



The Study Among College Students of Changes in Cooking Skills to Make Japanese Traditional Dishes (Washoku)

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Abstract

Purpose: Washoku, the traditional dietary cultures of the Japanese, is designated a UNESCO Intangible Cultural Heritage. However, younger people have less interest in cooking and eating washoku. In this study, the effects of taking cooking classes on cooking skills to prepare washoku were investigated.

Methodology: Surveys were conducted among 1,126 freshmen (age 18-20) and 970 graduating seniors (age 19-23) at college and vocational school in Japan to investigate the knowledge and confidence of 23 types of washoku dishes. The students were divided into two groups by whether or not they took cooking classes at college or vocational school.

Findings: From the results, it was found that on average, 24.9 % of the surveyed freshmen who took cooking classes could not make washoku and only 18.5 % were confident in making them. On the other hand, an average of 39.6 % of the surveyed seniors were confident about making them. Namely, taking cooking classes increased their confidence of making all 23 types of washoku dishes ($p < 0.001$). Therefore, making many washoku dishes in cooking classes would lead students to eat washoku on a daily basis.

KEYWORDS: JAPANESE TRADITIONAL DISHES, COOKING KNOWLEDGE, COOKING SKILLS, COOKING CLASSES, COLLEGE STUDENTS

Introduction

Washoku, the traditional dietary cultures of the Japanese, is designated a UNESCO Intangible Cultural Heritage. There are four features of washoku (Kumakura & Ehara, 2015; Komiya, 2020). (1) A rich variety of fresh ingredients and respect for inherent flavors. (2) Nutritional balance that supports a healthy diet. (3) Expressions of the beauty of nature and changing seasons. (4) A close connection to annual celebrations such as New Year.

Typical Japanese meals, which are comprised of cooked rice, miso soup, some main and side dishes, contain many vegetables. It is also said that washoku is healthier because it has been characterized by high consumption of vegetables and seafood, and low consumption of animal fat and meat (Gabriel et al., 2018). However, the frequency of eating washoku has been decreasing in Japan while the frequency of eating western or other foreign dishes is increasing. Thus, people in Japan have been consuming more animal products, and less rice and vegetables. Therefore, as washoku is a healthy diet, it is important to preserve it. It is said that something similar has been happening along the Mediterranean coast, where the Mediterranean diet is also designated a UNESCO Intangible Cultural Heritage. Although the Mediterranean diet is rich in fruits, vegetables, legumes and whole grains, and one of the healthiest patterns to deal with obesity, the young adults have not eaten the Mediterranean diet with less frequently in Türkiye. (Gökçe, 2024). In Spain, around 60 % of the college students had a low adherence to the Mediterranean diet and high risk of alcohol consumption (López-Moreno; 2021).

It is widely known that acquiring cooking skills promotes better health (Caraher & Lang, 1999). For example, the students with higher cooking skills did better in the Mediterranean Diet Adherence Screener Scores in Türkiye (Gökçe, 2024), and people of all ages in Australia, who had higher cooking skills and food skills confidence, also had significantly better in the Australian Recommended Food Scores (Lavelle et al., 2019). It was also reported that preparing food and having higher cooking skills were related to healthier food choices such as fruits and vegetables, and a lower intake of fat (Larson et al., 2006; Hartmann et al., 2013; Lavelle et al., 2016; McGowan et al., 2016). On the other hand, people with lower cooking levels was associated with unhealthy diets (Tani et al., 2020).

Therefore, this study investigated the effects of taking cooking classes on the knowledge and cooking skills of washoku among Japanese college and vocational school students to examine ways of not only preserving our traditional culture but also having a healthier diet.

Methods

Respondents

Surveys were conducted between 2014 and 2021 to investigate the cooking skills of washoku, using self-administered questionnaires distributed by the drop-off and pick-up method. The correspondents were 1,126 freshmen (age 18-20) who enrolled between 2014 and 2017, and 970 graduating seniors (age 19-23) who graduated between 2016 and 2021 at college and vocational school in Japan. Academic periods were 2 or 4 years. The number of the students for each year is shown in Table 1.

Table 1. Number of Survey Respondents for Each Year

	Year of Enrollment				Total
	2014	2015	2016	2017	
Freshmen	268	252	371	235	1126
Seniors	216	236	330	188	970

Survey Details

There are various kinds of washoku. In this study, washoku was defined as follows. (1) dishes which were steamed, boiled or simmered, or (2) dishes using Japanese broth or soy sauce or miso, and (3) dishes eaten with chopsticks. Twenty-two types of dishes and green tea (total 23) were selected as washoku. The description of 23 washoku dishes is shown in Table 2.

Table 2. 23 Selected Types of Washoku Dishes

No.	Name	Description
1	Mixed rice	Rice dish with many ingredients, seasoned with soy sauce and sugar.
2	Chicken and egg bowl	Simmered chicken, eggs and onion seasoned with sugar and soy sauce served on rice and garnished with trefoil.
3	Garnished sushi	Several seasonal toppings are sprinkled aesthetically on sushi rice. A festive dish.
4	Sushi rolls	Several fillings are wrapped in sushi rice and seaweed laver.
5	Inari sushi	Sushi rice stuffed in sweet, thinly deep-fried tofu pouches.
6	Clear soup	Japanese broth seasoned with salt and soy sauce. There are various kinds using different ingredients.
7	Egg drop soup	Japanese broth seasoned with salt and soy sauce thickened with beaten eggs and starch.
8	Miso soup	Basic Japanese soup thickened with miso paste. Tofu, vegetables, and some seasonal ingredients are added.
9	Miso soup with pork and vegetables	Pork, deep-fried thin tofu, vegetables, konjac added in miso soup.
10	Simmered chicken and vegetables	Simmered chicken and root vegetables with sugar and soy sauce.
11	Meat and potato stew	Simmered beef, potato, onion, carrot and konjac, seasoned with sugar and soy sauce.
12	Japanese rolled omelet or sushi egg	Beaten eggs, Japanese broth, sugar and salt and soy sauce, cooked and rolled up in a rectangular frying pan.
13	Savory egg custard	Savory custard dish made with steamed eggs, Japanese broth, chicken, prawns, shiitake mushroom, etc.
14	Grilled fish	Salt-grilled fish such as horse mackerel, sardine, Pacific saury, mackerel, small sea bream, etc.
15	Simmered mackerel in miso	Simmered mackerel fillet in miso, sugar and ginger.
16	Teriyaki yellowtail	Grilled yellowtail soaked in sugar, soy sauce and ginger juice. Also made with chicken, pork, meatballs, tofu, etc.
17	Tempura	Batter deep-fried seafood and vegetables
18	Simmered Japanese pumpkin	Simmered Japanese pumpkin with sugar, salt and soy sauce.
19	Vegetables with tofu dressing	Boiled vegetables such as carrots, spinach, shiitake mushrooms, konjac, etc. with tofu and sesame dressing.
20	Spinach with sesame dressing	Boiled spinach with ground sesame dressing. Also made by other green leaves and green kidney beans.
21	Vinegared cucumber and seaweed	Marinated cucumber and <i>wakame</i> seaweed with sweet vinegar sauce. Also made with boiled octopus etc.
22	<i>Kimpira</i> burdock root	Stir-fried burdock root and carrots with sugar, soy sauce and sesame.
23	Green tea	Most typically consumed tea in Japan.

The knowledge of 23 dishes was surveyed, with respondents indicating whether they “know” or “don’t know” each. If respondents answered “know” for a dish, they were then asked to select from “can (very confident),” “mostly (confident),” “somewhat (not very confident),” “slightly (no confident),” or “cannot” cook to assess their confidence in cooking that dish. The response rate from students was calculated for each dish.

Data Analysis

The students were divided into two groups by whether or not they took cooking classes at college or vocational school. The personal profiles of respondents, who took and did not take cooking classes, are shown in Table 3. The surveyed freshmen and graduating seniors who took cooking classes for more than one semester in college or vocational school were 446 (39.6 %) and 409 (42.2 %), respectively. There were far more female students than male students. Few students cooked every day, thus, the cooking frequency for the students were not high. However, there were many students who liked cooking.

The knowledge and cooking skills among freshmen and seniors who did or did not take cooking classes were statistically compared by chi-square test and analyzed for the effects of taking cooking classes. A *p*-value of less than 0.05 was considered statistically significant. Additionally, differences were examined by calculating expected frequencies and conducting residual analysis.

Table 3. Profiles of Survey Respondents who Took Cooking Classes at College or Vocational School

Cooking classes		Took		Did not take	
		Freshmen (%)	Seniors (%)	Freshmen (%)	Seniors (%)
Total		446	409	680	561
Age	18-19	443 (99.3)	79 (19.3)	677 (99.6)	64 (11.4)
	20-22	3 (0.7)	327 (80.0)	3 (0.4)	482 (85.9)
	23-24	0	3 (0.7)	0	15 (2.7)
Gender	male	54 (12.1)	42 (10.3)	177 (26.0)	126 (22.5)
	female	392 (87.9)	367 (89.7)	503 (74.0)	434 (77.5)
	no response	0	0	0	1
Living arrangement †	home	323 (73.1)	285 (72.5)	489 (72.3)	369 (67.3)
	away	119 (26.9)	110 (27.5)	207 (27.3)	179 (32.7)
	no response	4	14	4	13
Cooking frequency †	almost everyday	106 (23.8)	82 (20.1)	96 (14.1)	43 (7.7)
	3-5 times a week	94 (21.1)	111 (27.1)	87 (12.8)	98 (17.5)
	1-2 times a week	140 (31.5)	121 (29.6)	145 (21.4)	137 (24.5)
	rarely	105 (23.6)	95 (23.2)	351 (51.7)	281 (50.3)
	no response	1	0	1	2
Cooking attitude and interest †	like	339 (76.2)	286 (70.4)	268 (39.8)	236 (42.5)
	dislike	7 (1.6)	13 (3.2)	58 (8.6)	74 (13.4)
	indifferent	99 (22.2)	107 (26.4)	348 (51.6)	244 (44.1)
	no response	1	3	6	7

Note. † Percentage was calculated by not including surveys with no response.

Ethical Considerations

The surveys were conducted in accordance with the Helsinki Declaration and was approved by the Ethics Committee of Faculty of Education, Mie University (no. 2025-29) on Nov. 25th, 2025. The respondents were assured that the survey results would not be used solely for research purposes, that individuals would not be identified, and that cooperation with the questionnaire was voluntary.

Results

Changes in the Knowledge of Washoku Among Students

Figure 1 shows the knowledge of washoku among freshmen and graduating seniors who took cooking classes. An average percentage of answering “know” for the 23 selected types of washoku dishes for freshmen and seniors was 92.7% and 99.4%, respectively. Students knew most of the selected washoku dishes. Only three of the washoku dishes were known by less than 90 % of the freshmen, which were “clear soup” (No. 6 in Table 2), “simmered chicken and vegetables” (No. 10) and “vegetables with tofu dressing” (No. 19). All washoku dishes were known by more than 90 % of the seniors. This result corresponded to previous reports (Hirashima et al., 2021).

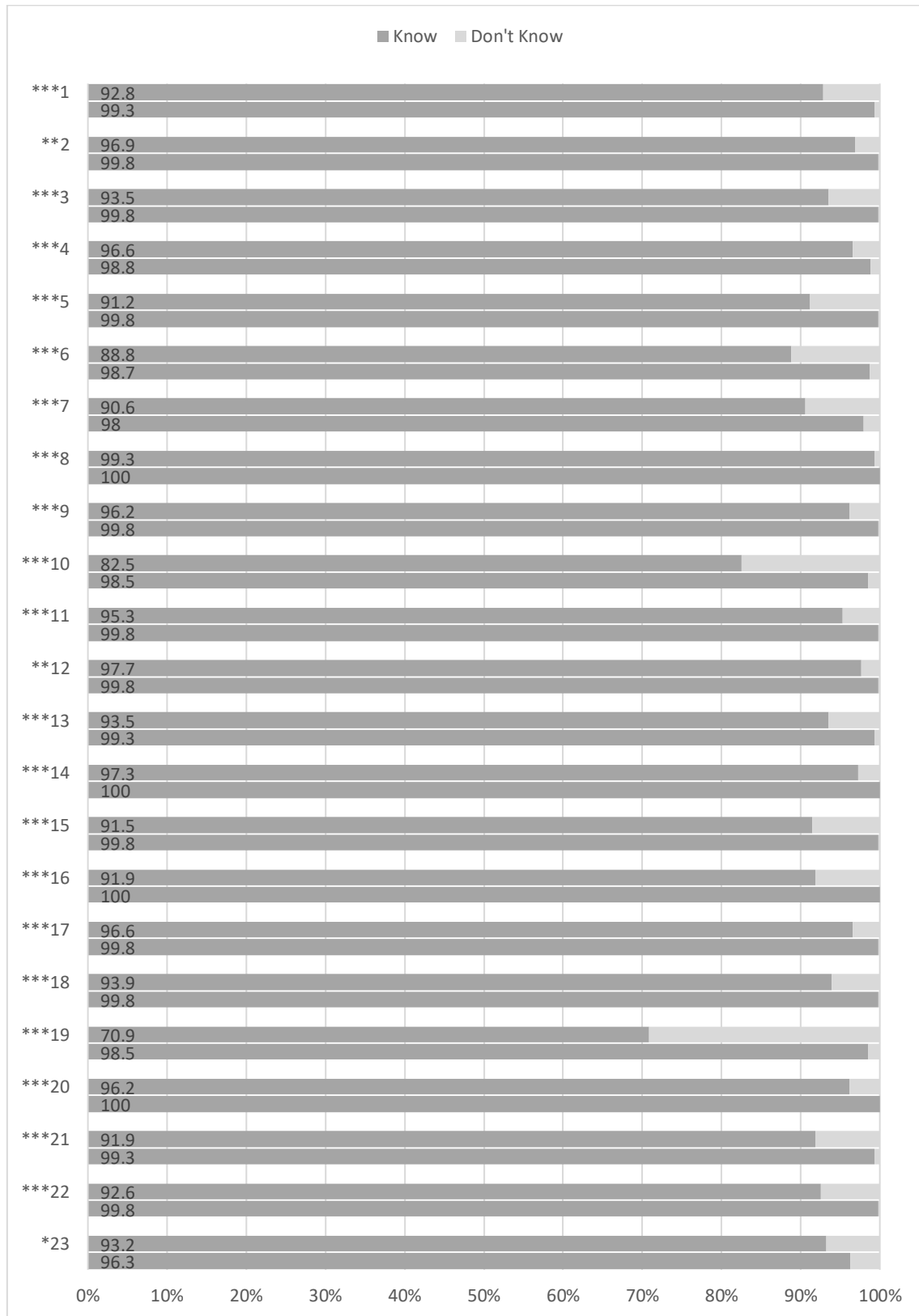
On the other hand, the knowledge of washoku among freshmen and seniors who did not take cooking classes were lower than those who took cooking classes (Figure 2). However, many students knew washoku. An average percentage of answering “know” for the 23 washoku dishes for freshmen and seniors was 87.7 % and 95.2 %, respectively. Although 13 washoku dishes were known by less than 90 % of freshmen, only four of the washoku dishes were known by less than 90 % of seniors.

The knowledge of all of the selected washoku dishes for students who took cooking classes increased while attending college or vocational school ($p < 0.05$, Figure 1). For students who did not take cooking classes, the knowledge of the 22 washoku dishes also increased ($p < 0.01$, Figure 2), while that of “green tea” (No. 23) did not change.

Students seemed to have chosen their meals by themselves compared to when they were high school students. Judging from these results, they had more opportunities to eat washoku and knew washoku that they had never eaten before attending college or vocational school.

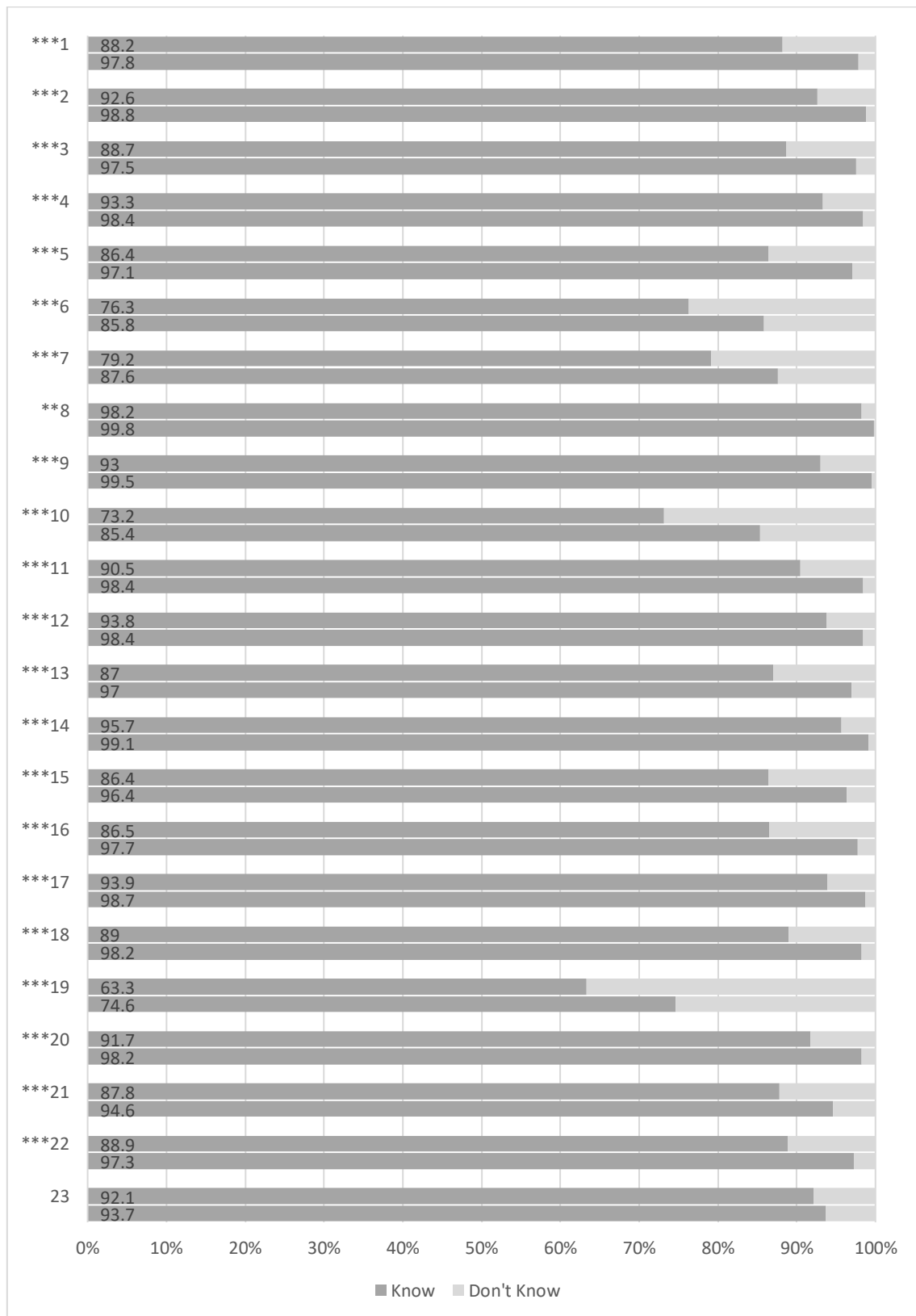
Furthermore, all senior students who took cooking classes (100%) knew “miso soup” (No. 8), “grilled fish” (No. 14), “teriyaki yellowtail” (No. 16) and “spinach with sesame dressing” (No. 20). Taking cooking classes greatly contributed to increasing their knowledge ($p < 0.05$, Figure 1). These washoku dishes were made in cooking classes in college or vocational school which resulted in their greater knowledge. However, there were no dishes that 100 % of students who did not take cooking classes knew. Thus, taking cooking classes attributed to acquiring knowledge of washoku compared with not taking cooking classes. Moreover, comparing the knowledge of the senior students who took and did not take cooking classes, the knowledge of students who took cooking classes was higher in 16 types of dishes ($p < 0.05$, data details not shown).

Figure 1. Changes in knowledge of washoku among college freshmen (upper, $n = 446$) and graduating seniors (lower, $n = 409$) who took cooking classes at college or vocational school



Note. See Table 2 for dishes corresponding to numbers 1 through 23, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure 2 Changes in knowledge of washoku among college freshmen (upper, n = 680) and graduating seniors (lower, n = 561) who did not take cooking classes



See Table 2 for dishes corresponding to numbers 1 through 23, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

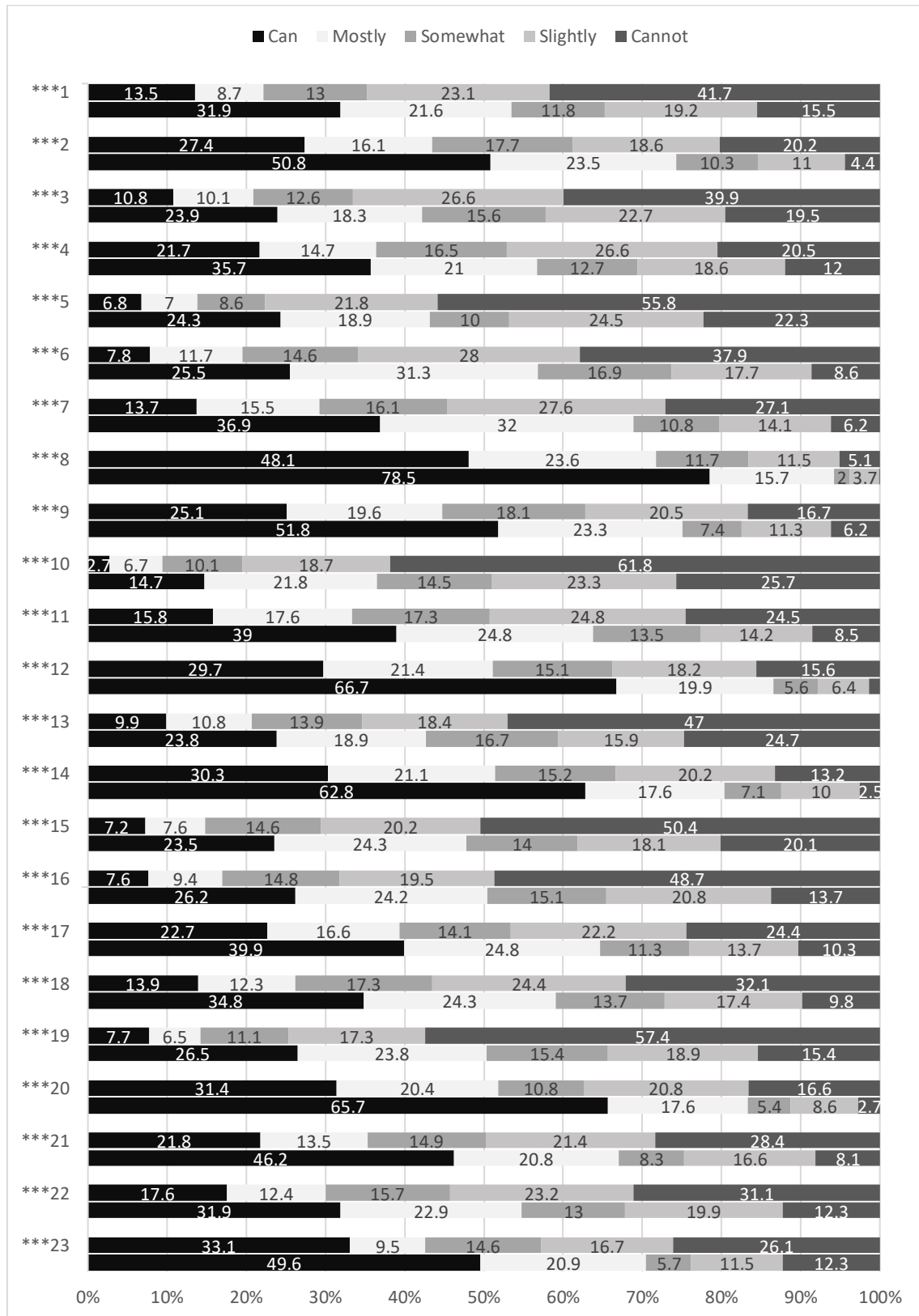
Changes in the Cooking Skills of Washoku Among Students

As mentioned above, many students knew most of the selected washoku dishes. However, on average percentage, 32.7 % of freshmen who took cooking classes could not make the 23 washoku dishes and only 18.5 % of freshmen were confident in making them (refer to Figure 3). Among the 23 washoku dishes, there were six dishes that about 40 % freshmen answered they “cannot” make (Figure 3). These were “*inari* sushi” (No. 5 in Table 2), “simmered chicken and vegetables” (No. 10), “savory egg custard” (No. 13), “simmered mackerel in miso” (No. 15) and “teriyaki yellow tail” (No. 16). The frequency of eating these six washoku dishes was about once to a few times a year, and many students had purchased them or dined them out (Hori et al., 2020). Moreover, “simmering” is needed to make “*inari* sushi”, “simmered chicken and vegetables” and “simmered mackerel in miso.” Simmering is considered to take time and effort (Nisshin Oillio, 2014). Therefore, it was difficult for freshmen to make them. From these results, it was found that many freshmen knew washoku but could not make them.

In regards to students who did not take cooking classes, on average percentage, 44.4 % of freshmen and 48.0 % of seniors could not make the 23 washoku dishes and only 16.4 % of freshmen and 22.4 % of seniors were confident in making them (refer to Figure 4). There were 15 dishes that more than about 40 % seniors answered they “cannot” make (Figure 4). Their confidence in making some of the washoku dishes decreased while attending college or vocational school ($p<0.01$). These were “garnished sushi” (No. 3), “sushi roll” (No. 4), “clear soup” (No. 6), “grilled fish” (No. 14), “spinach with sesame dressing” (No. 20) and “vinegared cucumber and seaweed” (No. 21). It is considered if students who did not take cooking classes or had not prepared their meals while attending college or vocational school, then their cooking skills decreased.

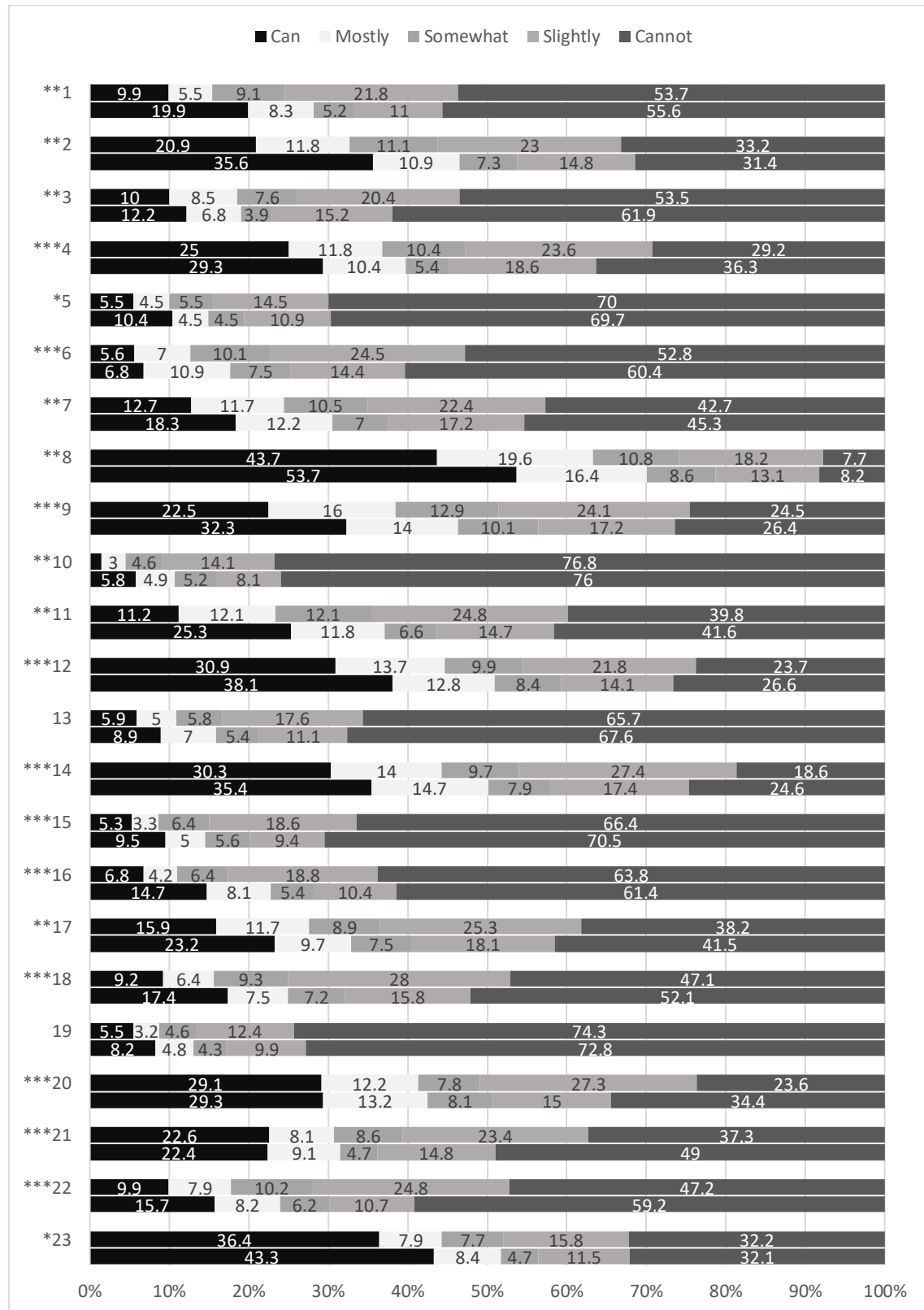
On the other hand, an average percentage of answering “can make” for seniors who took cooking classes was 39.6 % (refer to Figure 3). Five dishes that more than 50 % of seniors answered “can make” and less than 5 % answered “cannot make” were “chicken and egg bowl” (No.2), “miso soup” (No. 8), “Japanese rolled omelet” (No. 12), “grilled fish” (No. 14) and “spinach with sesame dressing” (No. 20) (Figure 3). Taking cooking classes increased their cooking skills and their confidence of all 23 types of washoku dishes ($p<0.001$, Figure 3).

Figure 3 Changes in confidence of making washoku among college freshmen (upper, n = 446) and graduating seniors who took cooking classes (lower, n = 409)



See Table 2 for dishes corresponding to numbers 1 through 23, *** $p < 0.001$

Figure 4 Changes in confidence in making washoku among college freshmen (upper, n = 680) and graduating seniors (lower, n = 561) who did not take cooking classes



See Table 2 for dishes corresponding to numbers 1 through 23, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Discussions

The knowledge and cooking skills of 23 types of washoku dishes were higher for college seniors, who took cooking classes at college or vocational school, compared to freshmen and seniors who did not take cooking classes. It means taking cooking classes contributed to increased their knowledge and cooking skills. There are many research results showing that taking cooking classes increased the cooking skills of students. One of them showed that children (5th graders) had greater knife cutting skills after taking their first class (Kawamura & Yoshikawa, 2014), and children (age 12 and under) and/or teenagers (age 13-18) had significantly greater confidence in their cooking and food skills (Lavelle et al., 2016). Also, college students (age 18-23) had confidence in their cooking skills (Hirashima et al., 2021).

Although all 23 types of washoku dishes were not dealt with in cooking classes, and foreign dishes such as Western and Chinese dishes were also made in cooking classes, it is thought that increasing cooking skills led to the ability to make many kinds of dishes. Students who took cooking classes cooked more frequently than students who did not take cooking classes. ($p < 0.001$, refer to Table 3). It means the students who took cooking classes might have been preparing their meals more often than students who did not take cooking classes did.

Moreover, in cooking classes, students eat many kinds of washoku they made, and they realized the palatability of Japanese seasonings and their pleasant taste. It was reported the students belonging to the departments related to health had higher cooking skills (Gökçe, 2024). Over the 80 % of nutritionists could prepare many dishes and liked to experiment with new recipes (Hertzler & Bruce, 2002). It would be important for increasing their cooking skills to have interest in foods.

On the other hand, the need to cook washoku at home also has been decreasing and eating prepared food at home is increasing (MAFF, 2026). Actually, cooking time at home has decreased for the last 2 decades (Watase, 2021), and many people did not want to spend more time for cooking (Cleanup Co, 2019; Nisshin Oillio, 2014). This is one of the reasons washoku has not been cooked at home. Thus, the frequency of eating washoku especially among younger people has been decreasing and they have less interest in cooking and eating washoku, in particular those who did not take cooking classes.

However, the number of Japanese restaurants abroad increased threefold over the past decade and twice over the past 2 years (MAFF, 2023) and it is said that the many tourists coming to Japan look forward to eating regional cuisines in Japan (Komiya, 2020). We need to acquire the knowledge and cooking skills not only to keep our traditions but also to introduce washoku to people abroad.

In this study, the respondents were all Japanese students in college or vocational school, and they were from the Tokai area in Japan. The geographical area was limited, thus, there were a limitation of research analysis. However, the curriculum of home economics for them to learn from elementary school to high school was not specific in Japan. Therefore, taking cooking classes would be expected to contribute to increasing their cooking knowledge and cooking skills in Japan.

Therefore, it is considered that acquiring cooking skills by making many washoku dishes in cooking classes would lead students to choose healthier foods such as washoku, and to eat washoku on a daily basis. It is expected to contribute to preserving these traditional Japanese dishes.

Conclusions

The knowledge of washoku for all graduating seniors increased while attending college or vocational school, and taking cooking classes at college and vocational school greatly contributed. Their cooking skills of washoku were also acquired by taking cooking classes.

It is considered that students who took cooking classes would be able to choose healthier foods because of their higher cooking skills. Also, they would prepare more washoku because increasing cooking skills would lead to the ability to make many kinds of washoku dishes. Therefore, taking cooking classes among Japanese college and vocational school students would contribute to preserving our traditional culture and having a healthier diet. On the other hand, cooking skills of some dishes for the students who did not take cooking classes decreased while attending college or vocational school. Then, it would be beneficial to offer cooking lessons in general education classes.

It was found that it is important to incorporate washoku in cooking classes at college and vocational school to keep eating washoku in the future. The findings of this study may be applicable to other nations facing challenges in preserving their traditional cultures.

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