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Traditional and Complementary Medicines Methods Used by Patients Diagnosed with COVID-19

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Keywords
COVID-19 · Pandemic · Traditional and complementary medicine methods

Abstract
Aim: This study aimed to determine traditional and complementary medicines (T&CM) methods used by patients before and after being diagnosed with COVID-19. ***Methods:*** This descriptive cross-sectional study was carried out between 27 March 2021 and 2 July 2021, in the community health services unit of Düzce Province, Central District, in the western Black Sea region. 547 people participated in the study. Two forms prepared by the researchers, the "Participant Identification Form" and the "Assessment Form for the Use of Traditional and Complementary Medicine Methods," were used to collect the data. ***Results:*** Before the diagnosis of COVID-19, patients reported that they consumed the highest rate of medicinal plants (56.1%) and fruits (40.4%) and prayed (40.4%) to prevent disease. After the diagnosis of COVID-19, they stated that they consumed the highest percentage of medicinal plants (68.4%) and fruit (53.0%) and prayed (48.4%) to reduce disease symptoms. It was seen that herbal products/herbal mixtures (medicinal plants [$p < 0.001$], fruits [$p < 0.001$], and fruit vinegars [$p < 0.001$]), and T&CM methods such as supplements like C, E, D, and other vitamins ($p < 0.001$), prayer ($p < 0.001$), massage ($p < 0.001$), and apitherapy ($p < 0.001$) were found to be statistically significant after COVID-19 diagnosis compared to before. ***Conclusion:*** In this study, it was determined that the patients often used T&CM methods such as herbal products (especially medicinal plants and fruits) and prayer before and after COVID-19 diagnosis, and the use of these T&CM methods increased significantly after diagnosis.

Traditionelle und komplementäre Medizinversorgung, die Patienten mit einer Covid-19-Diagnose angewendet haben

Schlüsselwörter
Covid-19 · Pandemie · traditionelle und komplementäre Medizinversorgung

Zusammenfassung
Ziel: Ziel dieser Studie war es, die traditionelle und komplementäre Medizinversorgung (TKM), die Patienten mit einer Covid-19-Diagnose sowohl vor, als auch nach der Diagnose angewendet haben, zu bestimmen. ***Methoden:*** Diese beschreibende Querschnittsstudie wurde zwischen dem 27. März und dem 2. Juli 2021 in der Einheit des öffentlichen Gesundheitswesens im Zentrum der Provinz Düzce, in der westlichen Schwarzmeerregion durchge-

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führt. An der Studie nahmen 547 Personen teil. Zur Erhebung der Daten wurden von den Forschern ein, "Teilnehmeridentifizierungsformular" und ein "Bewertungsformular für die Anwendung traditioneller und komplementärer Medizinpraktiken" verwendet. ***Befunde:*** Vor der Diagnose von Covid-19 gaben Patienten an, dass sie die höchste Rate an Kräutern (56.1%) und Früchten (40.4%) konsumierten und beteten (40.4%), um sich vor der Krankheit zu schützen. Sie gaben an, Kräuter (68.4%) und Früchte (53.0%) am häufigsten zu konsumieren und beteten (48.4%), die Krankheitssymptome nach der Diagnose von Covid-19 zu lindern. Es zeigt sich, dass die Zunahme von TKM -Methoden wie die Einnahme von pflanzlichen Produkten (Heilpflanzen ($p < 0.001$), Früchte ($p < 0.001$) und Fruchtessig ($p < 0.001$)), Gebet ($p < 0.001$), Vitamine C, E, D usw. ($p < 0.001$) , Massage ($p < 0.001$) und Apitherapie ($p < 0.001$) nach der Covid-19-Diagnose im Vergleich zu vor der Covid-19-Diagnose aus statistischer Sicht bedeutend ist. ***Ergebnis:*** Die Studie zeigt, es wurde festgestellt, dass die Patienten vor und nach der Diagnose von Covid-19 häufig TKM-Methode wie pflanzliche Produkte (insbesondere Heilpflanzen und Früchte) und Gebete verwendeten und die Verwendung dieser TKM-Methode nach der Diagnose signifikant zunahm.

Introduction

Coronavirus disease (COVID-19) is an infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) [1]. SARS-CoV-2 can affect the respiratory system and progress with symptoms such as fever, cough, fatigue, headache, dyspnea, and lymphopenia [2]. The high mortality rate, rapid spread, and continuous mutation of SARS-CoV-2 have brought huge challenges to public health and the economy around the worldwide [3, 4]. Vaccines, immunotherapy, and antiviral and symptomatic treatment options have been developed for the prevention and treatment of COVID -19 disease [5]. In addition to these treatment methods, traditional and complementary medicine (T&CM) has been adopted as an alternative method for the prevention and treatment of COVID-19 [6].

The World Health Organization (WHO) defines complementary medicine as "a set of health practices that are not part of a country's tradition or conventional medicine and are not fully integrated into the dominant health system." To promote the integration of T&CM and conventional medicine in relation to social policy, as well as knowledge and practice, the WHO unit of T&CM was amended in 2017 to include the word "integrative medicine" [7]. T&CM methods included nutrition (e.g., special diets, dietary supplements, herbs), psychological treatment (e.g., meditation, music therapies, relaxation therapies, qigong, hypnotherapy), physical therapies (e.g., acupuncture, massage), combinations such as psychological and physical methods (e.g., yoga), and chiropractic and osteopathic manipulation or traditional medicine (e.g., homeopathy, naturopathy, and functional medicine) [6]. T&CM methods are very actively used for the management of COVID-19 around the world, but the use case may differ between countries depending on the country's medical system [6]. A study conducted in the Netherlands emphasized that 68% of individuals used the T&CM method and 55% of the compounds used were vitamin/mineral supplements [8]. A study conducted in Turkey determined that 39.3% of individuals used T&CM methods in the COVID-19 pandemic, and individuals often consumed herbal medicines and then nutritional supplements/vitamins [9]. A study conducted in the Saudi populations emphasized honey (84%), black seeds (63%), lemon (54%), and ginger (41%) [10]. Studies reported that T&CM methods prevent the progression of the disease course and reduce symptoms [6, 11, 12].

T&CM methods are used not only in disease treatment but also for disease prevention. However, studies with high levels of evidence have not yet been found regarding the effect of T&CM methods in COVID-19 prevention and treatment. As is known, if not used correctly, T&CM methods can cause more harm than good to human health. For this reason, practices that have no scientific basis should be controlled and everyone should be aware of the issue. It is thought that people frequently apply to T&CM methods applications due to the increasing COVID-19 epidemic in our country. Our study was carried out to examine the use of T&CM methods applications by patients diagnosed with COVID-19 to prevent the disease before diagnosis or to reduce symptoms after being diagnosed with COVID-19.

Research Question

1. What are the T&CM methods used by patients diagnosed with COVID-19 to prevent the disease before diagnosis and to reduce symptoms after the diagnosis of COVID-19?

Materials and Methods

Study Design and Location

This descriptive-cross-sectional study was conducted in the community health services unit of Düzce Province, Central District, in the western Black Sea region of Turkey, between March 27, 2021 and July 2, 2021. Since HK, one of the researchers, took part in the filiation team on the specified dates, this unit was chosen as the research center.

Participants

The population of the study consisted of 11,526 people that diagnosed with COVID-19, in Düzce between March 27, 2021 and

Table 1. Distribution of participants' sociodemographic characteristics (n = 547)

	$\bar{x}$ ± SD	
Age (years)	30.13±10.21	
Characteristics	*n*	%
Gender		
Female	403	73.7
Male	144	26.3
Marital status		
Married	221	40.4
Single	326	59.6
Education status		
Literate	12	2.2
Primary school	42	7.7
High school	78	14.3
University and above level	415	75.9
Employment status		
Employed	337	61.6
Unemployed	210	38.4
Status of being a healthcare worker		
Yes	304	55.6
No	243	44.4
Income status		
Income covers expenses	100	18.3
Income does not cover expenses	152	27.8
Income equals expense	294	53.9

$\bar{x}$, mean; SD, standard deviation.

July 2, 2021 [13]. The data of all patients who reached within 3 months were collected; in total, 547 data were obtained. In the post hoc power analysis, the power of the study was determined as 99% (ratio: 1.5, α: 0.05).

Data Collection Tools

Two forms prepared by the researchers, the "Participant Identification Form" and the "Assessment Form for the Use of Traditional and Complementary Medicine Methods," were used to collect the data.

Participant Identification Form

This form was developed by researchers in accordance with the relevant literature [14–17] in order to determine the sociodemographic and medical characteristics of the participants. The form consisted of 10 multiple-choice questions that include the characteristics of the participants such as age, gender, marital status, educational status, employment status, chronic disease history, and symptoms experienced during the COVID-19 process.

Assessment Form for the Use of Traditional and Complementary Medicine Applications

This form was developed by researchers in accordance with the relevant literature [14–19] to determine the patients diagnosed with COVID-19 to prevent the disease before diagnosis or to reduce symptoms after being diagnosed with COVID-19; the reasons and frequency of using these applications; the benefits of the applications; and the sources from which patients learned about the applications. The form consisted of 6 multiple choice questions. With this questionnaire, the use of many T&CM methods such as herbal products/herbal mixtures, commercially available supplements such as C, E, D vitamins, etc., meditation, yoga relaxation, hypnotherapy, music therapy, massage, prolotherapy, reflexology, application of ozone, osteopathy, homeopathy, acupuncture, and aromatherapy, which are used to prevent the disease before the diagnosis of COVID-19 and to reduce the symptoms after the diagnosis, was evaluated.

Data Collection

The data were obtained by contacting the patients who were registered to the Filiation and Isolation Tracking System (FITAS) and diagnosed with COVID-19 via telephone. First of all, data collection tools were transferred to the "Google Forms" application to reduce the risk of COVID-19 contamination. The participants, who were reached by the improbable sampling method, were informed about the research by the researcher HK. The link of the data collection form was sent via WhatsApp to those who wanted to participate in the study. After the participants read and approved the informed consent form, they were able to access the data collection tools. Filling out the data collection forms took approximately 15 min.

Data Analysis

Data were analyzed using SPSS for Windows Version 25.00 (IBM Corporation, Armonk, NY, USA). Data distributions are shown as numbers and percentages for discrete data and mean ± standard deviation for continuous data. Comparison of categorical data of dependent groups was performed using McNemar's test. Statistical significance was accepted as $p < 0.05$.

Results

The mean age of the participants was 30.13 ± 10.21 (Min–Max: 18–79) years; 73.7% (n = 403) were female; 59.6% (n = 326) were single; and 75.9% (n = 415) had undergraduate and postgraduate-level education; 61.6% (n = 337) were employed, and of these 55.6% (n = 304) were healthcare workers; and 53.9% (n = 294) had income equal to their expenses (Table 1).

Table 2 presents the characteristics of study participants regarding the COVID-19 process and T&CM method use. It was determined that patients experienced COVID-19 symptoms such as weakness (79.2%), inability to smell/taste (65.3%), and muscle or joint pain (61.8%). 72.8% of patients stated that they were afraid of infecting others with COVID-19, and 41.5% expressed discomfort remembering what they had experienced during COVID-19. 43.3% of the patients used T&CM methods 1–2 times a day and 43.5% got information about T&CM methods via the internet. 72.8% of participants used T&CM methods after COVID-19 diagnosis because they strengthen the immune system; the rate of participants who believed that T&CM methods would be beneficial when used with medical treatment was 71.8%. 44.8% of participants stated that the T&CM method used after COVID-19 diagnosis reduced/removed weakness.

Of the patients participating in the study, 100% used at least one T&CM method to prevent the disease before being diagnosed with COVID-19 or to reduce symptoms after be-

Table 2. Distribution of participants' characteristics regarding the COVID-19 process and T&CM methods use (*n* = 547)

Characteristics	*n*	%
Physical symptoms associated with COVID-19[a]		
Weakness	432	79.2
Smell/taste problems	357	65.3
Muscle or joint pain	338	61.8
Headache	286	52.3
Dry cough	238	43.5
Fever	210	38.4
Throat ache	172	31.4
Nasal congestion	163	29.8
Shortness of breath	127	23.2
Chest pain	118	21.6
Diarrhea	107	19.6
Tremble	94	17.2
Phlegm	81	14.8
Nausea or vomiting	80	14.6
Psychological effects of being diagnosed with COVID-19[a]		
I am afraid of infecting others with COVID-19	398	72.8
I feel very uncomfortable when I remember that I have been diagnosed with COVID-19	227	41.5
I am afraid of losing my life because of COVID-19	134	23.5
I am afraid of being hospitalized	145	26.5
I can't sleep because I've been diagnosed with COVID-19	68	12.4
I am afraid of being fired because I have been diagnosed with COVID-19	28	5.1
Reasons for using T&CM applications after being diagnosed with COVID-19[a]		
Because it strengthens the immune system	398	72.8
Because it helps to reduce the complaints of weakness or fatigue	239	43.7
Because it reduces cough	184	33.6
Because it relieves pain	128	23.4
Because it reduces the complaints of phlegm and shortness of breath	107	19.6
For getting the fever down	57	10.4
Because it reduces the complaints of nausea or vomiting	29	5.3
Reasons to prefer T&CM applications[a]		
Medical reasons		
Boosting my immune system	335	61.2
No side effects	138	25.2
Psychological reasons		
Believing that it will be beneficial with medical treatment	393	71.8
Being psychologically relieved	193	35.3
Being inexpensive and easy to access	82	15.0
Unwillingness to use medical treatment	60	11.0
Distrust of medical treatment	31	5.7
Benefits of T&CM methods used after diagnosis with COVID-19[a]		
Medical reasons		
It reduced/removed my complaint of weakness	245	44.8
It reduced/removed my fatigue	235	43.0
It reduced/removed the cough	173	31.6
It reduced/removed my pain	150	27.4
It reduced/removed my complaints such as phlegm and shortness of breath	93	17.0
It got my fever down	47	8.6
It reduced/removed my nausea or vomiting complaints	38	6.9
Psychological reason		
Psychologically, it was good	15	2.7
It didn't do any good	70	12.8
Frequency of using T&CM methods[a]		
1-2 times a day	229	43.3
As much as I can think of	221	41.8
1-2 times a week	62	11.7
1-2 times a month	17	3.2
Source for information about T&CM applications[a]		
Internet	238	43.5
Individuals diagnosed with COVID-19	237	43.3
Health personnel	205	37.5
Media (TV, newspaper, magazine)	153	28.0

[a]"*n*" was folded because more than one answer was given.

Table 3. Comparison of the distribution of T&CM methods used by the participants before and after diagnosis with COVID-19 (n = 547)

ing diagnosed with COVID-19. Table 3 presents the frequency of T&CM methods used by the patients before and after COVID-19 diagnosis. Before the diagnosis of COVID-19, patients reported that they consumed the highest rate of medicinal plants (56.1%) and fruits (40.4%) and prayed (40.4%) to prevent disease. After the diagnosis of COVID-19, they stated that they consumed the highest percentage of medicinal plants (68.4%) and fruit (53.0%) and prayed (48.4%) to reduce disease symptoms. It was seen that herbal products/herbal mixtures such as medicinal plants ($p < 0.001$), fruits ($p < 0.001$), and fruit vinegars ($p < 0.001$), and T&CM methods such as supplements like C, E, D, and other vitamins ($p < 0.001$), prayer ($p < 0.001$), massage ($p < 0.001$), and apitherapy ($p < 0.001$) were adopted more frequently after diagnosis with COVID-19 and there was a statistically significant difference between the rates of their use before and after diagnosis with COVID-19.

Discussion

In the light of current information, this study has the feature of being the first study in our country that provides information about the T&CM methods used by patients diagnosed with COVID-19 to prevent the disease before diagnosis or to reduce symptoms after being diagnosed with COVID-19. It is thought that the findings obtained from the study will contribute to the current literature. The most important finding from the study is that all patients diagnosed with COVID-19 used T&CM methods such as herbal products (especially medicinal plants and fruits) and prayer before and after COVID-19 diagnosis, and the use of these T&CM methods increased significantly after diagnosis.

According to WHO, fever, dry cough, and fatigue are the most common symptoms in patients diagnosed with COVID-19 [20]. In our study, patients diagnosed with COVID-19 experienced the symptoms of weakness, inability to smell/taste, and muscle or joint pain the most (Table 2). A study conducted in Turkey reported that the most common symptoms experienced in patients with COVID-19 were fever, cough, and shortness of breath [21]. A study conducted in China reported that individuals most commonly experience symptoms such as cough, fatigue, and phlegm production [22]. A study conducted in the USA reported that fever, dry cough, shortness of breath/difficulty breathing, and headache were the most common symptoms in patients diagnosed with COVID-19 [23]. According to

these findings, different symptoms can be seen in people with the same infection. This difference is thought to be due to the sample characteristics (such as age, weight, chronic disease, immunosuppressive therapy or disease, organ transplant, smoking, etc.) of the studies.

Although effective vaccines have been developed and applied to prevent and treat COVID-19 disease, effective pharmacotherapy, including immunotherapy, has not yet been established. Internationally, this has led to an increase in demand and increased availability of T&CM methods [24]. Our study determined that all COVID-19 patients used at least 1 T&CM method before or after being diagnosed with COVID-19. We also determined that patients often used T&CM methods such as herbal products (especially medicinal plants and fruits) and prayer before and after COVID-19 diagnosis. In addition, after diagnosis with COVID-19, the patients used more herbal products (medicinal plants, fruits, and fruit vinegars), supplements such as C, E, D and other vitamins, prayer, massage, and apitherapy, compared before being diagnosed with COVID-19 (Table 3). A study conducted in Turkey determined that two out of every five individuals used T&CM methods in the COVID-19 pandemic, and individuals often used herbal medicines and then nutritional supplements/vitamins [9]. A study conducted in Saudi Arabia reported that one out of every five individuals used herbal products and food supplements during the COVID-19 pandemic, and almost all took vitamin C supplements before and after diagnosis [25]. A study conducted in India determined that COVID-19 patients consumed the highest rate of herbal products such as Ayurvedic Kadha, Giloy, and basil [26]. A study conducted in Hong Kong determined that two out of every five individuals used T&CM in the COVID-19 pandemic, and the most popular T&CM method was vitamins or other dietary supplements and Chinese herbal medicine [27]. In this context, it is thought that patients generally used herbal applications during the COVID-19 pandemic process, and this is due to the fact that plants and herbal products are natural, safe and harmless, easily accessible, and cheap. In addition, it is thought that the use of herbal products in our country during the COVID-19 pandemic has increased even more with the support of both social media and mass media such as radio and television.

A narrative review reported that T&CM methods offer a versatile approach to prevent diseases, ensure health and well-being, and strengthen the mind/body balance and the body and immune system. For this purpose, it has been stated that T&CM methods are used to help prophylaxis, treatment, and well-being of those who recover from COVID-19 [28]. In this study, 7 out of 10 patients diagnosed with COVID-19 reported that they believed T&CM methods would be beneficial when used with medical treatment. The majority of patients stated that they used T&CM methods because it strengthens the immune system, and nearly half of the patients stated that using the T&CM method reduced/relieved their weakness complaints (Table 2). A study that found half of patients with suspected COVID-19 believed that T&CM methods were beneficial for health [29]; another study reported that the majority of individuals believed the consumption of garlic, onion, and ginger increased immunity and reduced the likelihood of developing COVID-19, and the consumption of vitamin C in citrus fruits had a role in treating or reducing the likelihood of developing COVID-19 [25]. These results show that the society applies T&CM methods as a holistic treatment during the pandemic period. Therefore, we recommend conducting studies on T&CM methods that have high levels of evidence concerning their benefits.

Our study observed nearly half of patients diagnosed with COVID-19 used T&CM methods once or twice a day and reached information about these methods through the Internet and other people diagnosed with COVID-19 (Table 2). A study by Karataş et al. [9] determined that during the COVID-19 pandemic, individuals mostly obtained information about T&CM methods from social media. A study by Alyami et al. [25] determined that during the COVID-19 pandemic, individuals learned T&CM methods from social media and other websites. The Internet and social media are the main sources of information about T&CM methods because individuals can access more information in a short time with these tools.

Limitations

The data obtained in the study are limited to the sample group and cannot be generalized.

Conclusion

The study findings determined that the patients often used T&CM methods such as herbal products (especially medicinal plants and fruits) and prayer before and after COVID-19 diagnosis. In addition, after diagnosis with COVID-19, the patients used more herbal products (medicinal plants, fruits, and fruit vinegars), supplements such as C, E, D and other vitamins, prayer, massage, and apitherapy compared before being diagnosed with COVID-19. Given these results, and to prevent insensible use of the T&CM method in the COVID-19 period, we recommend conducting randomized and repeated studies showing the long-term effects of T&CM methods.

Statement of Ethics

Prior to the research, scientific research eligibility permission from the Republic of Turkey Ministry of Health (Date: December 20, 2020), institutional permission (Date: March 3, 2021, No. E-61518654-619), and Ethics Committee Approval from Istinye

University Human Research Ethics Committee (Date: January 27, 2021/Protocol No. 21-07) were obtained. The research was conducted in accordance with the principles of the Declaration of Helsinki. Participants who wanted to participate in the study signed the informed consent form. Participants were assured that data obtained would only be used for research purposes.

Conflict of Interest Statement

The authors declare no conflicts of interest.

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Author Contributions

Design: Hamide Arslan Tarus, Rüveyda Ölmez Yalazı, and Özlem Can Gürkan; data collection: Hilal Karadeniz; data analysis and interpretation: Hamide Arslan Tarus, Rüveyda Ölmez Yalazı, Hilal Karadeniz, and Özlem Can Gürkan; manuscript draft: Hamide Arslan Tarus, Rüveyda Ölmez Yalazı, Hilal Karadeniz, and Özlem Can Gürkan; critical analysis of content: Özlem Can Gürkan; final approval and responsibility: Özlem Can Gürkan; and supervision: Özlem Can Gürkan.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author (ÖCG) upon reasonable request.

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