<table>
<thead>
<tr>
<th>項目</th>
<th>内容</th>
</tr>
</thead>
<tbody>
<tr>
<td>タイトル</td>
<td>子供の肥満が開発途上国に広がっている！</td>
</tr>
<tr>
<td>作者</td>
<td>Uemura, Azusa</td>
</tr>
<tr>
<td>引用</td>
<td>第2回北海道大学サステナビリティ学生研究ポスターコンテスト = The Second Hokkaido University Sustainability Research Poster Contest. 平成22年10月24日（日）-11月5日（金） 北海道大学学術交流会館 札幌市</td>
</tr>
<tr>
<td>発表日</td>
<td>2010-10-24</td>
</tr>
<tr>
<td>ファイル情報</td>
<td>C1-9.pdf</td>
</tr>
<tr>
<td>メモ</td>
<td>「魅力あるポスター賞」受賞</td>
</tr>
</tbody>
</table>

Hokkaido University Collection of Scholarly and Academic Papers: HUSCAP
Child obesity is prevalent in developing countries!

Azusa Uemura
Laboratory of Human Ecology, Graduate School of Health Sciences, Hokkaido University

Background

Now, obesity is the most important public health concern around the world!

—Various risk factors—

Physical inactivity
Unhealthy diets
Genetics
Home environment
etc.

Cardiovascular disease
Diabetes
Cancers
Musculoskeletal disorder

Obesity increases lifestyle-related diseases!

➢ Why childhood obesity is serious health concern?

- It relates to adulthood obesity.
- It develops lifestyle-related diseases at a younger age.

In my study, focus on lifestyle of obese children.

Worldwide trend

➢ Obesity is prevalent in...

- only high-income countries
- low-, middle- income countries (particularly urban areas)
- only adults
- children

Indonesia

- Economic development has been accelerated. (GDPane 2005–2009)
- Child obesity increases in urban areas.

Study area

Jakarta
Semarang: urban area capital of the province of Central Java

Discussion

Dietary intake was appropriate, but physical activity level was low.

➢ To prevent childhood obesity...

- Evaluate accurately own dietary intake
- Incorporate exercise into daily life
- Maintain healthy body weight and fat percentage.

Future prospects

- Reveal current status of prevalent of child obesity and examine lifestyle of them in rural area of Indonesia.
- Compare those data in rural to urban area.
- Examine characteristics of obese children in detail. (Ex. cardiopulmonary function, QOL, characteristics of parents)

Acknowledgments

- Taro Yamashita Ph.D: Faculty of Health Sciences, Hokkaido Univ.
- Maria Mexitalia: Faculty of Medicine, Diponegoro Univ, Indonesia
- All members of Smile Lab.

References


—Dietary intake in—

Food recall
Ask about both “quality” and “quantity” of what they ate and drank

➢ Various food models!

1. Interview
- What did you eat?
- When did you eat?
- How many much?

2. Estimate the portion size

3. Calculate TEI (total energy intake) and nutrition intake

➢ Energy recommended level

<table>
<thead>
<tr>
<th>Boys (n=69)</th>
<th>Girls (n=81)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy (kcal)</td>
<td>2,568</td>
</tr>
<tr>
<td>protein (g)</td>
<td>69</td>
</tr>
<tr>
<td>fat (g)</td>
<td>76.5</td>
</tr>
<tr>
<td>carbohydrate (g)</td>
<td>355.4</td>
</tr>
</tbody>
</table>

- Energy was approximately equal to RDA (recommended daily allowance) of Indonesia in both boys and girls.

(E/RDA: boys 2,400 / girls 2,350 kcal)

➢ Energy intake

- Compared to US CDC growth chart (2000)

<table>
<thead>
<tr>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI</td>
<td>97th percentile</td>
</tr>
<tr>
<td>Boys (n=69)</td>
<td>13.0±0.4</td>
</tr>
<tr>
<td>Height (cm)</td>
<td>156.9±5.6</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>18.4±6.0</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>28.5±3.1</td>
</tr>
<tr>
<td>Fat free mass (kg)</td>
<td>47.9±7.6</td>
</tr>
</tbody>
</table>

- Compared to US CDC growth chart (2000)

- Compared data from a nationwide survey in Indonesia, the mean “weight for height” of both boys and girls exceeded the 97th percentile.

- PAL: physical activity level

- PAL was light to moderate in both boys and girls.

- STEP was below the recommended level (boys 14,000 / girls 11,000)

-PAL: physical activity level

- TEE: total energy expenditure

- BMR: basal metabolic rate

- PAL = TEE / BMR

- TEE = BMR + PAL

- BMR (boys): 1,738
- TEE (boys): 2,666
- PAL: 1.38
- STEP (boys): 9,320
- PAL (girls): 1,576
- TEE (girls): 2,398
- STEP (girls): 7,173

➢ Means of commuting to school?

- Among urban elementary school children who were classified “obesity” or “overweight”, only 4% walked to school.

- Most of them went to school by car.

➢ Acceleration monitoring

- Attach the accelerometer for 7 consecutive days

- There are many cars around the school.

- Calculate Total daily energy expenditure (TEE) and daily step frequency (STEP)

- TEE = BMR + PAL

- STEP: 2,666

- BMR (boys): 1,738

- PAL: 1.38

- STEP (boys): 9,320

- PAL: Light to Moderate

- STEP ≦ recommended level

- There are many cars around the school.

- Mostly went to school by car