İstanbul Journal of Pharmacy
Istanbul J Pharm2024, 54 (3): 336–344
DOI: 10.26650/IstanbulJPharm.2024.1378705

Original Article

Traditional and complementary medicine use and associated factors in COVID-19 pandemic

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ABSTRACT

Background and Aims: The aim of this study was to determine the attitude and behaviour of patients who applied to a family health centre during the COVID-19 pandemic regarding traditional and complementary medicine (TCM) applications and the factors related to their usage.

Methods: A questionnaire consisting of sociodemographic information and frequency, behaviours regarding the use of TCM during the pandemic was administered to individuals over the age of 18 who were admitted to family health centres, located in two socioeconomically different districts of Istanbul. The data were analysed in the SPSS 22, and the p-value was set as 0.05.

Results: A total of 352 participants were recruited. The use of TCM during the pandemic period was 36.3% in Üsküdar and 26.8 % in Sancaktepe, and traditional herbal product use was high in both districts at 87% and 90.9%, respectively. The use of non-prescription vitamins and supplements were about 1.7 times greater in Üsküdar. In total, 73.7% of the participants stated that they used at least three products, and 57% of them used 5 products. The reasons for using TCM were similar in both districts; however, chronic disease and old age were reported only in the Üsküdar district. A total of 25% of the total participants stopped their current medications when they started the use of TCM, and 51.7% did not receive information about the side effects of TCM. The use of TCM in those with university education was higher than that in the other groups.

Conclusion: TCM use was high during the COVID-19 pandemic, especially with herbal products and supplements.

Keywords: COVID-19, Herbal product, Pandemic, Traditional and complementary medicine

INTRODUCTION

In the last 20-30 years, there has been a dramatic increase in traditional and complementary medicine (TCM) practises in our country as well as all over the world for the prevention or treatment of diseases (Pokladnikova & Telec, 2020; de Moraes Mello Boccolini & Siqueira Boccolini, 2020). However, the regulation of TCM varies from country to country, and no common approach has been adopted yet. The use of herbal products is among all TCMs. Depending on current data, general conclusions regarding the therapeutic value of herbal preparations are difficult to reach. In addition, herbal products may cause serious liver and kidney damage, and the possible interactions with the drugs may adversely affect already given treatments (Valdivia-Correa, Gómez-Gutiérrez, Uribe & Méndez-Sánchez, 2016; Erdem & Eren, 2009).

In recent years, legal regulations have been formulated on TCM in Europe, and some rules have been determined to inform consumers. In Turkey, herbal products are classified as food supplements or traditional herbal medicinal products, similar to European Union regulations (Resmi Gazete, 2010). Although medicinal plants and phytotherapy are frequently used by healthcare professionals and patients in our country, this practise has not been fully institutionalised or systematised.

In addition to herbal products, many applications such as homoeopathy, meditation, massage, reiki, and chiropractic, are also used in other countries (Sousa, Hortale & Bodstein, 2018). Leech, cupping, and prayer are also common in Turkey be-

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Submitted: 19.10.2023 • **Revision Requested:** 01.03.2024 • **Last Revision Received:** 21.03.2024 • **Accepted:** 25.07.2024

cause of its cultural aspects (Şimşek et al, 2017). Traditional medicine, which was widely used during the epidemic in the past, has come to the forefront of the treatment of COVID-19 because currently, there is no proven antiviral treatment. Although data on the potential effects of dietary therapy and herbal medicines against SARS-CoV-2 have been presented in the current literature, there is not enough supporting evidence (Ang et al, 2020; Panyod, Ho, Sheen, 2020; Zhang et al, 2020). There is a lot of non-scientific information on the use of complementary and traditional medicine applications, especially herbal nutritional supplements, for the purpose of protection from COVID-19 infection and treatment of COVID-19 infection, in internet resources and social media. In the research of the Ministry of Industry and Technology on the socioeconomic development ranking of the districts in Istanbul, Üsküdar was shown as the first-level district and Sancaktepe district as the second (SEGE, 2017).

The aim of this study was to investigate traditional and complementary medicine use and related factors during the COVID pandemic in two districts of Istanbul with different socioeconomic levels by administering a questionnaire to patients who applied to the family health centre.

MATERIALS AND METHODS

Study Design and Participants

In this cross-sectional descriptive study, family health centres located in two socioeconomically different districts of Istanbul (Üsküdar and Sancaktepe) were included. Districts were selected according to socioeconomic levels and accessibility by the researchers. The Socio-Economic Development Ranking of Districts Research 2022 report, conducted by the Ministry of Industry and Technology, was used to determine the socioeconomic development ranking. According to this report, Üsküdar district was in the 1st stage and was ranked 16th for socioeconomic development, with a development score of 3,045. Hoverer, Sancaktepe district was in the second stage and ranked 95th, with a development score of 1,275. For the development score, demographic variables of the districts, employment and social security variables, education, health, finance, competitiveness, innovation, and quality of life variables were used. In addition, according to the development ranking for 39 districts of Istanbul, Üsküdar is 11th and Sancaktepe is 34th (SEGE,2022).

After obtaining permission from the Ministry of bnHealth for the study, ethical approval was obtained from the Zeynep Kamil Women's and Children's Diseases Education Hospital Clinical Trials Ethics Committee (Approval no: 2021/34).

The research was conducted on individuals over the age of 18 who applied to both family health centres between 14 September and 16 October 2020.

Survey Items

The survey consisted of three parts and was structured by the researchers using relevant literature (Konakci, Uran & Erkin,2020; Cuellar, Aycock, Cahill & Ford, 2003; Mbizo et al.2018).

In the first part, independent variables (age, gender, marital status, educational status, income level, chronic disease history and self-assessment of their health status) were included to determine the sociodemographic and socioeconomic characteristics of the participants.

The second part of the survey included questions regarding TCM use attitudes and behaviours during the epidemic period. TCM usage, reasons for using TCM, consultancy for TCM, their behaviour regarding the drugs they are currently using when they started using TCM, their information about the side effects of the products they use for TCM, the source of the TCM products they use, places where they apply, and if they had any benefit or not were asked.

A table consisting of two parts was added in the last section of the survey. In the first part of the table, the most commonly used traditional herbs included in the list of medicinal herbs published by the Pharmaceuticals and Medical Devices Agency of Türkiye (TITCK) were included. In the second part, other TCM approaches and their usage (acupuncture, yoga, prayer, music therapy, relaxation techniques, daydreaming, massage, reflexology, spa, homoepathy, reiki, leech therapy, cupping, cupping, bioenergy, hypnotherapy, mesotherapy, ozone therapy) were included. Data were collected by two researchers who took the necessary precautions with personal protective equipment. A questionnaire prepared by the researchers after the literature review was applied to individuals over the age of 18 who were admitted to both family health centres (FHC). The use of traditional and complementary medicine in the pandemic period in two FHC populations and related factors were evaluated. The final questionnaire revision was made after pilot implementation. The participants were informed, and those who agreed to participate were given gloves in disposable packages and asked to fill in the questionnaire under observation. All necessary precautions were taken by the two researchers using personal protective equipment.

Statistical Analysis

The statistical analysis was conducted using SPSS V.22 software with descriptive and inferential methods. The descriptive methods included frequency distribution tables and graphs, and the inferential methods included χ^2 tests for associations between the sociodemographic and other variables. $P<0.05$ statistical significance was set for all analyses.

RESULTS

A total of 352 participants (270 from Üsküdar and 82 from Sancaktepe) were included in the study. Participants were between the ages of 30 and 49 years (42.3%), and the majority were women (67.6%). 45.7% of the participants were high school graduates, and 12.5% were secondary school. Many respondents described their health status as good (60.2%), however 30.1% of them had a chronic disease (Table 1).

The use of TCM during the pandemic period was 34.1% (n=120), comprising 36.3% in Üsküdar and 26.8 % in Sancaktepe. Traditional herbal products were mostly used in TCM in both Üsküdar and Sancaktepe districts (87% and 90.9% respectively). Participants using herbal products were asked to indicate what products they used. The use of traditional and non-traditional herbal products, juices, and herbal teas was similar between the two districts. However, non-prescription vitamins and supplements use differed in Üsküdar and Sancaktepe, 54% and 31.8%, respectively, and it was about 1.7 times higher in Üsküdar (Figure 1).

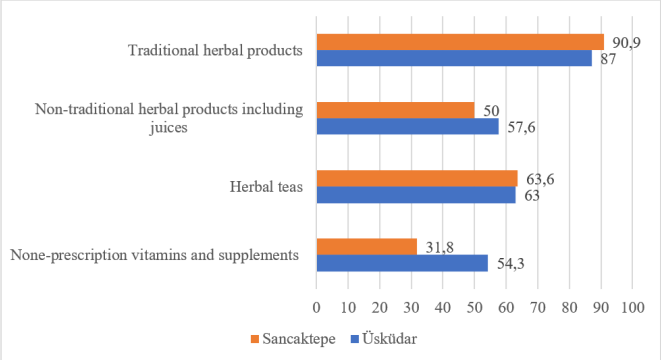

Figure 1. Distribution of herbal products and other dietary intake as therapeutic or preventive

In total, 73.7% of the participants stated that they used at least three products, and 57% of them 5 products. TCM methods, other than herbal products and dietary practises were similar in the Sancaktepe and Üsküdar districts at 65.2% and 54.5%, respectively. In all these methods, mostly the prayer method (41.2 %) was applied and hypnotherapy, reiki and homoeopathy were the least, with 0.9% of each (Figure 2).

Herbal product use was 87.0% in Üsküdar and 90.9% in Sancaktepe. It was the most widely used method in both districts. (Figure II). The distribution of herbal products used by the districts is shown in Table 2. The most commonly used herbal products were herbal teas (63.2%), mint (61.4%), and garlic (47.4%), respectively (Table 2).

Among the 5 most applied methods, the biggest difference was seen in the relaxation method between the districts, which was higher in Üsküdar than in Sancaktepe. Hovewer prayer and dreaming were more common in Sancaktepe (Figure 3).

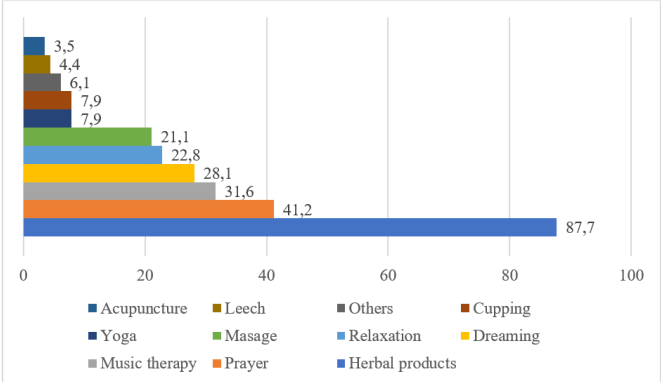

Figure 2. Distribution of TCM methods other than herbal therapy and dietary practises (Others: Reflexology, homoepathy, cupping, mesotherapy, ozone, hypnotherapy etc.)

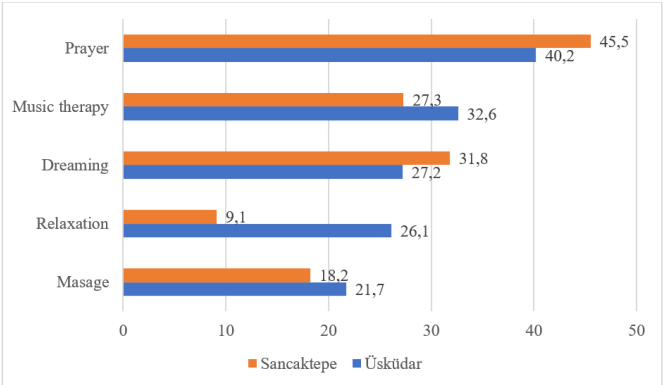

Figure 3. Distribution of the 5 most applied TCM methods by district, excluding herbal treatment and other dietary applications

The reasons for the use of TCM were similar in both districts instead of the presence of chronic disease and old age, which are reported only in the Üsküdar district (13.3 %). The most frequently reported reason was to strengthen the immune system in both Üsküdar and Sancaktepe (80.6 % and 63.6 % respectively) (Table 3).

When the behaviours related to the use of TCM during the COVID period were evaluated, consultations with physicians or other healthcare professionals did not differ in both districts (with an avarage of 47.5% and 10.8 %). However, respondents who obtained information via the internet were more common in Üsküdar (26.5% and 13.6% in Üsküdar and Sancaktepe, respectively), and consultation with neighbours/relatives was more in Sancaktepe (26.5% and 13.6% in Üsküdar and Sancaktepe, respectively). A 25% (n=30) of the total participants stopped their current medications when they started using TCM, and 51.7% (n=62) did not receive information about the side effects of TCM applications, they used without much difference in between the two districts.

Table 1. TCM use according to sociodemographic characteristics of respondents

Sociodemographic characteristics		TCM						p
		Not Used		Used		Total*		
		n	%	n	%	n	%	
Gender	**Male**	78	68.4	36	31.6	114	32.4	0.549
	Female	154	64.7	84	35.3	238	67.6	
Age	**18-29**	79	61.2	50	38.8	129	36.6	0.109
	30-49	97	65.1	52	34.9	149	42.3	
	50 -	56	75.7	18	24.3	74	21.0	
Marital status	**Married**	140	69.3	62	30.7	202	57.4	0.139
	Single	92	61.3	58	38.7	150	42.6	
Education status	**Primary School**	62	79.5	16	20.5	78	22.2	**0.01**
	Secondary School	13	29.5	31	70.5	44	12.5	
	High School	96	59.6	65	40.4	161	45.7	
	University	43	62.3	26	31.7	69	19.6	
Household Income	**Higher**	56	60.2	37	39.8	93	26.4	0.288
	Intermediate	155	68.9	70	31.1	225	63.9	
	Lower	21	61.8	13	38.2	34	9.7	
Health status	**Higher**	138	65.1	74	34.9	212	60.2	0.336
	Intermediate	86	65.6	45	34.4	131	37.2	
	Lower	8	88.9	1	11	9	2.6	
Chronic disease	**Yes**	69	65.1	37	34.9	106	30.1	0.903
	No	163	66.3	83	33.7	246	69.9	
Residence	**Üsküdar**	172	63.7	98	36.3	270	76.7	0.143
	Sancaktepe	60	73.2	22	26.8	82	23.3	
Total		232	65.9	120	34.1	352	100.0	

Note. n=Number, %= Percentage, *=Column %

Table 2. Distribution of traditional herbs and herbal teas used during the epidemic period according to districts**

Herbal products *	Üsküdar	Sancaktepe	Total
	n (%)	n (%)	n (%)
Herbal teas (green tea, sage, chamomile tea, linden)	58 (63.0)	14 (63.6)	72 (63.2)
Mint	58 (63.0)	12 (54.5)	70 (61.4)
Garlic	42 (45.7)	12 (54.5)	54 (47.4)
Ginger	39 (42.4)	10 (45.5)	49 (43.0)
Turmeric	37 (40.2)	9 (40.9)	46 (40.4)
Thyme	33 (35.9)	5 (22.7)	38 (33.3)
Black cumin	25 (27.2)	7 (31.8)	32 (28.1)
Dead nettle	9 (9.8)	4 (18.2)	13 (11.4)
St. John's wort	7 (7.6)	1 (4.5)	8 (7.0)
Echinacea	4 (4.3)	1 (4.5)	5 (4.4)
Aromatherapy	5 (5.4)	0 (0)	5(4.4)

* More than one option was marked. 114 people responded.
****Herbs included in medicinal herb list*: https://www.titck.gov.tr/dinamikmodul/112

Table 3. Reasons for TCM use during COVID pandemic by districts

Reasons for TCM use	Üsküdar		Sancaktepe		Total	
	n	%	n	%	n	%
Strengthen the immune system						
Yes	79	80.6	14	63.6	93	77.5
No	19	19.4	8	36.4	27	22.5
For supportive treatment in COVID-19 disease						
Yes	10	10.2	2	9.1	12	10.0
No	88	89.8	20	90.9	108	90.0
Presence of chronic disease, old age						
Yes	13	13.3	0	0	13	10.8
No	85	86.7	22	100.0	107	89.2
Physical and psychological relaxation						
Yes	15	15.3	3	13.6	18	15.0
No	83	84.7	19	86.4	102	85.0
Doctor's recommendation						
Yes	10	10.2	2	9.1	12	10.0
No	88	89.8	20	90.9	108	90.0
Total	98	81.7	22	18.3	120	100.0

The participants received herbal products mostly from herbalists (53.3%, n=56) and obtaining from the internet was only declared in Üsküdar (5.6 %). They stated that they usually had non-herbal TCM applications at home (80.4%, n=45), similar in the two districts (Table 4).

TCM use did not differ according to gender, age, marital status, income status, health status, and presence of chronic disease ($p>0.05$). However, a significant difference was found according to education level ($p=0.008$). The use of TCM in those with university education was higher than the other groups (40.4%, n=69, $p<0.05$) (Table 5).

Among all TCM applications, herbal tea use was significantly higher in those with higher education levels ($p<0.05$) (Table 1).

DISCUSSION

Many studies have presented different results regarding TCM use and behaviours in different countries and regions of the same country. It is emphasised that these different results may be due to differences in the sociodemographic characteristics of the participants. This is the first study in Turkey on the use of TCM and related factors according to different socioeconomic characteristics during the COVID pandemic.

In this study, TCM use was 34.1%, and traditional herbal products were mostly used during the COVID period, followed by herbal teas and traditional herbal products. Similar to our data from a study conducted in Adana, Turkey, 39.3% of respondents used TCM, and herbal products were mostly preferred (Karataş et al,2021). In a study conducted in Hong Kong, TCM was used by 44.0% of respondents during the pandemic, similar to our study (Lam, Koon, Chung & Cheung, 2021). The fact that people prefer to use herbal products may be due to the consideration of being healthier and more natural, and many allopathic drugs do not have negative effects besides being less costly. In recent studies, it has been seen that phytotherapy is widely used in TCM applications because herbal products and supplements are easily accessible and can be purchased online. People may believe that these products are safer than prescribed drugs because they perceive that nature-based products are safer for consumption (Chali, Hasho & Koricha, 2021; Umeta Chali et al, 2021; Bahall,2017). However, the use of herbs can lead hepatotoxicity and nephrotoxicity and herb-drug interactions (Quintieri, Palatini, Nassi, Ruzza & Floreani, 2008; Akbulut & Bayramoglu, 2013.

Additionally, important changes in the composition of herbal products depending on the source and package, misidentification of the plant, overdilution, mislabelling, active ingredient imbalance, changes in collection procedures, and inadequacy of explanations to patients are among the reasons that may cause problems with phytotherapy (Akbulut & Bayramoglu, 2013; Palabaş Uzun & Koca, 2020). The majority of the partcipitants who used herbal products, obtained these products from herbal shops in our study. Medicinal plants can be obtained from herbalists who have long experience in the preparation and use of plants for years (Palabaş Uzun & Koca, 2020; Kasole, Martin & Kimiywe, 2019). Herbal drugs must be kept under modern hygienic standards to prevent pathogenic microorganisms from microbial load (Govender, du Plessis-Stoman, Downing & van de Venter, 2006). The expiry dates and storage standards of these products should be paid much attention in herbal shops.

Table 4. TCM use behavior during COVID pandemic by districts

TCM use behavior	Üsküdar		Sancaktepe		Total	
	n	%	n	%	n	%
Consultation for the use of TCM (n=120)						
Physician	46	46.9	11	50.0	57	47.5
Healthcare professional (pharmacist, dietitian, physiotherapist)	11	11.2	2	9.1	13	10.8
Internet/Media/newspaper	26	26.5	3	13.6	29	24.2
Advice of neighbors/relatives	15	15.3	6	27.3	21	17.5
Stopping currently used medications (n=120)						
Yes	25	25.5	5	22.7	30	25
No	73	74.5	17	77.3	90	75
Getting information about the side effects TCM (n=120)						
Yes	48	49.0	10	45.5	58	48,3
No	50	51.0	12	54.5	62	51.7
TCM herbal product source (n=105)						
Herbal shop	48	53.9	8	50.0	56	53.3
Pharmacist	36	40.4	8	50.0	44	41.9
Internet	5	5.6	0	0	5	4.8
The place where TCM (non-herbal product) application is made (n=56)						
Home	34	81.0	11	78.6	45	80.4
The places where it applies	8	19.0	3	21.4	11	19.6

Table 5. Distribution of different TCM applications by education levels

TCM		Education levels										p
		≤Primary		Secondary		High school		University		Total		
		n	%	n	%	n	%	n	%	n	%*	
Herbal teas	**Yes**	6	8.3	6	8.3	38	52.8	22	30.6	72	63.2	**0.007**
	No	10	23.8	6	14.3	23	54.8	3	7.1	42	36.8	
Vitamins and supplements	**Yes**	6	10.5	5	8.8	31	54.4	15	26.3	57	50.0	0.503
	No	10	17.5	7	12.3	30	52.6	10	17.5	57	50.0	
Traditional herbs*	**Yes**	2	14.3	1	7.1	10	71.4	1	7.1	14	12.3	0.436
	No	14	14.0	11	11.0	51	51.0	24	24.0	100	87.7	
Other TCM applications	**Yes**	8	19.0	5	11.9	24	57.1	5	11.9	42	36.8	0.210
	No	8	11.1	7	9.7	37	51.4	20	27.8	72	63.2	
Total		16	14.0	12	10.5	61	53.5	25	21.9	114	100	

Note. n=Number, %= Percentage, *=Column %

**Herbs included in medicinal herb list*: https://www.titck.gov.tr/dinamikmodul/112

Apart from herbal treatment and other dietary applications, the most commonly used TCM method in our study was prayer. Similarly, a study conducted in Iran it is emphasised that prayer used as frequently as herbal products among TCM methods (Dehghan, Ghanbari, Ghaedi Heidari, Mangolian Shahrbabaki & Zakeri, 2022).

As there is no sufficient evidence of any antiviral agent against COVID-19, traditional medicine, which has been widely used during the pandemic in the past, has become prominent. Data on the potential effects of dietary therapy and herbal medicines against SARS-CoV-2 have been studied in the literature, but there is not enough supporting evidence (Ang et al,2020; Paudyal, Sun, Hussain, Abutaleb & Hedima, 2022).

We included two districts with different socioeconomic characteristics in this study.

TCM use was higher in Üsküdar, which has a better socioeconomic level than Sancaktepe. Studies based on the overall socioeconomic status (SES) index (SEGE,2022), revealed that the use of TCM is higher in those with high SES similar to previous studies (Xin et al, 2020; Shih, Liao, Su, Yeh & Lin, 2012).

In this study, we also examined the effect of socioeconomic status on TCM choices.

Traditional herbal product use was most common in both districts, whereas non-prescription vitamins and supplements were about 1.7 times more common in Üsküdar district, which has a better socioeconomic status than Sancaktepe. Among the other TCM methods, prayer and dreaming, which have no economic cost, were high in Sancaktepe, while relaxation and massage were high in Üsküdar. These data demonstrate that socioeconomic characteristic affect choices in TCM.

The participants with university education tended to use more TCM, and herbal teas were mostly preferred during the COVID-19 pandemic. We believe that education could promote the understanding of traditional medicine and tend to do more research and awareness to facilitate the use of TCM, as reported in previous findings conducted in Turkey and other countries (Karataş et al, 2021; Lam et al, 2021; Al-Naggar, Bobryshev, Abdulghani & Osman, 2013; Zakaria, Mohd Noor & Abdullah, 2021; Ghaedi, Dehghan, Salari & Sheikhrabori, 2017; Liu et al,2017). However, some studies have shown that an increase in education level reduces the use of TCM, and they also suggest that TCM use decreases because of learning possible side effects (Li et al,2020; Fakeye, Adisa & Musa, 2009). There are also some studies showing that there is no relationship between education level and TCM use (Hori, Mihaylov, Vasconcelos & McCoubrie, 2008; Lim, Sadarangani, Chan & Heng, 2005). Considering these data, it can be seen that the relationship between education level and TCM use may differ.

Another important finding of the study is that more than 50% of those who use herbal products consume five or more products. Combining multiple herbs may also increase the risk of allergic reactions, adverse reactions, and cross-reactions with other pharmaceuticals and supplements. In addition, many dietary supplements potentially increase the risk of interaction even more are packaged in proprietary combinations and can be purchased without a prescription (Falzon & Balabanova, 2017).

In this study, most respondents used TCM without consulting a physician, similar to other studies (Pokladnikova & Telec, 2020 ; Zhang et al,2020; Zakaria et al,2021). Information via the internet was approximately twice as common in Üsküdar as in Sancaktepe, while the rate of seeking friends/relative advice was approximately twice as common in Sancaktepe as in Üsküdar. This result may be related to high socioeconomic level of Üsküdar revealed in socioeconomic status (SES) index (SEGE,2022) and more access of participants to the Internet and computers.

It is also noteworthy that more than 50% of herbal product users does not have any information about the side effects of the products they use.

The herbal products are usually used together with conventional medicine in other studies (Al-Naggar et al, 2013; MacLennan, Wilson & Taylor, 2002; Xue, Zhang, Lin, Da Costa & Story, 2007). In a study conducted in Turkey, participants reported that the use of drugs and herbal products was more effective than the use of drugs alone (Nur,2010).

In contrast to these studies, 25% (n=30) of the participants discontinued their current drug for COVID while using TCM. The use of TCM by discontinuing drug treatment may be due to the lack of an effective antiviral drug therapy for COVID-19.

In this study, we selected two districts with socioeconomic differences. One of these districts was in the first status, and the other was in the second status. It would be good to compare it with the third- and fourth-level regions as well.

Due to the research method, it was not possible to fully represent the populations of both districts. In addition, it is possible that there are temporal differences in the use of TCM by individuals during different periods of the pandemic. Although masks, distance, and personal hygiene rules were followed during the research process, the respondents' answers to the questionnaire may have been lower due to personal concerns.

CONCLUSION

The use of TCM during the COVID-19 pandemic is high, especially in herbal and supplement products. There are differences in the use of TCM, the selection of TCM to use, and some behaviours in districts with different socioeconomic status. The use of TCM increased as education level increased, and those with higher education levels consumed mostly herbal tea.

The fact that more than half of the participants using herbal products used 5 or more products may cause possible interaction and liver/kidney toxicity. It is necessary to raise public awareness of this issue and to prevent misuse. It should not be emphasised that TCM applications pose great risks to the health of individuals unless they are performed by competent individuals.

Ethics Committee Approval: Ethical approval was obtained from the Zeynep Kamil Women's and Children's Diseases Education Hospital Clinical Trials Ethics Committee (Approval no: 2021/34).

Informed Consent: Informed consent was obtained from the participants.

Peer-review: Externally peer-reviewed.

Author Contributions: Conception/Design of Study: H.İ., E.O., F.K.Y., M.A.S., Y.T., B.T.B., I.M.; Data Acquisition: F.K.Y.; Data Analysis/Interpretation: H.İ., E.,O., F.K.Y.; Drafting Manuscript: H.İ., E.,O., F.K.Y.; Critical Revision of Manuscript.H.İ., E.O., B.T.B., I.M.; Final Approval and Accountability : H.İ., E.O., F.K.Y., M.A.S., Y.T., B.T.B., I.M.

Conflict of Interest: The authors have no conflict of interest to declare.

Financial Disclosure: The authors declared no financial support.

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How cite this article

İkiışık, H., Oğuz, E., Kutay Yılmaz, F., Sezerol, M.A., Taşçı,Y., Terzioğlu Bebitoğlu, B., Maral, I. (2024). Traditional and complementary medicine use and associated factors in Covid-19 pandemic. *İstanbul Journal of Pharmacy, 54*(3): 336–344. DOI: 10.26650/IstanbulJPharm.2024.1378705