

Reactions of Pharmaceutical Science Students to Kampo Medicine Education Using the Fukushin Simulator

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ABSTRACT

Purpose: The Kampo Medicine component of the curriculum in Japan's pharmaceutical science schools does not feature any practical workshops teaching techniques of Fukushin (abdominal diagnosis). This paper describes a Fukushin workshop designed by the authors as an elective class in the undergraduate curriculum, the first of its kind, and reports students' feedback.

Methods: We conducted a workshop based on the Abpalle KAMPO for Students model. Using slides we introduced abdominal patterns and the techniques used in Fukushin. We conducted a quiz in which students had to choose the correct abdominal pattern and set up five Abdominal strength pattern models, eight Abdominal specific pattern models, and three Formula pattern models. Conducting abdominal palpation on the models, students were required to give their Abdominal diagnosis on each model. Subsequently, the instructors gave the correct answers and further explanations on Abdominal diagnosis and the Kampo understanding of the medical conditions recreated by the models.

Results: Responses to a questionnaire conducted after the workshop mentioned that the workshop was a valuable experience, that students had deepened their understanding of abdominal diagnosis, and that the workshop was enjoyable.

Conclusion: It appears that conducting a workshop featuring active learning including actual practice in conducting Abdominal diagnosis, in addition to incorporating a game-like element, was successful in deepening students understanding of Kampo Medicine. It is likely that Fukushin Simulator workshops can be a valuable addition to the pharmaceutical science curriculum in addition to the contexts in which it is already used.

KEY WORDS

pharmaceutical science students, Kampo Medicine education, Fukushin Simulator, abdominal diagnosis, pharmaceutical science schools

INTRODUCTION

In Japanese Kampo Medicine, an important diagnostic technique is Abdominal diagnosis, or Fukushin. By performing Fukushin, a medical practitioner obtains an abdominal pattern, a holistic picture of the medical state of the patient, important information when choosing a suitable Kampo formula to treat the patient⁽¹⁻³⁾. In the Japanese medical system, pharmacists do not perform Fukushin. In clinical practice, a pharmacist asks a patient to describe their subjective symptoms and, based on this verbal data, prescribes them one of the available prescription formulas or sells them an OTC formula.

In pharmaceutical science departments, the Kampo Medicine component of the curriculum features lectures on abdominal patterns and Fukushin. Since pharmacists will not have cause to perform abdominal diagnosis on patients, the curriculum does not feature lectures on the actual techniques or any practical workshops.

Over several years we have developed a Fukushin simulator for use in Kampo education programs and professional development workshops for medical professionals⁽⁴⁻¹¹⁾ (Figure 1). It is in use in several medical



Figure 1: An abdominal model in the Fukushin Simulator, showing an adult abdomen. The surface is covered in polyvinyl chloride.

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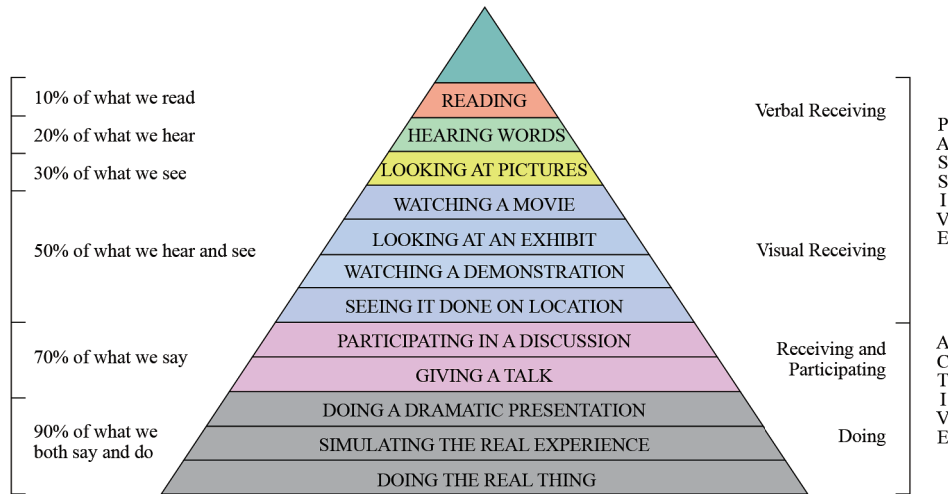


Figure 2: From The learning pyramid [18]. It has been observed that in education aimed at the learning of abilities required in clinical practice, it is important to experience things for oneself.

schools in Japan, but there are no reports of its use in pharmaceutical science departments. This paper reports on a Fukushin workshop we conducted in a pharmaceutical science department, the first such case in Japan, and the responses of the students.

MATERIALS AND METHODS

In the Faculty of Pharmaceutical Sciences at Meiji Pharmaceutical University, the undergraduate curriculum features as a core subject in the first year pharmacognosy, which includes lectures on Kampo Medicine. For those who wish to learn more about Kampo Medicine, there is also an elective course in the second year. We used this course to introduce a workshop organized according to the Abpalle KAMPO for Students model^[2].

The instructors used slides to explain the basics of Abdominal diagnosis and the techniques used. The instructors also prepared the Fukushin Simulator with five Abdominal strength pattern models (Table 1), eight Abdominal specific pattern models (Table 2), and three Formula pattern models (Table 3). These models were not labeled with their names but with numbers, and they were arranged randomly around the room. Students were required to perform abdominal diagnosis themselves and to match the numbered models with the correct diagnoses. Subsequently, the instructors revealed the correct answers and gave further explanations of the medical conditions reflected in each model.

The university's Academic Affairs Committee conducts a questionnaire on classes. We collected the comments written freely by students in the Your Comments section of the questionnaire that mentioned the workshop.

RESULTS

In total, 84 students were enrolled in the 2nd-year Kampo Medicine elective course. Of those 84 students, 51 (60.7%) filled in the question-

Table 1: Abdominal strength pattern models

Abdominal diagnosis: Description
Marked excess pattern: Strongest resistance of abdominal wall and obvious abdominal distension
Slight excess pattern: Somewhat strong resistance of abdominal wall
Intermediate pattern: Neither strong nor weak resistance of abdominal wall
Slight deficiency pattern: Somewhat weak resistance of abdominal wall
Marked deficiency pattern: Weakest resistance of abdominal wall and retraction of abdomen

naire, and of those 9 students wrote in the Your Comments section. Comments included opinions that working with the Fukushin Simulator was a valuable experience (33.3%), that they were able to deepen their understanding of Abdominal Diagnosis (33.3%), and that the workshop was enjoyable (33.3%) (Table 4). No negative impressions were reported by any of the students.

DISCUSSION

Kampo Medicine features a diagnostic technique called Fukushin, or Abdominal Diagnosis, which has undergone independent development in Japan. It can be used in clinical practice with patients presenting any medical condition. In conducting Fukushin, the practitioner applies pressure to the abdominal area and judges the degree of resistance presenting over the abdominal area as a whole and in specific sites. The Abdominal Diagnosis obtained provides the practitioner with clinically relevant information^[3]. There are difficulties associated with Fukushin education. A key issue is that the burden on people serving as the subjects of diagnosis is considerable, and it is therefore difficult for students to experience a sufficient range of patterns in sufficient numbers.

There are reports that simulators can be of use in training diagnostic techniques^[13-15]. The authors have developed a Fukushin Simulator for the training of Abdominal Diagnosis, consisting of a number of models

Table 2: Abdominal specific pattern models

Abdominal specific pattern model: Description
Stiffness and rigidity below the heart model: Increased resistance in the epigastric region
Fullness in the chest and hypochondrium model: Increased resistance on both sides of the hypochondriac region
Rectus muscle tension model: Increased resistance in the area corresponding to the abdominal rectus muscle
Lower rectus muscle tension model: Increased resistance in the area corresponding to the abdominal rectus muscle in the lower abdomen
Lower abdominal fullness model: A horseshoe-shaped area of markedly increased resistance in the lower abdomen
Lower abdominal numbness model: Diminished resistance in the center of the lower abdomen
Abdominal fluid congestion model: A splashing sound is heard on tapping the abdomen
Abdominal palpitation model: A pulsating sensation can be felt in the abdomen

Table 3: Formula pattern models

Keishi-bukuryo-Gan model: Resistance in the abdominal area is somewhat elevated. There is a horseshoe-shaped area in the lower abdomen with further elevated resistance. There are 4 areas of Oketsu tenderness.

Toki-shakuyaku-San model: Resistance in the abdominal area is somewhat diminished. There are 2 areas of Oketsu tenderness.

Kami-shoyo-San model: Resistance in the abdominal area is somewhat diminished, and a pulsating sensation can be felt. Resistance in the left and right hypochondrium is elevated. There are 2 areas of Oketsu tenderness.

Table 4: Observations by students in the Faculty of Pharmaceutical Sciences on a Kampo class featuring the Fukushin Simulator

- The abdominal models used for abdominal diagnosis were more real than I had expected and were very easy to understand. This is a most valuable experience. I am glad that I chose this course!
- This was a very enjoyable and useful class.
- Thanks to the Fukushin models, ideas like excess and deficiency became much easier to grasp.
- Like the pharmacognosy course in the first year, this was enjoyable. Especially interesting was the opportunity to experience abdominal diagnosis.
- The Fukushin workshop was memorable. Trying to understand abdominal states through words alone was too difficult for me, but actually experiencing abdominal diagnosis hands-on helped me to perceive clearly the differences between the various states.
- I hadn't expected that we would get the chance to actually experience abdominal diagnosis using models. This was a very valuable and enjoyable class.
- I was able to deepen my understanding of Kampo medicine through experiencing Fukushin.
- The Fukushin workshop was very enjoyable.
- I had the chance to actually touch Fukushin models for the first time. This was a valuable experience.

that recreate the most medically significant Abdominal Patterns⁴⁻¹¹⁾. Thanks to the simulator, medical students or medical practitioners learning Kampo Medicine can take part in hands-on training without needing access to human subjects, and can get experience with standardized versions of the most clinically important patterns.

In a survey of medical students who had attended a workshop using the Fukushin Simulator (n = 123), 98.4% of students described the workshop as "extremely worthwhile" or as "worthwhile"¹⁶⁾. The majority of them (93.5%) judged that such practical sessions were "absolutely necessary" or "necessary". These results suggest that practical sessions of this kind are a useful educational tool for students.

In a workshop for medical practitioners (n = 149), the majority of respondents said that using the Fukushin Simulator allowed them to "understand very deeply" or "understand well" (58.4%)¹⁷⁾. They judged that the Fukushin Simulator was "extremely useful" or "useful" (77.2%). This suggests that the Fukushin Simulator is also a useful tool in professional development.

The goal of Fukushin workshops for medical students or medical professionals is for the participants as doctors to be able to perform the technique of Abdominal Diagnosis and, on the basis of the diagnosis obtained, to understand and diagnose the patient's condition in terms of Kampo Medicine, and to choose appropriate medications.

When it comes to pharmacists, they will not perform Abdominal Diagnosis in their professional capacity and therefore the purpose of study sessions or workshops is different. It is sufficient for them to gain a deeper understanding of Kampo Medicine by learning about the patterns that can be obtained from Abdominal Diagnosis.

It is often observed that learning through lectures alone is inefficient, as is illustrated in the learning pyramid (Figure 2), and this is true of knowledge and skills necessary for clinical practice¹⁸⁾. In education, it has been observed that experiencing something for oneself is important. With this principle in mind, there have been many initiatives incorporating active learning in classes¹⁹⁾. Arita, *et al.* have reported in undergradu-

ate Kampo education that learning sessions incorporating the Fukushin Simulator were effective²⁰⁾.

We have developed and employed a Fukushin learning system called Abdominal palpation learning system in Kampo style (Abpalle KAMPO) for training medical professionals learning Kampo²¹⁾. In addition, we have also developed a modification of the system incorporating a quiz component called Abpalle KAMPO for students¹²⁾.

The present paper reports on a novel initiative featuring Abpalle KAMPO for students aimed at undergraduate students of pharmaceutical science. The practical workshop format featuring active learning with a game-like component includes hands-on experience with the Fukushin Simulator aimed at understanding Abdominal patterns and the role of Abdominal Diagnosis in Kampo Medicine. Students observed that the experience was valuable, that their understanding of abdominal patterns was deepened, that the workshop was enjoyable. It appears that the workshop enables students to enjoy themselves while deepening their understanding of Abdominal Diagnosis, and that incorporating practical sessions involving the Fukushin Simulator in undergraduate pharmaceutical science education is an effective intervention.

CONCLUSION

We conducted a workshop featuring the Fukushin Simulator in the context of a Kampo Medicine course for students of pharmaceutical science. It was a practical session incorporating active learning and a game-like component in which students had hands-on experience with Abdominal diagnosis, a technique specific to Kampo Medicine. Through the experience, students deepened their understanding of the Kampo view of the medical conditions featured. It appears that Fukushin Simulator workshops may be a valuable addition to Kampo courses for pharmaceutical science students.

CONFLICTS OF INTEREST

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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