Daily total fluid intake and changes in body mass index among Hong Kong primary school students

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Background

→ Sugar-sweetened beverage (SSB) intake has been associated with weight gain.
→ Emerging evidence has linked non-sugar-sweetened beverage (NSSB, e.g. water, tea, soup) intake to weight loss.
→ SSB intake has been linked to various unhealthy behaviours.

Methods

Subjects
→ Data source: Student Health Service (SHS), Department of Health
→ Sample size: 75635 Primary 4 students in Hong Kong
→ Follow-up: 1998 – 2000
→ Mean age: 10.0 years (SD 0.7); 50.9% were boys.

BMI was derived from weight and height measured by trained nurses.

Questionnaire

A Primary 4 lifestyle score (ranged from 7 to 28) was calculated based on 7 items (each scored 1 to 4).

Data analysis
→ Generalized linear regression models were fitted to assess the effect of baseline fluid intake on BMI change.
→ Adjustment for sex, socio-economic proxies and lifestyle score

Results

Frequency of total daily fluid intake at baseline

<table>
<thead>
<tr>
<th>Frequency of total daily fluid intake (cups)</th>
<th>BMI change</th>
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<tbody>
<tr>
<td>&lt;2 cups (reference)</td>
<td></td>
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<tr>
<td>2-4 cups</td>
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<tr>
<td>4-6 cups</td>
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<td>6+ cups</td>
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In children with healthy lifestyle, greater total fluid intake predicted lower BMI.

In children with moderately healthy lifestyle, total fluid intake was not associated with BMI.

In children with unhealthy lifestyle, greater total fluid intake predicted higher BMI.

Conclusions

In Hong Kong primary school children with healthy (indicating lower SSB intake) and unhealthy (indicating higher SSB intake) lifestyle, greater daily total fluid intake predicted a decrease and increase in BMI, respectively.

Future studies with better measurement of SSB and non-SSB intake are warranted.