Effect of a Nudge Intervention for Increasing Vegetable Intake among University Students in a University Cafeteria

Makiko Nakade*1,2, Mako Matsushita*1, Ryota Fukui*1, Kokoro Nakamura*1, Miho Fujishiro*1
1 Department of Food Science and Nutrition, University of Hyogo 2 Research Institute for Food and Nutritional Sciences

Introduction

Background: An intake of ≥350 g of vegetables per day is recommended in Japan. However, the average intake of vegetables among young adults in their 20s is low (about 223 g) in 2019. Recently, the use of nudge strategies for behavioral change has been gaining attention. However, relatively few nudge trials for increasing vegetable intake have been conducted in Japan.

Objective: To evaluate the effectiveness of a nudge intervention for increasing vegetable intake among university students.

Methods

Study Design, Settings, Participants: The participants were university students who ate at a university cafeteria in Japan from October to November 2020. A total of 106 students participated in the baseline survey.

Nudge: As a nudge intervention, a tack board was set at the entrance of the cafeteria. It displayed the number of small bowls of vegetable dishes that were sold by putting magnets on the tack board on a real-time basis (Figure 1).

Figure 1. Tack board

★Study schedule★

Baseline (2 weeks) Intervention (2 weeks) Follow-up (2 weeks)
[collected data] Questionnaire1 Receipts [collected data] Questionnaire2 Receipts [collected data] Questionnaire3 Receipts

Measurable Outcome: The change in the number of small bowls of vegetable dishes selected by students during the study periods were evaluated by collecting receipts. Awareness of the nudge board and a conscious change in vegetable intake were also evaluated using self-administered questionnaires.

Results

Figure 2. Percentage of the students who saw the tack board

Did you see the tack board?

Table 1. Change in the number of small bowls of vegetable dishes selected during the study period

<table>
<thead>
<tr>
<th></th>
<th>Median (25-75 percentile)</th>
<th>p‡</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of small bowls of vegetables†</td>
<td>Baseline 1.0 (0.0 - 1.0)</td>
<td>0.811</td>
</tr>
<tr>
<td></td>
<td>Intervention 0.8 (0.3 - 1.0)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Follow-up 0.6 (0.3 - 1.0)</td>
<td></td>
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</tbody>
</table>

† Total number of small bowls of vegetable divided by the number of submitted receipt.
‡ Friedman's test was used.

Table 2. A conscious change in vegetable intake during the study period

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Intervention</th>
<th>Follow-up</th>
<th>p†</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am conscious of eating vegetables</td>
<td>Yes 39 (73.6%)</td>
<td>40 (75.5%)</td>
<td>41 (77.4%)</td>
<td>0.794</td>
</tr>
<tr>
<td></td>
<td>No 14 (26.4%)</td>
<td>13 (24.5%)</td>
<td>12 (22.6%)</td>
<td></td>
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</table>

† Cochran's Q-test was used.

A total of 53 students completed the study. Among them, 67.9% students answered they saw the tack board (Figure 2). However, the number of small bowls of vegetable dishes selected (p=0.811) and consciousness of vegetable intake (p=0.794) did not change significantly during the study period (Table 1, Table 2).

Conclusions

Nudge intervention in this study did not change students’ behavior significantly. Developing more attractive nudge tools for behavioral change might be needed.

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