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A SURVEY OF DIETARY AWARENESS AND HABITS OF UNIVERSITY STUDENTS FOR TAKING MEALS

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大学生の食意識・生活習慣の実態と課題

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ABSTRACT

Unhealthy dietary habits contribute to poor nutrition and deficient energy among young people. Regular time schedules and balanced meals are very important in the daily life of healthy young people. It is essential for them to have breakfast to ensure the start of a good day. Eating appropriate meals everyday requires adequate knowledge of why, when, and what to eat, how to cook. These factors are the basis for transmitting traditional food culture to people. In this study, an investigation was carried out using a questionnaire that included 22 items on food knowledge, awareness, behavior, food culture, and lifestyle. A total of 182 students enrolled in a teaching course filled out the questionnaire. The results clearly showed that students have a high rate awareness of dietary life. However, the results of this study revealed some problems. The first problem to be solved is that students spend insufficient time sleeping, which is detrimental to mental and physical recovery. The second problem is that the custom of skipping breakfast is common among university students. Although they reported these bad habits, the participants also reported that they have no problem in their dietary habits. In order to improve their attitude, this study presents a basic program for them.

Keywords: *dietary education, cooking skills, eat delicious, food awareness of dietary life*

1. Introduction

In recent years, skipping breakfast and eating

unbalanced meals have become serious problems. In particular, the eating habits of young people requires further attention. It has

been reported by the National Health and Nutrition Survey in Japan 2014 that the rate of people aged in their twenties who skip breakfast is 37.0% of males and 23.5% of females^[1]. It was also reported that university students' interest in dietary education was lower than people of other generations and that awareness of balanced meals becomes lower as interest weakens^[2]. The reasons for not having breakfast was given to be a lack of time^[3,4]. Participants who reported skipping breakfast appeared to be people who are generally apathetic regarding meals^[5,6].

According to a study by M. Odajima and K. Takahashi^[7], university students tended to break their rhythm of eating habits on holidays when they had no classes. It was pointed out that those students who do not live with family tended to consume instant foods and simple foods sold at convenient stores^[7]. In addition, they usually went to bed late at night and had a short sleeping time. These factors are closely related to skipping breakfast.

The situation has brought *KANSEI* less morning. Many students at school look sleepy, lack energy, and are unable to concentrate early in the morning. They are obviously influenced by the short sleeping time^[8-10].

Regular time schedules and balanced meals are very important for young people to start a good day. The Basic Plan for Promotion of *Shokuiku* was introduced to raise people's dietary awareness and encourage healthy eating habits. It also demanded that teachers convey knowledge about healthy meals and dietary behaviors to the next generations^[11].

In the foreseeable future, university students in teaching courses will teach subjects related to dietary education to school children. Therefore, it is necessary that university

students accomplish an understanding of regular time schedules and balanced meal habits in early youth education.

Through a survey on daily life, this study aims to investigate problems in the dietary awareness and habits of university students enrolled in teacher training.

2. Methods

The investigation was conducted using a self-assessed questionnaire. Participants were 182 students (85 males and 97 females) who completed the questionnaire between May and July 2016. The questionnaire included 22 items on food knowledge (dietary education, taste, and seasonal food), awareness, behavior (cooking and breakfast), food culture, and lifestyle (sleep and feel healthy).

Significant differences between the "skipping breakfast" and "having breakfast" groups were determined by the chi-square test and the Mann-Whitney U test. A value of $p < 0.05$ was considered significant. The statistical analyses were performed using Statcel—The Usefull Addin Forms on Excel 3rd Ed.

3. Results

Table 1 shows the participants' living arrangements and the rate of skipping breakfast, among males and females separately. The rate of skipping breakfast two or more times in a week was 52.9% for males and 35.1% for females. Students also answered that it is good for them to skip breakfast, though 72% of students, including males and females, were interested in dietary education. Regarding food knowledge, males reported a better understanding of seasonal food as compared to females. However,

more females than males reported knowledge of traditional function food and country food. These results are shown in Table 2 Knowledge and food culture. Participants' were asked about their knowledge of basic tastes. The basic tastes in Japanese food are sweetness, saltiness, sourness, bitterness, spiciness, and good taste. Good taste is known as *UMAMI*, which is well

known all over the world nowadays. Figure 1 presents the numbers of students who reported that they know each taste. Overall, 11.5% of students reported that they know all five tastes. The most well-known taste was sweetness, which was reported by 85% of students. At a rate of 40%, *UMAMI* was the least well-known taste Table 3 shows participants' responses to

Table 1. Living arrangements and breakfast habits.

	All	Males		Females	
	n=182	Having breakfast n=40	Skipping breakfast n=45	Having breakfast n=63	Skipping breakfast n=34
	n(%)				
Living with family	106 (58.2)	30 (75.0)	15 (33.3)	43 (68.3)	18 (52.9)
Living alone	46 (25.3)	7 (17.5)	15 (33.3)	12 (19.0)	12 (35.3)
Dormitory	26 (14.3)	2 (5.0)	14 (31.1)	6 (9.5)	4 (11.8)
Others	2 (1.1)	1 (2.5)	1 (2.3)	0 (0.0)	0 (0.0)
No entry	2 (1.1)	0 (0.0)	0 (0.0)	2 (3.2)	0 (0.0)

Table 2. Participants' responses to questions about food knowledge and food culture.

	Males n = 85	Females n = 97	<i>p</i> value
Do you know seasonal food?	n (%)		
I know both the word and meaning very well	22 (25.9)	9 (9.3)	0.002**
I know both the word and meaning well	60 (70.5)	79 (81.4)	
I know the word	2 (2.4)	9 (9.3)	
I don't know	1 (1.2)	0 (0.0)	

p value was determined by the Mann-Whitney *U* test (***p*<0.01)

	Males n = 84	Females n = 97	<i>p</i> value
Do you know traditional function (event) food?	n (%)		
Yes	50 (59.5)	73 (75.3)	0.024*
No	34 (40.5)	24 (24.7)	
Do you know country food?	n (%)		
Yes	53 (63.1)	76 (78.4)	0.024*
No	31 (36.9)	21 (21.6)	

p value was determined by the chi-squared test (**p* <0.05)

Table 3. Participants' responses to questions about cooking frequency and food awareness.

	Having breakfast	Males Skipping breakfast	<i>p</i> value	Having breakfast	Females Skipping breakfast	<i>p</i> value
How often do you eat a balanced meal?			n (%)			
	40	45		63	34	
Every times a day	10 (25.0)	2 (4.9)	<0.001***	12 (19.0)	0 (0.0)	0.012**
Two times a day	10 (25.0)	4 (9.8)		13 (20.6)	6 (18.2)	
Once a day	8 (20.0)	7 (17.1)		19 (30.2)	11 (33.3)	
4-6 times a week	1 (2.5)	0 (0.0)		3 (4.8)	2 (6.1)	
1-3 times a week	8 (20.0)	17 (41.4)		10 (15.9)	8 (24.2)	
Nothing a week	3 (7.5)	11 (26.8)		6 (9.5)	6 (18.2)	
Do you usually cook dishes at home?						
	40	41		63	33	
Every meal	1 (2.5)	2 (4.4)	0.002**	4 (6.3)	0 (0.0)	0.153
Twice a day	2 (5.0)	3 (6.7)		2 (3.2)	0 (0.0)	
Once a day	5 (12.5)	10 (22.2)		1 (1.6)	4 (11.8)	
4-6 times a week	0 (0.0)	3 (6.7)		4 (6.3)	6 (17.6)	
1-3 times a week	9 (22.5)	18 (40.0)		22 (34.9)	13 (38.2)	
No time a week	23 (57.5)	9 (20.0)		30 (47.7)	11 (32.4)	
Do you enjoy the time when eating a meal?						
	40	45		63	34	
It is enjoyable	22 (55.0)	20 (44.5)	0.329	39 (61.9)	16 (47.1)	0.199
It is somewhat enjoyable	11 (27.5)	15 (33.3)		15 (23.8)	12 (35.3)	
Neutral	6 (15.0)	7 (15.6)		8 (12.7)	5 (14.7)	
It is somewhat not enjoyable	0 (0.0)	2 (4.4)		1 (1.6)	1 (2.9)	
It is not enjoyable	1 (2.5)	1 (2.2)		0 (0.0)	0 (0.0)	
Do you think that it is important to share mealtimes with family?						
	40	45		63	34	
I think so very much	22 (55.0)	26 (57.8)	0.529	41 (65.1)	23 (67.7)	0.805
I think so	11 (27.5)	16 (35.6)		20 (31.7)	10 (29.4)	
Neutral	5 (12.5)	2 (4.4)		1 (1.6)	0 (0.0)	
I don't think so	1 (2.5)	0 (0.0)		1 (1.6)	1 (2.9)	
I don't think so at all	1 (2.5)	1 (2.2)		0 (0.0)	0 (0.0)	
I don't know	0 (0.0)	0 (0.0)		0 (0.0)	0 (0.0)	

p value was determined by the Mann-Whitney *U* test (***p*<0.01, ****p*<0.001)

questions about cooking frequency and food awareness. Approximately 40% of students reported that they never cook at home.

Table 4 shows participants' responses to questions about sleep time and feeling of health. To the question "How long have you slept per night, thinking back over the past one month?" most students reported that they slept more than 5 hours and fewer than 7 hours. Approximately 20% of female students reported that they slept for less than 5 hours. Among male students, there was a significant difference

in sleeping time between those who had breakfast and those who skipped breakfast. Although the majority of students reported sleeping less than 6 hours per night, 57% of the sample answered that they felt their body is healthy.

4. Discussion

The results of this study revealed that the rate of students who skipped breakfast every day was 52.9% of males and 35.1% of females.

These figures are higher than the results reported in the National Health and Nutrition Survey in Japan 2014^[1]. In previous studies, it was reported that male university students

skipped breakfast at a higher rate than female students. Males were more likely than females to report that they did not have time for breakfast^[4,12]. The results of this study support

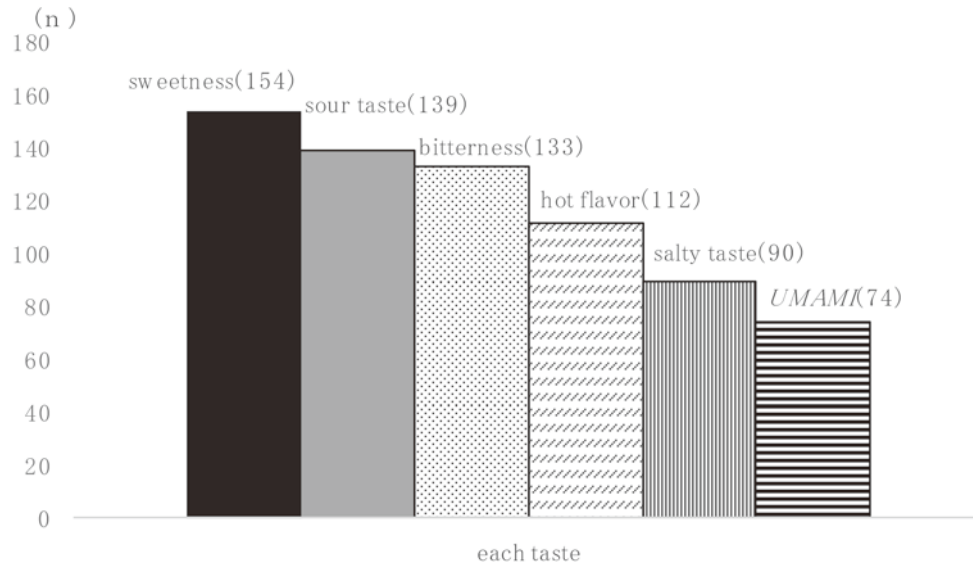


Figure 1. Bar graph displaying the number of students who know each of the basic tastes.

Table 4. Participants' responses to questions about sleep time and feeling of health.

	Males		<i>p</i> value	Females		<i>p</i> value
	Having breakfast	Skipping breakfast		Having breakfast	Skipping breakfast	
Do you feel you have enough time in daily life?	n (%)					
	40	45		63	34	
I think so very much	4 (10.0)	4 (8.9)	0.261	2 (3.2)	0 (0.0)	0.042
I think so	6 (15.0)	4 (8.9)		18 (28.6)	4 (11.8)	
Neutral	9 (22.5)	7 (15.6)		12 (19.0)	7 (20.6)	
I don't think so	14 (35.0)	20 (44.4)		26 (41.3)	19 (55.8)	
I don't think so at all	7 (17.5)	10 (22.2)		5 (7.9)	4 (11.8)	
Do you think that your body is healthy?	39	45		63	34	
I think so very much	8 (20.5)	5 (11.1)	0.045*	8 (12.7)	4 (11.8)	0.323
I think so	17 (43.6)	14 (31.1)		33 (52.4)	14 (41.2)	
Neutral	5 (12.8)	8 (17.8)		12 (19.0)	9 (26.5)	
I don't think so	8 (20.5)	16 (35.6)		10 (15.9)	6 (17.6)	
I don't think so at all	1 (2.6)	2 (4.4)		0 (0.0)	1 (2.9)	
How long have you slept per night, thinking back over the past one month?	40	45		63	34	
Fewer than five hours	3 (7.5)	14 (31.1)	0.014**	13 (20.6)	8 (23.5)	0.919
Fewer than six hours	18 (45.0)	18 (40.1)		30 (47.6)	15 (44.1)	
Fewer than seven hours	15 (37.5)	10 (22.2)		17 (27.0)	9 (26.5)	
Fewer than eight hours	3 (7.5)	2 (4.4)		3 (4.8)	2 (5.9)	
More than eight hours	1 (2.5)	1 (2.2)		0 (0.0)	0 (0.0)	

p value was determined by the Mann-Whitney *U* test (**p* < 0.05, ***p* < 0.01)

these previous findings. It is important for students to eat three times a day to stay energized and get the nutrients necessary for a healthy body.

The hours of sleep per night reported in this study was clearly shorter than previously found^[13]. On the other hand, it has been reported that university students do not have enough sleeping time and that they have sleepless nights^[3,8,9]. Enough sleep is necessary for the recovery of mental and physical fatigue. In order to start every day being full of *KANSEI*, it is necessary for young people to acquire a regular time to wake up and to eat breakfast.

In previous studies, it was observed that dietary education is important to university students; it can raise the will to improve eating habits and cooking skills^[14,15]. Unfortunately, most participants in this study reported that they never or rarely cook at home.

Figure 2 presents the basic background for preparing balanced meals. There are four important elements: food properties, cooking skills, time schedule, and *KANSEI*.

Figure 3 shows a flow diagram of the process involved in preparing a breakfast. An example breakfast menu is boiled rice, miso soup, and a fried egg. The combination of these foods has high nutritive value and is well balanced. Getting up early provides enough time to cook and prepare breakfast. Dashi stock, which is used in miso soup, is fundamental to traditional Japanese cuisine and includes a lot of *UMAMI* ingredients. It is essential that university students have knowledge about *UMAMI*, which is one of the basic tastes. We should teach dietary knowledge and cooking skills to university students in cooking classes at university. It is necessary for them to raise awareness about healthy dietary habits and to

improve their quality of life. Students enrolled in teacher training courses should improve their dietary knowledge and cooking techniques. The education program and/or classes should be rapidly implemented in order to develop the avidity managing their food lives.

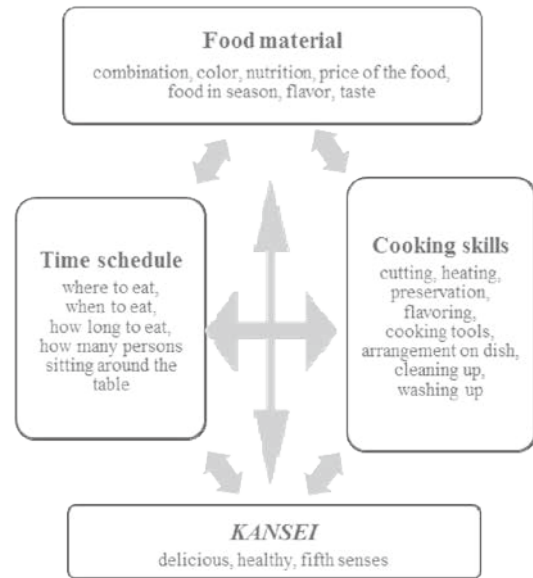


Figure 2. Basic background for preparing a balanced meal.

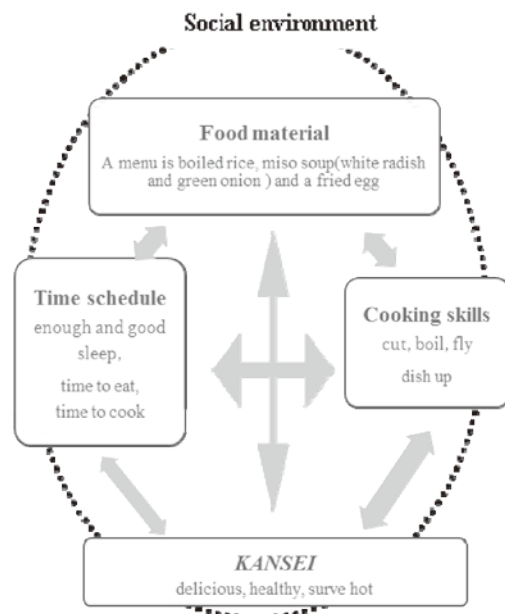


Figure 3. A flow diagram illustrating the process of preparing breakfast.

5. Conclusion

This study aimed to investigate the dietary knowledge and habits of university students enrolled in a teaching course. The results provided meaningful insights. The rate of skipping breakfast more than two times in a week was significantly different between the sexes: 52.9% for males and 35.1% for females. The proportion of participants who reported that they feel healthy was 51.8% for males and 60.8% for females. Most of the students reported that they slept between 5 and 7 hours per night. This is a shorter sleep time than found in previous research. Most participants did not eat breakfast, and they could not demonstrate vitality in the morning. Approximately 40% of the students answered that they never cook at home. In particular, male students who live alone reported that they did not feel healthy, and they slept for less time than participants who live with family. On the other hand, most female students reported that they feel healthy. Overall, 80% of all the participants reported that they enjoyed meal times and that they also tried to have balanced meals.

Focusing on their future, most of the participants in this study will become school teachers. Teachers are expected to transfer knowledge and ability to school children. Thus, trainee teachers should acquire the right dietary knowledge and habits during their student days. Students enrolled in teaching courses should improve their dietary knowledge and cooking techniques, and they should polish their avidity to develop the education program and /or classes. Therefore, we should teach such knowledge and cooking skills to university students in cooking classes at university. The basic background for balanced meal components

and an example breakfast plan were presented in this study.

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