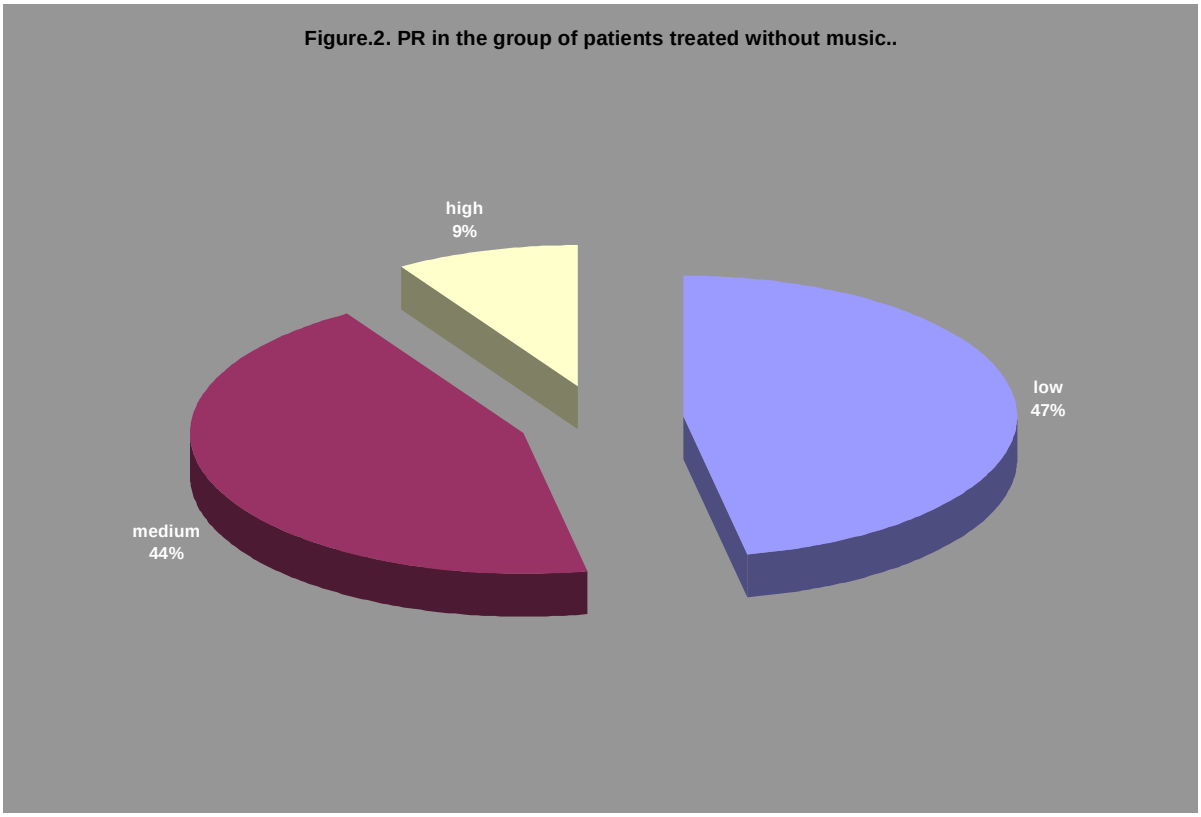


Figure.3. PR in the group of patients treated with music.

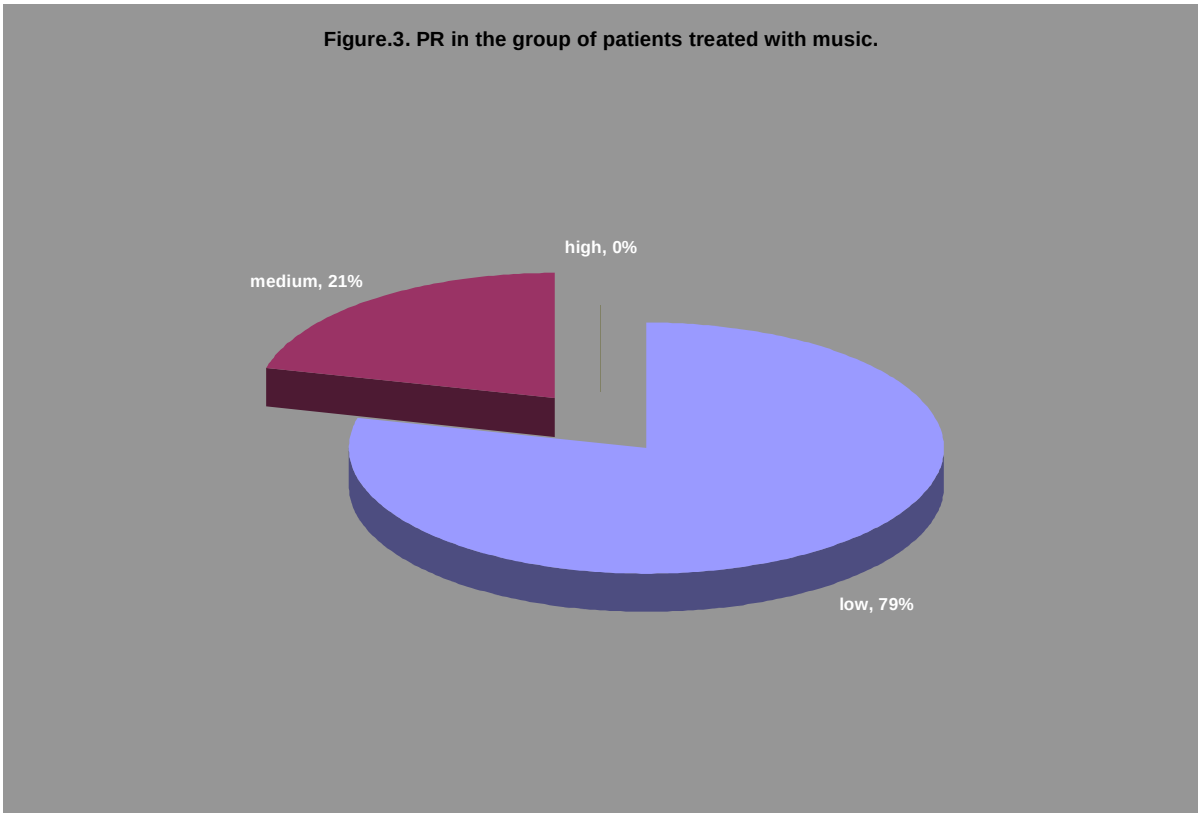


Figure.4. DR in the group pf patients treated without music.

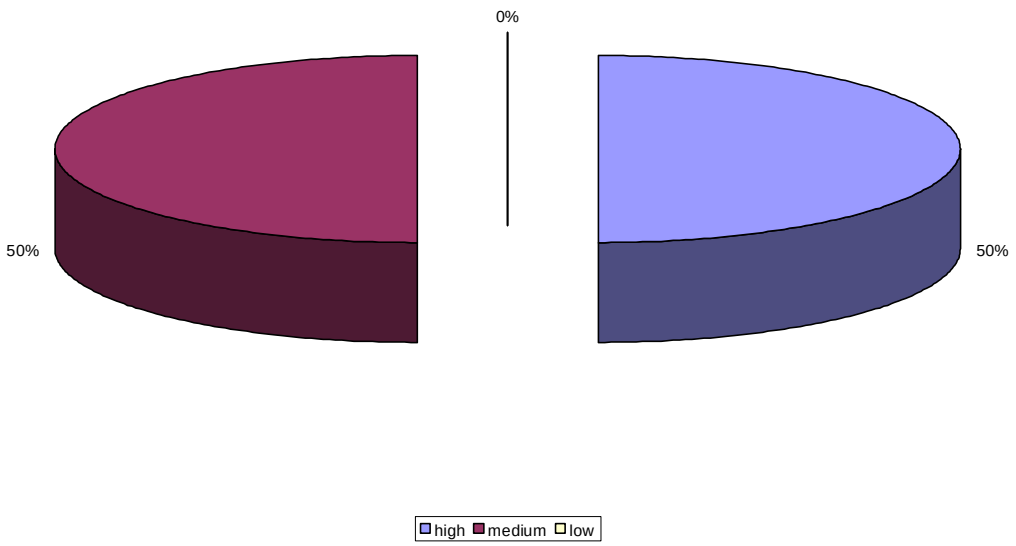


Figure.5. DR in the group of patients treated with music.

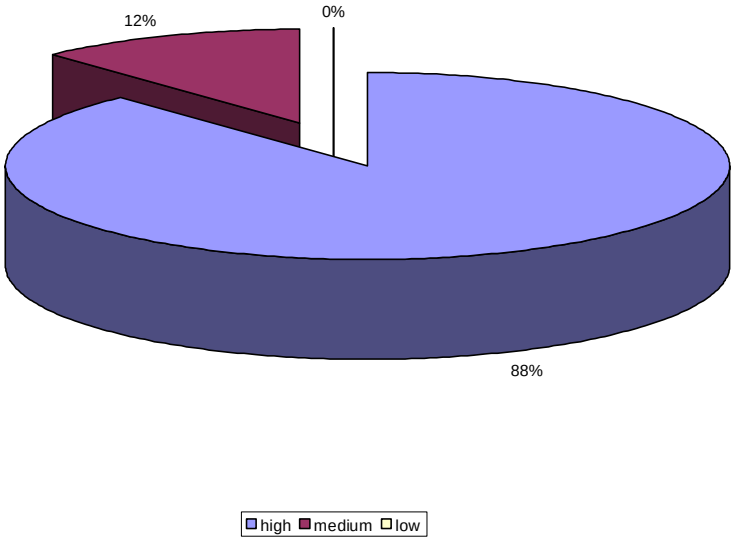


Figure.6. Results obtained in PR according to patient's dental anxiety.

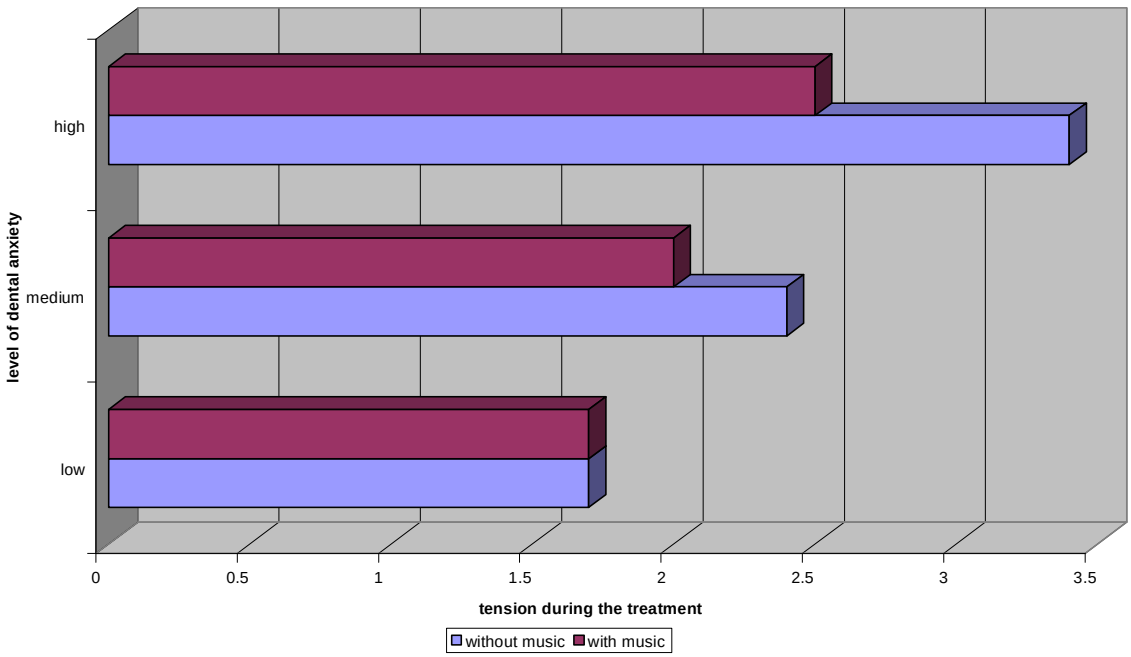


Figure.7. Results obtained in DR according to patient's level of anxiety.

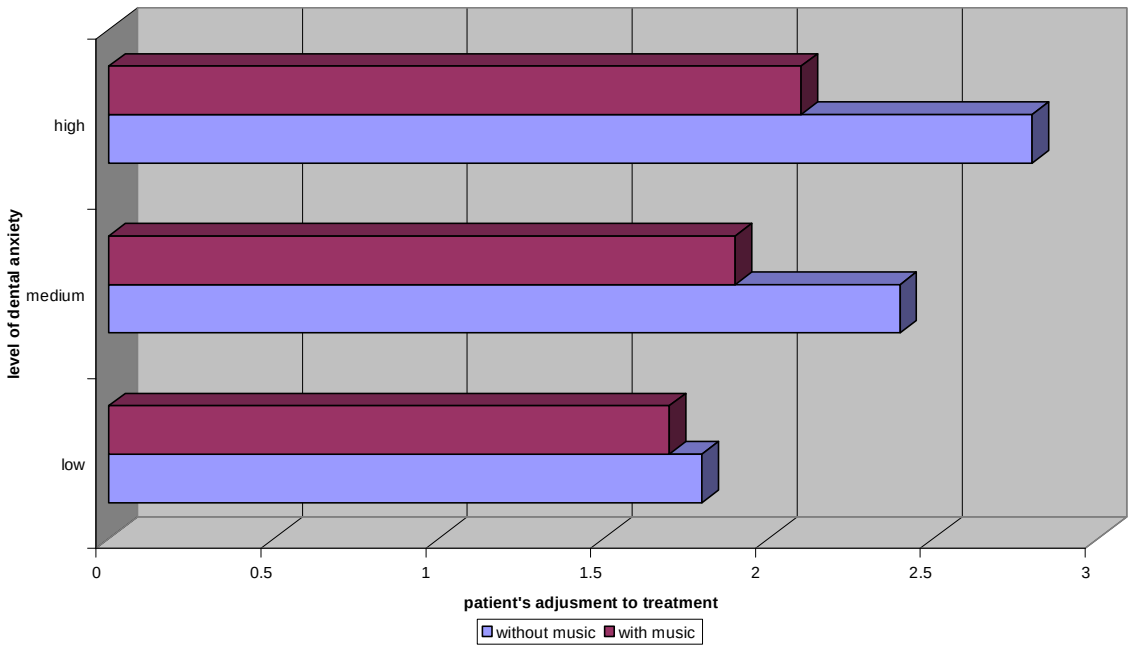
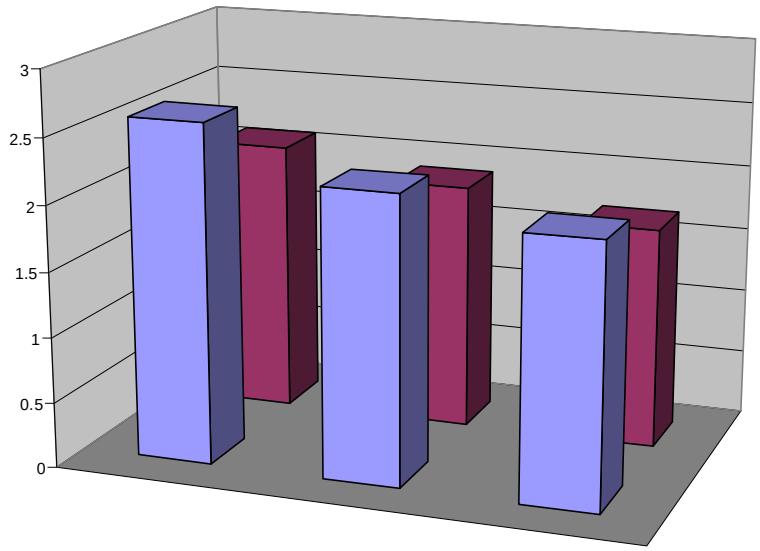


Figure.8. Patient's tension during different kind's of dental treatment.



	dental surgery	prosthetics	conservative dentistry
without music	2.6	2.2	2
with music	2.1	1.9	1.7

Figure.9. Patient's tension acoording to sex(female&male).

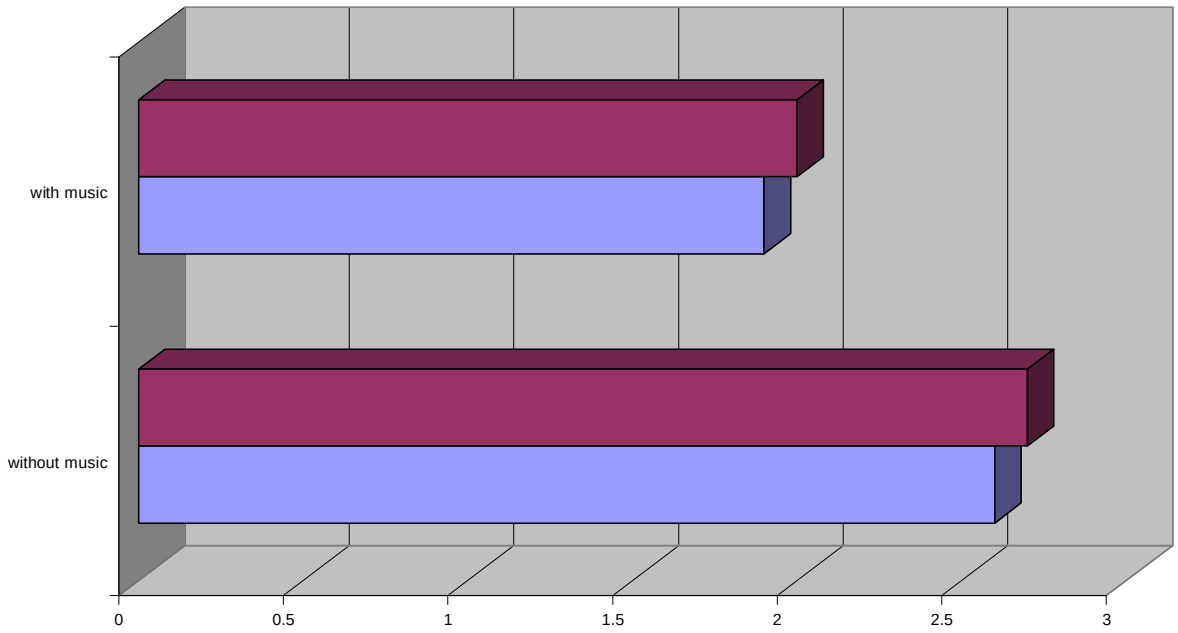


Table.1. Corah's Dental Anxiety Scale.

1. How did you feel yesterday knowing you are going to see a dentist? Mark the alternative that best describes your feelings: ☐ I looked forward to it as a reasonably enjoyable experience. ☐ I didn't care one way or the other. ☐ I was a little uneasy about it. ☐ I was afraid that it would be unpleasant and painful. ☐ I was very frightened of what the dentist might do.
2. How are you feeling now, waiting in the dentists's office? ☐ relaxed ☐ a little uneasy ☐ tense ☐ anxious ☐ so anxious that I sometimes break out in a sweat or almost feel physically sick
3. When you are in the dentists's chair waiting while he gets his drill ready to begin working on your teeth, how do you feel? ☐ relaxed ☐ a little uneasy ☐ tense ☐ anxious ☐ so anxious that I sometimes break out in a sweat or almost feel physically sick
4. You are in the dentist's chair to have your teeth cleaned. How do you feel when the dentist is getting out the instruments which he will use to scrape your teeth around the gums? ☐ relaxed ☐ a little uneasy ☐ tense ☐ anxious ☐ so anxious that I sometimes break out in a sweat or almost feel physically sick