

Tooth-size discrepancy and Bolton's ratios: a literature review

Type: Review

Abstract:

OBJECTIVES: To review the literature on Bolton's tooth-size discrepancies (TSD) with specific attention to the prevalence of TSD, and the possible influence of different classes of malocclusion, gender and racial group. Also examined were the validity of the standard deviations from Bolton's samples as an indicator of significant TSD, methods of measurement of TSD and their reproducibility. Based on the review, suggestions are made as to how future work could be improved. **RESULTS AND CONCLUSIONS:** Studies have reported from 20 to 30% of people with significant tooth-size anterior discrepancies and 5-14% for overall TSD. Bolton's original sample was appropriate for indicating what ratio is most likely to be associated with an excellent occlusion, but was not suited to indicating the size or prevalence of significant TSD. Most studies use samples that are not likely to be representative of orthodontic patients in the UK or, indeed, elsewhere. Although some statistically significant differences have been reported, gender and racial group seem unlikely to have a clinically significant influence on Bolton's tooth-size ratios. Class III malocclusions may have larger average ratios. Computerized methods of measurement are significantly more rapid. Most studies performed or reported their error analysis poorly, obscuring the clinical usefulness of the results. Studies are needed to properly explore the reproducibility of measurement of TSD and to appropriately determine what magnitude of TSD is of clinical significance.

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