

Comparative analysis of the influence of music in dental treatment: doctor – patient

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Abstract

Introduction: The dental environment often represents a stressful space for both patients and the team, with the office atmosphere, enhanced by musical decor, potentially reducing tension significantly.

Materials and Methods: Between May 1, 2022, and January 31, 2024, a cross-sectional study was conducted in the country using an anonymous questionnaire among legally registered and practicing dental physicians within the 28 district colleges of the Bulgarian Dental Association (BgDA) and among the patients on the territory of Republic of Bulgaria. The data concerning dental physicians and patients are distributed across six regions of the country, divided according to EUROSTAT data.

Results: Dental doctors participants in the survey are 46.50% male, and 53.50% female. Age data indicates that 23.40% are under 30 years old, 27.00% are between 31 and 40 years old, 25.40% are between 41 and 50 years old, 16.80% are between 51 and 60 years old, and 7.40% are over 60 years old. A large portion of dental practitioners, 63.30%, indicated that they constantly work with musical background. Survey patients- participants included 207 males (41.10%) and 297 females (58.90%). A large portion of the patients, 74.40% (375 individuals), reported feeling calmer when music was played during dental procedures.

Conclusions: In conclusion, most dental practitioners prefer to work with music "always" during treatment. Classical music is confirmed as the most preferred genre among dental practitioners.

Keywords: dental office, music, music therapy

Introduction

The unsatisfactory dental status of patients and their poor motivation are often due to irregular visits to the dental practice. Among the many barriers to accessing dental treatment, a significant obstacle is the fear and anxiety associated with dental procedures, including the noise of dental equipment (1, 2, 3).

Effective management of anxiety and fear in clinical settings leads to successful treatment outcomes. Exploring various alternative treatments benefits both patients and dental practitioners (4,5, 6).

Listening to familiar and preferred music (receptive music therapy) or engaging in active music therapy with the participation of a music therapist (7), using free improvisation (the Julien-Alvin Model), or utilizing the unique properties of music to enhance communication (the Nordoff-Robbins approach) are all methods that contribute to a calmer patient, a more precise dental practitioner, and improved treatment outcomes. However, listening to music through headphones, according to some authors, can impair communication between team members, as well as between the patient and the operator in the dental office (8).

According to Moris & Linos, certain types of music can improve the efficiency of surgeons. However, this does not imply that the same music will have a pleasant effect on the sedated patient, the anesthesiologist, or the supporting staff (9). Published data by Cepeda et al. indicate that listening to music can reduce the intensity of pain. They report a reduction in the need for opioids required during the procedure and 18% fewer opioids needed two hours post-surgery. Additionally, they note that 15% less morphine is required 24 hours after surgery for pain management (10).

Clinically, the use of video glasses provides a distraction method that combines visual and auditory stimuli, eliminating visual disturbances and reducing auditory interferences, all within close proximity. Therefore, video glasses have the potential to reduce attention to external distractions by providing highly noticeable access to clinical activity. Additionally, video glasses seem to offer minimal interference with dental treatment and require minimal effort from the dentist or staff (10).

Music is particularly important for reducing stress and tension for the treatment team, improving their concentration and productivity. Bradt, J and colleagues describe the effects of music in reducing stress among healthcare professionals, making music an effective tool for high performance and productivity in the workplace, positively influencing surgical performance and reducing postoperative complications during difficult dental procedures such as complicated extractions, cystectomies, and implant placements (Sound Healing Research Foundation) (11, 13). On the other hand, in a clinical trial, 20% of respondents viewed music as a distracting factor when played during long, complex, or urgent procedures. Music positively influenced communication among staff, as reported by 63% of respondents, while 77% stated that music made them calmer and more effective. Those who refused to listen to music during surgery indicated that it could interfere with prolonged and complex procedures, as well as emergency procedures (14).

Aim

The aim of the study is to compare the attitudes of dentists and patients towards the presence of music during treatment in the dental office, evaluating whether music acts as a distracting or calming factor, and specifically the type of music played during work. Additionally, the study aims to determine the influence of music on the anxiety and behavior of patients and dentists during treatment in dental practice.

Materials and Methods

A cross-sectional study was conducted from May 1, 2022, to January 31, 2024, across the country using an anonymous survey among legally registered and practicing dentists in the 28 regional associations of the Bulgarian Dental Association (BDA). The data on the dentists were divided into six regions according to EUROSTAT data (15). Data collection was mixed: 500 survey forms were distributed both physically through interviewers and electronically, with a link provided to an online form. A total of 265 surveys were collected, yielding a response rate of 53.00%.

The dentists were analyzed based on gender, age, geographic location, whether they worked with music, and the type of music.

A parallel study was conducted among patients in dental practices of practicing dentists in the 28 regional associations of the BDA. Patient data were also divided into six regions according to EUROSTAT data. Data collection was mixed: 1000 survey forms were distributed both physically through interviewers and electronically, with a link provided to an online form. A total of 504 surveys were collected, yielding a response rate of 50.40%.

Patients were analyzed based on gender, age, whether they received treatment with music playing, and the style of music.

Statistical Methods:

Data were summarized using absolute (n) and relative (%) frequencies. The Chi-square test was applied for the analysis of the studied dependencies. Statistical significance was accepted at $p < 0.05$. SPSS 20 was used for data processing.

Results

The distribution of male and female participants, both dentists and patients, shows approximately equal percentages of men and women (Fig. 1).

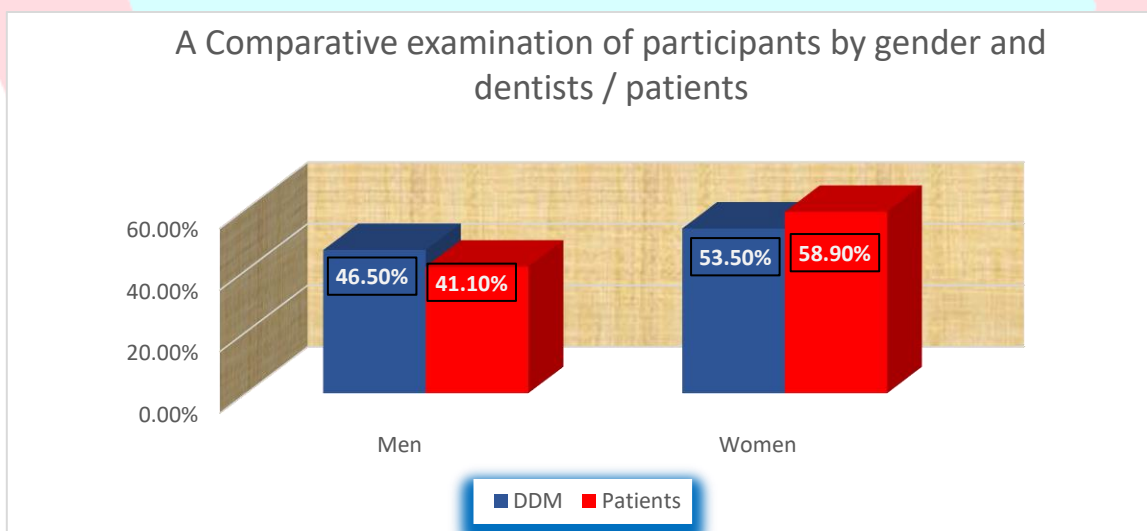


Fig.1 Distribution by gender of doctors / patients

A large percentage of participating dentists are in the age groups 31-40 and 41-50, with approximately the same number in the age group up to 30 years: 27.00%, 25.40%, and 23.40%, respectively. Meanwhile, among patients, the largest share is those up to 30 years old and those aged 41-50, namely: 28.60% and 28.40%. Comparing the groups of dentists and patients, with small differences of about 5.00%, they are roughly equal. The largest difference between dentists and patients is in the 31-40 age group—9.70% (27.00% for dentists versus 18.70% for patients) (Fig. 2).

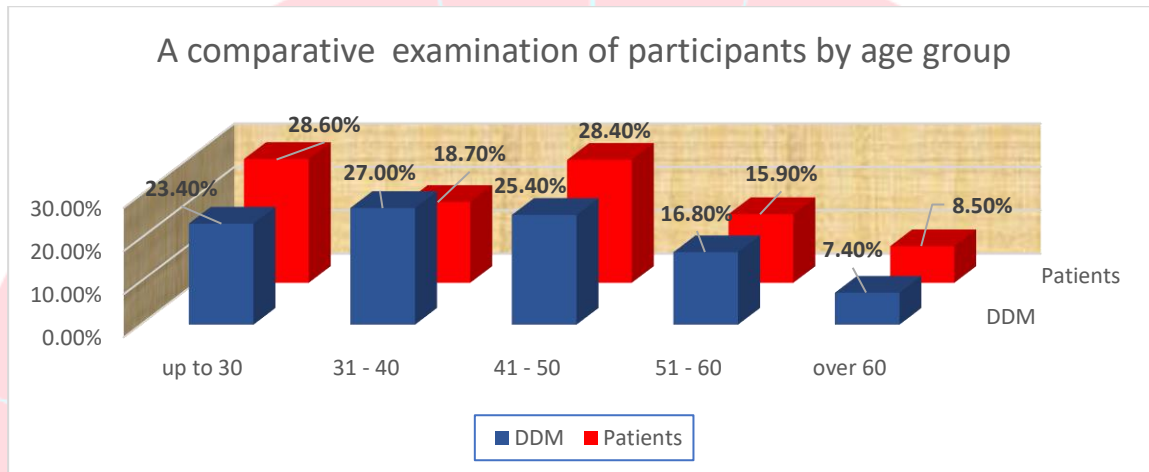


Fig. 2 Distribution by age groups of doctors / patients

The calming or distracting effect of music on patients and dentists is shown in Figure 3. The largest share of respondents believe that music calms dentists during work, both among dentists and patients. They are respectively: 70.70% for dentists and 67.90% for patients. The smallest share believes that music distracts dentists, respectively: 3.90% and 2.00% (Fig. 3).

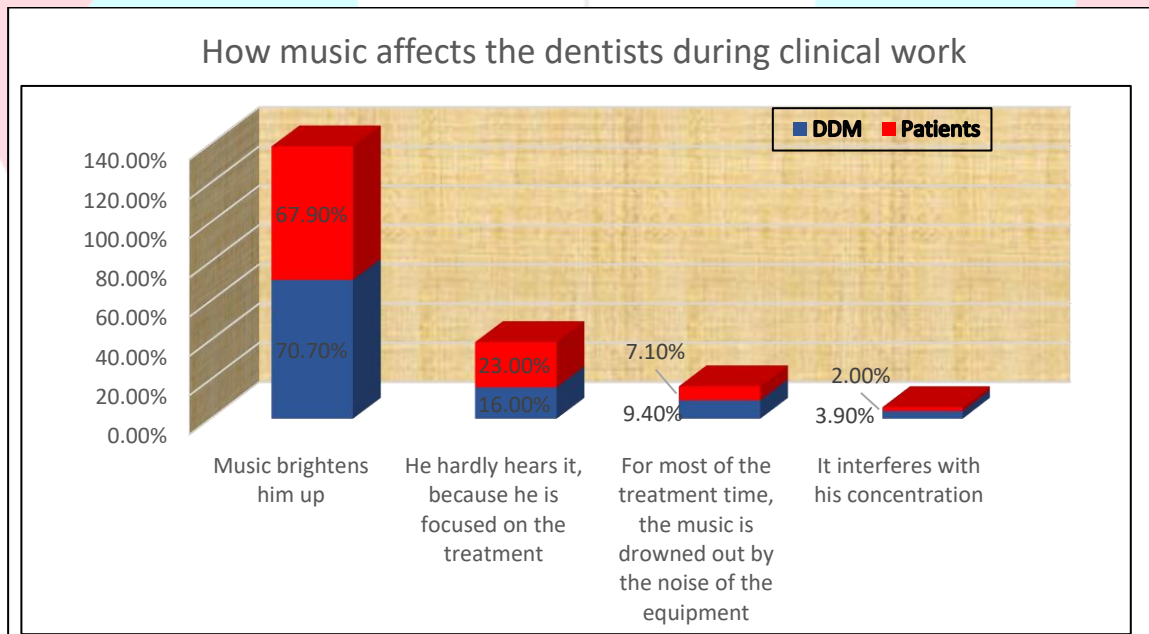


Fig. 3 Influence of music on the behavior of doctors during treatment

The presence of music in dental practice during treatment, when comparing data for patients and dentists, shows the largest share of responses "always," with 57.30% among patients and 63.30% among dentists. They are followed by "sometimes" (28.90% for dentists and 22.80% for patients) and "rarely," which is confirmed by 8.10% of patients and 7.80% of dentists (fig. 4).

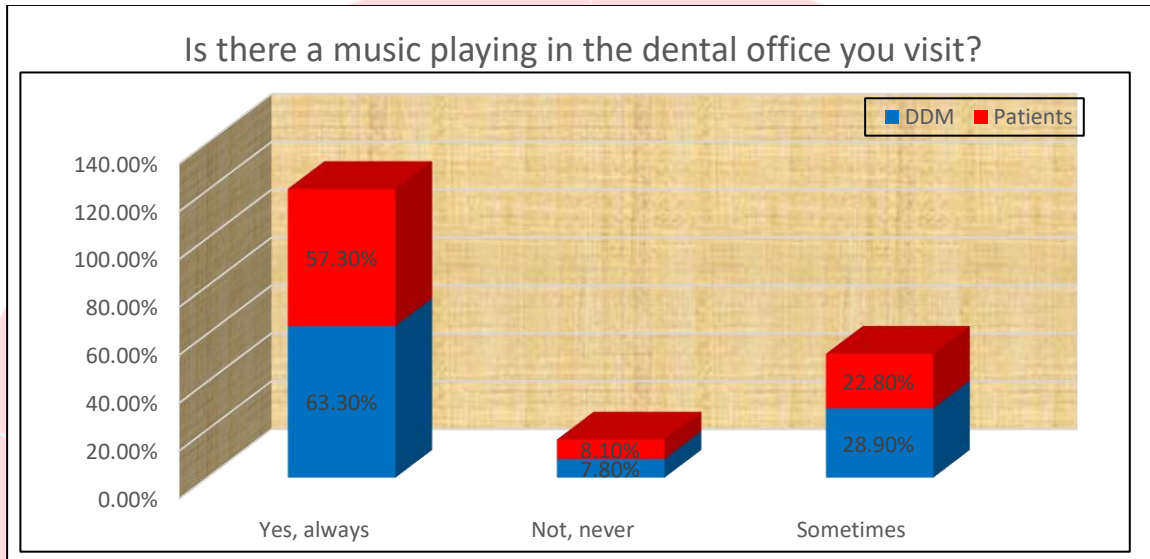


Fig. 4 Dental treatment in the presence of music

The most preferred music style during treatment by both doctors and patients turns out to be classical music, with 42.90% among patients and 39.50% among dentists. Interestingly, an equal share of patients and dentists—20.70%—prefer rock and metal as well as blues and jazz. This equal distribution is observed among patients and dentists at 19.10% for blues and jazz and rock and metal (Fig. 5).

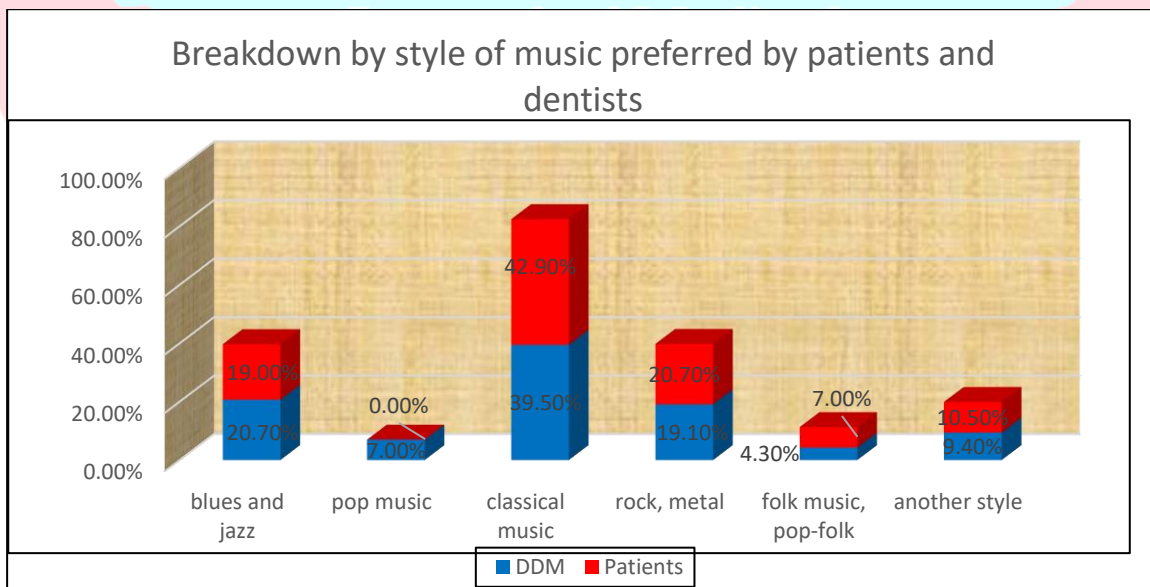


Fig. 5 Preferred style of music during dental treatment by doctors and patients

Regarding the impact of music, we examined some fears of patients and dentists. The fear of administering anesthesia, one of the most common procedures in dental practices, and the fear of tooth extractions. Both patients and dentists are generally calm, with a significant predominance of calm dentists at 80.00% compared to 53.80% of patients. Only 18.40% of dentists and 35.70% of patients are anxious. The fear is stronger among patients by 10.50% compared to dentists at only 1.60% (Fig.6).

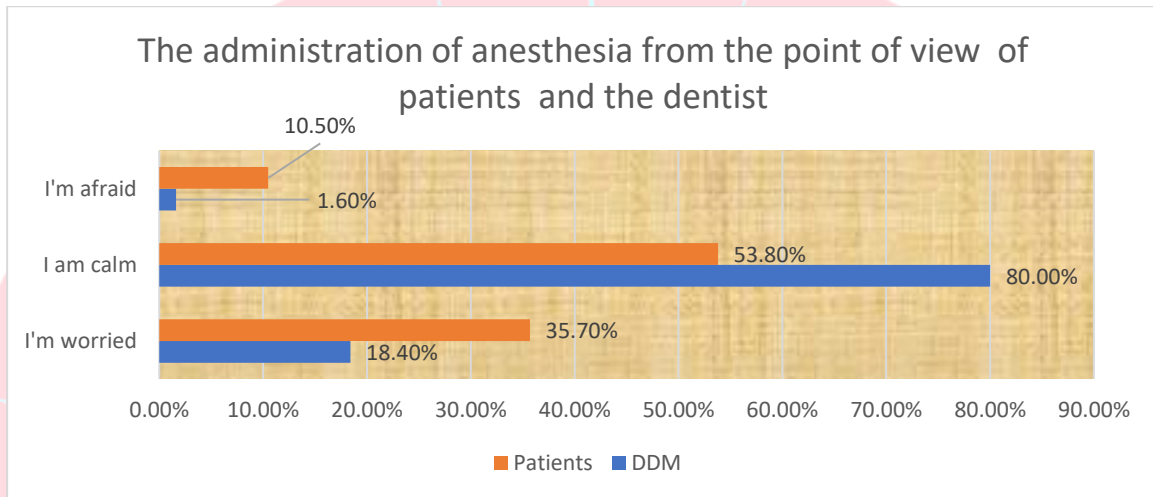


Fig. 6 Distribution of sensations in dentists and patients during anesthesia administration under music background

The fear of extractions among dentists and patients is shown in Figure 7. It is clear that the concerns are greater among patients, 46.60% (for dentists—37.50%), while the calmness is stronger among dentists—59.40% (only 19.80% among patients). Naturally, fear is higher among patients at 33.50% and only 3.10% among dentists (Fig. 7).

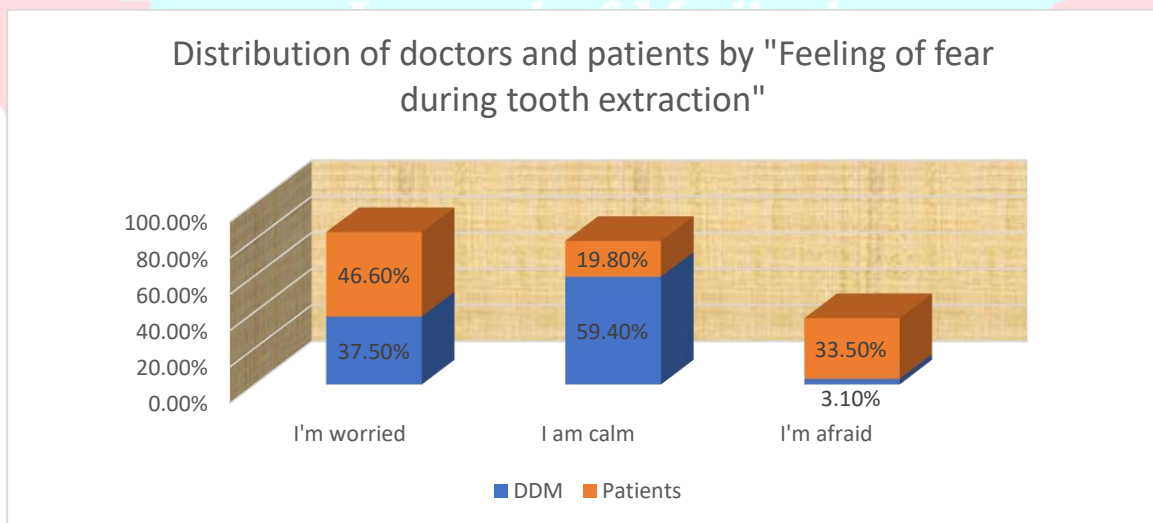


Fig. 7 Distribution of sensations in dentists and patients during tooth extraction under music background

Discussion

The data corroborate Bradt's findings that music reduces stress in both patients and healthcare professionals. According to the largest share of dentists (70.70%) and patients (67.90%), music calms the dentist. As a distracting factor, music is perceived by 20.00% of respondents, while 77.00% consider it a calming factor for the dentist according to Ulman, confirmed by 70.70% (dentists) and 67.90% (patients) in our study. Only 2.00% of patients and 3.90% of dentists perceive music as a distracting factor.

The presence of music in dental practices during clinical activities is confirmed by both patients and dentists, with 57.30% and 63.30%, respectively. Only about 8.00% of both groups reported the absence of musical background during dental treatment.

Both patients and dentists identify classical music as the preferred type during treatment. According to our study, 42.90% of patients and 39.50% of dentists share this opinion. According to Y. Ullmann, classical music is preferred by 58% of dentists surveyed (14). As for the patients, 42.90% share the opinion that classical music is their preferred music during dental treatment, similar to the opinion given in a review of studies published in the **Dentistry Journal** authored by Tyson Downs, which found that the right kind of music in a dental setting could deliver these benefits to both patients and staff (16, 17).

The results concerning fear and anxiety during anesthesia administration and tooth extraction are noteworthy. The highest percentage of calm individuals is observed during anesthesia administration, with nearly equal shares of anxious and calm individuals during tooth extraction.

While the highest percentage of calm individuals during anesthesia administration is seen among both patients (53.80%) and dentists (80.10%), the anxiety and calmness regarding tooth extractions are reversed. Calmness is reported by 59.40% of dentists and only 19.80% of patients, whereas anxiety is reported by 46.60% of patients and 37.50% of dentists.

Conclusion

1. Both dentists and patients believe that music reduces anxiety during treatment.
2. The majority of dentists and patients find classical music acceptable during treatment.
3. Anesthesia administration is not a procedure that causes anxiety for either dentists or patients.
4. Tooth extraction is more worrisome for patients compared to dentists.

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