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Tooth shade measurements under standard and non-standard illumination and their agreement with skin color

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Abstract: Purpose: The purpose of this study was to examine the relationship between skin color (shade) and tooth shade under standard and nonstandard illumination sources. Materials and methods: Four hundred Jordanian participants (200 males, 200 females, 20 to 50 years of age) were studied. Skin colors were assessed and categorized using the L'Oreal and Revlon foundation shade guides (light, medium, dark). The Vita Pan Classical Shade Guide (VPCSG; Vident) and digital Vita EasyShade Intraoral Dental Spectrophotometer (VESIDS; Vident) were used to select shades in the middle thirds of maxillary central incisors; tooth shades were classified into four categories (highest, high, medium, low). Results: Significant gender differences were observed for skin colors ($P = .000$) and tooth shade guide systems ($P = .001$ and $.050$ for VPCSG and VESIDS, respectively). The observed agreement was 100% and 93% for skin and tooth shade guides, respectively. The corresponding kappa statistic values were 1.00 and 0.79, respectively (substantial agreement, $P < .001$). The observed agreement between skin color and tooth shades (VPCSG and VESIDS) was approximately 50%. Conclusions: The digital tooth shade guide system can be a satisfactory substitute for classical tooth shade guides and clinical shade matching. There was only moderate agreement between skin color and tooth shade.