Title

Photographic Parameters in Three-Dimensional Facial Image Acquisition. A Scoping Review

Abstract

Objective: Orthognathic surgery is a viable and reproducible treatment for facial deformities. Despite the precision of the skeletal planning of surgical procedures, there is little information about the relations between hard and soft tissues in three-dimensional (3D) analysis, resulting in unpredictable soft tissue outcomes. Three-dimensional photography is a viable tool for soft tissue analysis because it is easy to use, has wide availability, low cost, and is harmless. This review aims to establish parameters for acquiring consistent and reproducible 3D facial images. Methods: A scoping review was conducted across PubMed, SCOPUS, Scientific Electronic Library Online (SciELO), and Web of Science databases, adhering to "Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews" guidelines. Articles presenting 3D facial photographs in the diagnostic phase were considered. Results: A total of 79 articles were identified, of which 29 were selected for analysis. Conclusion: The predominant use of automated systems like 3dMD and VECTRA M3 was noted. User positioning has highest agreement among authors. Noteworthy aspects include the importance of proper lighting, facial expression, and dental positioning, with observed discrepancies and inconsistencies among authors. Finally, the authors proposed a 3D image acquisition protocol based on this research findings.

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