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THE WEIGHTED AVERAGE METHOD 'WAM' FOR DENTAL AGE ASSESSMENT

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<u>Introduction</u>: There has been no systematic assessment of the weighted average method compared with an UnWeighted Average. The purpose of this work was to compare the age of subjects assessed using the unweighted –tds, and meta-analysis using fixed and random methods. In addition the reciprocal of the sd-tds and se-tds were also used as weighting factors.

Material and Methods: The quantitative data on tooth development stages for this study are reused from a paper published in 2011 (Yadava M et al 2011). A total of ten different methods of calculating the weighted average were used. Results of comparison between Chronological Age and Ages Estimated by the 8 different methods using 50 female subjects

Comparison - Difference in years resulted: a v b [ca v uwa] -0.352; a v c [ca v n-tds] -0.649; a v d [ca v sd-tds] -0.464; a v e [ca v se-tds] -0.359; a v f [ca v meta-se-fix] -0.343; a v g [ca v meta-se-rnd] -0.272; a v h [ca v meta-sd-rnd] -0.028; a v i [ca v meta-sd-fix] -0.005; a v j [ca v 1/sd] -0.169; a v k [ca v 1/se] -0.290

<u>Discussion</u>: This is compelling and objective evidence of the need to test in a systematic way any mathematical or statistical procedure by which age estimates are made. It is clear that it is, perhaps, the almost unique availability of large numbers of Dental Panoramic Radiographs taken for clinical purposes that are available for re-use that enables this process of validation to be carried out using the different methods of estimating age. All or any one of these can easily be tested against the Gold Standard of chronological age (CA).

<u>Conclusions</u>: The process of weighted average as applied to Dental Age Assessment has been shown to be of value when the reciprocal of the sd is used. Although it is not quite as accurate as Meta-analysis, it is sufficiently close to use so that the expense of meta-analysis software can be avoided. The results presented here question the need for complicated statistical manoeuvres to estimate dental age.

KEYWORDS: Forensic Odontology, Age Estimation.

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