

The Causality Among Ready-made Meal Consumption, Individual Characteristics, and Nutrition Intake: Categorical Structural Equation Modeling Analysis

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Summary

In Japan, the ready-made meal industry is growing rapidly. Previous studies show that ready-made meal consumption has a negative correlation with vegetable intake and a positive correlation with fat-energy ratio. Although there are many kinds of ready-made meal, such as boxed lunches and croquettes, they mostly do not take these classifications into consideration. Therefore, using categorical structural equation modeling, this study aims to verify causality between consumption of various ready-made meals and nutrient intake by controlling demographic variables and the frequency of home cooking and eating out. Moreover, we analyze indirect effects between individual attributes, such as food expenditure and age, and nutrition intake to assess how individual attributes determine nutrition intake.

The main results are as follows. First, although previous studies find that ready-made meal consumption causes a high fat-energy ratio, ready-made meals comprising noodles, such as soba and wheat noodles, are found to cause a low fat-energy ratio. Second, although staple food ready-made meals cause a high carbon-energy ratio and side dishes cause a low carbon-energy ratio. Third, because the direct effect of food expenditure on vegetable intake is insignificant, and indirect effects via home cooking and staple food ready-made meals offset each other; wealthy people cannot necessarily intake enough vegetables and intake depends on daily meal patterns. Fourth, direct effects from food expenditure for carbon- and fat-energy ratios are very high; therefore, food expenditure strongly determines nutrition intake regardless of dietary patterns.

Keywords: Structural Equation Modeling, Nutrition, Vegetable, Ready-made meal