

A study on nutrition education during school lunch time in elementary schools: Using social skills training for education regarding the consumption of appropriate portion sizes during meals

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INTRTODUCTION

Nutrition education has been promoted among elementary schools in Japan. Previous studies on nutrition education during school lunch time are limited although it is feasible and effective to implement such measures in the school. In addition, it is considered less important to teach children about having proper portion sizes, which may be related to plate wastage, rather than teaching them to eat disliked food or finish meals completely. To consume an appropriate amount of meals, children need some social skills, such as asking the person serving to adjust the meal size when a large amount is offered. Therefore, the present study proposed a social skills training-based nutrition education program to be implemented during school lunch time and aimed to examine 1) the relations between children's plate waste behavior and self-efficacy regarding eating meals completely when a large quantity is offered, 2) the relations between the quantity of meals served as the school lunch and children's weight status, plate waste behavior, and skills, 3) the characteristics of those who finish their meals completely even when the portion size is too large, and 4) the effectiveness and feasibility of use of the developed educational material.

Study 1: The context of low self-efficacy for finishing meals completely among elementary school children

To examine the relations between children's inability to seek an appropriate quantity of meals and plate waste behavior, a cross-sectional survey using a self-report questionnaire was conducted on 5th-grade students of elementary schools in Tokyo. A total of 2,659 participants completed the questionnaire. Significant correlations were found between plate waste and low self-efficacy for completely finishing meals "when portion size is too large" and

“when one dislikes the food that is served” among both boys and girls. The results suggested that education about asking for an appropriate quantity of meals is important as well as that about eating the food one dislikes. However, little is known about education on consumption of appropriate portion sizes during meals. Therefore, there is a need for studies on education materials or methods to help children consume an appropriate quantity during meals. In addition, as children’s low self-efficacy pertaining to “when the time allowed for eating is too short” was related to plate waste, it is important to ensure they are provided enough time to eat the school lunch.

Study 2: Correlations between children’s school lunch portion size and weight status, plate waste behavior, and skills for having proper portion size meals.

To examine how children think about school lunch portion size, and factors relating with it, self-report questionnaire was distributed to 5th-grade students of elementary schools in Tokyo. A total of 2,659 children completed the survey. BMI of children who thought that a school lunch portion size was large were smaller than that of the others, therefore it was suggested that the difference in students’ weight status should be considered when school lunch is served. In addition, although these children were more likely to leave some portion of lunch uneaten than the others, more than 70% of them ate lunch completely. Moreover, they didn’t have skills for having proper portion size of meals. In other words, some children need education for having proper portion size even though they finish lunch completely.

Study 3: Characteristics of children who finish their meals completely even when the portion size is too large.

To examine plate waste behavior and attitudes toward plate waste among children who finished their meals completely even when the portion size was too large, in other words, when they failed to eat an appropriate portion size, we administered a self-report questionnaire on 5th grade students of elementary schools in Tokyo and Chiba. A total of 539 participants completed the questionnaire. It was revealed that those who eat meals completely when the

portion size is too large didn't leave any portions of meals uneaten ordinarily at a school, home, their relatives' or friends' homes, or restaurants. They had attitudes, "I must eat up meals that someone cooked for me" "I must eat up meals even when the portion size is too large", which could disturb them from eating moderate quantity of meals. Therefore, it is evident that they need to learn assertiveness skills, a social skill by which they can express their thoughts or requests while respecting the rights of others, to ensure that they are served an appropriate portion size.

Study 4: Development and evaluation for the education material for lunch time applying Social Skills Training (SST) procedures for children to gain skills to have proper quantity of meals.

To instruct children about seeking a proper quantity of food during meals, using assertiveness skills training, we developed educational material based on SST. The education material targets were 5th grade students, and consisted of several picture cards and a teachers edition. It was supposed that school dietitians instruct them using it during lunch time for about ten minutes for five days. They learned two points: the reason why proper amount of meals differ from person to person, and how they can get appropriate amount of meals in various situations.

Study 4-1: Estimation of the education material's feasibility

To examine the education material's feasibility, we conducted questionnaire survey to 8 school dietitians and 19 home room teachers after instructions by the teaching material for 577 fifth-grade students of 8 elementary schools in Tokyo and Chiba. Its feasibility was appreciated, although it was suggested that there were needs to make a manual for instructors and consider when the instruction should be done and which grade of students was better as its target, depending on the condition of students or schools.

Study 4-2: Estimation of the education material's effects.

Educational effects of the education material were examined using a non-randomized controlled study design. Questionnaire surveys and school lunch plate waste surveys were conducted to the intervention group, those who were exposed to the instruction using the education material (n = 264, eleven classes), and the control group (n = 212, eight classes) pre- and post-intervention. Ten weeks after the intervention, the intervention group showed a significant decrease in the percentage of those who had attitudes such as “I must eat up meals even when the portion size is too large,” “I must eat everything that someone has cooked for me,” “I must eat everything even when I feel ill.” Furthermore, among the intervention group, a significant improvement was observed on skills such as “When a large amount of meals is offered, I can say, ‘Please reduce the quantity because I will not be able to eat it completely’.” Additionally, in the intervention group, there was a significant increase in the number of children who asked the person serving to adjust the meal size when it was too large. School lunch plate waste, however, did not decrease after the intervention, partly because there was little plate waste before the intervention. From these results, the effect of the educational material was evident to some degree.

CONCLUSIONS

This study revealed that there is a need for education about seeking an appropriate quantity of food during meals because the inability to do so was related with plate waste. Further, children who reported that the portion size of the school lunch was too large lacked the skills necessary to exercise portion control. In addition, it was suggested that the ability to seek an appropriate quantity of food was affected by children’s feeling of gratitude for the food and towards people related with their meals. Therefore, it was concluded that assertiveness, which is the skill to express one’s thoughts or requests while respecting the rights of others, is necessary for asking for an appropriate quantity of food, and accordingly, the teaching material applying SST was developed. The teaching material was feasible, although it needed to be revised. In addition, the intervention using the teaching material improved some attitudes, skills, and behaviors in the children. In order to encourage children to eat an appropriate

quantity of food during meals, efforts are required from all school members, including school dietitians, homeroom teachers, and school nurses along with nutrition education for children.