

Educational Importance of Acupuncture and Moxibustion: A Survey at the Tokai University School of Medicine Japan

Masanori TAKASHI^{*1}, Yoshinobu NAKADA^{*2}, Katsuhiko ARAI^{*2} and Makoto ARAI^{*2}

^{*1} *Office of acupuncture and moxibustion Tokai University Oiso hospital*

^{*2} *Department of Kampo Medicine, Tokai University School of Medicine*

(Received March 1, 2016; Accepted March 29, 2016)

Objective: Acupuncture and moxibustion are categories of Japanese traditional medicine (Kampo). Precise teaching of Kampo is one of the important issues in medical education, and therefore acupuncture and moxibustion education has been applied to students in Tokai University School of Medicine. To investigate and compare the awareness the medical students have of acupuncture and moxibustion before and after the education, we conducted questionnaire surveys.

Methods: The questionnaires were distributed to 117 fourth-year students before and after the education.

Results: Of the 117 students issued surveys, 111 responded before, 115 after, and 109 both before and after the education program. Before the education, 79% of the respondents were interested in acupuncture and moxibustion, and 67%, 73%, and 80% thought they were effective, necessary, and worth learning. These results were increased to 92%, 95%, 94% and 97% after the education, respectively ($p < 0.001$ in all four comparisons). Although 9% said they would perform acupuncture and moxibustion in their routines proactively before the education, after the education this increased to 24% ($p < 0.001$), and 43% supposed that they would definitely introduce patients to acupuncturists.

Conclusion: Medical students' awareness improved after the education, which demonstrated importance of the acupuncture and moxibustion education in medical school.

Key words: acupuncture and moxibustion, undergraduate education, medical school in Japan, questionnaire survey

INTRODUCTION

According to historical records, in the early stage of Japanese acupuncture and moxibustion, the techniques were introduced to Japan via the Korean peninsula in the 5th or 6th century A.D [1, 2]. Then, thanks to frequent direct trade between China and Japan in the Sui (581 A.D. ~ 618 A.D. in China) and Tang (618 A.D. ~ 907 A.D. in China) dynasties, full-fledged oriental medical knowledge was brought to Japan from the 7th to 9th century. The methodologies and the factions of acupuncture and moxibustion were dramatically developed and diversified from the latter period of the Muromachi era (1336 A.D. ~ 1573 A.D.) to the Edo Period (1603 A.D. ~ 1868 A.D.). Originally, Japanese traditional medicine (Kampo medicine) consisted of five components: herbal medicine, massage, acupressure, acupuncture, and moxibustion [3, 4]. After the Meiji (Meiji period: 1868 A.D. ~ 1912 A.D.) restoration, the government introduced a national examination, in which only Western medical questions were adopted, to determine qualification as medical practitioners. By this commencement, although licensed medical doctors are permitted to practice acupuncture and moxibustion, they were classified as folk medicine. After a long slump, the status of acupuncturists was finally approved by national license in 1993 A.D [1]. The conditions for Japanese medical license have not termi-

nated the opportunity for medical doctors to perform acupuncture and moxibustion. Nonetheless, at present, they are mainly provided by acupuncturists.

From 2001, the guidelines on medical education curricula in Japan have approved of education in Japanese traditional medicine for the first time. In response to this change, Tokai University School of Medicine, in Kanagawa Japan, commenced the education of acupuncture and moxibustion according to the current education core curriculum from 2005, and additional practical training from 2007 [5]. The reason we implemented acupuncture and moxibustion education in our university was so that students could learn the indications, contraindications and side effects to perform acupuncture and moxibustion or to introduce patients to an acupuncturist appropriately.

Japanese medical doctors are qualified to treat patients both with Western and Kampo (including Acupuncture and Moxibustion) medical strategies which are approved not by the respective licenses but by Japanese medical license alone. If Western medical treatment is ineffective or insufficient in healing a patient's symptoms, medical doctors who know of acupuncture and moxibustion could try them or introduce patients to acupuncturists as parallel or next strategies. Such a suggestion could lead the patients to greater satisfaction with the medical services. Therefore we are putting the emphasis on Acupuncture and Moxibustion

Table

1) Have you had any experience with acupuncture and/or moxibustion therapy? (asked before the education, once)
1. Yes, I have
2. Not yet
2) Are you interested in acupuncture and moxibustion?
1. Very interested
2. Slightly interested
3. Hardly interested
4. Not interested at all
3) Do you think that acupuncture and moxibustion are effective?
1. Very effective
2. Slightly effective
3. Hardly effective
4. Ineffective
5. No idea
4) Do you think that acupuncture and moxibustion are necessary in contemporary medicine?
1. Very necessary
2. Slightly necessary
3. Hardly necessary
4. Unnecessary
5. No idea
5) Do you think that acupuncture and moxibustion are worth learning?
1. Quite worth learning
2. Slightly worth learning
3. Hardly worth learning
4. Not worth learning at all
5. No idea
6) How would you incorporate acupuncture and moxibustion in your routine after obtaining a medical license?
1. Would provide acupuncture and moxibustion
2. Would not provide, but introduce patients to an acupuncturist proactively
3. Would introduce patients to an acupuncturist on patient's demand
4. Would not recommend acupuncture and moxibustion
5. No idea

education, as well.

To evaluate the outcome of our education, we conducted questionnaire surveys of 117 fourth-year students in Tokai University School of Medicine regarding awareness of acupuncture and moxibustion to identify problems, with the purpose of further improving the education program. The surveys were carried out before and after completion of the education program, which consisted of one-hour of lecture and one-hour of practical training on acupuncture and moxibustion, in our university. To our knowledge, this is the first report comparing interests in acupuncture and moxibustion before and after the education in a Japanese medical university.

METHODS

We conducted questionnaire surveys of the awareness of acupuncture and moxibustion (Table) before and after the education program. The surveys, which were carried out in 2008 at Tokai University School of Medicine, targeted 117 fourth-year medical students (57 females and 60 males) before and after the one-

hour acupuncture and moxibustion lecture and one-hour small-class (9 groups, 12 to 14 people/ group) practical training, which were performed by the same two instructors in all groups. The practical training consisted of advanced lecture, practical presentation, and actual experience, as applicants receiving needle insertion. In preparing the questionnaire, emphasis was placed on a semantic differential method to assure the validity [6]. The questionnaire consisted of 6 items: 1) Prior experience of acupuncture and/or moxibustion therapy (asked before the lecture, once), 2) Interest in acupuncture and moxibustion, 3) Assessment of the effects of acupuncture and moxibustion, 4) Evaluation of the necessity of acupuncture and moxibustion in contemporary medicine, 5) Evaluation of worth of learning of acupuncture and moxibustion, and 6) How to incorporate acupuncture and moxibustion into their routines after obtaining a medical license (Table). In addition, the data for questions number 2 to 5 were analyzed according to the response regarding prior experience with acupuncture and/or moxibustion. For statistical analysis, the Wilcoxon's signed-rank test was

applied to examine the relationship between the data obtained before and after the education. The statistical analysis was applied after excluding the answer “no idea” when entered on one or both questionnaires.

RESULTS

Study population

Among 117 students who attended their 4th year at Tokai University School of Medicine in 2008, 95% (111) responded to the questionnaires before the lectures, 98% (115) after the lectures, and 93% (109) responded to both questionnaires. The data of questions that were answered in both questionnaires were further evaluated.

Experience of acupuncture and/or moxibustion therapy (asked before the lecture, once)

Before the commencement of the education program, 20 (18%) of the respondents reported having had prior experience with acupuncture and/or moxibustion.

Interest in acupuncture and moxibustion

Before the education program, 86 (79%) of the respondents reported being interested in acupuncture and moxibustion, which increased to 100 (92%) ($p < 0.001$) after the program (Figure A). Experienced students tended to be more interested in acupuncture and moxibustion (100%) than non-experienced (74%), before the program. This difference decreased after the program (100% vs 90%).

Assessment of the effects of acupuncture and moxibustion

Before the education, 73 (67%) of the respondents considered acupuncture and moxibustion to be effective. The number of respondents who answered “effective,” significantly increased to 104 (95%) ($p < 0.001$) after the education program (Figure B). Before the education, experienced students tended to consider that they were effective more frequently than non-experienced students (85%, non-experienced 63%), of which difference between experienced and non-experienced decreased after the education (100% vs 94%).

Evaluation of the necessity of acupuncture and moxibustion in contemporary medicine

Before the education, 80 (73%) of the respondents recognized the need for acupuncture and moxibustion in contemporary medicine. This increased to 103 (94%) after the program ($p < 0.001$) (Figure C). Experienced students had a higher tendency to appreciate their necessity in contemporary medicine before the education (90%, non-experienced 70%). The difference between experienced and non-experienced decreased after the education (100% vs 93%).

Evaluation of worth of learning of acupuncture and moxibustion

Before the program, 87 (80%) of the respondents answered acupuncture and moxibustion were worthy of study, which increased to 106 (97%) after the program ($p < 0.001$) (Figure D), and experienced students tended to feel it worthwhile (90%) more often than

non-experienced students (78%) (after the education, 100% vs 97%).

How to incorporate acupuncture and moxibustion into routines after obtaining a medical license

Before the program, 10 (9%) of the respondents reported they were willing to perform acupuncture and moxibustion themselves, 34 (31%) would introduce patients to an acupuncturist proactively, and 46 (42%) would introduce patients to an acupuncturist on patient’s demand. These values significantly changed to 26 (24%), 47 (43%), and 33 (30%), respectively, ($p < 0.001$) after the program (Figure E).

DISCUSSION

The current study indicated that the education in acupuncture and moxibustion significantly increased the interests of the medical students. Acupuncture and moxibustion are generally included among the categories of complementary and alternative medicine (CAM). Many medical doctors in Japan are specialized in areas of the Western medical settings, so Western medicine is primarily applied in the treatments of their patients in many cases. If Western medical treatment is ineffective or insufficient in healing a patient’s symptoms, medical doctors who know of acupuncture and moxibustion could try them or introduce patients to acupuncturists as parallel or next strategies. Such a suggestion could lead the patients to greater satisfaction with the medical services. CAM is often offered among the medical treatments in the U.S. [7] and Europe [8]. In addition, there are many medical doctors who perform acupuncture and moxibustion besides their main medical specialty. Brazil is one such country in which acupuncture is quite commonly recognized [9]. Mollasiotis *et al.* reported that, according to their survey, acupuncture is used as CAM in cancer patients in Europe [8].

Among the reasons for using CAM from the patient’s side are to increase their body’s ability to fight disease, and to improve physical or emotional well-being [8]. In the U. K., the National Institute for Health and Clinical Excellence (NICE) published an evidence-based guidance in which acupuncture is approved in some cases (for example, headaches and low back pain) [10]. The National Center for Complementary and Integrative Health (NCCIH) in the U.S. also states that acupuncture is effective for low back pain and headaches [11]. In addition, acupuncture and moxibustion are widely applied to, for example, neurological diseases, autoimmune diseases, orthopedic diseases, psychological diseases, and so on [12, 13].

As described above, there has been a growing interest in acupuncture and moxibustion from both the public and medical sides. However, CAM still tends to be considered as “quackery.” Moffet HH. reported that theories regarding locations and indications in acupuncture were doubtful [14], which was concluded from his review of clinical trials adopting sham acupuncture as control. Namely, sham acupuncture was said to be as efficacious as (or as inefficacious as) true acupuncture in many cases. The interesting point was that sham acupuncture ameliorated the

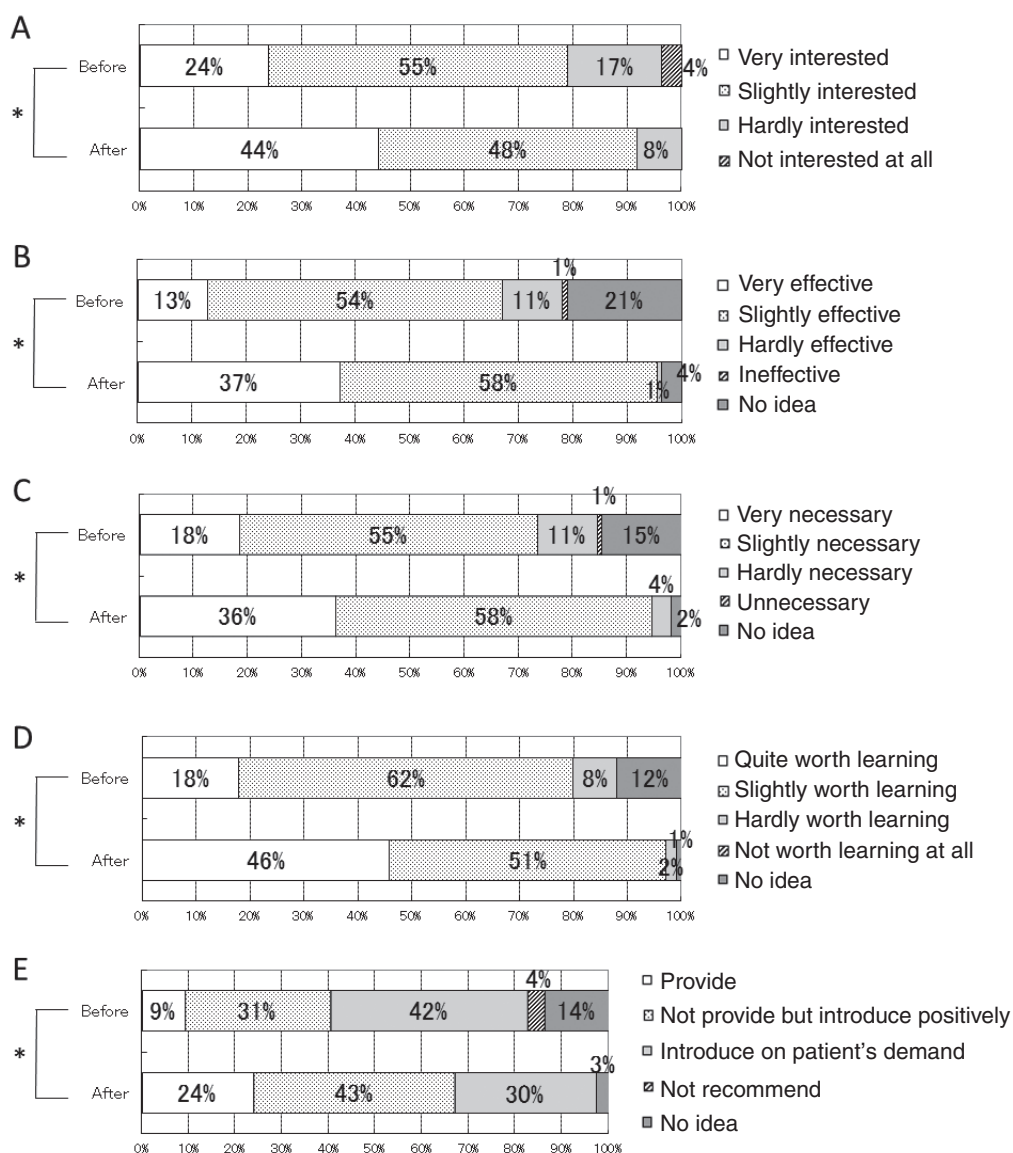


Figure 5 Changes in awareness of acupuncture and moxibustion before and after the education program.

A. Interest in acupuncture and moxibustion (statistical analysis n = 109)

B. Assessment of the effects of acupuncture and moxibustion (statistical analysis n = 83)

C. Evaluation of the necessity of acupuncture and moxibustion in contemporary medicine (statistical analysis n = 92)

D. Evaluation of worth of learning acupuncture and moxibustion (statistical analysis n = 95)

E. How to incorporate acupuncture and moxibustion into routines after obtaining medical license (statistical analysis n = 92)

Wilcoxon's signed-rank test, *p < 0.001

symptom, which was expected with true acupuncture fundamentally. Such results remind medical doctors that acupuncture had been considered as suspicious and unscientific treatment. However, Birch [15], Lund [16] and Lundberg [17] described that the sham acupuncture method employed in the study as placebo was inappropriately used. Considering these reports, placebo controlled trials may be difficult and should be conducted carefully [14-17], due to the nature of acupuncture and moxibustion.

In addition to their doubtfulness, if medical doctors do not know about the effectiveness and application of acupuncture and moxibustion, they could miss the chance to improve a patient's symptoms. The most important solution to understanding or reconsideration

of the theories and effectiveness of acupuncture and moxibustion is through education to attract interest. To achieve this, several attempts are underway as medical student education, for example, a short placement experience [18], teaching "Anatomy of Acupuncture" in the basic science course [19], standardized OSCE examination [20], and establishment of an academic league [21].

In Japan, few reports on acupuncture and moxibustion education in medical schools are found, probably because of the small number of full-time instructors, as well as because of the small number of medical schools in which acupuncture and moxibustion are taught [22]. Ebiko *et al.* carried out a questionnaire survey after acupuncture and moxibustion education

in 4th-year medical students at Tokyo Women's Medical University, Tokyo Japan. The report shows that the impression of acupuncture and moxibustion improved after a lecture in 94.2% of the respondents. In addition, the interest of the students was high in 96.1% of the respondents after the class, and 97.3% of them thought lectures on acupuncture and moxibustion are necessary in the medical education [23]. These results were similar to those of our survey, albeit with different questions. In the present study, the notable featured question was "how to incorporate acupuncture and moxibustion into routines after obtaining a medical license." Among our respondents, 97% reported they will do it themselves or introduce patients to acupuncturists. This means, although the time of the education was very short, the students became aware of acupuncture as one of the choices in daily practice. In addition, as far as we know, this is the first report in which students' opinions were compared before and after acupuncture and moxibustion education in a medical school in Japan.

LIMITATIONS

First, the short education time might not be sufficient for the students to understand the minimal requirements of acupuncture and moxibustion. Namely, there is a possibility that these students' opinions weren't supported by concrete understanding. Second, this survey was carried out among fourth-year undergraduate students. Responses obtained in postgraduate surveys should also be compared with this data. It is important for educators to understand whether the opinions change after completion of the undergraduate education and/or after the resident program. Such a change or lack thereof would show whether the effect of the education is temporary or permanent, as well as the importance of the education, and also reveal the real needs for the respondents to integrate acupuncture and moxibustion into their routines.

CONCLUSION

Medical students' awareness of acupuncture and moxibustion improved after the education, which demonstrated importance of the acupuncture and moxibustion education in medical school. Follow-up survey is needed to know whether the effect of the education is sustained or not.

COMPETING INTERESTS

The authors of this study have no competing financial or non-financial interests to declare, however, the Department of Kampo Medicine, Tokai University School of Medicine, did receive a grant from Tsumura, a Japanese manufacturer of Kampo medicine. There are no conflicts of interest regarding the reported facts and findings in this manuscript.

REFERENCES

- 1) Kobayashi A, Uefuji M, Yasumo W. History and Progress of Japanese Acupuncture. *Evid Based Complement Alternat Med*. 2010; 7: 359-65.
- 2) Motoo Y, Seki T, Tsutani K. Traditional Japanese Medicine, Kampo: Its History and Current Status. *Chin J Integr Med* 2011; 17: 85-7.
- 3) The Japan Society for Oriental Medicine: *Introduction to Kampo*. Tokyo: Elsevier Japan K.K; 2005.
- 4) Yu F, Takahashi T, Moriya J, Kawamura K, Yamakawa J, Kusaka K, *et al.* Traditional Chinese medicine and Kampo: a review from the distant past for the future. *J Int Med Res*. 2006; 34: 231-9.
- 5) Arai M, Arai K, Hioki C, Takashi M, Honda M. Evaluation of Kampo Education with a Focus on the Selected Core Concepts. *Tokai J Exp Clin Med* 2013; 38: 12-20.
- 6) Osgood CE. Studies of the generality of affective meaning systems. *Am Psychol*. 1962; 17: 10-28.
- 7) Eisenberg DM, Davis RB, Ettner SL, Appel S, Wilkey S, Van Rompay M, *et al.* Trends in Alternative Medicine use in the United States, 1990-1997: Results of a Follow-up National Survey. *JAMA* 1998; 280: 1569-75.
- 8) Molassiotis A, Fernandez-Ortega P, Pud D, Ozden G, Scott JA, Panteli V, *et al.* Use of complementary and alternative medicine in cancer patients: a European survey. *Ann Oncol* 2005; 16: 655-63.
- 9) Costi JM, da Silva JB, Min LS, More AO, Hokama AL. Teaching acupuncture: the Brazilian Medical Residency Programme. *Acupunct Med* 2012; 30: 350-3.
- 10) The National Institute for Health and Clinical Excellence. <https://www.nice.org.uk/> (accessed 24 December 2015).
- 11) The National Center for Complementary and Integrative Health. <https://nccih.nih.gov/> (accessed 24 December 2015).
- 12) Unwin J, Peters D. Gatekeepers and the Gateway – a mixed-methods inquiry into practitioners' referral behavior to the Gateway Clinic. *Acupunct Med* 2009; 27: 21-5.
- 13) Wakayama I, Katai S, Yamaguchi S, Shinohara S, Yamashita H, Komatsu H. Acupuncture and Moxibustion in Hospitals – Acupuncture Practitioners Should Participate as Hospital Therapists. *Kampo Med* 2014; 65: 321-33 (in Japanese).
- 14) Moffet HH. Sham Acupuncture May Be as Efficacious as True Acupuncture: A Systematic Review of Clinical Trials. *J Altern Complement Med* 2009; 15: 213-6.
- 15) Birch S. Sham Acupuncture is not a placebo treatment – implications and problems in research. *Jpn Acupunct Moxibustion* 2012; 8: 4-8.
- 16) Lund I, Naslund J, Lundeberg T. Minimal acupuncture is not a valid placebo control in randomised controlled trials of acupuncture: a physiologist's perspective. *Chin Med* 2009; 4: 1-9.
- 17) Lundeberg T, Lund I, Naslund J, Thomas M. The Emperor's sham – wrong assumption that sham needling is sham. *Acupunct Med* 2008; 26: 239-42.
- 18) Donald GK, Mackereth P, Tobin I. Medical students and acupuncture: a short sharp placement experience! *Acupunct Med* 2010; 28: 12-5.
- 19) Wetzel MS, Kaptchuk TJ, Haramati A, Eisenberg DM. Complementary and Alternative Medical Therapies: Implications for Medical Education. *Ann Intern Med* 2003; 138: 191-6.
- 20) Sierpina V, Kreitzer MJ, Rakel D, Shelley B, Hedgecock J, Prasad A. Innovations in Integrative Healthcare Education: The AMSA CAM Education Projects and the University of New Mexico Integrative Medicine Program. *Explore* 2006; 2: 368-70.
- 21) da Silva JB, Saidah R, Megid CB, Ramos NA. Teaching acupuncture to medical students: the experience of Rio Preto Medical School (FAMERP), Brazil. *Acupunct Med*. 2013; 31: 305-8.
- 22) Tsuruoka Y, Tsuruoka K, Kajii E. Education in Complementary and Alternative Medicine in Japanese Medical Schools: Follow-Up Study, 1999-2004. *Igaku Kyoiku / Medical Education* 2005; 36: 323-8 (in Japanese).
- 23) Ebiko K, Kikkawa M, Fujii A, Kimura Y, Arai M, Sato H. Awareness Survey of Acupuncture/Moxibustion in Medical Students – Degree of Understanding and Awareness after Lectures about Acupuncture/Moxibustion –. *Kampo Med* 2005; 56: 591-7 (in Japanese).