# Comparison of the 2011 and 2019 Kampo Medicine Curricula Across All Japanese Medical Schools

Tatsuya NOGAMI[*1], Makoto ARAI[*1], Tomoaki ISHIGAMI[*2], Yoshinobu NAKADA[*1,3], Takahide MATSUDA[*4], Hiroshi ODAGUCHI[*5] and Toshihiko HANAWA[*5]

[*1]*Department of Kampo Medicine, Tokai University School of Medicine*
[*2]*Department of Medical Science and Cardiorenal Medicine, Yokohama City University School of Medicine*
[*3]*Department of Internal Medicine, Shonan Hospital*
[*4]*Division of General Internal Medicine, Department of Internal Medicine, St. Marianna University School of Medicine*
[*5]*Kitasato University Oriental Medicine Research Center*

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**Objective: To examine how Kampo education in Japanese medical schools changed between 2011 and 2019.**
**Methods: We administered nationwide postal questionnaire surveys about current characteristics of Kampo medicine education in all 82 Japanese medical schools, directed to the persons responsible for Kampo education at each university. One survey was conducted in 2011 and one in 2019. Analysis used Welch's *t*-test and a chi-squared test.**
**Results: The average class meeting time was shorter in 2019 than in 2011. The proportion of class meetings that were about Kampo saw a statistically significant increase in the third year and a significant decrease in the fourth and sixth years of medical school. Curriculum standardisation, preparation of simple textbooks, and fostering Kampo medicine instructors were the primary problems in both years. The proportion of mainstream medical education contents focusing on traditional Japanese Kampo medicine did not change over time, nor did the percentage of those considering using standardised textbooks. Other changes were statistically nonsignificant.**
**Conclusion: In Japanese medical schools, the number of class meetings teaching Kampo medicine has increased; however, this number is not statistically significant. Persistent problems in Kampo education, including curriculum standardisation, need to be addressed.**

**Key words: Kampo medicine, medical education, curriculum, Japan**

## INTRODUCTION[1]

In recent years, an increasing number of people, including those in Western countries, have been using complementary and alternative medicine (CAM), such as Kampo medicine [1, 2]. Kampo medicine is a traditional Japanese medicine that descends from traditional Chinese medicine, which was introduced in Japan and was subsequently influenced by Japanese culture and climate. Currently, Kampo medicine is integrated into Japan's national health management system. One hundred forty-eight kinds of herbal medicine extract preparations and one hundred eighty-seven kinds of crude Kampo drugs have been approved by the Ministry of Health, Labour, and Welfare and are used in The National Health Insurance program [3, 4]. However, due to the medical system reform implemented in the 19th century under the leadership of the Meiji government, a new curriculum for medical education based on Western medicine was adopted, and Kampo education was deleted from the curriculum of Japanese medical schools, and some medical schools elsewhere; thus, it was not taught for a long time [5, 6]. However, parallel to the global review of CAM, the medical education curriculum in Japan has been gradually incorporating CAM education, including Kampo medicine [7].

In 2001, the Japanese Ministry of Education, Culture, Sports, Science, and Technology (MEXT) announced that instruction in basic Kampo medicine was to be incorporated into the core curricula of all medical schools. This was decided because at the time, many doctors were actually using Kampo medicine in their daily practice, even though Japanese medical education provided little knowledge on Kampo medicine. The ministry's decision was aimed at solving this problem. This was an epoch-making event that signified the official rebirth of Kampo medicine in Japanese medical education. Since then, a rapidly increasing number of Japanese university medical schools have begun integrating Kampo medicine into their curricula [8].

1 Abbreviations: complementary and alternative medicine (CAM), Japanese Ministry of Education, Culture, Sports, Science, and Technology (MEXT), Japan Accreditation Council for Medical Education (JACME), Faculty development (FD)

Tatsuya NOGAMI, Department of Kampo Medicine, Tokai University School of Medicine, 143 Shimokasuya, Isehara, Kanagawa 259-1193, Japan
Tel: +81-463-93-1121 Fax: +81-463-95-3892 Email: t-nogami@tsc.u-tokai.ac.jp

In 2011, we conducted a nationwide survey for the first time on the state of Kampo medicine in Japan. In this survey, we found, 'Japanese medical schools only offer students a short time to study Kampo medicine, and the impetus to include Kampo medicine in their curricula varies among schools. Kampo education at medical schools had required solving several problems, including curriculum standardisation' [9].

Since then, the environment surrounding Japanese Kampo medicine has changed drastically. First, in 2014, the Japan Kampo Medicine Education Council was established. All medical schools throughout the country participate in it, and an attempt is being made to create a unified curriculum for Kampo medicine education. Subsequently, the description of Kampo medicine in the Japanese medical education model core curriculum was revised to be more specific in 2016 from 'Outlining Japanese traditional (Kampo) medicine' to 'Outlining the characteristics of Kampo medicine: Adaptation and pharmacological effects of major Kampo formulas (herbal medicine)' [10]. In addition, the Basic Medical Education: Japanese Specifications ver. 2.1, introduced by the Japan Accreditation Council for Medical Education (JACME) on May 20, 2016, stated that medical school curricula should ensure 'contact with complementary medicine' as a standard for improving the quality of medical education. Complementary medicine is defined as 'including orthodox, traditional, and alternative medicine'. Kampo medicine is also considered a complementary medicine, and must be included in medical education [11, 12]. In addition, as the globalisation of medical education progressed, the item 'contact with complementary medicine' was stipulated in the evaluation criteria for each field of medical education [11]. Furthermore, it is expected that the newly revised International Classification of Diseases (11$^{th}$ revision) by the World Health Organization will include traditional medicine classification, and clinically, Kampo medicine will be firmly incorporated into the Western medical system [13]. In December 2015, all 80 medical schools in Japan became members and founded the JACME, with the cooperation of MEXT and the Association of Japanese Medical Colleges. Medical schools accredited by JACME are able to register with the Foundation for Advancement of International Medical Education and Research, and graduates from accredited medical schools are eligible to apply to the Educational Commission for Foreign Medical Graduates. Every medical school considered making changes to their curricula or systems to reflect the JACME evaluation standards [5]. In addition, two new medical schools were set up during this period in Japan. To evaluate how these environmental changes have affected the Japanese Kampo medicine education, we conducted a second national survey in 2019.

## MATERIALS AND METHODS

In March 2019, we conducted a nationwide postal questionnaire survey of all 82 Japanese medical schools (51 national or public universities and 31 private universities). The persons responsible for Kampo education at each of the universities were asked to respond to the questions in consultation with the medical curriculum administrator and to provide the names of their universities and the respondents. For precision, additional surveys by phone or post were carried out with the universities that did not respond in a timely fashion or that responded inadequately. The questionnaire consisted of the following seven items specifically related to teaching or studying Kampo medicine, which were the same as in the 2011 survey with the exception of one question about the course contents: (1) the number of class meetings (taught sessions), target school year(s), and type of classes; (2) presence or absence of a full-time instructor(s); (3) curricula contents; (4) textbooks in use; (5) desire for standardised textbooks; (6) faculty development programmes; and (7) problems to be solved to promote Kampo education (please see the Questionnaire included in the Appendix). The 2011 survey included a question about the course contents, which was judged to be unnecessary and thus was removed from the 2019 survey. A class meeting refers to a single lecture presented with a specific theme. In Japan, class meeting times are normally between 45 and 100 minutes, depending on the university. In the analysis, one Kampo medicine class meeting was defined as a lecture in which 50% of the content was devoted to teaching Kampo medicine. Cases of laboratory assignments in the third and fourth years and clinical clerkships in the fifth and sixth years were excluded from class meetings.

The survey was approved by the Institutional Review Board for Clinical Research of Tokai University (18R-284) and conformed to the principles of the Declaration of Helsinki. To prepare the questionnaire, we modified items from a questionnaire used in a similar study conducted by the Liaison Committee of The Japan Society for Oriental Medicine in 2007 [14], after obtaining the author's permission. The present study was a survey of the current status of Kampo education in all 82 Japanese medical universities. The appropriate responsible persons from all 82 universities provided written informed consent to participate in this study.

### Statistical analysis

Welch's *t*-test and median test were used to compare the number of Kampo class meetings, lecture time, and total time devoted to teaching Kampo medicine between 2011 and 2019. The chi-squared test was used to analyse differences in population ratios such as the presence or absence of a Kampo instructor in 2011 and 2019. Results were deemed significant at $p < .05$. The statistical analysis was performed using BellCurve for Excel 3.21 software (Social Survey Research Information Co., Ltd., Tokyo, Japan).

## RESULTS

### Study population

A total of 82 questionnaires were collected, which means that responses were obtained from each of the 82 medical schools in Japan (response rate: 100%).

### The numbers of class meetings with target school year(s)

The number of Kampo class meetings as a required subject during the six years of medical school ranged from 1 to 32, with a mean of 8.28 ± 5.41 class meetings in the 2019 survey; this indicated an increase of

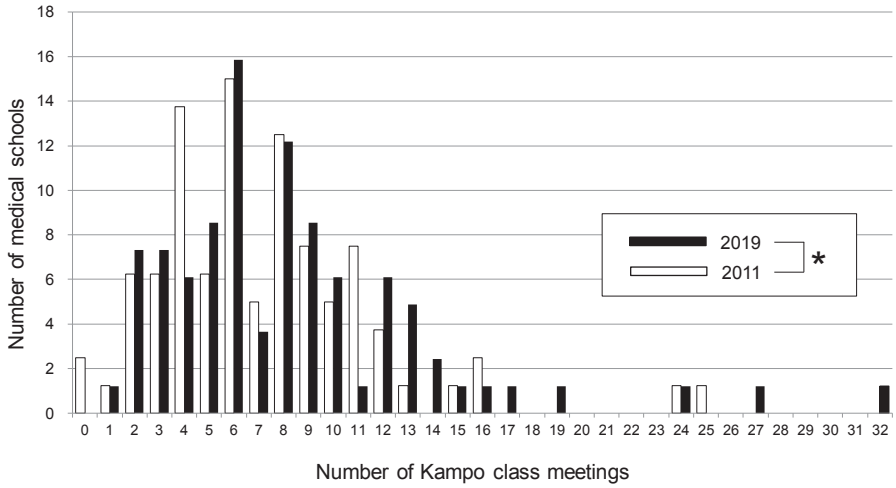


**Fig. 1** Comparison of the number of required Kampo class meetings in all medical schools in 2011 and 2019.
In 2011, Mean, 7.25 ± 4.42 times; Median, 6 times; ≥ 1, 78/80 schools (98%); ≥ 4, 67/80 schools (84%); ≥ 8, 35/80 schools (44%); ≥ 16, 4/80 schools (5%). In 2019, Mean, 8.28 ± 5.41 times; Median, 7.5 times; ≥ 1, 82/82 schools (100%); ≥ 4, 69/82 schools (84%); ≥ 8, 41/82 schools (50%); ≥ 16, 6/82 schools (7%). Mean: Welch's *t*-test, Median: Median test, Comparison of meeting times: chi-squared test; $n = 80$ (in 2011) and 82 (in 2019), *n.s. (not significant)

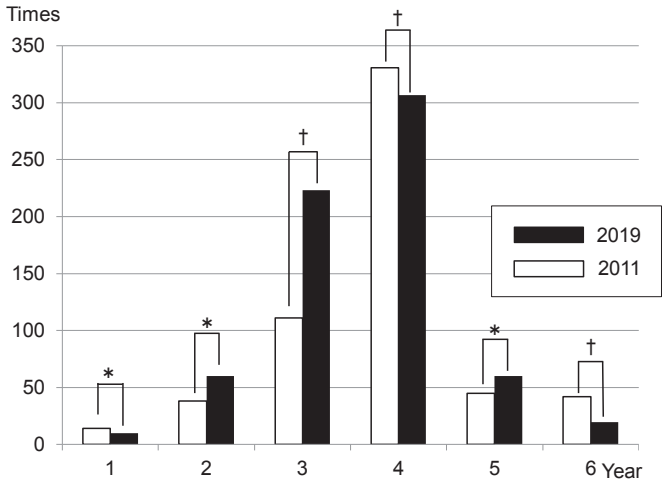


**Fig. 2** Comparison of the number of Kampo class meetings by school year in all medical schools in 2011 and 2019. Chi-squared test, *n.s. (not significant), †$p < .001$

1.03 from the mean of 7.25 ± 4.42 in the 2011 survey, although the difference was not statistically significant (Welch's *t*-test, $p = .18$). Additionally, the median increased from 6 to 7.5 class meetings, but the increase was not statistically significant (median test, $p = .69$) (Fig. 1). Compared to 2011, the lecture time for a class meeting was shorter in 2019. The national mean was 80.51 ± 13.54 minutes in 2011 and 74.33 ± 15.36 minutes in 2019 (Welch's *t*-test, $p = .008$), and the national median was 90 minutes in 2011 and 72.5 minutes in 2019 (median test, $p = .017$). The mean total time devoted to teaching Kampo medicine was 9.66 ± 5.98 hours in 2011 and 10.06 ± 6.84 hours in 2019, indicating a slight, but statistically nonsignificant increase (Welch's *t*-test, $p = .96$). The median total time devoted to teaching Kampo medicine was 9 hours in both surveys.

The percentages of medical schools that held one or more lectures in 2011 and 2019, respectively, were 100% and 98% (chi-squared test, $p = .31$); 4 or more lectures were 84% and 84% (chi-squared test, $p = .95$), 8 or more lectures were 50% and 44% (chi-squared test, $p = .43$), and more than 16 lectures were 7% and 5% (chi-squared test, p = .54), respectively. There were no statistically significant changes.

The total number of required Kampo classes held across universities in 2019 from the first to sixth years were 10, 60, 223, 306.5, 60, and 19.5, respectively. In 2011, the numbers were 14, 38, 111, 330, 44.5, and 41.5, respectively, indicating that in 2019, more Kampo medical education tended to be conducted for lower years than in 2011. In 2019, compared to 2011, the number of Kampo medicine class meetings held showed a significant increase in the third year and a significant decrease in the fourth and sixth years (chi-squared test, $p < .001$); there were no statistically significant differences for other academic years (Fig. 2). In the 2019 survey, we found that 23% of the

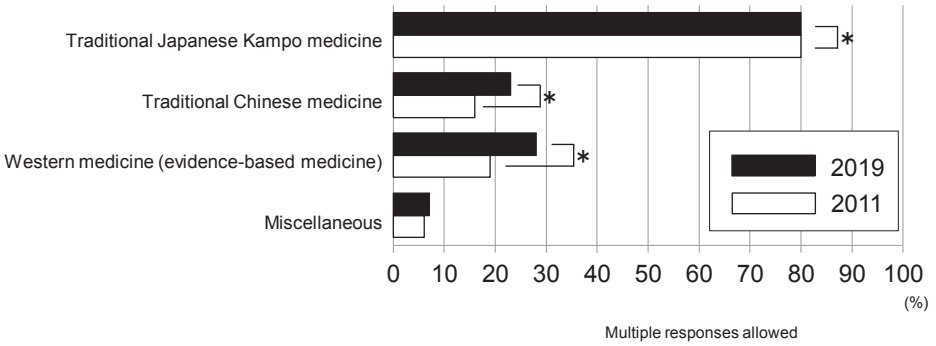


**Fig. 3** Comparison of suggested curriculum contents for teaching traditional Japanese (Kampo) medicine at all medical schools in 2011 and 2019. Chi-squared test, $n = 80$ (in 2011) and 82 (in 2019), *n.s. (not significant)

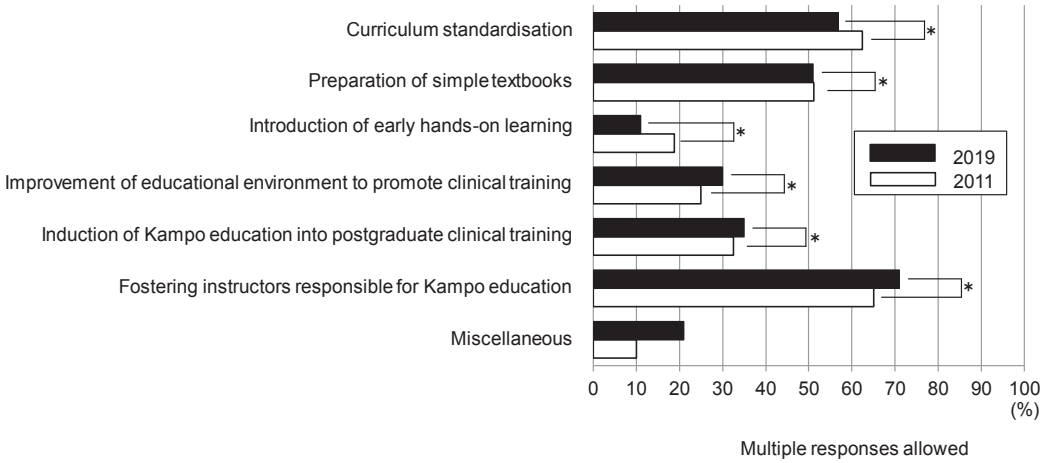


**Fig. 4** Comparison of problems to be solved promptly toward standardisation of Kampo education in 2011 and 2019. Chi-squared test, $n = 80$ (in 2011) and 82 (in 2019), *n.s. (not significant) (multiple responses allowed)

universities were conducting experiential clinical training in Kampo medicine, and 9% of medical schools conducted clinical clerkships in Kampo medicine for all students. According to the 2011 survey, 15% of the universities conducted experiential clinical training and 13% of the universities provided clinical clerkships in Kampo medicine; the percentage of universities providing experiential clinical training tended to increase (chi-squared test, $p = .19$), while that of clinical clerkships tended to decrease (chi-squared test, $p = .41$), although neither difference was statistically significant.

**Presence or absence of full-time instructors**

Of the 82 medical schools, 30 schools (37%) employed full-time instructors to teach traditional Japanese Kampo medicine. Compared to 29% in 2011, this proportion had increased, although not significantly (chi-squared test, $p = .28$).

**Curricula contents**

Comparing the concept used as the basis for Kampo medicine education between 2019 and 2011, 80.5% and 80% of medical schools, respectively, taught traditional Japanese Kampo medicine (chi-squared test, $p = .97$); 23.2% and 16.3%, respectively, taught traditional Chinese medicine (chi-squared test, $p = .27$); and 28.0% and 18.8%, respectively, taught Western medicine (evidence-based medicine) (chi-squared test, $p = .16$). (Fig. 3). Miscellaneous answers included history, pharmacology, and diversity of medical treatment at one school, each with multiple responses being allowed. The mainstream medical education incorporating Kampo medicine was the same as in 2011, but the proportion of Kampo medicine education based on traditional Chinese and Western medicine seems to have increased, although not statistically significantly.

**Textbooks in use and the desire for standardised textbooks**

The number of medical schools that used textbooks in 2019 and 2011 were 12 (15%) and 19 (24%), respectively, showing no statistically significant difference (chi-squared test, $p = .14$). However, 60 schools (74%) wanted to consider the use of standard textbooks, if any were available. Answers to the question regarding textbook use did not change between 2011 and 2019.

**Faculty development programmes**

Faculty development (FD) programmes were conducted in 20 schools (24%) in 2019 and 26 schools (33%) in 2011; although there was a decrease in these programmes, this difference was not statistically significant (chi-squared test, $p = .18$).

**Problems to be solved to promote Kampo medicine education**

In 2019, among the problems to be solved promptly in the area of Kampo education, curriculum standardisation was selected by 57% of the schools, preparation of simple textbooks by 51%, early hands-on learning by 11%, improvement of the Kampo educational environment to promote participatory clinical training by 30%, introduction of Kampo education in both early and late postgraduate clinical training by 35%, fostering instructors responsible for Kampo education by 71%, and miscellaneous by 21%. In the 2011 survey, the percentages of each response were 63% (chi-squared test, $p = .40$), 51% (chi-squared test, $p = .99$), 19% (chi-squared test, $p = .15$), 25% (chi-squared test, $p = .44$), 33% (chi-squared test, $p = .86$), 65% (chi-squared test, $p = .43$), and 10% (Fig. 4), respectively. No responses demonstrated statistically significant differences between 2019 and 2011. In the 2019 survey, the following were miscellaneous answers: 'Kampo medicine should be in the scope of the Japanese Doctor national exam', 'Providing high-quality evidence for the effects of Kampo medicine so it can be used for evidence-based treatment', 'Practical training using simulators should be introduced', and 'Arrangement of the theoretical system of Kampo medicine itself'.

## DISCUSSION

In 2011, we conducted the first survey of all 80 medical schools in Japan (response rate: 100%) [9], and in 2019, we conducted a second survey. The purpose of this study was to examine whether Kampo medical education in Japanese medical schools has changed in response to the changing environment of medical education in Japan over the past eight years.

In this survey, valid answers were obtained from all 82 medical schools in Japan. As depicted in Fig. 1, the number of Kampo class meetings increased between 2011 and 2019, but the increase was not statistically significant. Although the lecture time for a class meeting was significantly shorter in 2019, the mean total time devoted to teaching Kampo medicine was almost the same. After the introduction of the new medical education curriculum in Japan, the number of lectures decreased despite a significant increase in clinical practice [5, 14]. Therefore, we believe that the increasing tendency of the number of lectures on Kampo medicine in the past eight years suggests the growing popularity of Kampo medicine in undergraduate education. According to a survey of resident doctors, the amount that can be learned in a 20-minute lecture is the same as that learned in a 50-minute lecture [15]. Further, students' attention during lectures lasts only 10–15 minutes [16]. Considering these reports, it was speculated that shortening the lecture time for a class meeting did not significantly affect the educational effects of Kampo medicine instruction. The fact that between 2011 and 2019, the number of class meetings and the total time of Kampo medicine class meetings tended to increase, might indicate that the proportion of Kampo medicine education in medical education has increased.

Compared to 2011, the number of Kampo class meetings in 2019 increased in the third year and decreased in the fourth and sixth years. We presumed that this was because in the new curriculum, clinical practice begins in the second half of the fourth year, and therefore, the number of classes that were advanced to the third year increased. This means that medical students now have an extended period of time between attending a Kampo class meeting and becoming a clinician and starting to use Kampo medicine to treat patients. We believe it is important to consider the effects of the increased time period between education and actual clinical use of Kampo medicine by young doctors. This is because these doctors are more likely to lose the knowledge due to the delay in implementation of the knowledge they have acquired. In the 2019 survey, we found that 23% of the universities conducted experiential clinical training in Kampo medicine, while only 9% of medical schools conducted clinical clerkships of Kampo medicine for all students. In Japan, after studying Kampo medicine in Kampo class meetings, most medical students get a doctor's licence without undergoing hands-on practice or clinical clerkship. Under such circumstances, holding Kampo class meetings in an earlier academic year may be a barrier to the widespread use of Kampo medicine in actual clinical practice. We need to consider which of the six years of medical education is best to teach Kampo medicine to enable medical students to clinically utilise Kampo medicine after graduating.

The presence or absence of full-time instructors is an important factor for providing practical medical education. Similar to the previous survey, only 37% of medical schools employed full-time instructors in this survey. The fact that Japanese medical schools do not hire scholars of subjects that are included in the curriculum is a major drawback to providing quality medical education. Without a full-time Kampo instructor, it is difficult for students to experience hands-on clinical practice. Therefore, it is advisable that all medical schools hire full-time Kampo medicine instructors.

The concept used as the basis for Kampo medicine education was mostly traditional Japanese Kampo medicine, which did not differ much between 2011 and 2019. However, as seen in this survey, the proportion of Kampo medicine education based on Chinese and Western medicine has been increasing. Maintaining diversity in educational content is important in academia. However, inconsistencies in educational content can cause confusion among medical students. This may cause students to form negative opinions regarding Kampo medicine, and they may refuse to use it in their clinical practice. Medical schools also seem to be concerned about this issue; it is speculated that this issue may have resulted in the demand for standardised textbooks on Kampo medicine. Creating textbooks that combine diversity and unity is considered important for Kampo medicine education. Fortunately, a textbook called "Essential Lecture on Kampo Medicine" was published in 2020 by the Japan Kampo Medicine Education Council, an organization formed by Kampo medicine educators from all medical schools in Japan [19]. This textbook is very important, as its content was agreed upon by all Kampo medicine educators in all medical schools in Japan; therefore, it may be used in many medical schools for Kampo medicine lectures in the future. In the 2019 survey, medical schools conducting FD programmes in Kampo medicine showed

a downward trend as compared to the 2011 survey, although this trend was not statistically significant. FD programmes were highly valued by participants and were reported to bring about positive changes in participants' learning and behaviour, and are thus considered effective [17, 18]. The fact that the number of universities conducting FD programmes is not increasing may indicate that the training of Kampo medicine instructors is not sufficiently conducted, which has a negative impact on the enrichment of Kampo medicine education.

'Training of instructors responsible for Kampo medicine education' was listed as the leading problem to be resolved in Kampo medicine education. In Japan, it is necessary to actively develop training for human resources responsible for Kampo medicine education. The lack of human resources to impart Kampo medicine education was mentioned by a large number of respondents in the free description column for problems with Kampo medicine education. It is important to increase the number of medical students and residents who are interested in Kampo medicine, to thereby develop human resources who will be responsible for Kampo medicine education. To boost potential students' interest, it is necessary to clearly demonstrate that Kampo medicine can contribute to society by improving the health of many patients in modern medicine. People who are involved in Kampo medicine education, such as the authors of this work, need to continue Kampo medicine education and actively disseminate information about the therapeutic effects of medical treatment using Kampo medicine to gain the support of society. Several medical schools cited 'standardisation of curriculum' and 'creating easy-to-understand textbooks' as priority issues. This may indicate that learners are confused and that it is difficult for the instructors to teach Kampo medicine because it refers to varied medical contents. Considering that about three-quarters of the medical schools think that standard textbooks are necessary, it is important to design standard textbooks based on the diversity of Kampo medicine. It is also important to unify the basic contents that the medical students must learn. In both 2011 and 2019, the most important points to be resolved in Kampo medicine education were 'training of leaders who will be responsible for Kampo education', 'standardisation of curriculum', and 'creating easy-to-understand textbooks'. This study revealed that these issues had not been sufficiently addressed in the field over the last eight years; it is important that these issues are solved in the near future.

A limitation of this study is that the survey covered only the 2011–2019 curricula of medical schools, which may create a selection bias. The curriculum of Kampo medicine has been changing annually. Moreover, we considered a Kampo medicine class meeting as that in which 50% or more of the content was related to Kampo medicine; however, this was a subjective evaluation based on the questionnaire responses, and we did not evaluate the actual class meeting contents, which may indicate an inaccuracy. Similarly, all questions were subjectively answered by the respondents, and not all standards were consistent. This is a limitation of the survey method. To accurately understand the current state of Kampo education, it is necessary to examine its education in each university and repeat the follow-up survey.

**Conclusions**

In this study, we conducted a nationwide survey of changes in Kampo medicine education over the last eight years between 2011 and 2019 in Japan and found that the problems in Kampo medicine have not been fully resolved. In 2019, a survey was conducted for all Japanese university medical schools and the results were compared with a survey conducted in 2011. We found that there was no significant change in the number of class meetings with Kampo as a required subject, whereas the time for a class meeting was shortened, and the predominant school years during which Kampo medicine was taught were different. The lack of trained teachers, need for standardised textbooks, and need for an easy-to-understand standard curriculum continued to be challenges for Kampo medicine education in 2019. In the future, it will be necessary to regularly conduct nationwide surveys to track the progress of Kamp medicine education, identify issues, and adequately solve them.

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## DECLARATION OF INTERESTS

None.

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## APPENDIX

Questionnaire on Kampo Education in the Curricula of Japanese Medical Schools

1. In what year or years and how many classes do you offer Kampo education to your students?
   Please mark 'required' or 'elective', and briefly describe the class content (lecture, medical interview and physical examination practice [MIPEP], clinical clerkship, etc.) If additional space is required, please comment freely on an attachment.

| School year | Required / Elective | Number of classes | Contents (briefly) |
|---|---|---|---|
| 3 | R / E | 6 | Lecture |
| 4 | R / E | 2 | MIPEP |
| | R / E | | |
| | R / E | | |
| | R / E | | |
| | R / E | | |

Total:_____times
(Required:_____times, Elective:_____times)

2. Are there any full-time instructors for Kampo medicine employed by the university?
   1 YES
   2 NO

3. In what context in your curriculum is Oriental medicine principally taught?
   1 Traditional Japanese Kampo medicine
   2 Traditional Chinese herbal medicine
   3 Western medicine (evidence-based medicine)
   4 Other (specify:_____)

4. Are you using any textbooks in your Kampo medicine classes?
   1 YES
   2 NO
   → If YES, please give the book titles.

   _____

5. If any standard Kampo textbooks are available, would you be interested in using them in your classes?
   1 YES
   2 NO

6. Do you have workshops or programmes for faculty development?
   1 YES
   2 NO

7. What do you think should promptly be solved in the area of Kampo education? (Multiple responses allowed)
   1 Curriculum standardisation
   2 Preparation of simple textbooks
   3 Introduction of early hands-on learning
   4 Improvement of educational environment to promote participatory clinical training
   5 Induction of Kampo education into early and late postgraduate clinical training
   6 Fostering instructors responsible for Kampo education
   7 Other (Specify:_____)

*Regarding the content of questionnaire responses, we may contact you.
To help us do so, please write your name and affiliation below.

Name:_____ Affiliation:_____