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Peer Review

Review of: "Music Therapy for Alleviating Pain and Enhancing Quality of Life During Endodontic Treatment in Lagos, Nigeria"

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Review of "Music Therapy for Alleviating Pain and Enhancing Quality of Life During Endodontic Treatment in Lagos, Nigeria"

Introduction

This study investigated the effects of music therapy on pain perception, anxiety, and oral health-related quality of life (OHRQoL) in patients undergoing endodontic treatment. The authors aimed to explore music therapy as a non-pharmacological approach to manage pain and improve the patient experience during this often anxiety-provoking dental procedure.

Summary

This quasi-experimental study involved 35 patients undergoing endodontic treatment in Lagos, Nigeria. Participants were assigned to either a music therapy group (listening to slow jazz) or a control group (receiving standard care). Pain (NPRS), anxiety (MDAS), and OHRQoL (OHIP-14) were assessed before and after the procedure. The study found significant within-group improvements in all measured outcomes for both groups. However, no statistically significant differences were observed between the music therapy and control groups.

Critique of the Methodology

- **Study Design:** The quasi-experimental design without randomization is a major limitation. This design makes it difficult to attribute observed changes specifically to the music therapy intervention, as other factors may have influenced the outcomes.

doi.org/10.32388/671X35

- **Sample Size:** The small sample size (n=35) limits the statistical power of the study and may have contributed to the lack of significant between-group differences.
- **Intervention:** The description of the music therapy intervention lacks crucial details. The specific music selections, volume, and duration of exposure are not provided, hindering reproducibility. Furthermore, the "standard care" provided to the control group is not defined, making it difficult to understand the true nature of the control condition.
- **Role of the Music Therapy Intervention:** The study fails to adequately define the *role* of the music therapy intervention. Was it intended as a distraction, a relaxation technique, or a means to modulate pain perception through specific musical elements? Without this clarity, it's difficult to assess the appropriateness of the chosen music and its potential mechanisms of action.
- **Receptive Music Therapy vs. Just Listening:** The study describes the intervention as "listening to slow jazz music." This raises the question of whether it was intended as *receptive music therapy* or simply passive listening. Receptive music therapy involves a structured process with specific goals and techniques, often facilitated by a trained music therapist. Simply listening to music, while potentially relaxing, may not achieve the same therapeutic effects. The study does not clarify whether the music was chosen based on specific therapeutic principles or patient preferences.
- **Psychological Assistance:** The study does not mention whether any psychological assistance or counseling was provided to the patients. Dental anxiety is a complex phenomenon, and some patients may benefit from additional psychological support. The absence of such support may have influenced the study's outcomes.
- **Patient Instructions:** The level of detail provided to the patients regarding the music therapy is unclear. Were they simply told to listen to the music, or were they given specific instructions on how to engage with it (e.g., focusing on the rhythm, visualizing calming scenes)? The clarity and specificity of patient instructions can significantly impact the effectiveness of the intervention.
- **Treatment Details:** The description of the endodontic treatment lacks essential details. The *length of treatment* and any *complications* experienced during the procedure are not reported. These factors could influence pain perception and anxiety levels, potentially confounding the results. A more detailed description of the treatment protocol is necessary.
- **Statistical Analysis:** The statistical methods used require clarification. The specific type of ANOVA employed should be stated. Given the multiple comparisons performed, the authors should address the issue of correcting for multiple testing (e.g., using a Bonferroni correction). Table 5, which presents between-group comparisons, is misleading. It should be revised to show the *difference in*

change between the groups for each outcome measure, along with the correct p-values for these comparisons. The current p-values in Table 5 appear to be erroneous. Furthermore, the study reports p-values for the comparison of sociodemographic characteristics between the groups in Table 1. However, the specific statistical test used for these comparisons is not stated. This is a critical omission. The authors should specify whether they used chi-square tests for categorical variables and t-tests or other appropriate tests for continuous variables.

- **Outcome Measures:** While the chosen outcome measures (NPRS, MDAS, OHIP-14) are appropriate, the timing of assessments (pre- and post-procedure) could be expanded. More frequent measurements during the procedure itself might provide a more nuanced understanding of the intervention's effects.

Implications for Dental Practice

This study explores the potential of music therapy as an adjunct to standard endodontic care. While within-group improvements in pain, anxiety, and OHRQoL were observed, the lack of statistically significant differences between the music therapy and control groups raises questions about its added benefit. The findings suggest that the endodontic procedure itself, along with standard care, may be the primary driver of these improvements. However, the study also highlights the challenges of conducting rigorous research on complementary therapies in a clinical setting. Future research with more robust methodologies is needed to determine whether music therapy offers measurable benefits beyond standard dental care for endodontic patients. If future studies confirm a benefit, then music therapy could be integrated into the dental clinic to improve patient comfort and reduce anxiety.

Recommendations for the Authors

1. **Randomized Controlled Trial:** For future studies, a randomized controlled trial design is strongly recommended to ensure comparability between groups and reduce the risk of bias.
2. **Larger Sample Size:** A larger sample size is necessary to increase the statistical power of the study and improve the chances of detecting true effects.
3. **Detailed Intervention Protocol:** Provide a detailed description of the music therapy intervention, including specific music selections, volume, and duration. Clearly define the "standard care" provided to the control group.
4. **Clarify Intervention Rationale:** The authors should explicitly state the rationale for choosing music therapy and its intended role in the study (e.g., distraction, relaxation, pain modulation).

5. **Differentiate Music Therapy from Listening:** If the intervention was intended as receptive music therapy, this should be clearly stated and described. If it was simply passive listening, the authors should acknowledge this and discuss its potential limitations.
6. **Consider Psychological Factors:** Future studies should consider incorporating measures of psychological factors, such as coping strategies and emotional regulation, and explore the potential benefits of psychological assistance alongside music therapy.
7. **Provide Detailed Patient Instructions:** The authors should provide a detailed description of the instructions given to patients regarding the music therapy intervention.
8. **Report Treatment Details:** The authors should report the length of treatment and any complications experienced during the endodontic procedures.
9. **Specify Statistical Tests (Table 1):** The authors should specify the statistical tests used for the comparisons in Table 1.
10. **Clarify Statistical Analysis:** Specify the statistical methods used, including the type of ANOVA. Address the issue of multiple comparisons and provide corrected p-values if necessary. Revise Table 5 to show the *difference in change* between groups and correct the p-values.
11. **Expand on Limitations:** Discuss the limitations of the study more thoroughly, including the quasi-experimental design, small sample size, lack of blinding, reliance on self-reported measures, and potential for bias.
12. **Focus on Between-Group Differences:** The discussion should focus more on the comparison between the groups and address the reasons for the lack of statistically significant differences.
13. **More Frequent Assessments:** Consider incorporating more frequent assessments of pain and anxiety during the endodontic procedure itself to better understand the temporal dynamics of the intervention's effects.

Conclusion

While this study explores an important area of patient care in endodontics, the methodological limitations significantly weaken the conclusions that can be drawn. Addressing the recommendations outlined above would substantially improve the quality and impact of future research in this area.

Declarations

Potential competing interests: No potential competing interests to declare.