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Title **Age Evaluation of Adolescent Refugees**

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Aim

To evaluate the two methods used in Norway to estimate age when assessing whether an asylum seeker of unknown age is above or below 18 years of age, and to evaluate the accuracy of the methods in estimating the chronological age of individuals in the age range between 16 and 20 years.

Conclusions and results

The age of refugees immigrating to Western countries may be unknown or unreliable, and European countries use different methods to assess the age of asylum seekers. This systematic review includes 29 articles that met the inclusion criteria out of 922 articles identified in the search. Skeletal age could be determined with a mean standard deviation of 11.8 months for girls and 14.8 months for boys. These standard deviations are similar to the deviations used in Norwegian practice (12 months for girls and 14 months for boys). In most cases, skeletal age was advanced compared to the reference standard. When considering the difference between skeletal age and chronological age, the differences were significant among several ethnic populations. Their skeletal maturation could be both accelerated and retarded compared to the Caucasian population that forms the reference for age estimation. Factors such as differences in study design, purpose of the x-ray images taken, number of observers, and socioeconomic status might have influenced the results. The dental methods used in Norway are not widely used in age estimation research. Heterogeneity of methods, study designs, outcomes, and presentation of results made it difficult to compare the results of different studies. In determining whether an individual is below 18 years of age, the method used to estimate skeletal age yields a specificity below 80%. In contrast, dental methods yield high specificity, but very low sensitivity. Combining both methods increases specificity, but reduces sensitivity. The implication in using these methods is that an adolescent determined by skeletal and dental examinations to be aged 19 years has an 8% to 12% probability of actually being a minor.

Recommendations

Not applicable.

Methods

For this systematic review, MEDLINE, EMBASE, ISI, Cinahl, and the Cochrane Library were searched for literature published between January 1980 and April 2006. Two reviewers independently selected articles based on defined criteria and study quality.

Further research/reviews required

More research is needed to evaluate the accuracy of the dental methods used in Norwegian practices of age evaluation.

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