



**Editor:**  
Anak Iamaroon,  
Chiang Mai University, Thailand.

Received: December 21, 2022  
Revised: January 9, 2023  
Accepted: January 18, 2023

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# Comparison of Patients' Satisfaction Between 2-dimensional and 3-dimensional Digital Smile Simulation

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## Abstract

**Objectives:** To compare 2-dimensional (2D) and 3-dimensional (3D) smile simulation techniques from the perspective of patient preferences in comfort during data collection and the simulation outcome.

**Methods:** Twenty subjects (10 males and 10 females) with no experience with smile simulation participated in this study. Data collection was performed by using a DSLR camera (Nikon, Tokyo, Japan) for dentofacial photography, an intraoral scanner (3-Shape, Copenhagen, Denmark) for an oral scanning file, and a tablet device (iPad, Apple, CA, USA) for smile video recording. The subjects' perceptions of comfort towards each data collection process were evaluated using a standardized questionnaire. A week later, both 2D and 3D smile simulation outcomes were presented to participants, and subjects' preferences toward the simulation outcomes were evaluated. Statistical analyses were performed with Wilcoxon Signed Ranks Test and the one-sample chi-square test.

**Results:** A statistical implication presented the significant difference between 2D and 3D subjects' satisfaction in terms of time consumption for data gathering. The results showed that 90% of subjects were satisfied with 2D simulation rather than 3D simulation due to time ( $p=0.002$ ). For satisfaction of the simulation outcome, there was a significant difference in the statistical implication ( $p<0.05$ ). Even though preference and recommendation were significantly different factors, the subjects' overall satisfaction levels were not significantly different ( $p=0.74$ ).

**Conclusions:** Although the satisfaction of recruited individuals in the 2D simulation was higher than that in the 3D simulation during the data collection process, there was no difference in patients' preferences between the 2D and 3D outcomes.

**Keywords:** digital smile simulation, patient comfort, patient preference, satisfaction