

ORIGINAL RESEARCH

Knowledge, Attitudes, and Behaviors of Medical Residents towards Traditional and Complementary Medicine: A Cross-sectional Study

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Abstract

Objective: This study aimed to evaluate the knowledge, attitudes, and behaviors of medical residents working at a faculty of medicine hospital about traditional and complementary medicine (TCM).

Material-Method: This is a cross-sectional study. The study was conducted with medical residents working at the faculty of medicine between 15 July and 15 December 2021. A survey containing questions to determine the clinical and demographic characteristics of the participants and their knowledge, behavior, and attitudes toward TCM methods was applied to the participants.

Results: A total of 261 medical residents participated. The average age was 29.4±2.6 years, and 51.7% (n=135) were male. 82% of the participants were studying internal medicine sciences. The average time as a physician was 4.4 years, and the average time as a physician in the total branch was 2.6 years. Cupping therapy was the most known method, with 55.6%. The most frequently used method (19.2%) was phytotherapy; the most commonly recommended (16.5%) was phytotherapy; the most formally trained (4.2%) was cupping therapy; the most desired formal training (41%) was acupuncture; the most frequently declared method (11.9%) as another TCM method was diet. 36.4% of the participants found TCM useful. 82% thought that these methods should only be applied by trained physicians.

Conclusion: It was determined that the level of TCM knowledge among medical residents was low. Although the majority of participants had a positive attitude toward TCM, they had low rates of application, implementation, and recommendation.

Keywords: Medical Residency, Physicians, Complementary Medicine, Integrative Medicine, Traditional Medicine

INTRODUCTION

Traditional, complementary, alternative, and integrative medicine have different meanings in this field. The World Health Organization (WHO) defines traditional medicine as "the set of knowledge, skills, and practices that can or cannot be explained based on theories, beliefs, and experiences specific to different cultures".¹ Complementary medicine, on the other hand, refers to health practices that are different from traditional medicine or are not integrated into the current health system. While the terms alternative medicine and complementary medicine are often confused, they describe separate concepts, according to the National Center for Complementary and Alternative Medicine (NCCAM). When used together with traditional medicine, it is called "complementary medicine"; when used instead of traditional medicine, it is called "alternative medicine". On the other hand,

integrative medicine adopts a holistic, patient-centered approach to health and well-being, using a combination of traditional and complementary methods.² The terms in this area seem unclear, and WHO states that there may be treatment alternatives.¹

As the concept of health has developed throughout human history, all societies have tried different methods to prevent diseases. Traditional treatment methods have developed, and many effective methods have survived to the present day. These traditions vary according to the region, historical period, and religious culture.³

With the development of science, preventive medicine has undergone significant changes and created modern health services known as evidence-based medicine, but in recent years, there has been an increase in interest in traditional and complementary medicine (TCM) in our country and

the world.⁴

The fact that it is less invasive, that modern medicine does not adequately meet the expectations, that it is believed to have fewer side effects, that holistic medicine is more demanded, that it includes factors such as more beliefs and ethnic cultures about the practice may be a factor in its spread. Although TCM is not included in insurance coverage, its widespread use in many countries shows that it is widely accepted and sought after.⁵

Herbal products used in treatments are not considered drugs, but after the preclinical/clinical stage, it is important to evaluate whether the molecule is a drug, how it is licensed, its effectiveness, safety, side effects, and interactions. The uncontrolled use of natural products by people who have the illusion that they are harmless, the lack of information about their use, and the lack of training of doctors on this issue cause traditional treatments to fail or pose a life-threatening threat in today's conditions.⁶

Physicians continue to debate the efficacy, safety, and indications of TCM. Some claim that these methods have therapeutic uses, while others claim that they delay healing; however, the evidence is still considered incomplete.⁵

It cannot be ruled out that people resort to treatments that differ from modern ones, on the contrary, the causes that lead to this condition should be considered in all aspects. While modern medicine has significantly advanced in treating infectious diseases, it has not made any noticeable progress in treating cancer and chronic diseases. Therapy, where examination has become a luxury, has become defensive because it cannot adequately educate patients in the diagnosis and treatment process. It has become a laboratory medicine that depresses the patient with almost useless examinations and images. Clinical attention to the corporate pharmaceutical industry, which sometimes targets private practices, political actions, and rhetoric that pits patients against doctors and discredits the medical profession, has diminished trust in medicine and modern doctors.⁶

The fact that patients with many diseases in different branches have to apply to the relevant departments separately and the process is time-consuming and expensive shakes patients' confidence in the treatments they receive. These conditions strengthen the tendency toward holistic medicine.⁷

Scientific studies on TCM applications have

gradually increased.⁸⁻¹³ This study aimed to evaluate medical residents' knowledge, attitudes, and behaviors toward TCM at a medical school hospital.

MATERIALS AND METHODS

Type and location of research

This research was designed in a descriptive, cross-sectional type. This study was conducted at Ondokuz Mayıs University Faculty of Medicine.

Criteria for Inclusion and exclusion

Criteria for inclusion of participants in the study: 1) To be a medical resident in clinical sciences at Ondokuz Mayıs University Faculty of Medicine, 2) Voluntary participation in the study, 3) Not having a severe physical or mental problem that will prevent communication.

Criteria for exclusion of participants from the study:

- 1) Becoming an assistant in basic medical sciences,
- 2) Not being a medical school graduate

Population and sample

The study population consisted of medical residents working in clinical sciences at Ondokuz Mayıs University Faculty of Medicine. During the data collection process, it was unimportant for this study that the physicians were medical residents for major or minor specialties. The size of the study sample was calculated using the Openepi program. According to the sample calculation, at least 241 medical residents should have been reached with an acceptable error of 5% and a confidence level of 95%. An attempt was made to reach the entire universe. All clinical departments were visited.

Data collection material and method

The survey questions were prepared by reviewing previous theses and articles on this subject.^{4,8,11,14-17}

The form was created in three parts. In the first part, questions were asked to learn sociodemographic data such as age, gender, residence in an internal or surgical clinical sciences department, total duration of medicine, and TCM information sources. It was recorded as 0 (zero) years for participants who have not yet completed one year. In the second part, the subjective knowledge evaluation status of 15 TCM methods separately, the personal knowledge score level between 0-10 (0 = I do not know, 10 = I know very well) about the 15 methods, the use and recommendation status, the official TCM methods, if any, the desire to receive formal training on the relevant techniques, if any, and other TCM methods allowed by the Ministry of Health of the Republic of

Türkiye were questioned. In the third part, 12 Likert-type questions with five options (strongly disagree-disagree-undecided-agree-strongly agree) were asked to evaluate the assistants' attitudes toward TCM. Cronbach's α value of the 12-question attitude scale toward TCM was 0.765. In order to get the highest score when calculating the attitude scale, except for items 1 and 7, it was calculated as 1 point to strongly disagree, 2 points to disagree, 3 points to be undecided, 4 points to agree, and 5 points to strongly agree. Items 1 and 7 were calculated as 1 point, agree 2 points, undecided 3 points, disagree 4 points, strongly disagree 5 points. Thus, the lowest score is 12 points; The highest was arranged in such a way that 60 points could be obtained.

Those who declared that they knew any TCM method were asked to give themselves a score between 0 (I don't know at all) and 10 (I know very well) for each method to measure their subjective level of knowledge.

All the methods allowed by the Ministry of Health of the Republic of Türkiye were taken into account, and the 15 methods we selected individually were added to the questionnaire. The questionnaire was updated and finalized by verbally consulting 15 resident physicians. The questionnaire form was applied to male and female clinical sciences residents over the age of 18 who were studying at Ondokuz Mayıs University Faculty of Medicine and agreed to participate in the study. The study was conducted between 15.07.2021 and 15.12.2021. It was stated to the participant that participation is voluntary and that he can stop participating at any time without giving any reason. No credentials were requested. The survey took an average of four minutes to complete.

Internal and surgical branches were included in the study because they were actively involved in the treatment process. Basic medical sciences were not included in the study because they did not actively treat, and the majority of them were not medical school graduates; in addition, research assistants in the departments of medical pharmacology and medical genetics who are not medical school graduates were not included.

Statistical analyses

Statistical analyses were performed with IBM SPSS Statistics version 25.0. Means, standard deviations, percentages, and median values were used to present descriptive analyses. The agreement between the normally distributed variables was confirmed using

the Kolmogorov-Smirnov test. Mann-Whitney U test was used to evaluate nonparametric groups. $p < 0.05$ was considered statistically significant.

Ethics

Ethics committee approval for the research was obtained from the Clinical Research Ethics Committee (OMUKAEK-2021/353)

RESULTS

A total of 261 physicians participated in the study. Of the participating physicians, 51.7% ($n=135$) were male, and 81.9% were from internal medicine sciences. The mean age of the participants was 29.4 ± 2.6 (min=24, max=40) years. The total range of working time in the profession is 0-15 years; the average duration is 4.4 years. The entire duration of the branch medicine range was between 0 and 11 years, and the average time was 2.6 years. 55.6% of the participants stated that they knew cupping therapy, 52.1% acupuncture, and 43.7% hirudotherapy. The least known methods were prolotherapy (7.3%) and osteopathy (8.4%) (Table 1). Osteopathy and prolotherapy had the highest knowledge score among the TCM methods declared to be known. The lowest knowledge score was found to belong to hirudotherapy and reflexology (Table 1).

The most frequently used TCM methods were phytotherapy, with 19.2%, and massage therapy with 14.6%. The least used were apitherapy and homeopathy. It was declared that larval therapy and prolotherapy were not used at all (Table 2). Among the TCM methods recommended by the participants to their patients/clients, phytotherapy, with 16.5%, and massage therapy, with 11.9%, were the most common. Larval therapy and homeopathy were recommended at least (Table 2). The most formal training methods of the participants were cupping therapy, with 4.2%, and mesotherapy, with 2.7%. The method with the least formal training was music therapy, with 0.4%. It was found that there was no formal training in hirudotherapy, larval therapy, apitherapy, homeopathy, chiropractic, and reflexology (Table 2). The methods in which the participants declared that they wanted to receive formal training were acupuncture with 41% and hypnosis and mesotherapy with 32.2%. The methods that required the least formal training were larval therapy, with 7.3%, and apitherapy, with 8.4% (Table 2).

Table 1. The TCM methods that the participants declared that they had knowledge of and the level of knowledge they perceived about these methods

TCM methods	No n (%)	Yes n (%)	Level of knowledge Median (q1-q3)
Acupuncture therapy	125 (47.9)	136 (52.1)	4 (1-5)
Apitherapy (bee therapy)	223 (85.4)	38 (14.6)	4 (2-6)
Phytotherapy (plant therapy)	150 (57.5)	111 (42.5)	4 (1-6)
Hypnosis therapy	180 (69.0)	81 (31.0)	4 (3-5)
Hirudotherapy	147 (56.3)	114 (43.7)	3 (1-5)
Homeopathy therapy	225 (86.2)	36 (13.8)	3 (1-6)
Chiropractic therapy	216 (82.8)	45 (17.2)	4 (2-5)
Cupping therapy	116 (44.4)	145 (55.6)	4 (2-6)
Larval therapy	228 (87.4)	33 (12.6)	4 (2-6)
Massage therapy	176 (67.4)	85 (32.6)	4 (1-6)
Mesotherapy	163 (62.5)	98 (37.5)	4 (2-5)
Music therapy	205 (78.5)	56 (21.5)	3 (2-6)
Osteopathic therapy	239 (91.6)	22 (8.4)	5 (3-6)
Prolotherapy	242 (92.7)	19 (7.3)	4 (3-7)
Reflexology	224 (85.8)	37 (14.2)	3 (1-5)

Table 2. TCM methods that participants declare that they use, recommend, have received formal training, and want to receive

TCM method	Declared to be used n (%)	Recommended to Patients/Clients n (%)	Formal Education Received n (%)	Formal Education Desired n (%)
Acupuncture therapy	10 (3.8)	29 (11.1)	5 (1.9)	107 (41.0)
Apitherapy (bee therapy)	1 (0.4)	4 (1.5)	0 (0.0)	22 (8.40)
Phytotherapy (plant therapy)	50 (19.2)	43 (16.5)	6 (2.3)	77 (29.5)
Hypnosis therapy	5 (1.9)	6 (2.3)	4 (1.5)	84 (32.2)
Hirudotherapy	4 (1.5)	12 (4.6)	0 (0.0)	29 (11.1)
Homeopathy therapy	1 (0.4)	1 (0.4)	0 (0.0)	31 (11.9)
Chiropractic therapy	3 (1.1)	6 (2.3)	0 (0.0)	57 (21.8)
Cupping therapy	27 (10.3)	27 (10.3)	11 (4.2)	70 (26.8)
Larval therapy	0 (0.0)	1 (0.4)	0 (0.0)	19 (7.30)
Massage therapy	38 (14.6)	31 (11.9)	2 (0.8)	59 (22.6)
Mesotherapy	8 (3.1)	14 (5.4)	7 (2.7)	84 (32.2)
Music therapy	18 (6.9)	14 (5.4)	1 (0.4)	56 (21.5)
Osteopathic therapy	2 (0.8)	7 (2.7)	3 (1.1)	40 (15.3)
Prolotherapy	0 (0.0)	4 (1.5)	4 (1.5)	41 (15.7)
Reflexology	4 (1.5)	3 (1.1)	0 (0.0)	46 (17.6)

Diet (n=31, 11.9%) and hot springs (n=23, 8.8%) were the most frequently declared among those declared to be allowed by the Ministry of Health of the Republic of Türkiye and known as another TCM method. Access bar,

meditation, HRV biofeedback, bioresonance, reiki, tai-chi, ozone therapy, Botox, sound frequency therapy, and neural therapy were the least known methods (each; n=1, 0.4%) (Table 3).

Table 3. Other methods that they declare, known as other TCM methods

TCM method	n (%)
Diet	31 (11.9)
Spa	23 (8.8)
Yoga	22 (8.4)
Aromatherapy	9 (3.4)
Functional Medicine	6 (2.3)
Pilates	3 (1.1)
Access Bar	1 (0.4)
Meditation	1 (0.4)
Hrv Biofeedback	1 (0.4)
Bioresonance Therapy	1 (0.4)
Reiki	1 (0.4)
Tai-Chi	1 (0.4)
Ozone Therapy	1 (0.4)
Botox	1 (0.4)
Sound Frequency Therapy	1 (0.4)
Neural Therapy	1 (0.4)

The statement "TCM methods can replace evidence-based medicine" with 70.5% and "TCM methods should also be applied by people other than health personnel (physicians, dentists, pharmacists, etc.) who are trained in the relevant subject" with 65.6% were the attitudes that medical residents disagreed with the most.

"Patients/clients should inform the physicians they have examined/consulted about the TCM methods they use," with 89.6% and 82% with the statement "Only physicians trained in the relevant subject should be able to apply TCM methods." were the attitudes that physicians agreed with the most. "There is no harm in patients/clients using

the TCM method they want simultaneously in addition to the treatment you recommend." was the attitude that

physicians were most undecided with 39.5% (Table 4).

Table 4. Evaluation of attitude statements towards TCM

Attitudes statements towards TCM	Strongly disagree n (%)	I disagree n (%)	I'm undecided n (%)	Agree n (%)	Strongly agree n (%)
TCM methods are risky methods that need to be more scientific.	12 (4.6)	83 (31.8)	80 (30.7)	64 (24.5)	22 (8.4)
TCM methods can replace evidence-based medicine.	83 (31.8)	101 (38.7)	55 (21.1)	18 (6.9)	4 (1.5)
Patients/clients should inform the relevant physicians about the TCM methods they use.	5 (1.9)	2 (0.8)	20 (7.70)	82 (31.4)	152 (58.2)
Only physicians who are trained in the relevant subject should be able to apply TCM methods.	5 (1.9)	13 (5.0)	29 (11.1)	84 (32.2)	130 (49.8)
Other health professionals (nurses, pharmacists, etc.) who have been trained in the relevant subject should also be able to apply TCM methods.	63 (24.1)	62 (23.8)	66 (25.3)	59 (22.6)	11 (4.2)
Persons other than health personnel (physicians, dentists, pharmacists, etc.) who have been trained in the relevant subject should also be able to apply TCM methods.	109 (41.8)	62 (23.8)	37 (14.2)	38 (14.6)	15 (5.7)
The reason for the popularity of TCM methods is religious and cultural factors.	5 (1.9)	29 (11.1)	75 (28.7)	120 (46.0)	32 (12.3)
There is no harm for patients/clients to use the TCM method they want simultaneously in addition to the treatment you recommend.	28 (10.7)	44 (16.9)	103 (39.5)	71 (27.2)	15 (5.7)
TCM methods should also be included in the reimbursement of state insurance.	34 (13.0)	49 (18.8)	64 (24.5)	67 (25.7)	47 (18.0)
TCM departments should also be opened in medical faculty hospitals, and resident training should be started.	26 (10.0)	42 (16.1)	74 (28.4)	80 (30.7)	39 (14.9)
TCM courses should also be given within the medical school education.	22 (8.4)	28 (10.7)	70 (26.8)	100 (38.3)	41 (15.7)
Optional TCM training should also be given within the residency training.	25 (9.6)	16 (6.1)	42 (16.1)	109 (41.8)	69 (26.4)

Attitude scale scoring was determined as a minimum of 13 points and a maximum of 53 points. The mean score of the attitude scale was found to be 37.5±7.0. It was determined that there was no statistically significant

difference between TCM attitude scores according to the status of declaring that they know TCM methods (p>0.05) (Table 5).

Table 5. Comparison of the knowledge of the TCM method declared by the participants according to the TCM attitude score

TCM method	Response	Attitude toward TCM Mean±SD*	p-value**
Cupping therapy	No	37.1±7.2	0.660
	Yes	37.8±6.8	
Hirudotherapy	No	37.8±6.8	0.554
	Yes	37.1±7.1	
Massage therapy	No	37.6±6.9	0.607
	Yes	37.3±7.1	
Hypnosis therapy	No	37.1±7.0	0.279
	Yes	38.3±6.9	
Acupuncture therapy	No	37.5±6.8	0.691
	Yes	37.5±7.2	
Larval therapy	No	37.4±7.0	0.633
	Yes	38.0±7.0	
Apitherapy (bee therapy)	No	37.6±6.8	0.579
	Yes	37.0±7.8	
Homeopathy therapy	No	37.3±6.9	0.421
	Yes	38.9±7.0	
Phytotherapy (plant therapy)	No	37.0±6.9	0.345
	Yes	38.1±7.1	
Chiropractic therapy	No	37.3±7.1	0.546
	Yes	38.3±6.4	
Osteopathic therapy	No	37.3±6.9	0.212
	Yes	39.5±7.4	
Music therapy	No	37.4±6.8	0.728
	Yes	37.8±7.7	
Reflexology	No	37.4±6.9	0.964
	Yes	38.2±7.5	
Prolotherapy	No	37.4±7.0	0.588
	Yes	39.0±5.7	
Mesotherapy	No	37.8±6.8	0.094
	Yes	36.9±7.2	

*SD: Standart Deviation, ** Mann Whitney U test

DISCUSSION

In his study, Yüksel et al. stated that most of the physicians had little or no knowledge about TCM methods in their own opinions. Doctors have stated that they have heard of acupuncture, hirudotherapy, and hypnosis the most.⁴ In another study conducted by Özçakır et al. with general practitioners and examining physicians' knowledge, attitudes, and behaviors about TCM, most of the physicians stated that they had a low level of knowledge about TCM methods according to their opinions.¹⁸ In the study conducted by Kırsoy, the participating medical faculty students stated that the methods they had the most knowledge about were massage and acupuncture, respectively.¹⁹ In Ağrak's study on specialty and medical faculty students, it was determined as diet and prayer.²⁰ In a study conducted by Bjersa et al. among doctors, nurses, and physiotherapists, almost all of the participants reported having little or no knowledge about TCM.¹⁰ According to the study conducted by Mistik et al., the most well-known methods were acupuncture and phytotherapy, contrary to this study.²¹ In a study of primary care physicians and pediatricians by Orhan et al., more than half of the physicians reported a low level of knowledge about TCM.²² In another study conducted by Şenol et al., spa and massage were the most popular TCM methods. The least known method was chiropractic.¹⁷ In another study conducted by Altan et al. with preclinical students, the most common methods of the students were massage, herbal therapy, yoga meditation, hypnosis, and spirituality prayer.²³ In a study conducted by Doğanay et al., the most prominent TCM practitioners were religious practice/prayer, massage, cupping, and hydrotherapy/spa practice.²⁴ Mak et al. In a study with doctors in Australia, participants reported being most familiar with acupuncture, yoga, and Tai Chi.²⁵ A study conducted by Verhoef et al. on general practitioners in Canada found that doctors were most knowledgeable about chiropractic, acupuncture, and hypnosis.²⁶ In this study, cupping therapy, acupuncture, and hirudotherapy were the most well-known methods, and prolotherapy and osteopathy were the least known. The reason for this; can be explained by the fact that cupping, acupuncture, and hirudotherapy are more common in the information sources in the medical community in Türkiye, while prolotherapy and osteopathy are less frequently mentioned methods. This study determined that most medical

residents working in the clinic had a low rate of knowledge of TCM methods, and those who declared that they knew had low subjective knowledge levels. This can be explained by the fact that TCM training is not given in medical education, and few willing people do partial or detailed studies on this subject.

In a study conducted in Zonguldak, acupuncture, leeches, and cupping were doctors' most commonly used methods, in contrast to the current study.⁴ A study in India reported that most doctors had previous experience with TCM methods. The most commonly used methods were homeopathy, Ayurveda, and yoga.²⁷ In this study, homeopathy was one of the least used methods by the participants. A study conducted with resident physicians in a university hospital reported that physicians utilized cupping therapy and phytotherapy most frequently, respectively.²⁸ In a study conducted with medical students, it was reported that they utilized phytotherapy most frequently, a finding that is consistent with the current study.¹⁹ In a study of 423 osteopathic primary care physicians who were members of the Michigan Osteopathic Association, physicians reported that they preferred vitamins and massage for themselves or their families.²⁹ In this study, massage therapy was the second most frequently used method. In a study of medical students in Düzce, the most frequently used TCM methods were phytotherapy and cupping.³⁰ Similarly, phytotherapy was the most frequently used method in this study. In a study conducted in Elazığ, it was reported that the most frequently used TCM methods by medical students were massage, diet, and phytotherapy. It was reported that students never used the homeopathic, osteopathic, and Reiki methods of TCM.⁹ In a study conducted in a hospital in Istanbul, massage, hydrotherapy, acupuncture, and herbal treatment were the most commonly used methods.¹² In a study conducted with physicians and nurses in a hospital in Ankara, medicinal plants, massage, and hydrotherapy were the most commonly used methods.³¹ In a study involving primary care physicians in Bursa, physicians reported using herbal therapies and vitamins.¹⁸ In this study, phytotherapy was the most frequently used method among the participants, followed by massage therapy. Apitherapy and homeopathy were the least frequently used. Larval therapy and prolotherapy were not used at all. The

high rates of use of phytotherapy and massage therapy by our participants can be explained by the fact that these methods are known and accepted by society. The low use of apitherapy and homeopathy can be explained by the fact that these methods are less known and accepted by society. The lack of use of larval therapy and prolotherapy may be attributed to the fact that the conditions for which these therapies are indicated are not commonly encountered in the medical resident population.

In a joint study by Salomonsen et al., acupuncture was the most recommended method for patients.³²

In a study conducted by Elbi et al. with a group of general practitioners, similar to this study, it was determined that they recommended herbal medicines and vitamins to the patients the most, followed by massage, cryotherapy, reflexology, and relaxation techniques.⁸ In contrast, in this study, the recommendation rates of phytotherapy and massage therapy were lower. According to a study by Yüksel et al., doctors recommend acupuncture to their patients the most.⁴ In Ağrak's study, the methods that the participants recommended to their patients the most were diet, vitamin supplementation, and phytotherapy, respectively.²⁰ According to Giannelli et al.'s study on the knowledge and practice levels of general practitioners in Italy about TCM practices, patients were most often recommended acupuncture and less frequently manipulative treatments, homeopathy, and herbal medicines. Being young (<54) and female increased the likelihood of recommending TCM applications.³³ The study conducted with resident physicians in Zonguldak revealed that physicians recommended TCM methods to their patients based on their needs. However, in contrast to this study, acupuncture was the most frequently recommended method.²⁸ Among the methods the participants stated they recommended to their patients/clients, phytotherapy and massage therapy were the most frequently recommended. The least recommended were larva therapy and homeopathy. The reason for phytotherapy and massage therapy being recommended more may be explained by the fact that the physicians are more knowledgeable, experienced, and experienced in this regard. The reason for larval therapy being the least recommended may be explained by the lack or inadequacy of knowledge and experience in this regard and the fact that such a method is not applied in our hospital. The reason for homeopathy being among the least recommended may be explained by

the fact that it is a rarely known method and has a low level of evidence.

In a study conducted by Verhoef et al., 20% of 200 doctors in Canada reported that they received TCM education, primarily in medical education or seminars on hypnosis and acupuncture.²⁶ In a study conducted by Özkaptan et al. with Turkish doctors and nurses, the majority of nurses and doctors reported that they had never received any TCM education.³⁴ In a study conducted by Yüksel et al., almost all of the doctors did not participate in any training program related to TCM, and about half of the doctors wanted to attend a TCM training course.⁴ In a study conducted by Koçdaş et al., it was determined that almost all of the doctors did not see the use of TCM, and about half of them received training and wanted to use it in their patients.¹² In a study conducted by Özçakır et al., it was reported that almost all of the doctors did not attend any training or course related to TCM, and about three-quarters of them wanted to receive training.³⁵ The methods that the participants stated that they received the most formal education were cupping therapy and mesotherapy. The method that received the least formal education was music therapy. It was determined that no formal education was received on hirudotherapy, larva therapy, apitherapy, homeopathy, chiropractic, and reflexology. In this study, similar to other studies conducted in Türkiye, it was determined that the majority of medical residents did not receive any TCM education; however, the rate of people who received education was higher than in other studies. Mobbing, heavy workload, and the decrease in the purchasing power of the physician's salary lead to physician resignations.³⁶ Together with the increase in the public's demand for TCM methods, it may contribute to the shift of the interest of medical residents to this sector, which has become a profitable sector. The fact that the most education was received in cupping therapy and mesotherapy can be explained by the fact that there is a lot of demand for these two methods.

In Ağrak's study, hypnosis, phytotherapy, and acupuncture were the methods that the participants wanted to receive the most training.²⁰ In this study, the methods that the participants declared that they wanted to receive formal training were acupuncture, hypnosis, and mesotherapy, and the methods that required the least formal training were larval therapy and apitherapy. The reason for this may be that popular and more demanded methods affect

medical residents.

Limitations

The fact that the study population is limited to clinical sciences medical residents working in the faculty hospital of a province will limit the generalizability of the results to the country. The fact that the information in this study is based on personal statements and carries the risk of differing from the facts may adversely affect the results. Although the entire universe is tried to be reached, the fact that the majority of medical residents do not participate in the study is a limitation. Since no valid and reliable questionnaire measures physicians' knowledge about TCM and legislation in Türkiye, the use of a questionnaire created by literature review can be considered as a limitation. Since the study was carried out during the pandemic period, conducting it as an online survey instead of face-to-face to reduce transmission can be considered as a limitation because it reduces the number of questionnaire fillings.

CONCLUSION

Medical residents have been assessed on their knowledge of TCM methods, with results indicating that their knowledge needs to be improved. It is found that medical residents predominantly rely on and recommend phytotherapy to their patients, although they have yet to receive formal training on

the subject. This suggests that phytotherapy is being used and recommended based on informal knowledge. Acupuncture is identified as the area where medical residents desire the most training. Although medical residents have a positive attitude towards TCM, they believe that it should only be practiced under physician control and as part of medical education. The limited knowledge and lack of training in TCM contribute to the lack of TCM practice among medical residents. It would be useful for the Ministry of Health to establish an official platform for all physicians to obtain at least basic information on the subject through a centralized online training channel (such as ministry training on smoking cessation). Specifying participation in the training platform on these methods as a prerequisite for the application of these methods or participation in the certification process will ensure a comprehensive awareness of all TCM methods.

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