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Physicians' and Pharmacists' Knowledge, Thoughts, and Attitudes of Homeopathy: A Comparative Survey in Türkiye

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Highlights

- Of the respondents, 86.5% stated that they had heard of the concept of homeopathy. A higher rate of hearing about homeopathy was associated with being a pharmacist and having ten or more years of professional experience.
- The majority of physicians and pharmacists lacked knowledge about the regulation of homeopathy in Türkiye.
- The main sources of information about homeopathy were undergraduate courses for pharmacists and social media/TV for physicians.
- Of the participants, 70.1% think that courses on homeopathy should be integrated into undergraduate education.
- According to 91.7% of the participants, evidence-based research on homeopathy should be increased.

Keywords
Traditional and complementary medicine · Homeopathy · Pharmacists · Physicians · Türkiye

Abstract

Background: Homeopathy, included in traditional and complementary medicine (TCM), is defined as a complementary treatment that aims to improve health through personalized therapy. Physicians and pharmacists play a crucial role in the practice of homeopathy and the delivery of homeopathic medicinal products to the public in Türkiye. This study aimed to evaluate the knowledge, thoughts, and attitudes of physicians and pharmacists on homeopathy in accordance with Turkish regulations. ***Methods:*** This descriptive study was carried out on physicians and pharmacists via a web-based questionnaire method. The survey form includes three sections and twenty-three questions. Participants received the survey form via Facebook, Instagram, X (Twitter), and LinkedIn. A total of 475 questionnaires that met the data quality criteria were included in the study. The analysis of the data was performed with the SPSS 23.0 statistical program, with a statistical significance level set at $p < 0.05$. ***Results:*** The study population included 70.3% ($n = 334$) pharmacists and 29.7% ($n = 141$) physicians. The study's results demonstrate that 86.5% of participants had heard of the concept of homeopathy. It was found that a higher

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rate of hearing about homeopathy was associated with being a pharmacist (OR: 31.5, $p = 0.000$) and having 10 years or more of professional experience (OR: 7.274, $p = 0.000$). The participants had correct knowledge about the definition and basic principles of homeopathy. The respondents lacked knowledge on certain aspects of the regulation of homeopathic practice in Türkiye. The primary source of information for pharmacists was undergraduate courses ($n = 185$, 58.2%), but for physicians, it was social media/television ($n = 41$, 50.0%). Of the participants, 70.1% ($n = 288$) thought that homeopathy needs to be incorporated into the undergraduate curriculum, and 91.7% of participants thought that further scientific research on homeopathy is required. ***Conclusion:*** Homeopathy courses should be integrated into undergraduate education to improve the awareness of healthcare professionals. Furthermore, the organization of seminars and training courses would enhance their knowledge of the relevant subject.

Kenntnisse, Einstellungen und Ansichten von Ärzt:innen und Apotheker:innen zur Homöopathie: Eine vergleichende Umfrage in der Türkei

Schlüsselwörter
Traditionelle und komplementäre Medizin · Homöopathie · Apotheker:innen · Ärzt:innen · Türkei

Zusammenfassung
Hintergrund: Die Homöopathie, ein Bestandteil der traditionellen und komplementären Medizin (TCM), wird als ergänzende Therapieform definiert, die durch individualisierte Behandlung die Gesundheit fördern soll. Ärzt:innen und Apotheker:innen spielen in der Türkei eine zentrale Rolle bei der Anwendung homöopathischer Verfahren sowie der Bereitstellung homöopathischer Arzneimittel für die Bevölkerung. Ziel dieser Studie war es, die Kenntnisse, Einstellungen und Ansichten von Ärzt:innen und Apotheker:innen zur Homöopathie unter Berücksichtigung der türkischen Gesetzgebung zu evaluieren. ***Methodik:*** Diese deskriptive Studie wurde mittels eines webbasierten Fragebogens unter Ärzt:innen und Apotheker:innen durchgeführt. Der Fragebogen bestand aus drei Abschnitten mit insgesamt 23 Fragen. Die Teilnehmenden erhielten den Fragebogen über Facebook, Instagram, X (Twitter) und LinkedIn. Insgesamt wurden 475 Fragebögen, die den Qualitätskriterien der Datenerhebung entsprachen, in die Analyse einbezogen. Die Datenanalyse erfolgte mit dem Statistikprogramm SPSS 23.0; das Signifikanzniveau wurde auf $p < 0{,}05$ festgelegt. ***Ergebnisse:*** Die Studienpopulation setzte sich zu 70,3% ($n = 334$) aus Apotheker:innen und zu 29,7% ($n = 141$) aus Ärzt:innen zusammen. 86,5% der Teilnehmenden hatten bereits von dem Konzept der Homöopathie gehört. Ein höherer Bekanntheitsgrad der Homöopathie korrelierte signifikant mit dem Beruf als Apotheker:in (OR: 31,5; $p = 0{,}000$) sowie mit einer Berufserfahrung von zehn Jahren oder mehr (OR: 7,274; $p = 0{,}000$). Die Teilnehmenden verfügten über korrektes Wissen hinsichtlich der Definition und Grundprinzipien der Homöopathie, zeigten jedoch Defizite bezüglich der gesetzlichen Regelungen zur homöopathischen Praxis in der Türkei. Als Hauptinformationsquelle gaben Apotheker:innen das grundständige Studium an ($n = 185$; 58,2%), während Ärzt:innen vorwiegend soziale Medien und Fernsehen nutzten ($n = 41$; 50,0%). 70,1% ($n = 288$) der Befragten befürworteten die Integration der Homöopathie in das grundständige Curriculum. 91,7% hielten weitere wissenschaftliche Forschung zur Homöopathie für notwendig. ***Schlussfolgerung:*** Die Integration von Homöopathie in die medizinische und pharmazeutische Ausbildung könnte das Bewusstsein und die Kompetenz von Gesundheitsfachkräften verbessern. Darüber hinaus würden Fortbildungsveranstaltungen und Seminare das Wissen über dieses Themenfeld vertiefen.

Connaissances, opinions et attitudes des médecins et des pharmaciens à l'égard de l'homéopathie: une enquête comparative en Türkiye

Mots-clés
Médecine traditionnelle et complémentaire · Homéopathie · Pharmaciens · Médecins · Türkiye

Résumé
Contexte : L'homéopathie, intégrée à la médecine traditionnelle et complémentaire (MTC), est définie comme un traitement complémentaire visant à améliorer la santé par une thérapie personnalisée. En Türkiye, les médecins et les pharmaciens jouent un rôle essentiel dans la pratique de l'homéopathie et la dispensation des médicaments homéopathiques auprès du public. Cette étude a pour objectif d'évaluer les connaissances, les opinions et les attitudes des médecins et des pharmaciens concernant l'homéopathie, conformément à la réglementation turque. ***Méthodes :*** Cette étude descriptive a été menée auprès de médecins et de pharmaciens au moyen d'un questionnaire en ligne. Le formulaire d'enquête comportait trois sections et vingt-trois questions. Les participants ont reçu le questionnaire via Facebook, Instagram, X (Twitter) et LinkedIn. Au total, 475 questionnaires répondant aux critères de qualité des données ont été inclus dans l'étude. L'analyse des données a été réalisée à l'aide

du logiciel statistique SPSS 23.0, avec un seuil de signification statistique fixé à $p < 0,05$. ***Résultats :*** La population étudiée comprenait 70,3 % ($n = 334$) de pharmaciens et 29,7 % ($n = 141$) de médecins. Les résultats montrent que 86,5 % des participants avaient entendu parler du concept d'homéopathie. Il a été observé qu'un taux plus élevé de connaissance de l'homéopathie était associé au fait d'être pharmacien (OR : 31,5 ; $p = 0,000$) et à une expérience professionnelle de dix ans ou plus (OR : 7,274 ; $p = 0,000$). Les participants possédaient des connaissances correctes sur la définition et les principes fondamentaux de l'homéopathie. Toutefois, ils présentaient des lacunes concernant certains aspects de la réglementation de la pratique homéopathique en Türkiye. La principale source d'information pour les pharmaciens était les cours de premier cycle ($n = 185$, 58,2 %), tandis que pour les médecins, il s'agissait des réseaux sociaux et de la télévision ($n = 41$, 50,0 %). 70,1 % ($n = 288$) estimaient que l'homéopathie devrait être intégrée au programme de formation de premier cycle. 91,7 % des participants considéraient qu'il est nécessaire de mener davantage de recherches scientifiques sur l'homéopathie. ***Conclusion :*** L'intégration de cours sur l'homéopathie dans la formation universitaire permettrait d'améliorer la sensibilisation des professionnels de santé. En outre, l'organisation de séminaires et de formations contribuerait à renforcer leurs connaissances sur ce sujet.

Introduction

Homeopathy is defined as a complementary therapy that aims to improve health with personalized medicines. It has been included in the list of traditional and complementary medicine (TCM) applications under the TCM Practices Regulation published in Türkiye on October 27, 2014, and numbered 29158. Homeopathy is practiced in healthcare facilities under the direction of a certified physician and dentist, as provided in the relevant regulation [1]. The application of homeopathy to various purposes, including improvement of physical and emotional health, life extension, fatigue reduction, strengthening of the body's natural defenses, and increased tolerance to chemotherapy, is becoming common [2].

Homeopathy is a therapeutic approach based on the principle of "similia similibus curantur," which argues that like cures like. This theory posits that a substance inducing disease symptoms in a healthy individual at high dosages can exert a therapeutic effect when administered to a patient exhibiting similar symptoms at substantially lower doses. Other principles of this treatment include the use of homeopathic medicine as a single remedy (unitas remedii) and in minimal dosages (dosis minima) [3].

In the Regulation on Pharmacists and Pharmacies published in Türkiye, a homeopathic medicinal product is described as "any medicinal product prepared from substances called homeopathic stocks in accordance with the production procedures defined in the pharmacopoeia." The Turkish Medicines and Medical Devices Agency regulates licensing and sales issues for homeopathic medicinal products, and only pharmacies are permitted to market these products in Türkiye [4].

A study performed in Switzerland revealed that 23% of outpatients ($n = 4,072$) were prescribed a homeopathic medicine by their physician at least once a year [5]. A survey performed among family physicians ($n = 85$) in Türkiye revealed that 21.2% of the physicians had knowledge about homeopathy [6]. A study conducted in the USA assessed the effects of taking elective courses on complementary and integrative health practices in undergraduate education on pharmacists' ($n = 89$) attitudes toward homeopathy in their professional careers. Pharmacists who took elective courses have stated that they respond more easily to patients' questions about homeopathy, enhanced competence in providing recommendations, and explain the proposed mechanisms of action of homeopathic medicines to their patients [7]. The literature has documented a limited number of studies examining the knowledge, attitudes, and behaviors of healthcare professionals about homeopathy. Physicians and pharmacists play crucial roles in the practice of homeopathy and in the delivery of homeopathic medicinal products to the public in Türkiye. This study aimed to evaluate the knowledge, thoughts, and attitudes of physicians and pharmacists regarding homeopathy in accordance with Turkish regulations and identify the influencing factors. We also compared the knowledge, thoughts, and attitudes of physicians and pharmacists about homeopathy.

Methods

Research Population

This descriptive study was conducted from January 1, 2025, to March 1, 2025, using the online survey method. The research population consists of physicians and pharmacists employed in Türkiye. According to the health statistics published by the General Directorate of Health Services of Türkiye in 2020, the overall count of registered physicians and pharmacists in Türkiye was 206,623 [8]. This study used a minimal sample size calculation approach to determine the sample size without sample selection. Power analysis was performed using the OpenEpi Version 3.01 program, informed by prevalence data from previous studies [5, 9, 10]. The design effect was taken as 1, and the minimum sample size was established to be at least

Table 1. Sociodemographic and personal characteristics of the participants (n = 475)

	n	%
Gender		
Female	335	70.5
Male	140	29.5
Age (mean ± SD), years	32.8±9.7	
Profession		
Pharmacist	334	70.3
Physician	141	29.7
Educational attainment		
Bachelor's degree	250	52.6
Master's degree	98	20.6
PhD or specialization in medicine/pharmacy	127	26.7
Professional experience (mean ± SD), years	8.8±9.7	
<10	351	73.9
≥10	124	26.1
Presence of chronic diseases		
Existent	118	24.8
Non-existent	357	75.2
Long-term/regular use of drugs		
Existent	108	22.7
Non-existent	367	77.3
Self-evaluation of general health status		
Good	369	77.7
Moderate	103	21.7
Poor	3	0.6

Table 2. Effect of participants' sociodemographic and personal characteristics on the hearing of the concept of homeopathy (n = 475)

Variables	OR (95% CI)	p value
Step 6		
Profession		
Pharmacist	31.572 (14.647–68.056)	0.000
Physician	1	
Professional experience, years		
<10	1	0.000
≥10	7.274 (2.860–18.498)	

$p < 0.05$; method: Backward LR elimination method; Hosmer and Lemeshow test results: 0.397; Nagelkerke R^2 statistic: 0.431; accuracy: 86.5%.

380, with a margin of error of 5%, a confidence level of 95%, and a statistical power of 80% [9]. Physicians and pharmacists who agreed to participate in the study and were employed in Türkiye were included. A total of 496 individuals from 65 different provinces were contacted. The researchers checked what was collected and excluded the questionnaires of participants who gave incomplete, contradictory, or inappropriate responses from the analysis. In this context, the responses of participants who left more than 10% of the total questions unfilled were removed. Participants who left more than 30% of the table assessing knowledge of homeopathy (online suppl. file, Questionnaire Form, Question 12; for all online suppl. material, see https://doi.org/10.1159/000548047) blank were omitted from the study even if they answered the other questions. Moreover, all responses exhibiting apparent logical contradictions have been deleted from the dataset. A total of 475 questionnaires, representing 95.8%, were analyzed.

Survey Form

A questionnaire form developed by the researchers was used. The questionnaire was developed based on studies of literature and the published regulations on homeopathy in Türkiye [1, 4–6, 10, 11]. The survey form consisted of three sections with a total of 23 questions: "sociodemographic and personal characteristics," "knowledge of homeopathy," and "thoughts and attitudes about homeopathy." In the knowledge of homeopathy section of the questionnaire form, participants were presented with propositions with true or false content. The propositions designated "a, d, g, h, i, j, m, n, o, p, and q" were true, while propositions "b, c, e, f, k, l, r, and s" were false. The details of the survey form are given as online supplementary material (online suppl. file 1).

The data collection form has been converted into an electronic survey via Google Forms. Before submitting an application to the Ethics Committee, a pretest was conducted with 10 individuals possessing characteristics similar to the target population, comprising 5 pharmacists and 5 physicians. The unstructured questionnaire was sent to participants by the researchers' personal networks. Participants were requested to evaluate the clarity of the questionnaire, its overall structure, the format of questions, and any possible difficulties in response. The questionnaire was revised in accordance with this feedback. The questionnaire was delivered to participants by social media platforms such as Facebook, Instagram, X (Twitter), and LinkedIn. The questionnaire was shared thrice weekly during the study period through thematic groups on these platforms, general public pages, and the researchers' personal networks. The participant recruitment ended upon reaching data saturation. The "limit to 1 response" function of Google Forms was enabled to prevent the survey from being filled out more than once. This feature required that participants authenticate using a Google account to complete the survey, allowing each account to submit a response only once. Upon clicking the survey link, participants received the study description and were asked about their willingness to participate. Consequently, informed consent was obtained from each

Table 3. Comparing the knowledge of physicians and pharmacists about homeopathy (n = 411)

	True		I don't know		False		p value[a]
	n	%	*n*	%	*n*	%	
a. Homeopathy is a treatment method that aims to improve the health status with homeopathic medicines selected individually (T)	354	86.1	32	7.8	25	6.1	**0.031**
b. Homeopathy is an alternative treatment (F)	312	75.9	25	6.1	74	18.0	0.233
c. The practice of homeopathy in Türkiye is not subject to a specific regulation (F)	134	32.7	152	37.1	124	30.2	0.180
d. Homeopathy is practiced by a physician/dentist with training/certificate (T)	277	67.6	98	23.9	35	8.5	0.067
e. Homeopathy is practiced by a pharmacists with training/certificate (F)	221	53.8	113	27.5	77	18.7	**0.000**
f. Homeopathy is practiced by anyone with training/certification (F)	54	13.1	140	34.1	217	52.8	0.229
g. Homeopathy is based on the principle that a substance that produces symptoms in a healthy person can have a therapeutic effect on another patient with the same symptoms, that is, "like cures like" (T)	335	81.5	66	16.1	10	2.4	**0.000[b]**
h. Homeopathic medicines used in homeopathy are administered in minimal doses (T)	321	78.1	79	19.2	11	2.7	**0.035[b]**
i. Homeopathic medicines used in homeopathy are administered as single medicines (T)	108	26.3	184	44.8	119	29.0	0.182
j. Homeopathic medicines are prepared on the basis of dilution (T)	304	74.0	96	23.4	11	2.7	**0.003[b]**
k. Homeopathic medicines can only be of herbal origin (F)	47	11.4	136	33.1	228	55.5	**0.008**
l. Homeopathic medicines have a placebo effect (F)	78	19.0	113	27.5	220	53.5	0.125
m. The most commonly used form of homeopathic medicines is the "globule" (T)	112	27.3	281	68.4	18	4.4	**0.026[b]**
n. When using a homeopathic remedy, the patient is advised not to use products containing caffeine, menthol and camphor internally and/or externally (T)	175	42.6	220	53.5	16	3.9	**0.030[b]**
o. The issues regarding the licensing and sale of homeopathic medicines are regulated by the Turkish Medicines and Medical Devices Agency (T)	160	38.9	200	48.7	51	12.4	**0.001**
p. Homeopathic medicinal products are only available through pharmacies (T)	122	29.7	194	47.2	95	23.1	**0.009**
q. Homeopathy has no side effects (F)	78	19.0	129	31.4	204	49.6	0.060
r. Homeopathy can be used as a supplement to medical treatment (T)	317	77.1	58	14.1	36	8.8	**0.011**

$p < 0.05$ is shown in bold. T, true proposition; F, false proposition. [a]χ^2 test. [b]Fisher's exact test.

participant. The respondents completed the survey form in approximately 10 min.

Given that this study is a non-interventional cross-sectional study, there is no mandatory need for study registration. This information is presented in this section of the manuscript to ensure transparency.

Ethics Approval

This research received approval from the Non-Invasive Clinical Researches Ethics Committee of Bezmialem Vakif University (Date: December 31, 2024, No: 2024/428). The study began following the Ethics Committee's approval.

Statistical Analysis

Following the recording of the information in Microsoft Excel, an analysis was employed using the SPSS 23.0 statistical package program (SPSS Inc., Chicago, IL, USA). Descriptive statistics are presented as numbers and percentages for categorical variables and as mean, standard deviation, minimum, and maximum values for numerical variables. When missing variables were encountered in the questions, the valid percentage values were taken into consideration. The chi-square tests family (χ^2 test, Fisher's exact test, Yates continuity correction test) was used to compare categorical variables in independent groups. Binary logistic regression analysis was carried out to identify the factors that most significantly affect the hearing status of homeopathy. Modeling results are presented by expressing estimated risk ratios (OR) with a 95% confidence interval (95% CI). The model's suitability was assessed by the Hosmer-Lemeshow statistic, and the amount of variance explained was determined by the Nagelkerke R^2 statistic. The statistical significance level was accepted as $p < 0.05$.

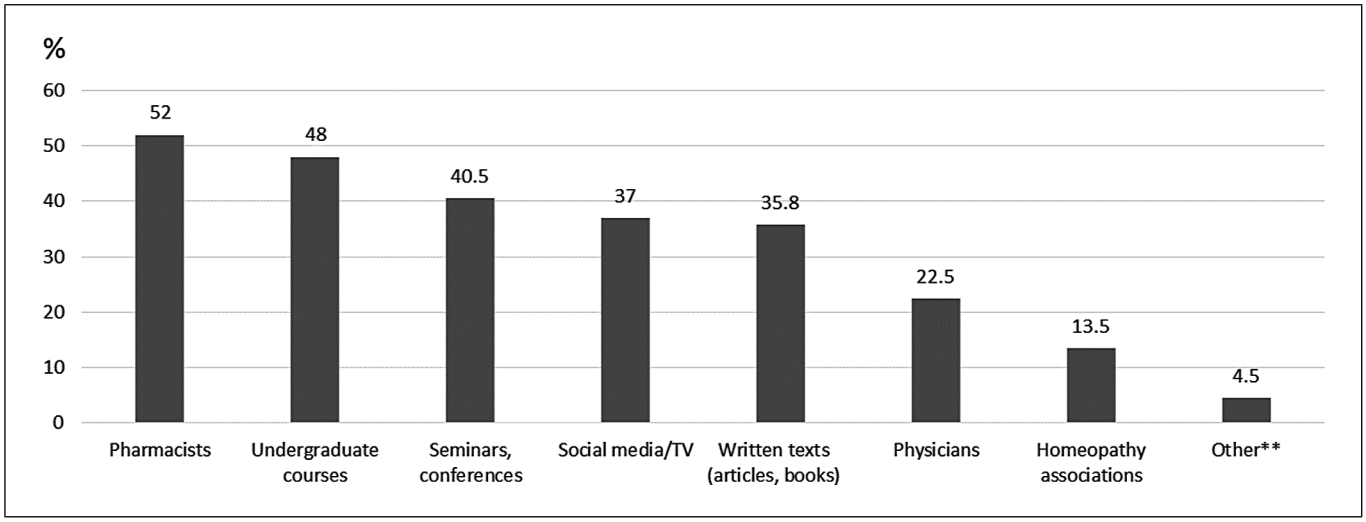

Fig. 1. Participants' sources of information about homeopathy.

Results

The mean age of the participants in the study was 32.8 ± 9.7 years (25–70), with 335 (70.5%) being female. Among the respondents, 334 (70.3%) were pharmacists, whereas 141 (29.7%) were physicians. The mean duration of professional experience was 8.8 ± 9.7 (0.5–47) years. The sociodemographic and personal characteristics of the participants are presented in Table 1.

Participants stated that 462 (97.3%) had heard of TCM applications and 411 (86.5%) had heard of homeopathy. The findings of the logistic regression analysis performed to assess the effect of participants' sociodemographic and personal characteristics on the heard of the concept of homeopathy are presented in Table 2. Independent variables, including gender, age, profession, educational attainment, professional experience, presence of chronic diseases, and long-term/regular use of drugs, thought to affect the dependent variable in pairwise comparisons, were included in the multivariate analysis (online suppl. file 2). The binary logistic regression model was constructed in 6 steps. The Hosmer and Lemeshow test results indicated a p value of 0.397 for the final step, step 6, suggesting that the variables included in the model were consistent with it. In step 6, the Nagelkerke R^2 statistic was 0.431. The model's classification accuracy was determined to be 86.5%. According to this, being a pharmacist (OR: 31.5, $p = 0.000$) and having a professional experience of 10 years or more (OR: 7.274, $p = 0.000$) increased the likelihood of having heard of homeopathy.

Participants were asked to evaluate a series of true or false statements to determine their knowledge of homeopathy. Table 3 represents participant responses to the various propositions about homeopathy. A substantial majority of participants selected "true" for propositions "a" ($n = 354$, 86.1%), "b" ($n = 312$, 75.9%), "d" ($n = 277$, 67.6%), "e" ($n = 221$, 53.8%), "g" ($n = 335$, 81.5%), "h" ($n = 321$, 78.1%), "j" ($n = 304$, 74.0%), and "r" ($n = 317$, 77.1%). On the other hand, respondents stated that the propositions "f" ($n = 217$, 52.8%), "k" ($n = 228$, 55.5%), "l" ($n = 220$, 53.5%), and "q" ($n = 204$, 49.6%) were false. Participants selected "I don't know" for propositions "c" ($n = 152$, 37.1%), "i" ($n = 184$, 44.8%), "m" ($n = 281$, 68.4%), "n" ($n = 220$, 53.5%), "o" ($n = 200$, 48.7%), and "p" ($n = 194$, 47.2%). The responses of physicians and pharmacists to the presented propositions were compared. Responses to the propositions "a ($p = 0.031$), e ($p = 0.000$), g ($p = 0.000$), h ($p = 0.035$), j ($p = 0.003$), k ($p = 0.008$), m ($p = 0.026$), n ($p = 0.030$), o ($p = 0.001$), p ($p = 0.009$), and r ($p = 0.011$)" differed between professions. In the pairwise comparisons, pharmacists had a higher percentage of correct responses to the statements "a, e, g, h, j, and r", which were indicated as true. The fact that the pharmacists marked the false option at a high rate for the proposition "k", which was presented as false, shows that they know this proposition correctly. On the other hand, pharmacists chose the option "I don't know" at a higher rate for statements "m, n, o, and p" compared to physicians (online suppl. file 3).

The main sources of information about homeopathy for participants were pharmacists ($n = 208$, 52.0%), undergraduate courses ($n = 192$, 48.0%), seminars/conferences ($n = 161$, 40.5%), and social media/TV ($n = 148$, 37.0%), respectively (shown in Fig. 1). The most common source of information for pharmacists was undergraduate courses ($n = 185$, 58.2%), but for physicians, it was social media/TV ($n = 41$, 50.0%). Conversely, only 7 physicians (8.5%) selected undergraduate courses as their source of information about homeopathy.

Table 4. Participants' thoughts and attitudes toward homeopathy (n = 411)

	n	%
Do you think homeopathy is an effective form of treatment?		
Yes	162	39.4
Undecided	168	40.9
No	81	19.7
Do you think homeopathy is safe?		
Yes	179	43.6
Undecided	162	39.4
No	70	17.0
Who do you think should practice homeopathy?[a]		
Physician	352	85.9
Pharmacist	313	76.5
Dentist	154	37.7
Other healthcare professional	23	5.6
Everyone with a certificate	16	3.9
Other[b]	18	4.4
Would you consider recommending homeopathy to your patients/clients?		
Yes	169	41.1
Undecided	158	38.4
No	84	20.4
If your answer is "no" or "undecided", what is your reason for not recommending homeopathy?[a] (n = 242)		
I think I don't have enough information about homeopathy treatment	149	62.3
I think it is not a treatment based on scientific evidence	109	45.0
I think that the people and institutions that implement the practices are not sufficiently supervised	105	43.6
I think it can harm the patient as a result of unconscious practices	102	42.3
I think it may adversely affect the patient's current medical treatment	61	25.3
Other[c]	11	4.5
Do you think that the practice of homeopathy should be integrated into undergraduate courses?		
Yes	288	70.1
Undecided	61	14.8
No	62	15.1
Do you think that evidence-based studies on homeopathy should be increased?		
Yes	377	91.7
Undecided	16	3.9
No	18	4.4
Have you ever used homeopathy for self-treatment?		
Yes	90	21.9
No	321	78.1
Have you recommended homeopathy to your patients/clients?		
Yes	92	22.4
No	318	77.6
Have you participated in a Ministry of Health approved traditional and complementary medicine (TCM) training or certification program on homeopathy?[d] (n = 84)		
Yes	9	10.7
No	75	89.3
Would you like to learn more about homeopathy or would you like to work in the field of homeopathy in your career? (n = 393)		
Yes	225	57.3
Undecided	92	23.4
No	76	19.3

[a]More than one option is selected. [b]None (n = 15), not specified (n = 3). [c]I think it is a placebo effect (n = 5), I think the infrastructure in our country is insufficient (n = 2), not specified (n = 2), I think the doses applied are high (n = 1), I think patients' compliance with treatment is low (n = 1). [d]Only physicians responded to this question.

Table 4 presents the participants' thoughts and attitudes about homeopathy. Consequently, 40.9% (n = 168) of the participants were undecided about the efficacy of homeopathy. Of the respondents, 38.4% (n = 158) stated that they were undecided on recommending homeopathy to their patients/clients, and 20.4% (n = 84) indicated a lack of intent to recommend it. Of the participants, 91.7% (n = 377) think that there should be more scientific studies on homeopathy. Of the respondents, 70.1% (n = 288) think that the undergraduate curriculum should integrate homeopathy.

Discussion

The use of homeopathy within society has increasingly become more prevalent in recent years. Previous studies showed that the prevalence of homeopathic use in the USA, Italy, and Germany is 2.1%, 8.2%, and 14.8%, respectively [12]. Considering its widespread use, the rational and medical application of homeopathy places significant responsibility on healthcare professionals. A limited number of studies assessing the knowledge, thoughts, and attitudes of physicians and pharmacists on homeopathy have been reported in the literatüre [5–7]. This study evaluated and compared the knowledge, thoughts, and attitudes of pharmacists and physicians about homeopathy in accordance with Turkish regulations. To the best of our knowledge, this is the first survey study in Türkiye to compare the knowledge, thoughts, and attitudes of physicians and pharmacists on homeopathy. Our study provides an overview of the regulation of homeopathy in Türkiye, as well as the roles played by pharmacists and physicians in this area of study.

Initially, we evaluated the participants' hearing of the concept of homeopathy and the factors that influence it. The concept of homeopathy was known to 86.5% of the participants in this study. Previous studies demonstrate that the status of hearing the concept of homeopathy among healthcare professionals ranges between 51.1% and 87.7% [13–16]. Esen and Arıca reported that there was no statistically significant correlation between professional experience and the knowledge level about homeopathic treatments [6]. This study demonstrated that having ten or more years of professional experience increased the likelihood of hearing the concept of homeopathy. A previous study conducted on students studying at the faculty of pharmacy showed that students studying in grade 5 and working in an income-generating job heard about homeopathy at a higher rate. Students said most of the information about homeopathy was obtained from undergraduate courses [11]. This study reveals that pharmacists hear the concept of homeopathy at a significantly higher rate compared to physicians. This situation can be associated with the fact that there are courses on homeopathy in pharmacy education.

Participants received a set of true and false statements to evaluate their knowledge of homeopathy. The participants were presented with the definition of homeopathy as a correct statement, and 86.1% selected the description as correct. The TCM regulation in Türkiye states that homeopathy is not an alternative treatment method, but rather a TCM [1]. In this survey, 75.9% of participants noted homeopathy as an "alternative treatment method." Alternative medicine is defined as a therapeutic system that rejects conventional medical practices and uses methods and products lacking evidence from science of their efficacy [17, 18]. Complementary medicine is defined as a system of treatment and care used with conventional treatments. Complementary medicine aims to enhance the efficacy of medical treatment, mitigate side effects of drugs, manage the symptoms in patients, or improve overall quality of life [19, 20]. The fundamental cause of insufficient knowledge among physicians and pharmacists may stem from the interchangeable use of the terms "alternative medicine," "complementary medicine," and "traditional medicine," as well as the resulting confusion in the literature regarding these topics.

Homeopathy is a therapeutic approach based on the idea of "like cures like" [3]. The previous study showed that 41.7% of physicians prescribing homeopathic medicine knew that homeopathy is based on the law of similarity [5]. In this study, 81.5% of participants stated that the mechanism of action of homeopathy is based on the principle of similarity. Our findings indicate that the majority of participants had knowledge of the basic mechanisms of action of homeopathy.

Homeopathy in Türkiye is regulated under the regulations established by the Ministry of Health [1]. Participants were presented with the false statement that the practice of homeopathy in Türkiye is not regulated. Of the respondents, 32.7% indicated that this statement was true, whereas 37.1% stated that they lacked enough knowledge. Homeopathy is administered under the control of a physician and/or dentist who has certification in the relevant discipline within approved units of healthcare institutions [1]. Of the participants, 67.6% stated that homeopathy had been administered by a physician/dentist. On the other hand, 53.8% of responders indicated that pharmacists could practice homeopathy. This finding may have resulted from a higher percentage of pharmacists questioned compared to physicians. The Turkish Medicines and Medical Devices Agency regulates the licensing and sale of homeopathic medicinal products, and these products are sold only in pharmacies [4]. Approximately fifty percent of the respondents lacked knowledge on the procedures associated with the licensing and sale of homeopathic

medicinal products. This study's results highlight healthcare professionals' lack of knowledge about homeopathic regulations in Türkiye. Providing in-service training on this topic and scheduling activities such as seminars and congresses could improve healthcare professionals' knowledge about homeopathy.

Studies with healthcare professionals revealed that the main sources of knowledge about homeopathy are social media/television, the internet, immediate surroundings, and colleagues [6, 7, 13, 21]. In another study, 67% of participants used at least one "unreliable" source of information, including nonevidence-based internet searches, peer reviews, and social media, to get knowledge about homeopathy. On the other hand, the participants stated that required training in holistic medicine practices should be included in the pharmacy education curriculum [7]. This study, in line with the literature, identified pharmacists, undergraduate courses, seminars/conferences, and social media/TV as the main sources of knowledge [6, 7, 13, 21]. This study revealed that there are information source differences between professions. Pharmacists mainly obtain information from undergraduate courses, whereas physicians use social media. Only seven physicians mentioned undergraduate courses as sources of information. Our previous study established that 55% of pharmacy students had heard of homeopathy. The main source of information regarding homeopathy was undergraduate courses, with a rate of 53.9% [10]. The differences in information sources among professions could result from the presence of homeopathic courses in pharmacy undergraduate programs in Türkiye, whereas such courses are not available in medical faculties. All healthcare professionals, especially physicians, must have access to accurate knowledge about homeopathy from reliable sources. Undergraduate and graduate curricula must incorporate mandatory and/or elective courses on homeopathic practices, particularly within the faculties of medicine and pharmacy. In our study, 70.1% of participants indicated that homeopathy requires being integrated into university courses, hence supporting the conclusion that the current system of education is deficient.

This study assessed physicians' thoughts and attitudes about homeopathy. A previous study in Switzerland revealed that 23% of outpatients were prescribed homeopathic medicinal products at least once a year. Of prescribing physicians, 22.6% and of non-prescribers, 2.6% stated that they thought homeopathy had sufficient evidential value. Of the physicians, 76.0% who prescribed homeopathic products and 42.4% of those who did not prescribe homeopathic products think that further research in homeopathy is needed [5]. In this survey, 91.7% of participants think that evidence-based research on homeopathy should be increased. Of the respondents, 38.4% were undecided about recommending homeopathy to patients/clients, and 20.4% would not. The respondents' attitudes toward recommending homeopathy could result from their perception of insufficient studies and evidence supporting its efficacy. Our study revealed that a majority of physicians lack homeopathy certifications. It is important to increase the number of randomized controlled clinical studies for homeopathy with an adequate number of volunteers. Increasing evidence-based studies on homeopathy and enhancing awareness of physicians on the topic will pave the way for the rational application of homeopathy by physicians.

Limitations and Strengths

This study has a few limitations that need to be mentioned. We implemented a recruitment strategy by social media with an online data collection form. This enhanced the selection bias in the study. The response rate for participants identifying as female and pharmacists was higher in the survey. The findings obtained cannot be generalized to all healthcare professionals, as no sample selection was performed. Because of a lack of information on the specialized fields of physicians and pharmacists, intra-professional differences were not assessed. There were no tests executed to verify the validity and reliability of the questionnaire. The researchers checked the data individually, excluding participants who provided incomplete, contradictory, and inappropriate responses from the study. In the study, each proposal presented to the participants in the information section regarding homeopathy was assessed independently. The researchers did not create a scale form during the development of the present study. Because of its non-scale format, evaluations including total score, thresholds, and categorization were not done. On the other hand, our study provides overview insights on the regulation of the practice of homeopathy in Türkiye, as well as the knowledge, opinions, and attitudes of healthcare professionals regarding this topic. The questionnaire we developed in this study and the resulting findings may facilitate several studies on homeopathy, such as larger population surveys and the creation of relevant scales for healthcare professionals.

Conclusion

This study concluded that the majority of participants had heard of the concept of homeopathy and correctly knew its definition and mechanism of action. On the other hand, our study revealed that the participants lacked knowledge on some aspects of the regulation of homeopathy practice in Türkiye and the licensing and marketing of homeopathic medical products. The prevalence of homeopathy use has become more widespread in the community. To provide effective treatment and reduce

harm to patients, healthcare professionals, especially physicians, must possess knowledge about the effects, adverse effects, and risks related to homeopathy. To enhance the knowledge and awareness of healthcare professionals on this topic, we recommend the incorporation of compulsory and/or elective courses in undergraduate and graduate curricula related to homeopathy, as well as the organization of in-service training programs.

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Statement of Ethics

The research was performed in accordance with the Declaration of Helsinki. This research received approval from the Non-Invasive Clinical Researches Ethics Committee of Bezmialem Vakif University (Date: December 31, 2024, No.: 2024/428). The study began following the Ethics Committee's approval. Informed consent was obtained from all participants, their legal guardian, or next of kin (for those under legal guardianship, guardians had to provide consent).

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

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Author Contributions

D.E.Y., İ.G., and G.R. developed the design of the overall project and planned and performed the statistical analyses. D.E.Y. and İ.G. served as the principal investigator throughout all phases of these projects. G.R. and M.K. coordinated the study. D.E.Y. and İ.G. mainly drafted the manuscript and supported by the other coauthors. M.K. was responsible for the data management. M.K. and G.R. served as advisors to the study. All authors read and approved the final manuscript.

Data Availability Statement

The datasets generated and/or analyzed during the current study are not publicly available due to the data safety concept and the characteristics of the data but are available from the corresponding author on reasonable request.

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