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DETERMINING THE STATUS OF ELDERLY PEOPLE TO USE HERBAL PRODUCTS DURING THE COVID-19 PANDEMIC
COVID-19 PANDEMİ SÜRECİNDE YAŞLILARIN BİTKİSEL ÜRÜN KULLANMA DURUMLARININ BELİRLENMESİ

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ABSTRACT

This descriptive study was conducted to determine the status of elderly people to use herbal products during the COVID-19 pandemic. The sample group of the study consisted of 268 individuals aged 65 years and over who were enrolled at Aşıkpaşa Family Health Center in the downtown of Kırşehir city. The data were collected using the "Data Collection Form" prepared by the researchers upon the review of relevant literature. It was determined that 18.3% of the elderly people used herbal products for COVID-19 treatment, 64.6% for prophylaxisagainst COVID-19 and 77.2% for any reason outside COVID-19. The most frequently used herbal products before and during the the COVID-19 pandemic were citrus fruits, garlic, vinegar, mint, linden and rose hip and the frequency of using these herbal products increased during the COVID-19 pandemic. The rate of using herbal products was higher in employed elderly people than their unemployed counterparts and in those having no problem of access to a health institution than those having a problem ($p<0.05$). The rate of using herbal products was higher in elderly adults with confirmed COVID-19 infection and those under quarantine at the hospital or at home as COVID-19 suspect ($p<0.05$).It is recommended for healthcare professionals to collect data concerning the use of herbal products during the COVID-19 pandemic and implement effective consultancy services for the use of herbal products.

Keywords: Herbal product, SARS-CoV-2, elderly.

ÖZ

Araştırma COVID-19 pandemi sürecinde yaşlıların bitkisel ürün kullanma durumlarının belirlenmesi amacıyla tanımlayıcı türde yapılmıştır. Araştırmanın örneklem grubunu Kırşehir il merkezinde bulunan Aşıkpaşa Aile Sağlığı Merkezlerinde kayıtlı 65 yaş ve üzeri 268 birey oluşturmuştur. Veriler, araştırmacılar tarafından ilgili literatür incelenerek oluşturulan "Veri Toplama Formu" kullanılarak toplanmıştır. Yaşlıların % 18.3'ünün COVID-19 tedavisi için, %64.6'sının COVID-19'dan korunmak için ve %77.2'sinin COVID-19 dışında herhangi bir nedenden dolayı bitkisel ürün kullandığı belirlenmiştir. COVID-19 pandemi öncesinde ve sonrasında en çok kullanılan bitkisel ürünler turunçgiller, sarımsak, sirke, nane, ıhlamur ve kuşburnu olup bu bitkisel ürünlerin COVID-19 pandemi sürecinde kullanım sıklıklarının artığı belirlenmiştir. Çalışan yaşlıların çalışmayan yaşlılara göre, sağlık kurumuna ulaşımda sorun yaşamayan yaşlıların sorun yaşayanlara göre bitkisel ürün kullanım oranın daha yüksek olduğu belirlenmiştir ($p<0.05$). Yaşlılardan COVID-19'a yakalananların ve COVID-19 şüpheli hasta olarak hastane veya evde karantinada kalanların bitkisel ürün kullanımları daha yüksek olarak belirlenmiştir ($p<0.05$).Sağlık profesyonellerinin COVID-19 pandemi sürecinde bitkisel ürün kullanımına yönelik veri toplaması ve bitkisel ürün kullanımı için etkili danışmanlık stratejileri uygulamaları önerilmektedir.

Anahtar kelimeler: Bitkisel ürün, SARS-CoV-2, yaşlı.

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INTRODUCTION

Coronavirus (COVID-19), which has influenced the world, is an infectious disease that manifests itself with acute respiratory syndrome in humans. Most people infected with the COVID-19 virus suffer from mild to moderate respiratory tract illness and recover without special treatment (1). However, the fact that the elderly people are susceptible to infection and they are frequently seen in chronic diseases (2) such as hypertension, diabetes (3) and kidney disease (4). Increases the risk of the elderly to experience severe symptoms of the disease and to die from COVID-19 (5,6).

Medicinal plant is described as the parts of the medicinal plant used for therapeutic purposes (leaf, flower, root, bark, fruit, aerial parts) are mostly dried without being subject to any process, sometimes fresh, extracts prepared from these parts (aqueous/alcoholic), or the products obtained by subjecting these parts to a process (7,8). Herbal products are widely used in the prevention and treatment of health problems in many countries (9). The studies have reported that herbal medicines are used in the treatment of many diseases/disorders, including infectious and non-communicable diseases, as well as microbial and viral infections, reproductive health problems and psychiatric diseases (10-14). In a study conducted in Turkey, the prevalence of using herbal products by the elderly was found to be 30% in Turkey (15), 67.8% (16) in Iran, 50% (17) in Malaysia, and 35%(18) in the United States.

The increase in the incidence of chronic diseases, dissatisfaction with health services, high health costs, negative medical results, and side effects of treatments or drugs can be regarded as the reasons for preferring to use herbal products (19). Furthermore, during the present COVID-19 pandemic, many people from different cultures use Complementary and Alternative Medicine (CAM) methods to strengthen and maintain their immunity against COVID-19 (20). Individuals with health problems generally use these practices beyond the knowledge of health professionals. These practices, the scientific content of which has not been proven, can cause negative consequences that can seriously affect human health as well as even death (21).

In a recent meta-analysis study, it was concluded that herbal medicine can reduce the rate of H1N1 influenza infection (22). However, there are no studies to provide conclusive evidence for the use of herbal products alone or in combination with standard therapy to reduce viral load and/or symptoms in COVID-19 and provide an option for the prevention or treatment of COVID-19. However, it is thought that the elderly, who are considered to be a risky group during the COVID-19 pandemic use more frequently herbal products upon the effect of their previous experiences. Therefore, the aim of the study is to determine the use of herbal products by the elderly during the COVID-19 pandemic.

METHODS

Design

This study was conducted with descriptive design to determine the use of herbal products by the elderly during the COVID-19 pandemic.

Study participants

The population of the study consisted of 3247 individuals aged 65 and over who are enrolled at Aşıkpaşa Family Health Center. In the study conducted by Erdoğan et al., (23) in Turkey, the rate of using herbal products by the elderly was determined as 55.2%. The rate of using herbal products was taken as 55.2% and the sample size was determined as 268 at power interval of 90% and significance level of 0.05 to estimate the P recommended by the World Health Organization within an absolute percentage of d with power of 90% (24). The sample selection of the study was chosen via random method from the improbable sampling methods among the individuals who visited the FHC.

Data Collection Forms and Technique

A survey form prepared by the researchers based on the literature (1-22) was used to collect the data. The researcher collected the data via face-to-face interview between 19 May 2021 and 16 July 2021. While collecting the data, the rules of mask and social distancing (1.5 meters) that must be followed during the COVID-19 pandemic were followed.

Statistical analysis

SPSS 22.0 packaged software was used for the data analysis. Number, percentage, mean and standard deviation values were used in the analysis, and chi-square analysis was also applied. In the evaluation of chi-square; ıf the frequencies in the boxes of the comparison tables are 25 and above 25, Pearson Chi-square test was used, if the number of observations in any box is below 25, Yates Corrected Chi-square test was used, and if the number of observations in the boxes was very low or the expected frequency value in any box is less than five Fisher's exact test was used. The value of $p<0.05$ was accepted as statistically significant.

Ethical Considerations

Approval was obtained from the Scientific Research Board of the Ministry of Health and the ethics committee of Kırşehir Ahi Evran University (2021-09/93) before starting the study. Before filling out the survey forms, the researcher or the elderly individuals read the informed consent form so that verbal consent of the elderly individuals was obtained.

RESULTS

In the study, it was found that 50.7% of the elderly participating in the study were male, 35.4% were primary school graduates, 91.4% were married, 52.6% were employed, 70.1% perceived their income level as middle, 72.8% were living with their family, 64.2% did not have any problem in access toa health institution and 83.6% had social security. The mean age was 68.88±3.67 years and most (64.2%) were in the age range of 65-69 years (Table I).

When the health-disease characteristics of the elderly were examined, it was determined that 70.5% of them perceived their health at a moderate level and 94.8% suffered from a disease requiring continuously treatment and regularly used drugs. 28.0% of the elderly were infected with COVID-19 and 43.7% were put in quarantine at hospital or home as a suspected COVID-19 patient. 18.3% of the elderly used herbal products for the treatment of COVID-19, 64.6% used herbal products to prevent COVID-19, and 77.2% used herbal products for any reason other than COVID-19 (Table II).

Table I: Socio-demographic characteristics of the elderly

Variables	Number (n)	Percentage (%)
Age	(Min-Max) (65-81)	x±sd 68.88± 3.67
65-69	172	64.2
70-74	67	25.0
75 years and above	29	10.8
Gender		
Male	136	50.7
Female	132	49.3
Marital Status		
Married	245	91.4
Single	23	8.6
Educational Background		
Literate	10	3.7
Primary School	95	35.4
Secondary School	86	32.1
High School	47	17.5
University and higher	30	11.2
Working Status		
Employed	141	52.6
Unemployed	127	47.4
Perceived Income Level		
High	64	23.9
Middle	188	70.1
Low	16	6.0
Social Security		
Yes	224	83.6
No	44	16.4
With whom they live		
Family*	195	72.8
Alone	73	27.2
Status of having problems in access to a health institution		
Yes	172	64.2
No/Sometimes	96	35.8
Total		**100.00**

* Spouse and Children, with spouse, with one of his children

Table II: Some health-disease and COVID-19-related characteristics of the elderly

Characteristics	Number (n)	Percentage (%)
Health Perception		
Good	58	21.6
Moderate	189	70.5
Bad	21	7.8
The Presence of Disease Requiring Continuously Treatment		
Yes	254	94.8
No	14	5.2
Regular Drug Use		
Yes	254	94.8
No	14	5.2
Status of being infected with COVID-19		
Yes	75	28.0
No	193	72.0
Status of being put in quarantine at hospital or home as a suspected COVID-19 patient		
Yes	117	43.7
No	151	56.3
Status of using herbal product for COVID-19 treatment		
Yes	49	18.3
No	219	81.7
Status of using herbal products for preventing COVID-19		
Yes	173	64.6
No	95	35.4
Using herbal products for any reason other than COVID-19		
Yes	207	77.2
No	61	22.8

The use of herbal products used by the elderly before the COVID-19 pandemic increased during the COVID-19 pandemic. The distribution of the use frequency of herbal products indicated that the participants used mostly citrus fruits (54.5%), garlic (51.5%), vinegar (49.6%), mint (45.1%), linden (43.7%) and rose hip (38.8%) at a high rate before the COVID-19 pandemic. When examining the distribution of use frequency of herbal product of the elderly during the COVID-19 pandemic, it was determined that citrus fruits (78.7%), garlic (73.9%), vinegar (72.4%), mint (57.8%), linden (64.2%) and rosehip (58.6%) took place near the top with high usage rates (Table III).

Table III. Status of using herbal product for the elderly before and during the COVID-19 pandemic

Herbal products	Before COVID-19 Pandemic		During COVID-19 Pandemic	
	I used Number (%)	I did not use Number (%)	I used Number (%)	I did not use Number (%)
Nettle	70 (26.1)	198 (73.9)	87 (32.5)	181 (67.5)
Mint	121 (45.1)	147 (54.9)	155 (57.8)	113 (42.2)
Thyme	95 (35.4)	173 (64.6)	131 (48.9)	137 (51.1)
Garlic	138 (51.5)	130 (48.5)	198 (73.9)	70 (26.1)
Flax seed	9 (3.4)	259 (96.6)	14 (5.2)	254 (94.8)
Chamomile	50 (18.7)	218 (81.3)	89 (33.2)	179 (66.8)
Turmeric	65 (24.3)	203 (75.7)	104 (38.8)	164 (61.2)
Rose hip	104 (38.8)	164 (61.2)	157 (58.6)	111 (41.4)
Ginger	74 (27.6)	194 (72.4)	116 (43.3)	152 (56.7)
Sumac	32 (11.9)	236 (88.1)	54 (20.1)	214 (79.9)
Citrus fruits	146 (54.5)	122 (45.5)	211 (78.7)	57 (21.3)
Vinegar	133 (49.6)	135 (50.4)	194 (72.4)	74 (27.6)
Cassia	4 (1.5)	264 (98.5)	10 (3.7)	258 (96.3)
Turnip juice	28 (10.4)	240 (89.6)	32 (11.9)	236 (88.1)
Coriander	15 (5.6)	253 (95.4)	17 (6.3)	251 (93.7)
Cinnamon	83 (31.0)	185 (69.0)	129 (48.1)	139 (51.9)
Linden	117 (43.7)	151 (56.3)	172 (64.2)	96 (35.8)
Green tea	68 (25.4)	200 (74.6)	87 (32.5)	181 (67.5)
Echinacea	3 (1.1)	265 (98.9)	12 (4.5)	256 (95.5)
Sage	22 (8.2)	246 (91.8)	44 (16.4)	224 (83.6)
Hibiscus	2 (0.7)	266 (99.3)	3 (1.1)	265 (98.9)
Licorice	2 (0.7)	266 (99.3)	5 (1.9)	263 (98.1)
Clove	23 (8.6)	245 (91.4)	31 (11.6)	237 (88.4)
Cortex granati fructuum	2 (0.7)	266 (99.3)	2 (0.7)	266 (99.3)

The distribution of the use of herbal product by the elderly during the COVID-19 pandemic for treatment and prevention according to their socio-demographic characteristics is examined in Table IV. It was determined that the use of herbal products by the elderly for treatment and prevention varied according to their working status and status of having problems in access to a health institution. The rate of using herbal products was higher in the employed ones than unemployed ones and in those who did not have any problem in access toa health institution compared to those who did not ($p<0.05$). The use of herbal products by the elderly had no significant association with age, gender, marital status, education level, perceived income, social security, and the family member they live with (Table IV).

There was a significant association between the use of herbal products by the elderly in terms of being infected with COVID-19 and being put in quarantine at hospital or home as a suspected COVID-19 patient. The use of herbal products was higher in those who were infected with COVID-19 and were put in quarantine at hospital or home as a suspected COVID-19 patient ($p<0.05$). No significant association was found between health perception, the presence of disease requiring continuously treatment, and regular drug use, from other health and COVID-19-related characteristics (Table V).

DISCUSSION

The world population is aging upon decreasing birth rates and increasing life expectancy. Turkey is one of the rapidly aging countries (25). The ratio of elderly population to total population in Turkey is 9.5%. Non-communicable diseases (NCDs), including heart disease, stroke, cancer, diabetes and chronic lung disease, are collectively responsible for almost 70% of all deaths worldwide (26). In a population-based study, it was determined that 95.7% of the elderly had at least one chronic disease and 84.5% had at least three chronic diseases, and the average total number of drugs used by the elderly was 5.0±3.2 (27). The studies conducted in different provinces in the literature have reported that most of the elderly have a chronic disease and use a drug continuously(28-31).In the study, it was determined that although most of the elderly (70.5%) perceived their health as moderate, a great majority of them (94.8%) suffered from a disease requiring continuously treatment and regularly used drugs (Table II); however, no significant association was determined between status of having diseases requiring continuous treatment and regular drug use and the use of herbal products (Table V). The fact that drug use of the elderly

Table IV: Distribution of the use of herbal products by the elderly for treatment and prevention based on their socio-demographic characteristics

Socio-demographic Characteristics	Those using herbal products		Those not using herbal products		Test statistic and p value
	Number (n)	Percentage (%)	Number (n)	Percentage (%)	
Age					
65-69	114	66.3	58	33.7	χ^2=1.233
70-74	47	70.1	20	29.9	p=0.540
75 years and above	22	75.9	7	24.1	
Gender					
Male	85	64.4	47	35.6	χ^2=1.817
Female	98	72.1	38	27.9	p=0.178
Marital Status					
Married	170	69.4	75	30.6	χ^2=1.068
Single	13	56.5	10	43.5	p=0.301
Educational Background					
Primary school and lower	70	66.7	35	33.3	χ^2=0.208 p=0.648
Secondary school and higher	113	69.3	50	30.7	
Working Status					
Employed	111	78.7	30	21.3	**χ^2=14.974**
Unemployed	72	56.7	55	43.3	**p=0.000**
Perceived Income Level					
Middle-low	135	66.2	69	33.8	χ^2=1.368
High	48	75.0	16	25.0	p=0.242
Social Security					
Yes	154	68.8	70	31.2	χ^2=0.037
No	29	65.9	15	34.1	p=0.847
With whom they live					
Family	129	66.2	66	33.8	χ^2=1.160
Alone	54	74.0	19	26.0	p=0.281
Status of having problems in access to a health institution					
Yes	108	62.8	64	37.2	**χ^2=6.689**
No	75	78.1	21	21.9	**p=0.010**

Table V: Distribution of the use of herbal products by the elderly for treatment and prevention based on some of their health and COVID-19-related characteristics

Characteristics	Those using herbal products		Those not using herbal products		Test value and p value
	Number (n)	Percentage (%)	Number (n)	Percentage (%)	
Health Perception					
Good+Moderate	169	68.4	78	31.6	χ^2=0.000
Bad	14	66.7	7	33.3	p=1.000
The Presence of Disease Requiring Continuously Treatment					
Yes	171	67.3	83	32.7	χ^2=2.072
No	12	85.7	2	14.3	p=0.237
Regular Drug Use					
Yes	171	67.3	83	32.7	χ^2=2.072
No	12	85.7	2	14.3	p=0.237
Status of being infected with COVID-19					
Yes	70	93.3	5	6.7	**χ^2=28.590**
No	113	58.5	80	41.5	**p=0.000**
Status of being put in quarantine at hospital or home as a suspected COVID-19 patient					
Yes	105	89.7	12	10.3	**χ^2=44.157**
No	78	51.7	73	48.3	**p=0.000**

was higher in the study compared to the value reported in other studies can be attributed to both the chronic diseases of the elderly and the COVID-19 pandemic. The drug use has increased as a result of the aging of the world population and the increased incidence of chronic diseases and has become an important problem (32,33). Herbal products are used in the prevention and treatment of numerous chronic diseases such as hypertension, asthma, COPD, diabetes, hyper lipidemia, and cancer (34) and current studies have revealed that the use of herbal medicines and CAM is higher in individuals suffering from chronic diseases (10,35). In one study, it was found that 52.7% of hypertensive patients used the CAM method (35) and in another study, 94.3% of the participants utilized herbal methods(36).It was determined that 73% of patients of chronic obstructive pulmonary disease (COPD)(10)and 54.2% of asthma patients used herbal products (11). 61.8% of patients with gynecologic cancer used mostly herbal treatment and medicinal teas (37). In their study, Maggiore et al., (38) stated that 17% of older people with cancer used complementary therapy methods. In their study, Sayın Kasar et al., (13) stated that 25.8% of the elderly employed the CAM method for pain and the methods used were mostly herbal products (65.2%). The results of the study revealed that people with chronic diseases used or preferred herbal products to promote or maintain their health. In the study, it was determined that most of the elderly (77.2%) used herbal products for any reason other than COVID-19;however,its reason was not questioned in detail in the study. However, within the scope of the purpose of the study, the elderly's use of herbal products for the treatment and prevention of COVID-19 during the COVID-19 pandemic was questioned. It was determined that more than half of the elderly (64.6%) used herbal products to prevent COVID-19 and only 18.3% for the treatment of COVID-19 (Table II). The high prevalence of herbal product use in this study and other studies in Turkey can be associated with Turkey's cultural background and traditional beliefs. Most of the plants in Turkey are collected from nature and they may be bought from places such as herbalists, grocery stores, and markets.

Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus (1). The World Health Organization declared COVID-19, which has spread all over the world, as a pandemic on 11 March 2020. COVID-19 (39), which has led millions of people to be infected and many others to pass away all over the world, has increased the mortality rate in old age group, especially because the elderly are more susceptible to infection and have severe disease symptoms (11). Furthermore, since those having underlying medical problems such as cardiovascular disease, diabetes, COPD and cancer have higher probability of developing serious diseases and old people have higher prevalence of chronic diseases, especially old people constitute the risk group (6). The studies have also observed that patients hospitalized due to COVID-19 suffer from mostly chronic diseases such as cardiovascular disease, diabetes, hypertension, and chronic obstructive pulmonary disease, those with these chronic diseases are also more often hospitalized in the intensive care unit and the average age of mortal cases is higher (40,41). In their study, Türkmenoğlu et al., the prevalence of herbal product use was 30% among the elderly (15). In a study investigating the use of complementary and alternative medicine methods by elderly individuals living in rural areas, it was determined that 70.7% of old people used herbal therapies (42). In another study, CAM method mostly used by the elderly residing in a nursing home was herbal supplements (55.2%) (23). In a study conducted in the Eastern Anatolia Region in Turkey, 15.7% of old people stated that they used at least one of the herbal supplements (43). A study conducted in Iran reported that 67.8% of the elderly used herbal products (16). The results of the study indicated that 28.0% of the elderly were infected with COVID-19 and 43.7% were put in quarantine at hospital or home as a suspected COVID-19 patient (Table II) and the use of herbal products was higher in those who were infected with COVID-19 and were put in quarantine at hospital or home as a suspected COVID-19 patient. In line with these results, it can be asserted that elderly people had an increased interest in herbal products during the COVID-19 pandemic. Additionally, it was thought that the elderly might have preferred to use herbal products as they are susceptible to COVID-19, they have severe symptoms of the disease, and its incidence and mortality rates are high among the elderly.

The use of effective treatments and vaccines is the top priority, especially in a pandemic period when the elderly are at risk due to coronavirus; however, the elderly population may turn to use non-pharmacological herbal products because of both chronic diseases and reducing the cumulative inflammatory load. Indeed, in the study, the elderly stated that they used various herbal products. They used mostly citrus fruits, garlic, vinegar, mint, linden and rosehip especially before the COVID-19 pandemic and during the COVID-19 pandemic and this rank was the same before the COVID-19 pandemic and during the COVID-19 pandemic, but the frequency of using these herbal products increased during the COVID-19 pandemic (Table III). In a study conducted to determine the use of herbal products in elderly individuals, the mostly used plants by the elderly were determined as nettle (13.8%) and black cumin oil (10.3%) (43). In another study, it was found that the elderly used many herbs such as garlic, ginger, and ginseng (15). The fact that herbal products are of natural origin does not mean that they are safe, and the use of herbal products with drugs can lead to serious herbal product-drug interactions (34). Particularly, the elderly people suffer from chronic diseases and also they have increasingly used herbal products for prevention and treatment of COVID-19 during the COVID-19 pandemic. This suggests that the old people are at risk in terms of potential herbal product and drug interactions.

The use of herbal products by the elderly had no significant association with age, gender, marital status, educational background, perceived income, social security, and the family member they lived with (Table IV). The studies conducted with different age groups and the elderly in the literature have demonstrated results indicating that socio-demographic characteristics affect (16,44,45) and do not affect (46,47) the use of CAM and herbal products. In the study, it was found that the rate of using herbal products was higher in employed par-

ticipants compared to their unemployed counterparts (Table IV). This result was thought to be associated with the fact that purchasing power of the employed elderly individuals facilitates access to herbal products. An interesting finding of the study is that the rate of using herbal products was higher in those who did not have problems in access to a health institution compared to those who did (Table IV).

CONCLUSION

It was found that the elderly used herbal products for the prevention and treatment of COVID-19, and the mostly used herbal products before and during the COVID-19 pandemic were citrus fruits, garlic, vinegar, mint, linden and rosehip. The rate of using herbal products was higher in employed elderly people than unemployed counterparts and in those having no problem in access to a health institution than those having a problem. The use of herbal products was higher in those who were infected with COVID-19 and were put in quarantine at hospital or home as a suspected COVID-19 patient. It is recommended for healthcare professionals to collect data on the use of herbal products during the COVID-19 pandemic and apply effective counseling strategies for the use of herbal products.

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Conflicts of interest
There is no conflict of interest.

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