Background & Aim

The literature is controversial regarding the relationship between oral health and anthropometric measurements in children. Associations between dental caries and childhood obesity have been reported, as well as with thinness and failure to thrive.

Due to inconclusive evidence, this study aimed to assess the relation between oral health and 1) weight status and 2) stunting in children from Cambodia, Indonesia and Lao PDR.

A further objective was to determine whether weight status and stunting affect the eruption of permanent teeth.

Methods

Study design

Data were used from the Fit for School Programme Assessment Study (FIT-PAS): a two-year longitudinal cohort. The study was conducted in 82 public elementary schools in Cambodia, Indonesia and Lao PDR, selected by the respective Ministries of Education. From each school, a random sample of first Grade 6-7-year-old children were included at baseline.

Data collection

Clinical oral examinations and anthropometric measurements were conducted at baseline (2012) and two years later (2014) by a team of trained and calibrated dentists and research assistants.

Results

Study sample

The sample included 1,847 children in 2012 (mean age 6.7 ± 0.5 years) and 1,499 children were followed-up in 2014 (mean age 8.7 ± 0.5 years). The follow-up rate was 81.1%.

<table>
<thead>
<tr>
<th></th>
<th>Cambodia 2012</th>
<th>Indonesia 2012</th>
<th>Lao PDR 2012</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>n=624</td>
<td>n=478</td>
<td>n=635</td>
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<tr>
<td></td>
<td>2014</td>
<td>2014</td>
<td>2014</td>
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<tr>
<td>Thin children (%)</td>
<td>87</td>
<td>87.9</td>
<td>87.9</td>
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<tr>
<td>Normal weight children (%)</td>
<td>14.3</td>
<td>80.1</td>
<td>69.6</td>
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<tr>
<td>Stunted children (%)</td>
<td>7.9</td>
<td>7.9</td>
<td>4.4</td>
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<tr>
<td>Overweight children (%)</td>
<td>7.6</td>
<td>13.9</td>
<td>22.7</td>
</tr>
<tr>
<td>Stunting (%)</td>
<td>33.1</td>
<td>31.8</td>
<td>15.2</td>
</tr>
</tbody>
</table>

Stunted children (%) 2012 (age 6-7)

[Graph showing the percentage of stunted children in Cambodia, Indonesia, and Lao PDR in 2012.]

Weight status

- In 6-7-year-olds, dental caries (dt) and odontogenic infection (pufa) in the primary teeth were highest in thin children and lowest in overweight children (figure 1 and 2).

Stunting

- In 6-7-year-olds, stunted children had significantly more dental caries (dt) and odontogenic infection (pufa) in the primary teeth than non-stunted children (figure 3).

Weight status and stunting in relation to the eruption of permanent teeth

- Thin children and stunted children had significantly less permanent teeth, both in 6-7-year-olds (figure 4 and 5) and 8-9-year-olds.

Conclusion

This study shows the strong, yet largely neglected, association between oral health and thinness and stunting in children from Cambodia, Indonesia and Lao PDR.

This relationship should be acknowledged in the development of programmes and policies to improve child health and development.