Background

Undocumented children
- Over 200 million children under 5 are without birth registration and legal identity
- At high risk of statelessness and exploitation
- In demand for accurate and non-invasive age assessment methods

Dental age assessment
- Tooth development is closely correlated with chronological age and minimally influenced by environmental factors
- Panoramic radiograph involves minimal radiation dose (6.7 μSv)
- Being criticized for wide margin of errors and inaccuracies

Aims

To systematically assess the accuracies of:
- Dental age assessment methods proposed by Demirjian et al. (1973 & 1976)
- Other less-commonly employed dental age assessment methods:
  - Haavikko et al. (1970 & 1974)
  - Cameriere et al. (2003)
  - Nolla et al. (1996)
  - Willems et al. (2001)
- Dental age assessment methods with population-specific datasets

Methods

<table>
<thead>
<tr>
<th>Methods</th>
<th>Embase (n=766)</th>
<th>Medline (n=718)</th>
<th>Pubmed (n=1750)</th>
<th>Scopus (n=554)</th>
<th>Manual Searches (n=43)</th>
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Studies included in qualitative and quantitative synthesis (n=69)

Studies evaluating Demirjian’s methods (n=47)
- Review/summary (5)
- Demirjian’s method (42)
- Other methods (1)

Studies evaluating other dental methods (n=43)
- Other methods (43)

Studies evaluating own reference datasets (n=14)

Results

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Conclusion

- Demirjian’s methods are associated with significantly higher inaccuracies compared with other dental age assessment methods.
- The quality of evidence was deemed as very low in all comparisons due to considerable heterogeneity, imprecision and publication bias.

References