

Authors' Responses to the Reviewers' Comments – Revision 1

Digital Health - Manuscript ID: 99301

Title: Editorial: Enhancing Orthodontic Osteodilated Arch Treatment through Comprehensive Nursing Interventions and Cognitive Behavioral Therapy

We appreciate the editor for providing us with the opportunity to revise our work. Additionally, we extend our gratitude to the reviewers for their meticulous and thorough examination of the manuscript, as well as their insightful comments and constructive suggestions, which have significantly contributed to enhancing the quality of the manuscript. We have carefully considered all the feedback provided and have made comprehensive revisions to the manuscript in accordance with the reviewers' recommendations. We trust that these revisions have sufficiently improved the paper, and we hope it now meets the standards for publication in the journal. We kindly request your consideration of our revised manuscript.

Below, we provide detailed responses to each of the reviewers' comments and concerns. For clarity, the reviewers' comments and the editor's comments are presented in bold.

Reviewer #1

Scientific Quality: Grade B (Very good)

Language Quality: Grade B (Minor language polishing)

Conclusion: Accept (General priority)

Specific Comments to Authors:

1. **General Comments on Manuscript Quality:**

- *Firstly, I would like to express how fortunate I feel to have had the opportunity to read this valuable manuscript. I believe this editorial manuscript, prepared following a highly novel and meaningful study, is of great importance. The text is generally well-prepared and coherent.*

Response: Thank you very much for your careful review. Also, I appreciate your positive feedback. I have revised it in detail to further improve the quality of the manuscript. Additionally, the reviewers' suggestions for revision were of great help to us, which significantly improved the quality of the editorial.

2. **Language and Punctuation:**

- *There are minor issues such as punctuation errors, capitalization mistakes, and missing spaces. Lastly, the references should be checked by the guideline of the journal.*

Response: Thank you very much for your careful review. Also, I appreciate your positive feedback. Throughout the manuscript, minor verbal errors such as periods, capitalization

errors, and missing spaces were corrected, and references were checked and corrected in line with journal guidelines.

Before Modification:

Orthodontic osteodilated arch (OOA) treatment often involves significant challenges, including pain, discomfort, and psychological stress.

After modification: *Orthodontic osteodilated arch (OOA) treatment represents a pivotal approach in dental orthodontics to address dental crowding and misalignment.*

3. **Clarification on Class 2 Orthodontic Patients:**

- *One particular section that I found challenging to understand concerns the satisfaction of Class 2 orthodontic patients with their treatment. I am unclear about the relevance of this aspect to the study on OOA treatment. The literature contains numerous studies indicating that clear aligners enhance patient comfort. In this context, discussing clear aligners in relation to patient satisfaction seems unnecessary for this text. However, if the author wishes to include a discussion on clear aligners, it would be more appropriate to support this with a clinical study showing that treatments with clear aligners are less stressful, more comfortable, and less painful etc. compared to fixed appliances, rather than through a case report.*

Response: Based on your point, I revised the part related to the satisfaction of Class 2 orthodontic patients. Discussions related to Clear aligners were excluded from the text due to their low relevance to the main topics of this study. Additionally, the reviewers' suggestions for revision were of great help to us, which significantly improved the quality of the editorial.

Before Modification:

Furthermore, recent progress includes the use of clear aligners for addressing malocclusions, such as Angle's class II subdivision malocclusion, with the treatment showing successful outcomes in terms of correcting malocclusion, spacing, and proclination. This approach has been noted for its effectiveness in delivering functional and aesthetic benefits within a relatively short period, significantly improving patient satisfaction after a 1-year follow-up [1].

After modification: **It was deleted.** Additionally, the reviewers' suggestions for revision were of great help to us, which significantly improved the quality of the editorial.

4. **Abstract and Introduction Revisions:**

- *Abstract Revised: A randomized clinical trial by Yang et al., involving 81 OOA patients, demonstrated significant reductions in oral mucositis incidence, increased mastery of arch expansion methods, and improved psychological well-being in the observation group receiving CBT-based CNI.*

Response: We have revised the abstract and introduction according to your recommendation.

Before Modification:

Orthodontic osteodilated arch (OOA) treatment often involves significant challenges, including pain, discomfort, and psychological stress. Integrating Cognitive Behavioral Therapy (CBT) into Comprehensive Nursing Interventions (CNI) aims to address these issues holistically. This editorial explores the effectiveness of CBT-based CNI in improving patient outcomes in orthodontic care. A randomized clinical trial by Yang et al. involving 81 OOA patients demonstrated significant reductions in oral mucositis incidence, increased mastery of arch expansion methods, and improved psychological well-being in the observation group receiving CBT-based CNI. Innovations in remote CBT delivery, such as virtual reality, have also shown potential in reducing pain, anxiety, and depression, emphasizing the adaptability of CBT in orthodontic settings. The findings underscore the importance of integrating psychological support into orthodontic care to enhance patient adherence, satisfaction, and overall treatment success. The editorial advocates for a holistic approach that combines psychological and physiological care, highlighting the transformative potential of CBT-based interventions in orthodontic treatment.

After modification: *Orthodontic osteodilated arch (OOA) treatment represents a pivotal approach in dental orthodontics to address dental crowding and misalignment. Such adverse effects can reduce treatment compliance and its overall success, emphasizing the need for innovative strategies to enhance patient experiences and outcomes [1]. Cognitive Behavioral Therapy, known for its effectiveness in managing pain and psychological conditions, offers a promising avenue for improving patient comfort and adherence during orthodontic treatments when incorporated into Comprehensive Nursing Interventions (CNI).*

Meanwhile, Another aspect of orthodontic care that has received attention is the decision-making process. A deeper understanding of these cognitive processes and biases can further enhance the quality of orthodontic care by promoting more efficient and evidence-based decision-making [2].

5. Methodology and Findings Revisions:

- *Revised: One group received routine nursing care, while the observation group received a CNI based on CBT principles. Revised: Significant improvements were also observed in the psychological well-being of patients in the observation group, with a substantial reduction in self-rating anxiety scale (SAS) scores post-intervention.*

Response: The section has been modified to clarify the research methodology and results.

Before Modification:

Yang et al. (2024)[7] embarked on a randomized clinical trial including 81 patients undergoing OOA treatment, segregating them into two distinct groups. One received routine nursing care, while the observation group was subjected to a CNI grounded in CBT principles. Various outcomes assessed in the trial revealed significant findings across multiple metrics, including the occurrence of oral mucositis, proficiency in proper arch expansion techniques, levels of anxiety, oral hygiene indices, patient compliance, and overall satisfaction. Notable among these findings was a notably lower incidence of oral mucositis in the observation group (14.6%) compared to the control group (38.5%), underlining CBT-based CNI's role in mitigating this common complication. Furthermore, a higher mastery rate of correct arch expansion methods was observed in the observation group (90.2% versus 55.0%), attesting to the intervention's efficacy in bolstering technical proficiency in patients [7].

After modification: *CBT is a psychological treatment aimed at modifying patients' thought and behavior patterns to relieve both mental and physical symptoms. Its efficacy has been*

extensively validated across various patient populations, demonstrating significant benefits in managing chronic pain, anxiety, and depression, which are common concerns in orthodontic care. A systematic review underscores the robustness of traditional CBT in significantly reducing symptoms of depression and anxiety in individuals suffering from chronic pain and psychological distress. Additionally, an arts-based hybrid CBT intervention [3-5]. Showed remarkable results in diminishing pain intensity and depressive symptoms, enhancing emotional distress tolerance, and improving global health-related quality of life in patients with chronic pain. Innovations in remote CBT delivery, such as utilizing virtual reality [6], have also been explored, showcasing reduced pain, anxiety, and depression in patients with chronic cervical and lumbar spondylitic pain.

3. Comprehensive Nursing Intervention Model

The CNI, which synergizes with the principles of CBT, emphasizes a holistic approach to patient care within the context of orthodontic treatment. It integrates cognitive education, psychological counseling, behavior training, and emotional support, specifically tailored to each patient's unique needs. This methodological blueprint aims to address the multifaceted aspects of patient care, covering both physiological and psychological aspects to foster an environment conducive to overall well-being. Within orthodontic treatment, such comprehensive and multifaceted strategies are critical, as they can significantly impact patient compliance and outcomes by enhancing psychological support and fostering behavioral modifications.

4. Methodology and Findings

Yang et al. (2024)[7] embarked on a randomized clinical trial including 81 patients undergoing OOA treatment, segregating them into two distinct groups. One group received routine nursing care, while the observation group received a CNI based on CBT principles. Significant improvements were also observed in the psychological well-being of patients in the observation group, with a substantial reduction in self-rating anxiety scale (SAS) scores post-intervention. This suggests that CBT effectively alleviates treatment-related anxiety, contributing to enhanced patient comfort and compliance, and thereby improving overall treatment outcomes. The observation group also exhibited high levels of patient compliance (90.24%) and satisfaction (95.12%), significantly higher than those in the control group [7]. These findings underscore the indispensable role of integrating psychological support frameworks, such as CBT-based CNI, into orthodontic care. Such integration not only elevates patient adherence and satisfaction but also significantly enhances the treatment landscape by addressing both technical and emotional aspects of orthodontic interventions.

6. Discussion Revisions:

- Revised: The study by Yang et al. (2024) underscores the pivotal role of CBT-based CNI in orthodontic treatment, marking a significant advancement in enhancing patient outcomes through a model that addresses both psychological and physiological aspects of care.

Response: I have revised the discussion section according to your recommendation.

Before Modification:

The study by Yang et al. (2024)[7] . underscores the pivotal role of CBT-based CNI in orthodontic treatment, marking a significant leap towards enhancing patient outcomes through a model that intricately addresses both psychological and physiological aspects of care. The successful integration of CBT within nursing interventions marks a crucial shift towards a

holistic approach in patient care, emphasizing the symbiotic relationship between mind and body [8]. By alleviating physical symptoms alongside managing psychological stress, this approach not only augments patient comfort but also paves the way for a more empowering and positive treatment experience [9].

After modification: *The study by Yang et al. (2024)[7] underscores the pivotal role of CBT-based CNI in orthodontic treatment, marking a significant advancement in enhancing patient outcomes through a model that addresses both psychological and physiological aspects of care.*

The successful integration of CBT within nursing interventions represents a crucial shift towards a holistic approach in patient care, emphasizing the symbiotic relationship between mind and body [8]. By alleviating physical symptoms while managing psychological stress, this approach enhances patient comfort and fosters a more empowering and positive treatment experience [9].

The implications of integrating psychiatric nurses—who excel in patient-centered care—into orthodontic treatment teams are profound, highlighting the potential for telemental health models to revolutionize care delivery, particularly in patient-centric approaches [8]. Furthermore, the tangible benefits of empathic care, as evidenced in patients with cervical cancer, highlight significant advancements in understanding patient needs and improving clinical outcomes [10, 11]. The integration of these advancements with orthodontic care models suggests a promising trajectory toward more effective treatment methodologies.