

Title : Assessment of AI Models in Predicting Treatment Outcomes in Orthodontics

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Abstract: Background: In the realm of orthodontics, the evaluation of treatment outcomes is a pivotal aspect. In recent times, artificial intelligence (AI) models have garnered attention as potential tools for predicting these outcomes. These AI models have the potential to enhance treatment planning and decision-making processes. However, a comprehensive assessment of their effectiveness and accuracy is essential before their widespread integration.

Materials and methods: In this study, we assessed the capability of AI models to predict treatment outcomes in orthodontics. A sample of 30 patients undergoing orthodontic treatment was selected. Various patient-specific parameters, including age, initial malocclusion severity, and treatment approach, were collected. The AI model was trained using a dataset comprising historical treatment cases and their respective outcomes. Subsequently, the trained AI model was applied to predict the treatment outcomes for the selected patients.

Results: The results of this study indicated a moderate level of accuracy in the predictions made by the AI model. Out of the 30 patients, the model accurately predicted treatment outcomes for 22 patients, yielding a success rate of approximately 73%. However, the model exhibited limitations in accurately predicting outcomes for cases involving complex malocclusions or those requiring non-standard treatment approaches.

Conclusion: In conclusion, this study underscores the potential of AI models in predicting treatment outcomes in orthodontics. While the AI model demonstrated promising accuracy in the majority of cases, its efficacy was diminished in complex and non-standard cases. Therefore, while AI models can serve as valuable tools to aid orthodontists in treatment planning, they should be utilized in conjunction with clinical expertise to ensure optimal decision-making and patient care.

Keywords: Artificial intelligence; orthodontics; treatment outcome.

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