Effects of Economic Situation and Lifestyle Behavior on Japanese Undergraduates’ Healthy Diets by Nutritional Knowledge Level

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Introduction

Background: Few young Japanese adults regularly eat a well-balanced diet consisting of cereals (staple), proteins (main dish), and vegetables (side); this problem is coupled with poor breakfast and vegetable intake.

Objective: To comprehensively identify the effects of economic situation and current eating and lifestyle behaviors on the healthy diets of young adults with different nutritional knowledge levels.

Methods

Setting and Participants: The subjects were 151 males among 222 undergraduates completing a 2022 self-administered questionnaire (84.7% response rate) as a cross-sectional study of first- to fourth-year male engineering students at a public university in Hyogo Prefecture.

Measurable Outcome and Analysis: A healthy diet was defined as having a well-balanced meal at least twice daily, eating breakfast regularly, and eating five or more vegetable dishes daily. A hypothetical model was developed by using factors potentially associated with eating a healthy diet, including economic situation (financial well-being) and current eating and lifestyle behaviors as limiting factors (bedtime, eating out, home-cooked meal replacement, meal within 2 h before bed, late-night snacking). Assuming that the two levels of nutritional knowledge (Cronbach’s α, 0.931) (high-score group ≥ median > low-score group) had the same factor structure, we performed a simultaneous multi-population analysis.

Nutritional knowledge was based on a total of 15 items that are learned in Japanese junior high schools (Table 1). The students were asked to answer the question, “Do you know the following nutrients and foods?” by using a 4-choice scale, where 1 = almost no knowledge, 2 = not much knowledge, 3 = a little knowledge, and 4 = good knowledge for each item. Nutritional knowledge scores were calculated from 1 to 4, starting with the response indicating the lowest nutritional knowledge, for a total score of 15 items.

Results

Table 2 shows the characteristics of the subjects and the results of comparisons by nutritional knowledge level.

Table 3 shows the results of comparisons of the eating and lifestyle behaviors as limiting associated with healthy diets, by nutritional knowledge level. In the high-score group of nutritional knowledge, compared with the low-score group, there was a significantly higher breakfast frequency ($P = 0.037$; Table 2) and a significantly lower eating out frequency ($P = 0.030$; Table 3) and home-cooked meal replacement frequency ($P = 0.018$; Table 3).

Figure 2 shows the associations of economic situation and eating and lifestyle behaviors on healthy diets, by nutritional knowledge level. Simultaneous multi-population analysis showed acceptable goodness of fit (GFI = 0.963, AGFI = 0.913, CFI = 0.998, RMSEA = 0.008, AIC = 66.153).

A healthy diet had a significant negative path from bedtime in both nutritional knowledge groups (high-score group: standardized estimate $-0.46$, $P = 0.014$; low-score group: $-0.39$, $P = 0.012$), as well as a significant positive path from economic situation (0.45, $P = 0.015$) and a significant negative path from home-cooked meal replacement frequency ($-0.38$, $P = 0.029$) in the high-score group.

Conclusions

Healthy diets in male university students may be limited by late bedtime. In those with high levels of nutritional knowledge these healthy diets may also be positively affected by financial well-being and limited by using home-cooked meal replacements.

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