

Assessment of skeletal maturity using the calcification stages of permanent mandibular teeth

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Introduction: Knowledge of the growth status of patients is essential to formulate and initiate a precise treatment plan. This study aimed at determining the role of calcification of permanent mandibular teeth for the assessment of skeletal maturity.

Methods: A cross-sectional study was conducted using lateral cephalograms and dental panoramic radiographs of 360 patients (ages 7-18 years) equally divided into six groups according to cervical vertebral maturation stages. Skeletal age was determined using Baccetti et al. method and dental age was calculated using Nolla and Demirjian methods.

Results: Mean chronological stage at CS5 revealed a significant difference between male and female subjects ($p=0.003$), which showed that the latter achieved skeletal maturity one year earlier than the former. A significant difference ($p=0.007$) was found for dental age using Nolla's stages at CS3, which showed females demonstrated a dental age of 1.4 years less than males. Mandibular canine showed the highest correlation with Demirjian index (DI) in males ($\rho=0.818$) and females ($\rho=0.833$). Mandibular second premolar showed the highest correlation with Nolla's stages in males ($\rho=0.654$) and females ($\rho=0.664$).

Conclusion: Comparisons between sexes revealed that females are skeletally and dentally advanced. The DI indicated stage F and Nolla's stages identified stages 9, 10 to be indicative of CS2-3 for the mandibular canine and stages F and G and 9-10 for CS2-3 for the first premolars, second premolars and second molars, respectively.

Keywords: Cervical vertebrae. Maturity. Age.

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