

## ■ REPORT

# Practice report of support seminar for nutrition teachers led by occupational therapist

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**ABSTRACT:**

【Background】 Today, food education is recommended and, support is thus required to improve the expertise of school nutrition staff. 【Objective】 The purpose of this report was to examine a support seminar led by an occupational therapists, and obtain a starting point to improve its content. 【Methods】 The seminar was targeted at 24 students, and was followed up by an anonymous self-administered questionnaire covering basic questions such as usefulness of each lecture topic and its degree of difficulty, appropriateness of time allocated to daily lectures, and seminar length. 【Results】 Regarding usefulness, more than 95.8% students responded that all lecture topics were "useful" or "fairly useful". As for their degree of difficulty, 87.0-100% answered "I could understand" or "I could understand it more or less", for all topics; for the brain function topic, 13.0% answered "I could not understand it very well". 【Conclusion】 The questionnaire showed that the lectures were useful, but it emerged that there was a need to modify lecture contents such as brain function and sensory nervous system to make them more understandable.

**Key words:** Nutrition instructor, Occupational therapist, Seminar

**INTRODUCTION**

The term "feeding difficulties" has a wide range of meanings, from a rather unbalanced diet (selective eating, picky eating) to dietary behaviour disorder and eating disorder defined in the Diagnostic and Statistical Manual of Mental Illness, 5th edition (DSM-5)<sup>1)</sup>. It has been reported that the prevalence of unbalanced diets is 10 to 50%<sup>2)</sup>, and about 1 to 5% individuals in the general population meet the

criteria of feeding disorder<sup>3)</sup>. In addition, an unbalanced diet in early childhood has been found to be related to the onset of future food aversion/restriction disorder<sup>4,5)</sup>. Therefore, eating difficulties such as selective eating may be an important school health problem. According to the School Lunch Law in Japan, school lunch aims to promote health by providing appropriate nutrition and cultivating desirable dietary habits as well as a spirit of

sociability and cooperation. Nutrition teachers are positioned to play a key role in this project<sup>6</sup>). Nutrition teachers are central in the development of general teaching plans for guidance on food in schools, and play a coordination role between faculty and staff<sup>7</sup>). However, in many cases, only one nutrition teacher is assigned to a school, and in the case of small schools, he/she is sometimes in charge of several schools. Today, food education is recommended, and there is an urgent need to support nutrition teachers' expertise and strengthen their cooperation with other types of occupations.

Meanwhile, the occupational therapist (OT) plays a key role in improving or adjusting physical and mental functions and the environment in the rehabilitation of children with developmental disorders, focusing on activities and actions important to the child's daily life. The OT has an interest in "food" and "food behaviour", and plays a supportive role. For example, it is widely known that children with autism spectrum disorder (ASD) are hypersensitive<sup>8,9</sup>), and OTs are often consulted by clinicians and teachers about unbalanced diet due to oral hypersensitivity. In developmental coordination disorder (DCD), there are instances where eating tools cannot be properly handled, and meals become difficult. Hence, it is considered that the knowledge and skills of OT in the context of school feeding can be particularly useful in the field of special needs education. Furthermore, it is a matter of concern that in primary education, there may be delays in the diagnosis of conditions such as attention deficit hyperactivity disorder (ADHD), which relate to undiagnosed. Most case of ADHD are identified at elementary school age, and few cases of DCD are diagnosed under the age of five<sup>3</sup>). This means that children with potential developmental disabilities are taught in regular classes. Regarding food issues, the knowledge and skills of OTs should be applied in the field of school health, and it is supposed

that there is a need to do this not only in special support schools but also in regular classes. However, there are no reports on the cooperation and collaboration between nutrition teachers and OT in Japan.

By reviewing practical training sessions led by an OT targeted at nutrition teachers and school nutrition staff, this report aimed to provide a starting point towards enhancing the significance and future content of such nutrition training sessions.

## SUBJECTS AND METHOD

### 1. Nutrition teacher support seminar

The Osaka School Lunch Association, a public corporation, held various training sessions (hereafter, support seminar) suitable for improving job functions such as those of nutrition teachers to promote food education using school meals, and are active in schools. Support seminars led by OT started in 2015, and after the expansion and modification of their training content, are now in their third year. In fiscal year 2017, each daily lecture was 3 hours, and seminars were generally held over 5 days with an interval of 1 month. The contents of the support seminar are shown in Table 1. The first half of the first daily lecture (Day 1) was devoted to flavour preference and taste aversion learning as a physiological mechanism of eating, to child behavioural disorders related to food. Subsequently, eating disorders were explained in the light of the DSM-5<sup>10</sup>) and the diagnostic classification of children using the Great Ormond Street Criteria<sup>11</sup>). In addition, lectures were given on comorbidities related to food observed in developmental disorders were covered. In the second half of Day 1, the functional anatomy of the brain and higher brain dysfunction in children were explained, so that child behavioural disturbance could be understood from a brain function perspective. In the first half of Day 2, the Japanese Version of the Sensory Profile (SP-J) was described, which is a tool that associates behavioural

Table 1 Organization of support seminar by occupational therapist

Schedule	Topic	Details	Time
Day 1	Understanding children's dietary behaviour disorders	Flavor preference learning and taste aversion learning Food disorders such as unbalanced diet and eating disorders Relationship between developmental disorders and behavioural disorders related to food	90 min
	Learning about brain function to understand children	Functional anatomy of the brain Developmental disorders and higher brain dysfunction	90 min
Day 2	Sensory profile	Evaluation of the child's physical and sensory characteristics Establishing a strategy based on evaluation results	90 min
	Applied Behaviour Analysis	Theory of Applied Behaviour Analysis Analytical methods for improving behaviour Intervention based on behaviour analysis	90 min
Day 3	Learning from actual cases	8 case studies	180 min
Day 4	Swallowing difficulties in children	Development of swallowing function Swallowing difficulties Assistance techniques	180 min
Day 5	Social skills training	Brief description of social skill training Social skill training experiences	120 min
	Specific support techniques	Use of self-help tools Improvement of human and physical environment Summary of support seminar	60 min

strengths and difficulties of children with patterns of sensory processing. It has been standardized with 1,441 students without mental/neurological diseases, and cut-off values are set for each factor: average (within about 84%), high (about 2 to 16%), and very high (approximately 0 to 2%). Further, the results obtained (e.g. oral hypersensitivity and emotional reactions) make it possible to devise a strategy (e.g. involvement and environment adjustment) required to formulate an assistance plan<sup>12)</sup>. In the second half of Day 2, Applied Behaviour Analysis (ABA) was explained, which is a theory for understanding human behaviour and behavioural change that, strengthens (or weakens) the actions that children want to increase (or reduce) by likes and dislikes, and promotes environmental adaptation<sup>13)</sup>. It has been used not only with healthy students but also as non-medication therapy for ASD<sup>14)</sup>. Day 3 was devoted to case studies. In the first year of the support seminar for nutrition teachers, 8 parents gave their consent to the recruitment of children with food issues. These case studies were evaluated using

the SP-J and ABA, and OTs and nutrition teachers created and implemented an individual support plans. The reported results were used to make further inferences<sup>15)</sup>. Day 4 was a lecture on how swallowing function and dysfunction develop in children. In addition, practical techniques were covered to provide assistance to manage swallowing difficulties. In the first half of Day 5, social skills training was described, which has attracted attention as a non-medicinal therapy for patients with schizophrenia<sup>16)</sup>, and has recently been applied to developmental disorders such as ADHD and ASD<sup>17,18)</sup>. In order to teach social skills such as manners and methods of catering lunches, the following steps were taken in the following order: 1) facilitator presents a model, 2) students learn by role-play, 3) students practice the techniques, and 4) facilitator provide feedback of praise.

## 2. Research topics and survey method

Participants in this study were 24 students at the support seminar for nutrition teachers led by OT organized by the Osaka School Lunch

Association in 2017. On Day 5 of the seminar, the purpose and outline of this study was explained in writing and verbally, and intention to participate was confirmed by students completing a consent form. Participants completed using an anonymous self-administered questionnaire. The survey items included basic attributes (age, gender, years of experience, job title, and affiliation) of respondent, usefulness of each lecture topic (whether participation was useful for future duties), difficulty level of each lecture topic, adequacy of the lecture time allocated per day and, number of daily lecture, and requests for future seminars (free description).

This research was conducted with the approval of the Research Ethics Committee of Kansai University of Welfare Sciences (Approval No. 17-43).

## RESULTS

Table 2 shows the characteristics of respondents. The mean age±standard deviation was 40.2±12.3 years, the average number of experience was 14.9±13.1, and there was only 1 male (4.2%). There were 18 nutrition teachers (75.0%), followed by 5 temporary secondary nutrition teachers (20.8%), and 1 secondary nutrition teacher (4.2%). A total of 16 respondents worked at elementary schools, which were the most numerous (66.7%), 4 worked at special support schools (16.7%), and 2 worked at junior high schools and school lunch centres (8.3%). Table 3 shows the results for usefulness and degree of difficulty of each lecture topic as delivered by the OT. Regarding usefulness, 95.8% or more answered "useful" or "fairly useful" for all the lecture topics. The topics considered to be most useful were "Learning from actual cases" and "Social Skills Training". On the other hand, as for degree of difficulty, 87.0-100% of respondents answered they understood the content of topics "well" or "fairly well", however for "Learning about brain function to understand children", 13.0%

Table 2 Characteristics of study subjects

Age	40.2 ± 12.3
Sex	
Men	1 (4.2)
Women	23 (95.8)
No. of years of experience	14.9 ± 13.1
Job title	
Nutrition teacher	18 (75.0)
Secondary nutrition teacher	1 (4.2)
Secondary nutrition teacher (temporary)	5 (20.8)
School nutrition staff	0 (0.0)
Affiliation	
Primary school	16 (66.7)
Middle school	2 (8.3)
High school	0 (0.0)
Special support school	4 (16.7)
School lunch center	2 (8.3)

Note: Data are listed as mean ± standard deviation or number of subjects (%)

answered "they did not understand the content very well". Table 4 shows the appropriateness of lecture time per day, and the length of the seminar. The length of daily lectures in this support seminar was 3 hours, 66.7% responded that this was "appropriate", 20.8% stated it was "rather long", and 12.5% "rather short". Regarding the seminar length of 5 days, 87.5% thought this was "appropriate", and 12.5% "rather short".

## DISCUSSION

The standard deviation of the years of experience was high compared to the average age of the respondents. The average years of experience of nutrition teachers was 17.9±13.8, whereas the average years of experience of temporary secondary nutrition teachers was 4.2±2.3 (data not shown). Therefore, it was considered that the variation in average years of experience was affected by the short of experience of temporary secondary nutrition teachers.

Regarding the usefulness of the support seminar, most of the students responded that it was "useful" or "fairly useful", which suggests that the content of each lecture stimulated interest and intellectual curiosity. This is also probably reflected in the high participation rate for each lecture topic, which was 87.5-100%. On

Table 3 Usefulness and degree of difficulty of support seminar by occupational therapist

Schedule	Topic	Participation rate (%)	Usefulness				Degree of Difficulty			
			Useful (Seems to be useful)	Fairly useful (Seems to be fairly useful)	Not very useful (Didn't think it was very useful)	Not useful (Didn't think it was useful)	I understood it	More or less understood it	Didn't understand it very well	Didn't understand it
Day 1	Understanding children's dietary behaviour disorders	95.8	18 (78.3)	4 (17.4)	1 (4.3)	0 (0.0)	12 (52.2)	10 (43.5)	1 (4.3)	0 (0.0)
	Learning about brain function to understand children	95.8	17 (73.9)	5 (21.7)	1 (4.3)	0 (0.0)	11 (47.8)	9 (39.1)	3 (13.0)	0 (0.0)
Day 2	Sensory profile	100	19 (79.2)	4 (16.7)	1 (4.2)	0 (0.0)	8 (33.3)	15 (62.5)	1 (4.2)	0 (0.0)
	Applied Behaviour Analysis	100	21 (87.5)	3 (12.5)	0 (0.0)	0 (0.0)	11 (45.8)	13 (54.2)	0 (0.0)	0 (0.0)
Day 3	Learning from actual cases	95.8	22 (95.7)	1 (4.3)	0 (0.0)	0 (0.0)	14 (60.9)	9 (39.1)	0 (0.0)	0 (0.0)
Day 4	Swallowing difficulties in children	91.7	18 (81.8)	4 (18.2)	0 (0.0)	0 (0.0)	13 (59.1)	9 (40.9)	0 (0.0)	0 (0.0)
Day 5	Social skills training	87.5	20 (95.2)	1 (4.8)	0 (0.0)	0 (0.0)	14 (66.7)	7 (33.3)	0 (0.0)	0 (0.0)
	Specific support techniques	91.7	19 (86.4)	3 (13.6)	0 (0.0)	0 (0.0)	12 (54.5)	10 (45.5)	0 (0.0)	0 (0.0)

Note 1: Participation rate indicates the number of participants in the seminar / all students (n = 24)

Note 2: Data are listed as number of subjects (%)

Table 4 Appropriateness of time of 1 lecture, and of total seminar time

	Too short	Rather short	Appropriate	Rather long	Too long
Regarding lecture time per day	0(0.0)	3(12.5)	16(66.7)	5(20.8)	0(0.0)
Regarding no. of days of seminar	0(0.0)	3(12.5)	21(87.5)	0(0.0)	0(0.0)

Note: Data are listed as number of subjects (%)

the other hand, there was a large variation in the perceived degree of difficulty across the lectures. In particular, "Learning about brain functions to understand children" and "Sensory profile" were evidently difficult for students, but since the usefulness of both lectures was high, these topics should necessarily be included in the future. Regarding the degree of difficulty of lecture topics, there were no significant differences according to job title or affiliation of respondents. Therefore, it was speculated that lecture topics were difficult for all students. Although we mostly got positive opinions about the lectures in the free description field of the questionnaire, we received some negative comments regarding the difficulty of the lecture "Learning about brain functions to understand children". In the future, there is a need to modify the content of this lecture so it can be easily understood by students, for example, by avoiding specialist terminology. In addition, it might also be conjectured that the degree of difficulty affects impressions about lecture time. Although not shown in the Table, 4 out of 5

respondents who answered "did not understand very well", also responded that "it was rather long". In other words, it appears that the difficulty of the lecture led to a subjective perception of excessive lecture length, which suggests that improvement can be achieved by properly adjusting the difficulty level of the lecture.

A seminar for nutrition teachers was led by OT with the purpose of improving food education knowledge among school nutrition staff. The OT provided by classroom lectures and practical training in relation to the knowledge and skills required to manage unbalanced diet due to oral hypersensitivity, awkwardness of eating tools, and poor meal manners. According to the results of questionnaires completed by the seminar students, it is presumed that the contents of the seminar were generally useful; however, it is necessary to modify topics unfamiliar to the students, such as brain function/sensory nervous system, so that they could be more readily understood.

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