

Peer Review

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

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1. Validity and Contribution of the Study

This study explores the impact of **music therapy on anxiety and pain management in endodontic patients**. It is a relevant topic at the intersection of **clinical dentistry and psychological interventions**, with potential applications for **patient-centered care**. However, **methodological limitations** need to be addressed to strengthen its validity.

Strengths

- **Addresses an underexplored area**, particularly within Nigerian dental care settings
- **Quasi-experimental design** is clearly described.
- **Validated measurement tools** (Modified Dental Anxiety Scale – MDAS, Numerical Pain Rating Scale – NPRS, and Oral Health Impact Profile – OHIP-14) enhance reliability.

Areas for Improvement

- **Hospital Description and Study Context**
- The **description of Lagos State University Teaching Hospital (LASUTH)** focuses on **general institutional details** rather than **justifying its relevance to this study**.
- The authors should describe the **dental clinic environment**, including patient **demographics**, **typical anxiety levels**, and **treatment protocols**, to contextualize the study findings.
- **Justification for Selecting Jazz Music**
- The study used **slow jazz music**, but **no clear scientific rationale** is provided for this choice.

- Music preferences are **highly individual**, and **different genres may have varied effects on anxiety and pain perception**.
- The authors should **cite prior research** on why jazz music was expected to be effective in **reducing dental anxiety**.
- ♦ **Sample Size Calculation – Adequacy and Power**
- The **sample size (n=35)** is **small for a quasi-experimental study**, raising concerns about **statistical power**.
- The **calculation is based on previous studies with different patient populations and contexts**, which may **not be directly applicable**.
- Given the **lack of significant between-group differences**, the study may have been **underpowered** to detect meaningful effects.
- The authors should **justify why 15 patients per group** was considered **sufficient to detect a clinically significant difference**.
- **Suitability of Measurement Tools**
- **Self-reported measures (MDAS, NPRS, OHIP-14)** are **valid for evaluating anxiety, pain, and oral health-related quality of life (OHRQOL)**.
- However, **no physiological measures (heart rate, blood pressure, cortisol levels, etc.) were included**. These could have provided **more objective** evidence of anxiety reduction.
- The study should discuss whether **integrating physiological markers** in future research would strengthen the findings.
- **Validation of Equipment Used for Intervention**
- The **headphones and CD player** used for the music intervention were **not validated or standardized** before the study.
- The authors should explain whether **the sound delivery method was tested for consistency and patient comfort**.
- **Decibel (dB) levels were not specified**. Given that **volume can influence relaxation and anxiety reduction**, the authors should reference **recommended dB levels** for therapeutic music interventions.
- **Recommendation:** The authors should justify their **equipment selection** and reference **optimal dB levels for music therapy in dental settings**.

2. Research Design and Methodology

- **Study Design:** The quasi-experimental design allows for controlled comparisons but lacks **rigorous randomization**.
- **Statistical Analysis:** The study uses **independent sample t-tests and repeated measures ANOVA**, but the **small sample size** may have limited statistical power.
- **Ethical Considerations:** The study obtained **IRB approval and informed consent**.

Areas for Improvement

- **Representativeness of the Sample Population**
 - The study **only recruited patients from LASUTH**, which may **limit generalizability to wider populations**.
 - No discussion of **socioeconomic or cultural factors** that may influence **music perception and dental anxiety**.
 - **Selection of Control Group**
 - The **control group** underwent **endodontic treatment without music**, but **other anxiety-reducing factors** (e.g., deep breathing, patient-practitioner interaction) **were not controlled**.
 - Future studies should consider using **an alternative non-music relaxation intervention** for a more **meaningful comparison**.
- **Recommendation:** Future research should include a **more diverse sample population** and consider **controlling for additional anxiety-reducing factors** in the control group.

3. Interpretation of Results

- Strengths

- The statistical analysis is **comprehensive**, presenting **mean values and p-values clearly**.
- **Within-group improvements** suggest **both intervention and control groups benefited** from the dental treatment itself.
- **Areas for Improvement**
- The **lack of statistically significant differences** between **intervention and control groups** should be more **explicitly acknowledged**.

- The discussion **overstates** the impact of **music therapy**, despite **non-significant between-group differences**.
 - The study relies **only on self-reported measures**, raising concerns about **potential placebo effects**.
- **Recommendation:** The conclusion should be **more cautious**, emphasizing **the need for further research**, rather than **implying definitive effectiveness of music therapy**.

4. Structure and Clarity of the Manuscript

- **Strengths**
 - The manuscript follows a **logical structure** (Introduction, Methods, Results, Discussion).
 - The **literature review is well-cited**, providing a strong theoretical foundation.
 - **Areas for Improvement**
 - **Some sentences require grammatical revisions** for clarity.
 - The **link between the research question and findings** should be more **explicitly stated**.
 - The **conclusion should go beyond summarizing findings** and **propose specific future research directions**.
- **Recommendation:** A **language revision** would enhance clarity and coherence.

5. Final Evaluation and Recommendation

- **Publication Status: Major Revision Required**
- **Suggested Revisions:**
 - ✓ **Revise hospital description** to focus on **study relevance** rather than **general institutional background**.
 - ✓ **Justify jazz music selection** with **scientific evidence** or **patient preference considerations**.
 - ✓ **Clarify sample size justification** and discuss **statistical power limitations**.
 - ✓ **Consider integrating physiological measures** in future research for **more objective data**.
 - ✓ **Validate equipment selection** and **specify appropriate dB levels** for music therapy.
 - ✓ **Refine discussion** to avoid **overstating music therapy's effectiveness** and **acknowledge study limitations**.

Overall Recommendation

This study provides **valuable preliminary evidence** on the **effects of music therapy** in dental anxiety and pain management. However, **methodological improvements, careful interpretation of findings, and additional justification of key study decisions** are required before publication.

Declarations

Potential competing interests: No potential competing interests to declare.