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Knowledge and Attitudes of Dentists in Afyonkarahisar City Center Regarding Traditional and Complementary Medicine Practices: A Cross-Sectional Survey Study

Afyonkarahisar İl Merkezindeki Diş Hekimlerinin Geleneksel ve Tamamlayıcı Tıp Uygulamalarına İlişkin Bilgi ve Tutumları: Kesitsel Anket Çalışması

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ABSTRACT Objective: The increasing tendency towards traditional and complementary medicine (TCM) practices in Türkiye and the world in recent years has made it important for dentists, who are important members of the healthcare team, to know TCM and guide their patients correctly. This study aims to evaluate the knowledge and attitudes of dentists working in the city center of Afyonkarahisar regarding TCM. **Material and Methods:** A 55-question survey consisting of 4 sections was designed to assess the participants' knowledge and attitudes regarding TCM. The survey was applied face-to-face to 121 dentists working in the public and private sectors in the city center of Afyonkarahisar. **Results:** In this study, 81% of dentists stated that they did not have sufficient knowledge about TCM applications and 95.9% did not have a certificate regarding TCM. In this study, the methods that dentists heard, knew, used and recommended the most were phytotherapy, acupuncture, hypnosis, prayer, balnotherapy, cupping, yoga, meditation and music therapy. In addition, the average score of dentists on the Integrative, Complementary and Alternative Medicine Attitude Scale was 32.04±6.27. It was observed that dentists would prefer TCM methods mostly because they have fewer side effects and can be used mostly for relaxation, stress and anxiety reduction. **Conclusion:** Although the study results show that dentists' knowledge levels and education/certification rates regarding TCM are low, they reveal that their attitudes toward TCM methods are positive. TCM methods should be added to the dentistry education curriculum and dentists should be encouraged to attend TCM courses.

Keywords: Traditional medicine; complementary medicine; alternative medicine; dentistry; dentist

ÖZET Amaç: Son yıllarda Türkiye ve dünyada geleneksel ve tamamlayıcı tıp (GETAT) uygulamalarına yönelik artan eğilim, sağlık ekibinin önemli üyeleri olan diş hekimlerinin GETAT yöntemlerini bilmelerini ve hastalarını doğru şekilde yönlendirmelerini önemli hâle getirmiştir. Bu çalışmada, Afyonkarahisar il merkezinde çalışan diş hekimlerinin GETAT'a ilişkin bilgi ve tutumlarının değerlendirilmesi amaçlanmıştır. **Gereç ve Yöntemler:** Katılımcıların GETAT ile ilgili bilgi ve tutumlarını değerlendirmek için 4 bölümden oluşan 55 soruluk bir anket tasarlanmıştır. Anket, Afyonkarahisar il merkezinde kamu ve özel sektörde çalışan 121 diş hekimine yüz yüze uygulanmıştır. **Bulgular:** Bu çalışmada, diş hekimlerinin %81'i GETAT uygulamaları hakkında yeterli bilgiye sahip olmadıklarını ve %95,9'unun GETAT konusunda bir sertifikası olmadığını belirtmiştir. Bu çalışmada, diş hekimlerinin en çok duyduğu, bildiği, kullandığı ve önerdiği yöntemler fitoterapi, akupunktur, hipnoz, dua, balnoterapi, kupa, yoga, meditasyon ve müzik terapisi olmuştur. Ayrıca, Diş Hekimlerinin Bütünleyici, Tamamlayıcı ve Alternatif Tıp Tutum Ölçeği'ndeki ortalama puanı 32.04±6.27 olarak bulundu. Diş hekimlerinin GETAT yöntemlerini çoğunlukla rahatlama, stres ve kaygı azaltma amacıyla kullandıkları ve yan etkilerinin daha az olması nedeniyle tercih ettikleri görüldü. **Sonuç:** Çalışma sonuçları, diş hekimlerinin GETAT ile ilgili bilgi düzeylerinin ve eğitim/sertifika oranlarının düşük olduğunu gösterse de, GETAT yöntemlerine yönelik tutumlarının olumlu olduğunu ortaya koymaktadır. GETAT yöntemleri diş hekimliği eğitim müfredatına eklenmeli ve diş hekimleri GETAT kurslarına katılmaya teşvik edilmelidir.

Anahtar Kelimeler: Geleneksel tıp; tamamlayıcı tıp; alternatif tıp; diş hekimliği; diş hekimi

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In recent years, traditional and complementary medicine (TCM) methods have become more frequently mentioned and preferred by patients all over the world by being based on more scientific foundations with today's technology.[1] The World Health Organization defines traditional medicine as a set of knowledge, skills and practices based on theories, beliefs and experiences specific to different cultures, with mechanisms that can or cannot be explained, used in diagnosis and treatment to prevent physical and mental disorders.[2]

Along with the increasing costs of modern medical treatments, difficulties in accessing services, failures in treatment methods and side effects have led individuals to natural, less side-effect, more affordable and accessible TCM methods.[3] The fact that TCM methods are compatible with the cultures of societies, involve fewer invasive procedures, patients want to have control over their treatments, weak relationships with health professionals and TCM practitioners spend more time with the patient constitute other reasons for using TCM methods.[4] In developing countries where access to health services is limited, TCM is used with the idea of meeting the basic health needs of the society, while in developed countries, it is used for diseases that modern medicine cannot find a cure for or as a complement to other treatments.[5] While TCM use is between 9-76% all over the world; studies conducted in Türkiye show that these methods are used at a rate of 12.6-76%. Although it varies from application to application, in general terms, the most common use worldwide is seen in Canada (70%), China (70%), Japan (72%), Korea (86%) and African countries (80%).[6] In a study conducted in Türkiye with 5,882 individuals in 7 geographical regions, the TCM usage rate was found to be 60.5%.[7] It is reported that such applications are mostly preferred by individuals with cancer and chronic diseases in Türkiye, and the method mostly used is phytotherapy applications.[8]

In Türkiye, the "TCM Practices Regulation", which includes 15 methods and practices, was published in the official gazette numbered 29158 on September 27, 2014. TCM practices can be performed by physicians and dentists (only in the field of dentistry) who have a practice certificate in practice centers authorized by the ministry. Healthcare professionals with basic education can assist certified physicians. Certified training can be provided by centers authorized by the Ministry of Health to provide training. Acupuncture, apitherapy, phytotherapy, hypnosis, leech application, homeopathy, chiropractic, cupping application, larva application, mesotherapy, prolotherapy, osteopathy, ozone application, reflexology and music therapy are the methods included in the regulation.[9] In addition to general medicine, many TCM practices are used in dentistry. Acupuncture, hirudotherapy, phytotherapy, apitherapy, aromatherapy and hypnosis are methods that are highly applicable in treatment by dentists.[10]

In parallel with the developments in modern medicine, TCM applications have been on a rising trend all over the world and in our country, especially in recent years.[11] Today, the increase in TCM applications has led to physicians encountering patients who use or request to use these methods. This situation has changed the roles and responsibilities of healthcare providers. TCM methods are medical interventions, and these methods must be applied by physicians who are educated and competent in their field. Physicians must be knowledgeable and equipped in order to effectively apply their treatments and to provide accurate guidance to their patients. It is important for physicians to know the effectiveness, safety, benefits, harms, side effects, and interactions with existing drugs of TCM applications or products used, and to share this knowledge with their patients.[12] In the literature review, there is no study investigating the knowledge and attitudes of dentists in Türkiye regarding traditional and complementary medicine applications. The aim of this study is to evaluate the knowledge and attitudes of dentists working in the city center of Afyonkarahisar regarding traditional and complementary medicine.

MATERIAL AND METHODS

This cross-sectional study included dentists working in the public and private sectors in the Afyonkarahisar city center between November 15 and December 30, 2023. The study was conducted with the necessary approval from the Afyonkarahisar Health Sciences University Clinical Research Ethics

Committee (date: November 3, 2023; no:2023/469) and in accordance with the Helsinki Declaration principles. Participants were informed about the study before the study and the study was conducted on a voluntary basis.

After a comprehensive literature review, a 4-part survey consisting of 55 questions was designed. The 1st part included demographic information (age, gender, marital status, institution of employment, whether or not they are specialists, education status of their parents, general health status, alcohol and smoking habits, exercise and sports habits). The 2nd part of the survey included questions regarding the participants' knowledge and use of TCM methods. The 3rd part included questions regarding the status of hearing, knowing, using, and recommending the 17 TCM methods mentioned in the TCM regulation and showing a high rate of use in the literature. The 4th part included questions measuring attitudes towards TCM. For this purpose, the Attitude Scale Towards Complementary and Alternative Medicine developed by Hyland et al. in 2003 and validated for Turkish by Erci was used.[13,14] The scale is a Likert-type scale consisting of 11 questions. A minimum of 11 and a maximum of 66 points can be obtained from the scale. There is a negative relationship between the scale score and positive attitude towards complementary and alternative medicine. The Cronbach's Alpha value, which is the reliability coefficient of the scale, was found to be 0.72. The survey prepared before the study began was applied to a group of 20 volunteers, and the necessary changes were made to finalize the survey.

All data were analyzed using IBM SPSS 27.0 (SPSS Inc., Chicago, IL, USA) software. Analysis results were presented as mean±standard deviation for quantitative data, and frequency (percentage) for categorical data. Cronbach was calculated to assess the internal consistency of the attitude scale (0.73). The suitability of quantitative data for normal distribution was examined with the Kolmogorov-Smirnov test. Independent samples t-test or one-way analysis of variance was used to compare normally distributed data. The Mann-Whitney U or Kruskal-Wallis tests were used to analyze non-normally distributed data. A p-value of <0.05 was considered statistically significant.

RESULTS

While the study population consisted of 214 dentists, 121 volunteers participated in the study (participation rate: 56.54%). 65% of the participants were between the ages of 21-30, 54.52% were female, and 61.2% were single. Only 32.2% of the participants had a specialty and 66.2% worked in the public sector. When the educational background of the participants' mothers was examined, the majority were high school graduates, while the majority of their fathers were university graduates. 12.8% of the participants had a systemic disease. 32.2% of the participants stated that they smoked, 25.6% consumed alcohol, and 33.9% exercised regularly (Table 1).

Almost half of the participants (47.9%) stated that they did not have any information about TCM

TABLE 1: Socio-demographic characteristics of the participants

Sociodemographic Characteristics		n	%
Age	21-30	79	65.2
	31-40	34	28
	≥40	8	6.8
Gender	Male	55	45.5
	Female	66	54.5
Marital status	Married	47	38.8
	Single	74	61.2
Specialization	Yes	44	32.2
	No	77	67.8
Institution of employment	Public	80	66.2
	Private	41	33.8
Father's education	Primary school	14	11.6
	Secondary school	7	5.8
	High school	32	26.4
	Undergraduate	68	56.2
Mother's education	Primary school	25	20.7
	Secondary school	20	16.9
	High school	39	32.6
	Undergraduate	36	29.8
Systemic disease status	Yes	15	12.8
	No	106	87.2
Smoking	Yes	39	32.2
	No	82	67.8
Alcohol use	Yes	31	25.6
	No	90	74.4
Regular exercise	Yes	41	33.9
	No	80	66.1
Total		121	100

applications. Only 8.3% of the participants stated that they had received training on TCM. 23.7% of the participants stated that they had previously applied a TCM method on themselves or their family, 44.2% found this method completely or partially useful, and 5% experienced a full or partial complication due to these applications. The participants stated that they used cupping (n=4), yoga (n=4), acupuncture (n=3), meditation (n=3), ozone (n=3), and cupping (n=1) methods as the TCM methods they applied. Only 3.3% of the participants stated that they had received training on TCM before graduation, and 5% received training on TCM after graduation. More than half of the participants (54.5%) thought that TCM applications should be added to the dentistry education curriculum. While 4.1% of the participants stated that they have a current TCM certificate, 54.5% stated that they would like to have a TCM certificate. The participants stated that they would like to receive training in acupuncture (n=12), hypnosis (n=5), yoga (n=3), cupping (n=3), phytotherapy (n=3), botox (n=1), ozone (n=1), meditation (n=1), and music therapy (n=1). Only 57.4% of the participants stated that they were aware of the legal regulations regarding TCM (Table 2).

When the participants' sources of information about TCM were examined, the top 3 were the internet (36%), social life (27.9%) and media (13.6%) (Figure 1). When the participants' purposes for using the TCM method were examined, "rest/relaxation" ranked 1st with 27.7%, followed by "pain relief" and "stress reduction" with 17.4% (Figure 2). When the participants' reasons for choosing TCM methods were examined, "because it has few side effects" ranked first with 16.2%, followed by "because it is easy to use" and "because it is effective" with 14.8%

TABLE 2: Participants' knowledge and awareness levels regarding TCM

		n	%
1. Do you have any information about TCM applications?	Yes	23	19
	No	58	47.9
	Partially	40	33.1
2. Have you received training on TCM before?	Yes	10	8.3
	No	111	91.7
3. Is there a TCM method you use for yourself and your family?*	Yes	28	23.7
	No	90	76.3
4. If you used the TCM application, did you find the method useful?	Yes	25	21.2
	No	66	55.9
	Partially	27	22.9
5. Have there been any complications due to the applications you use?	Yes	1	0.8
	No	113	95
	Partially	5	4.2
6. Did you receive training on TCM during your undergraduate dentistry education?	Yes	4	3.3
	No	117	96.7
7. Have you received any training on TCM after your undergraduate education?	Yes	6	5
	No	114	95
8. Should TCM practices be included in the dentistry education curriculum?	Yes	66	54.5
	No	55	45.5
9. Do you currently have a certificate regarding TCM application?	Yes	5	4.1
	No	116	95.9
10. Would you like to receive training/certificate regarding TCM T?**	Yes	66	54.5
	No	55	45.5
11. Do you have information about TCM regulation?	Yes	9	7.4
	No	112	92.6

*Dentists stated that they used cupping (n=4), yoga (n=4), acupuncture (n=3), meditation (n=3), ozone (n=3), and cupping (n=1) methods; **Dentists stated that they wanted to receive training in acupuncture (n=2), hypnosis (n=5), yoga (n=3), cupping (n=3), phytotherapy (n=3), botox (n=1), ozone (n=1), meditation (n=1), and music therapy (n=1). TCM: traditional and complementary medicine

(Figure 3). When the participants were asked in which diseases TCM methods could be used, the top 3 were “anxiety (12.1%)”, “depression (11.3%)” and “sleep disorder (9.3%)”, respectively (Figure 4). Participants stated the top 3 obstacles to the development and dissemination of TCM methods in Türkiye as “lack of appropriate equipment and infrastructure (19.4%), lack of information (18.9%) and lack of training professionals (18%)” (Figure 5).

It was observed that the participants' attitudes towards integrative, complementary and alternative medicine were generally positive. The statement that the participants agreed with most on the attitude scale was "Complementary medicine should be subjected to more scientific testing before conventional doctors accept it", followed by the statement "It is worth trying complementary medicine before going to the doctor" (Table 3).

In the study, the mean score of the integrative, complementary and alternative medicine attitude scale was found to be 32.04±6.2 (Table 4). It was observed that the participants’ integrative, complementary and alternative medicine attitude scale scores did not show a statistically significant difference in terms of age, gender, marital status, specialization status and the institution they worked. In addition, the participants’ scale scores did not show a statistically significant difference according to whether the participants had knowledge about TCM applications and whether they had received training on TCM applications (Table 5).

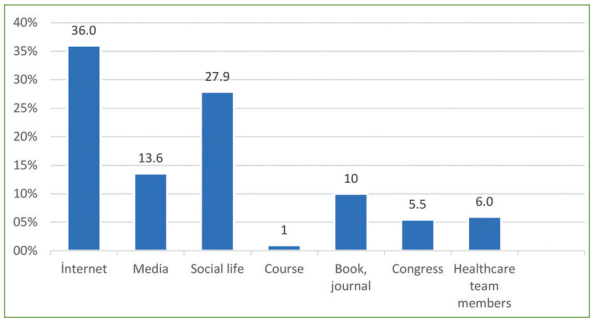

FIGURE 1: Distribution of TCM information sources of participants

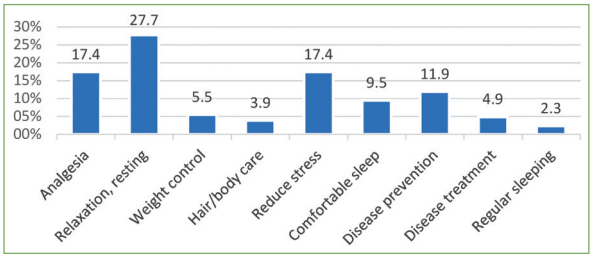

FIGURE 2: Distribution of participants’ purposes of using the TCM method

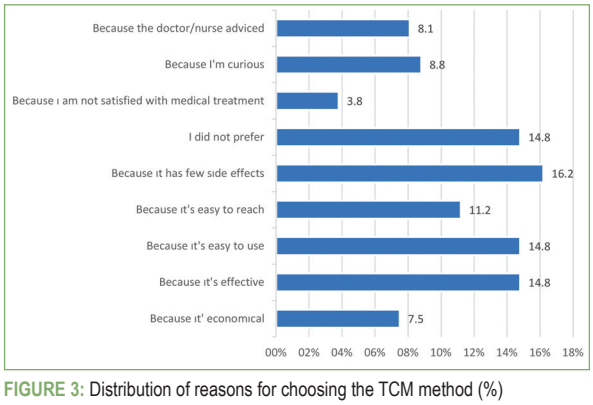

FIGURE 3: Distribution of reasons for choosing the TCM method (%)

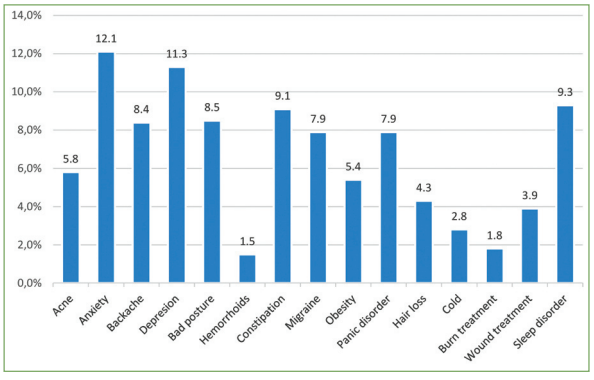

FIGURE 4: Distribution of diseases in which TCM methods can be used in the treatment

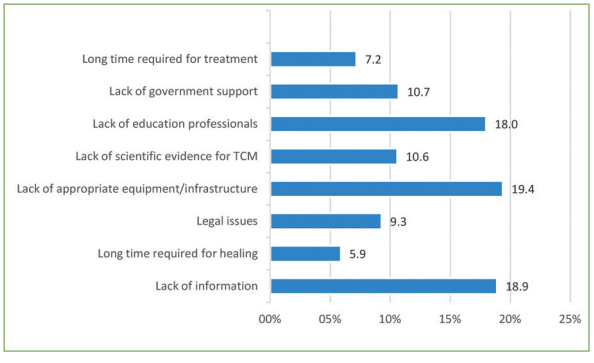

FIGURE 5: Distribution of obstacles to the development and dissemination of TCM applications in Türkiye

TABLE 3: Participants' knowledge, attitudes and behaviors related to TCM methods

	I've heard of the method		I know how to do it		I've used it before		I can use the method		I can recommend the method	
TCM methods	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Acupuncture	84	69	28	23	3	1.5	20	16	23	19
Phytotherapy	88	72	9	7	2	2.5	18	14	16	13
Cupping	72	59	34	28	12	10	22	18	25	20
Leech application	74	61	30	24	7	5	14	11	17	14
Balneotherapy	68	56	37	30	23	19	25	20	28	23
Hypnosis	81	66	20	16	0	0	13	10	9	7
Musictherapy	73	60	15	12	8	6	21	17	26	21
Yoga	75	61	9	7	6	5	28	23	25	20
Meditation	69	57	21	17	9	7	24	19	27	22
Spirituality(Prayer)	80	66	27	27	24	19	19	15	24	19
Ozone application	63	52	10	10	0	0	8	6	7	5
Chiropractic	44	36	0	0	0	0	9	7	5	4
Homeopathy	10	8	0	0	0	0	0	0	0	0
Osteopathy	7	5	0	0	0	0	0	0	0	0
Prolotherapy	4	3	0	0	0	0	0	0	0	0
Reflexology	3	2	0	0	0	0	0	0	0	0
Larva	55	45	6	6	0	0	0	0	0	0

TCM: Traditional and complementary medicine

TABLE 4: Attitudes of participants towards integrative, complementary and alternative medicine

	$\bar{X}$±SD
1. Thinking positively can help you overcome minor illnesses.	2.15±1.02
2. Complementary medicine should be subjected to more scientific tests before it is accepted by classical doctors	4.78±1.0
3. When people are stressed, it becomes important for them to pay more attention to other issues related to their lifestyle since their bodies are already dealing with it enough (i.e. healthy nutrition).	1.99±1.0
4. Complementary medicine can be dangerous by preventing people from receiving full treatment.	3.26±1.36
5. Symptoms of a disease can be further increased by depression.	1.9±1.03
6. Complementary medicine can only be used as a last resort when conventional medicine cannot offer any solution.	2.98±1.3
7. If people experience a series of stressful events, they are likely to get sick.	2.52±1.19
8. It is worth trying complementary medicine before going to the doctor.	4.1±1.29
9. Complementary medicine should only be used for minor ailments and should not be used to treat more serious diseases.	3.96±1.37
10. It is important to balance work and rest to be healthy.	1.5±0.87
11. Complementary medicine helps permanent treatment by strengthening the body's own defenses.	2.38±1.18

DISCUSSION

In recent years, there has been an increase in the use of TCM practices and products in the world and in our country.[1] In Türkiye, TCM practices were legally registered with the regulation published in 2014, and according to this regulation, the practitioners of TCM methods are physicians and dentists. In this study, the knowledge, attitudes and behaviors of dentists regarding TCM were comprehensively discussed.

In this study, 81% of dentists stated that they had no knowledge or partial knowledge about TCM applications. In a study conducted in Sweden in 2012, 95.7% of physicians stated that they had no knowledge or low knowledge about TCM.[15] In a study conducted in Bursa, 60.8% of physicians stated that they had no knowledge or partial knowledge about TCM methods.[16] It is observed that dentists in Türkiye have lower TCM knowledge levels than physicians. In this study, 91.7% of dentists stated

TABLE 5: Comparison of the scale of attitudes towards holistic complementary and alternative medicine in terms of socio-demographic characteristics and some variables

		Total		Complementary and alternative medicine		Integrative medicine	
	n	X̄±SD	p value	X̄±SD	p value	X̄±SD	p value
Age							
21-30	75	31.98±6.37	0.455	21.54±4.54	0.765	10.39±3.48	0.368
31-40	32	32.78±6.21		22.12±4.77		10.51±3.69	
≥40	8	29.62±5.57		21.00±4.27		8.62±2.61	
Gender							
Male	53	31.79±5.61	0.689	21.79±4.47	0.790	9.94±3.42	0.299
Female	62	32.25±6.82		21.56±4.67		10.61±3.55	
Marital status							
Married	44	32.4±6.18	0.623	21.68±4.54	0.982	10.62±3.55	0.447
Single	71	34.81±6.36		21.66±4.61		10.11±3.47	
Specialization							
Yes	43	32.46±6.04	0.519	21.69±4.73	0.843	10.65±3.41	0.424
No	71	31.69±6.42		21.52±4.38		10.12±3.56	
Institution of employment							
Public	76	32.56±6.10	0.226	22.13±4.24	0.154	10.37±3.64	0.761
Private	39	31.02±6.55		20.76±5.05		10.17±3.24	
Regular exercise							
Yes	39	32.12±6.89	0.922	21.38±21.38	0.634	10.74±10.74	0.366
No	76	32±5.97		21.81±21.81		10.08±10.08	
Question 1*							
Yes	23	32.08±7.49	0.630	21.04±4.98	0.554	11.04±4.05	0.342
No	58	32.51±6.31		22.12±4.32		10.39±3.71	
Partially	34	31.20±5.34		21.32±4.73		9.69±2.63	
Question 2**							
Yes	10	31.4±9.68	0.826	22.00±5.45	0.843	9.40±4.71	0.531
No	105	32.1±5.91		21.63±4.50		10.39±3.37	
Total	121	32.04±6.27		21.66±4.56		10.37±3.49	

*Question 1: Do you have any knowledge about what TCM applications are? **Question 2: Have you received training on TCM before?

that they had not received any training on TCM before, 95.9% did not have a certificate in TCM, and 54.5% wanted to receive training/certification in TCM. When asked which TCM method dentists wanted to receive the most certification for, acupuncture ranked 1st, and hypnosis ranked 2nd. In a study conducted on family physicians in Türkiye, it was reported that only 7.4% of physicians had at least one TCM certificate and the method they most wanted to receive a certificate was acupuncture.[2] In Italy, it was reported that 88% of general practitioners had not received TCM training, and 30.5% wanted to receive training.[17] In contrast, 81% of physicians in the USA and 93.1% in Qatar stated that they wanted to receive training on TCM.[18,19] The rate of physicians obtaining TCM certification in Türkiye varies between 2% and 21% in studies conducted. The prevalence of physicians in Türkiye who stated that they wanted to receive certified training is between 43% and 82%.[2] In contrast, 72% of physicians in Japan are competent to practice Kampo medicine.[6] Although dentists' certification status and desire to receive training are similar to studies conducted on physicians in Türkiye, it is observed that in some countries, the desire of physicians to receive training is higher.

In this study, the 3 methods that dentists hear about the most are phytotherapy (72%), acupuncture (69%), hypnosis and prayer (66%), the 3 methods they know how to do the most are balneotherapy (30%), cupping (28%) and prayer (27%), the 3 methods they use the most are balneotherapy (19%), prayer (19%) and cupping (10%), the 3 methods they would use the most are yoga (23%), balneotherapy (20%), meditation (19%), and the 3 methods they would recommend the most are balneotherapy (23%), meditation (22%) and music therapy (21%). In a study conducted with rehabilitation physicians in Australia, it was determined that physicians were most familiar with acupuncture and yoga, while in Canada, mental health physicians were most familiar with chiropractic, biofeedback and acupuncture.[20,21] In a study conducted with research assistant physicians in Türkiye, the TCM methods that physicians were most familiar with, used and recommended were acupuncture, yoga, meditation, ozone and leech therapy.[22] In another study conducted in Türkiye, physicians who recommended TCM to their patients most frequently recommended acupuncture and leech therapy.[9] In a study conducted in Norway and Denmark, the method most recommended to patients was acupuncture.[23] In Italy, it was observed that general practitioners most frequently applied homeopathy.[17] In the study conducted by Ozcakır et al. physicians most frequently used phytotherapy, while in the study conducted by Dağcı and Öztürk, physicians most frequently applied cupping therapy to their patients.[16,24] In this study, the fact that balneotherapy is among the methods that dentists use, can use and recommend the most may be related to the presence of numerous hot springs in Afyonkarahisar and the prevalence of thermal tourism. In a study conducted among students of the Faculty of Medicine in Afyonkarahisar, hot springs (96.8%) and massage (96.8%) were the most widely known TCM methods.[25] In addition, the fact that phytotherapy was the most widely heard method in our study may be due to the presence of a "Center for Medicinal and Aromatic Plants" in this province and the frequent news about it in the press. Therefore, we can say that the reason for the different results in the studies may be related to the approach and sociocultural expectations of the society in the region. For example, while homeopathy is a widely used and recommended method in countries such as India, Italy, Germany and Switzerland, chiropractic is a widely used and recommended method in the USA, studies have shown that methods such as homeopathy, chiropractic and ayurveda are little known by physicians in our country.[26-28] Ege et al. In a study conducted on dentistry students, it was reported that apitherapy, prolotherapy and chiropractic practices were never used.[10] In this study, similar to previous studies, homeopathy, osteopathy, prolotherapy and reflexology were not included among the TCM methods that dentists would recommend.

Dentists participating in the study stated that they received information about TCM from the Internet in the 1st place, from social life in the 2nd place, and the media in the 3rd place. In a study conducted on medical school students, similar to our study, the internet was ranked 1st, the media in 2nd place, and friends and family members in third place as information sources.[29] Although the use of the internet and media as a source of information has increased with the development of technology today, the accuracy and reliability of the information obtained from these sources are questioned. Public authorities also have a responsibility to monitor the accuracy of the information about TCM in the media.

When the obstacles to the development and dissemination of TCM applications in Türkiye were asked, the first 5 were lack of appropriate infrastructure and equipment (19.4%), lack of information (18.9%), lack of professionals to provide training (18%), lack of government support (10.7%) and lack of scientific evidence (10.6%). In 2014, TCM application procedures and principles were adopted with the legal regulation, and ethics committees and TCM application centers were opened. However, the lack of professionals to provide training due to the low number of physicians who have received courses and certificates related to TCM and the fact that these methods have not been included in the curriculum of medical and dental education is one of the most important obstacles to the dissemination of these methods. In contrast to this study, in some studies conducted on students, the lack of scientific evidence

regarding TCM was seen as the most important obstacle, and it was reported that more scientific evidence should be obtained before TCM methods are applied.[30,31]

In the study, 23.7% of dentists stated that they had applied a TCM method to themselves or their family members. Cupping, yoga and acupuncture were the top 3 methods used. In the study conducted by Kırsoy et al. with medical school students, 22.1% of the students stated that they had used a TCM method and the methods they used most frequently were phytotherapy, spirituality (prayer) and massage. In the study of Şenol et al. prayer and message, in the study of Altan et al. herbal treatment, prayer and massage, and in the study of Sönmez et al. phytotherapy and cupping were the most frequently used TCM methods by the participants.[25,29,32] When the reason for dentists using TCM methods in this study was examined, the 1st place was rest/relaxation (27.7%), followed by stress reduction (17.4%) and pain relief (17.4%). In some studies conducted in Türkiye, stress/anxiety reduction was shown as the most important reason for TCM use.[29,33] When dentists were asked in the study which diseases TCM methods have the most potential for use, anxiety (12.1%) and depression (11.3%) were the 1st choices, followed by sleep disorders (9.3%). These results show that dentists use TCM methods especially for purposes such as relaxation, rest, and stress reduction, and that they believe that these methods can be used mostly for these purposes.

In this study, the mean score of dentists on the Integrative, Complementary and Alternative Medicine (ICAM) Attitude Scale was found to be 32.04±6.27. In the study conducted by Kırssoy et al. on medical faculty students, the ICAM score was found to be 32.7±0.17.[32] The results we obtained in the study are similar to the results of previous studies in the literature and show that dentists have a positive attitude towards TCM methods. In the total ICAM scores and scale sub-dimension scores of dentists in terms of age, gender, marital status, specialization status, sector of employment, and whether they do regular sports, no statistically significant difference was observed. In addition, there was no significant difference between the attitudes of those who had knowledge about the TCM method and those who did not, those who received training/certification and those who did not. Similar to the findings of this study, the studies conducted by Aslan Yüksel and Çırak and Usk also found that there was no difference in opinions about TCM practices according to age, gender, years of professional experience and title.[2,9] However, it has been reported that the use of TCM practices is more common among women in the United States.[34]

This study population is limited to dentists who participated in the study in Afyonkarahisar city center, and although the education and working conditions are similar, the study findings cannot be generalized to the whole country. Due to the study method, the results are based on participant reports and are subjective in nature. In addition, it is difficult to reveal cause-effect relationships with this study method. However, for the first time in the literature, dentists' knowledge, attitudes and behaviors regarding TCM have been comprehensively addressed.

CONCLUSION

The study results revealed that dentists' knowledge level and education/certification rates regarding TCM are quite low. It was observed that the majority of dentists do not use TCM methods, do not know how to perform the methods and do not recommend them to others. However, more than half of the dentists want to receive training/certification regarding TCM methods, especially acupuncture, and think that TCM methods should be included in the dentistry curriculum. Although dentists' knowledge level regarding TCM is not sufficient, their attitudes towards TCM methods are positive. Dentists indicated that TCM methods can be used mostly for relaxation, stress and anxiety reduction purposes and that the main reason for preferring the TCM method is that it has few side effects. They stated that the 3 biggest obstacles to the spread of TCM methods in Türkiye are lack of infrastructure and equipment, lack of information and lack of trained professionals. Although studies on this subject have gained momentum with the regulation published in 2014, there is still a lack of knowledge regarding TCM, trained and educated manpower and infrastructure-equipment deficiencies. Steps should

be taken to make the courses opened on TCM methods accessible in terms of cost and time, and dentists should be encouraged to attend these courses. In addition, by adding TCM methods to the core education curriculum of dentistry, it may be possible to train dentists who question whether their patients use TCM methods, inform and guide them, and thus contribute to the improvement of patient care.

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Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: *Ömer Ekici;* ***Design:*** *Ömer Ekici;* ***Control/Supervision:*** *Ömer Ekici;* ***Data Collection and/or Processing:*** *Ömer Ekici, Ziya Karataş;* ***Analysis and/or Interpretation:*** *Ömer Ekici, Ziya Karataş;* ***Literature Review:*** *Ömer Ekici, Ziya Karataş;* ***Writing the Article:*** *Ömer Ekici, Ziya Karataş;* ***Critical Review:*** *Ömer Ekici;* ***References and Fundings:*** *Ömer Ekici;* ***Materials:*** *Ömer Ekici, Ziya Karataş.*

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