

# THE MELODIOUS DENTISTRY

## INTRODUCTION

Music is omnipresent in human culture and has been deeply woven into the fabric of everyday life. Music listening creates a unique harmony between body and the psyche. Music has a positive overall influence on the body regardless of race, age, social and economic status, and ethnic origin.

Key components of the stress system are the **hypothalamic-pituitary-adrenal axis** and the **autonomic nervous system**, which interact with other vital centres in the central nervous system and organs in the periphery. This results in the release of the stress hormone **cortisol**. Chronic stress leads to problems, including inflammatory diseases, delayed wound healing, reduced immunity, and many more.(1)

Music induces **endocrinological and psychological changes** by controlling **cortisol release**. Recreational music modulates stress markers and improves mood. Musical stimuli, specifically rhythm and tempo, can be used as a synchronizer to influence changes in physiological responses.(2,3)

## AIM

**Aim: Is to understand the role of music therapy in the prevention and management of oral diseases**

## METHOD

Based on a structured protocol, a literature search was performed using PubMed and Google.

**Inclusion criteria:**

1. Articles published between the years 1981 to 2017 in the English language.
2. Articles focusing on direct and indirect effects of music therapy in the field of dentistry
3. Articles with various research designs such as observational, experimental designs.

**Exclusion criteria:** Articles which are published in any other language, availability of only abstracts, articles reporting the effect of music therapy in the fields other than dentistry.

A thorough literature search showed 26 articles on dentistry and music therapy. Twenty-one articles were randomised controlled trials, two articles were on observational cross sectional surveys and the remaining three were narrative reviews. Among them, 23 articles concluded a positive relationship between music therapy and dental treatments. Three showed inconclusive results. Out of 23 articles, six studies revealed reduced dental pain perception using music therapy during dental treatment. Thirteen studies proved music therapy has a positive role in reducing anxiety before and during dental treatment. Four studies were based on the distraction principle. Nineteen studies included adults and seven were conducted on children.

## ACTIVE MUSIC

- Controlled use of music by trained professional music therapist with various music techniques (singing, playing instruments, composing music with movements)
- Activates cortical and subcortical areas of brain

## PASSIIVE MUSIC

- Passive listening to pre-recorded music without direct involvement of music therapist.
- Acoustic, ambient, slow-tempo, fast-tempo, sedative and repetitive music
- Activates frontal and temporal region

## RESULTS

### BENEFICIAL EFFECT OF MUSIC THERAPY IN THE MANAGEMENT OF ORO-FACIAL PROBLEMS

**White noise effect (ambient music) reduces heart rate & provides overall relaxation during dental procedures in adults and children (4,7)**

**Music helps to improve defense mechanisms in immunocompromised patients by increasing the levels of Immunoglobulins (2,8)**

**Music alters the mood, improves self-concept, and provides muscular relaxation in patients with palliative oral care (9)**

**Music activates glucocorticoid receptor- $\alpha$  and helps to improve periodontal health (2,3,4)**

**Music reduces cortisol release and improves wound healing (3)**

**Music decreases cortisol release which reduces anxiety (3,6)**

**Music (acoustic) decreases pain perception (5)**

## CONCLUSION

Music is considered as an alternative therapy in dentistry. Music reduces dental anxiety and dental phobia by acting on the hypothalamus-pituitary-adrenal axis. Listening to soothing music not only improves oral health, it also ameliorates quality of life in people who are in palliative care. Hence music therapy can be considered non-invasive, cost effective, and universally acceptable in the prevention and promotion of oral health.

## BIBLIOGRAPHY

- 1.Liu YZ, Wang YX, Jiang CL. Inflammation: the common pathway of stress-related diseases. *Frontier Human Neurosciences*. 2017 Jun 20;11:316.
2. Breivik T, Thrane PS, Murison R, Gjermo P. Emotional stress effects on immunity, gingivitis and periodontitis. *European Journal of Oral Science*. 1996 Aug;104(4):327-34.
- 3.Cynthia Mejia-Rubalcava, Jorge Alanis-Tavira, Hugo Mendieta-Zeron, Leonor Sanchez-Perez. Changes induced by music therapy to physiologic parameters in patients with dental anxiety. *Complementary Therapies in Clinical Practice*.2015; 21:282e286.
- 4.Jovani-Medojevi M, Nekovi J. Music as an alternative therapy- Method in Dentistry. *Serbian Dental Journal*. 2016 Mar 1;63(1):29-34.
- 5.Dina Gordon, Richard G. Heimberg, Marisol Tellez, Amid I. Ismail. A critical review of approaches to the treatment of dental anxiety in adults. *Journal of Anxiety Disorders*.2013;27:365-78.
- 6.Thoma MV, La Marca R, Brönnimann R, Finkel L, Ehler U, Nater UM. The effect of music on the human stress response. *PLoS one*. 2013 Aug 6;8(8):e70156.
7. Diaconescu S, Iorga M, Bolat M, Stanca R, Stefanescu G. Alternative therapies in reducing anxiety and pain for invasive procedures in paediatric practice. *Romanian Journal of Oral Rehabilitation*. 2015 Dec;7(4):78-83.
8. Harold M, Lavoie M C. Oral Microbial Ecology and the Role of Salivary Immunoglobulin A. *Microbiology Molecular Biological Reviews*. 1998;62(1):71-109.
- 9.McConnell T, Wisener L G, Regan J, Mckeown M, Kirkwood J, Hughes N et al. Evaluation of the effectiveness of music therapy in improving the quality of life of palliative care patients: a randomised controlled trial. *Pilot Feasibility study*.2016;70(2):2-8.
- 10.Iorgulescu G.Music therapy in Dental Medicine. *International Journal of Music and performing arts*.2015;3(2):19-24.