

Music Intervention on the Interaction between Electroencephalogram and Sleep Health: A Comprehensive Literature Review

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Abstract:

Background: Sleep plays a crucial role in maintaining human physical and mental health, yet sleep problems are prevalent globally. Issues like insomnia and decreased sleep quality can lead to declines in mood, cognitive function, and increase the risk of various illnesses. In this context, music, as a non-pharmacological intervention, has garnered attention for its potential in improving sleep quality. Simultaneously, the application of electroencephalogram (EEG) technology in sleep research has shown significant promise.

Objective: Currently, both domestic and international literature reviews on the impact of music on sleep health mainly focus on the efficacy of music therapy in treating insomnia and summarizing the music materials used. However, there is a lack of systematic review and analysis on the interactive effects of music intervention on sleep and EEG activity. Therefore, this review aims to review and summarize existing research in this field.

Methods: Firstly, relevant literature from the past five years was searched and manually screened to exclude ineligible studies. Secondly, based on the included literature, a comprehensive analysis was conducted from two aspects: "The Impact of Music on Sleep Health" and "Music Intervention on Sleep EEG."

Conclusion: Regarding music intervention on sleep health, we found that music has a positive impact on improving sleep disorders, secondary insomnia, and the sleep quality and daytime nap quality of different age groups (children, adolescents, and the elderly). Concerning music intervention on sleep EEG, the results show that music dynamically regulates sleep EEG, promoting deep sleep, adjusting sleep quality and structure, significantly shortening sleep latency, and increasing the proportion of deep sleep throughout the night. This study systematically summarizes the positive effects of music on sleep health and the mechanisms of music on EEG activity, aiming to outline the innovations and limitations in this research field over the past five years, provide new perspectives, and offer references for future in-depth, comprehensive empirical research and clinical practice in this area.