Association between Dietary Inflammatory Index and overweight among the Aboriginal primary school children in Negeri Sembilan.

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1. INTRODUCTION

- The Dietary Inflammatory Index (DII) is used as a new dietary tool to assess the inflammatory potential of an individual’s diet.
- Numerous epidemiological studies had been conducted and consistently showed positive association between DII and overweight in adults but few studies had been conducted among the children.

2. OBJECTIVE

To investigate the association between DII and prevalence of overweight (BAZ-1SD) among the aboriginal children in Negeri Sembilan.

3. METHODOLOGY

- Study design: Analytical cross-sectional study
- Study location: 3 Aboriginal primary schools in Negeri Sembilan (SK Sungai Sampo, SK Tekir, SK Putra)
- Sample size: 193 Aboriginal primary school children
- Instruments:
  - Interviewer-administered questionnaires [Malaysian Adapted Nutrition Survey (MANS) food-frequency questionnaire, Socio-demographic backgrounds]
  -Anthropometry measurements [Height (SECA mobile stadiometer), Weight (OMRON body fat analyzer model HBF-375)]
- Data analysis:
  - SPSS V20
  - Descriptive analysis, Independent T-test, one-way ANOVA test, Pearson’s chi-square test

4. RESULTS

<table>
<thead>
<tr>
<th>Gender of student</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
</tbody>
</table>

Fig 1 Percentage of students based on gender

<table>
<thead>
<tr>
<th>Age category (yrs old)</th>
<th>7 to 9</th>
<th>10 to 12</th>
<th>X²</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of student by age group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1</td>
<td>20.0</td>
<td>39.8</td>
<td>9.36</td>
<td>0.01*</td>
</tr>
<tr>
<td>T2</td>
<td>32.7</td>
<td>34.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T3</td>
<td>47.1</td>
<td>25.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not overweight</td>
<td>72.9</td>
<td>57.0</td>
<td>7.60</td>
<td>0.01*</td>
</tr>
<tr>
<td>Overweight</td>
<td>27.1</td>
<td>43.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on Pearson’s Chi Square test; * statistically significant at p-value<0.05. Not overweight: BAZ ≤ 1SD; Overweight: BAZ > 1SD

5. Discussion

- Previous study had found a positive correlation between DII score and less healthy food and nutrients such as sugar-sweetened beverages, saturated and trans fats.
- This indicate the younger children in this study may consume more foods that are high in fats, and other less healthy nutrients that are more pro-inflammatory.
- Similar with other studies, there was no significant relationship between DII and overweight were found in this study (X²= 1.438, p=0.49).
- This may be due to the diet-induced inflammation between normal and overweight subjects were not significantly different.
- The other reason may be due to failure to obtain the inflammatory biomarker as some study had shown that there is no correlation between the biomarkers and anthropometry measurements among the adolescents (TNF-a and hsCRP with BMI and WHR)³.
- Another possible factor may contribute to the insignificant association between DII and overweight in this study is that fewer food parameters were being included in the calculation of DII.

6. CONCLUSION

Although a higher inflammatory index score (pro-inflammatory diet) was associated with obesity, but it does not predict overweight in the aborigine children.

Table 2 Association between DII tertile and weight status

<table>
<thead>
<tr>
<th>DII tertile (T1)</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>X²</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of student tertile</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not overweight</td>
<td>55.3</td>
<td>64.3</td>
<td>66.7</td>
<td>1.43</td>
<td>0.50</td>
</tr>
<tr>
<td>Overweight</td>
<td>44.7</td>
<td>35.7</td>
<td>33.3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

References

[4] Based on Pearson’s Chi Square test; * statistically significant at p-value<0.05. Not overweight: BAZ ≤ 1SD; Overweight: BAZ > 1SD.

Acknowledgement

This project was conducted under UCSI SHINE initiative. The authors would like to thank to the Medical Research and Ethics Committee (MREC) and the Department of Orang Asli Development (JAWDA) for the approval to carry out the study.

34th NSM Conference, 7-9 September 2021