

## After The COVID-19 Pandemic, Nurses' Attitudes Toward The Use of Herbs for Seasonal Influenza in Türkiye\*

Türkiye’de COVID-19 Pandemisi Sonrasında Hemşirelerin Mevsimsel Gripte Bitkisel Tedavileri Kullanımına Yönelik Tutumları  
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### ABSTRACT

**Objective:** This study aims to examine the attitude of nurses toward the use of herbal therapies for seasonal influenza after the COVID-19 pandemic.

**Methods:** This descriptive study was completed with 153 nurses working in shifts at the university hospital. This study was conducted between April 1, 2023, and May 1, 2023. The data were collected in the form of an online questionnaire with the "Introductory Information Form" prepared by the researchers in line with the literature, and the "Attitudes Towards Using Complementary Therapies Scale".

**Results:** The mean age of the participants was 31.84±6.32 years. Among the nurses who participated in the study, 58.2% stated that they had COVID-19 disease in the previous years (2019–2022), and 41.8% had seasonal flu this year (2023). The majority of nurses (91.5%) reported knowing herbal methods, and 39.2% reported using social media as a source of herbal method information. Demographic factors did not significantly affect COVID-19 and seasonal influenza status, herbal treatment knowledge or use. However, gender, education and marital status played a role in participation in herbal treatment.

**Conclusion:** In this study, it was found that nurses who experienced seasonal influenza after the COVID-19 pandemic had positive attitudes toward the use of herbal treatment during influenza. The most frequently used methods for herbal treatment include herbal teas, the use of herbal oils, and mixtures. In the study, it was found that nurses used rosemary tea, chamomile oil, and black cumin honey mixtures the most, respectively.

**Keywords:** Herbs, Nurse, Seasonal influenza

### ÖZET

**Amaç:** Bu çalışma, COVID-19 pandemisi sonrasında hemşirelerin mevsimsel influenza için bitkisel tedavilerin kullanımına yönelik tutumlarını incelemeyi amaçlamaktadır.

**Yöntem:** Tanımlayıcı tipteki bu çalışma, üniversite hastanesinde vardiyalı olarak çalışan 153 hemşire ile tamamlandı. Çalışma 1 Nisan - 1 Mayıs 2023 tarihleri arasında yapıldı. Veriler, araştırmacılar tarafından literatür doğrultusunda hazırlanan "Tanıtıcı Bilgi Formu" ve "Tamamlayıcı Tedavileri Kullanmaya Yönelik Tutum Ölçeği" ile online anket şeklinde toplanmıştır.

**Bulgular:** Katılımcıların yaş ortalaması 31.84±6.32 yıl idi. Araştırmaya katılan hemşirelerin %58,2'si önceki yıllarda (2019-2022) COVID-19 hastalığı geçirdiğini, %41,8'i bu yıl (2023) mevsimsel grip geçirdiğini belirtmiştir. Hemşirelerin çoğunluğu (%91,5) bitkisel yöntemleri bildiğini ve %39,2'si bitkisel yöntem bilgi kaynağı olarak sosyal medyayı kullandığını bildirmiştir. Demografik faktörler COVID-19 ve mevsimsel grip durumunu, bitkisel tedavi bilgisini veya kullanımını önemli ölçüde etkilememiştir. Ancak, cinsiyet, eğitim ve medeni durum bitkisel tedaviye katılımı rol oynamıştır.

**Sonuç:** Bu çalışmada, COVID-19 pandemisinden sonra mevsimsel grip yaşayan hemşirelerin grip sırasında bitkisel tedavi kullanımına yönelik tutumlarının olumlu olduğu bulunmuştur. Bitkisel tedavi için en sık kullanılan yöntemler arasında bitkisel çaylar, bitkisel yağların kullanımı ve karışımlar yer almaktadır. Çalışmada hemşirelerin sırasıyla en çok biberiye çayı, papatya yağı ve çörek otu balı karışımlarını kullandıkları tespit edilmiştir.

**Anahtar Kelimeler:** Bitkisel, Hemşire, Mevsimsel grip

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## Introduction

Coronavirus disease (COVID-19) is an acute lung disease that became a global pandemic in late 2019.<sup>1</sup> Respiratory symptoms of COVID-19 are similar to those of other respiratory infections, including cough, fever, lung lesions, fatigue, myalgia, and diarrhea.<sup>2,3</sup> COVID-19 impacts many aspects of a patient's life and can significantly impact patients with existing chronic diseases.<sup>4</sup> The COVID-19 pandemic has not only put the global health system at risk, it has also changed the perspectives and practices of the healthcare sector.<sup>5,6</sup> As the world confronts this unprecedented crisis, public interest and research on alternative therapies and prevention measures to strengthen the immune system and prevent respiratory diseases have increased.<sup>7,8</sup> Herbal therapies have attracted considerable attention in people's quests for ways to complement conventional therapies and reduce the risk of viral infections such as seasonal influenza.<sup>9-11</sup> This growing interest in herbs has led researchers to examine the attitudes and perceptions of health professionals, especially nurses, towards these alternative therapies in the context of seasonal influenza.

Nurses are vital to patient care as first-line health providers, providing evidence-based interventions and support.<sup>12</sup> Their attitudes and beliefs about treatment options have a major impact on patient education, decision-making, and general care.<sup>13</sup> Because people are increasingly interested in herbal therapies that can support traditional medicine, it is essential to understand nurses' attitudes towards these methods, especially the use of seasonal influenza in the aftermath of the COVID-19 pandemic.<sup>14,15</sup> Investigating nurses' attitudes towards the use of herbal therapies against seasonal influenza can illuminate several important issues.<sup>15</sup> Firstly, it can provide an overview of the extent to which nurses have adopted these alternative therapies as a result of the impact of the pandemic on health practice.<sup>16</sup> In addition, understanding nurses' attitudes can help identify potential obstacles and challenges when incorporating herbal therapies into practice, such as knowledge gaps, professional doubts, or concerns about safety and effectiveness.<sup>17</sup> Furthermore, studies of nurse attitudes can reveal educational and training opportunities to improve their understanding of these treatments and equip them with evidence-based knowledge to effectively guide patient conversations.<sup>16</sup> Nurses in Türkiye have a generally positive view of herbal and complementary medicine, but they do not have sufficient knowledge about herbal and complementary medicine and the majority of Turkish nurses have not received any formal training in this field. In a study published in 2021, it was found that the traditional and complementary medicine practices used by Turkish nursing students against COVID-19 were biological applications, massage with oils, and listening to relaxing music, respectively. In this study, the traditional and complementary therapies with a biological approach that the participants frequently used were drinking herbal tea in the first place with a rate of 87.4%; consuming lemons, artichokes, green vegetables and fruits such as red cabbage, pomegranate, strawberry, hot pepper in the second place with a rate of 57.7%; and consuming meat, fish or eggs in the third place with a rate of 20.3%. Other frequently used products were ginger, turmeric and many other herbs consumed in the forms of tea or added to meals to strengthen the immune system. The study also revealed that nurses were more likely to use herbal and complementary medicine for themselves than to recommend it to their patients.<sup>18</sup> A study in 2022 examined the use of complementary and alternative therapies for COVID-19 by Turkish nurses. The nurses who participated in the study were found to use herbal products (71.2%), pray (56.8%), listen to music (26.4%), dietary support (24.8%), and hot application (10.4%) among complementary treatment methods. Among herbal products, which are one of the most preferred complementary treatment methods, nurses frequently used thyme (40.7%), ginger (28.6%), and mint-lemon (27.5%).<sup>19</sup>

To study nurses' attitudes towards the use of herbal therapies for seasonal influenza after the outbreak, health professionals and researchers can promote patient-centered care, support informed decision-

making, and contribute to the development of comprehensive treatment approaches that integrate traditional and alternative methods.<sup>5,20</sup> However, this research can help shape future health practices, optimize patient outcomes, and ensure that nurses are well prepared to navigate the changing health landscape after the COVID-19 pandemic. This descriptive study aims to examine the attitude of nurses toward the use of herbal therapies for seasonal influenza after the COVID-19 pandemic.

## **Material and Method**

### **Sampling and design**

This descriptive study was conducted between April 1, 2023, and May 1, 2023, with nurses working in shifts at a university hospital in Türkiye, who met the inclusion criteria and volunteered to participate in the study. The population of the study consisted of (n = 500) nurses working as shift nurses at the University Hospital. The sample of the study consisted of 153 nurses working in shifts at the university hospital who accepted to participate in the study. The online study questionnaire was delivered by the virtual snowball sampling method, one of the purposive sampling methods.

### **Inclusion criteria**

- 18-65 years old
- Shift worker
- Having a social media account due to online participation

### **Exclusion criteria**

- Individuals who do not want to participate in the research
- Incomplete forms
- The nurses who declined to participate in the research are included.

### **Data collection tools**

The data were collected in the form of an online questionnaire with the "Introductory Information Form" prepared by the researchers in line with the literature, and the "Attitudes Towards Using Complementary Therapies Scale".

### **Introductory information form**

This form includes multiple-choice questions about sociodemographic characteristics (age, gender, marital status, income level, educational status, family type, employment unit, chronic disease status) and 21 questions about beliefs and practices related to herbal treatments.<sup>19-21</sup>

### **Attitudes Towards Using Complementary Therapies Scale (ACTS)**

The scale developed by Bilge et al. measures individuals' attitudes toward complementary treatment use during periods when they experience health problems.<sup>23</sup> This 4-point Likert-type scale ("0" strongly disagree, "1" somewhat agree, "2" strongly agree, "3" strongly agree) consists of 13 items, and the ninth item is reverse scored. Each item is evaluated on a scale of 0–3, with the lowest score being zero and the highest score being 39. A high score on the scale indicates a positive attitude towards complementary therapy. In the study of Bilge et al. , the Cronbach alpha reliability coefficient of the scale was found to be 0.79.<sup>23</sup> The Cronbach alpha reliability coefficient of the study was found to be 0.70.

### **Data Collection**

The data were administered to the nurses through a link created on the questionnaire application Google Form. Informed consent was obtained from the participating nurses with an informed consent text

explaining the purpose of the study and the information included in the data collection form, and a confirmation box informing them of their participation in the study. The questionnaires were delivered to the nurses through online social media groups. Nurses who agreed to participate in the study completed the questionnaires. The data were collected by the same researcher.

### Data analysis

Data analysis was evaluated in the SPSS 22.0 program. Descriptive data were presented as numbers (n), means, and percentages (%).

### Ethical Aspects of the Research

To implement the study and collect the data, study permissions were obtained from the institutional permission of the university hospital (24.03.2023-E.489755) and the Local Ethics Committee of Selçuk University Faculty of Medicine (01.03.2023-E.471803). Permission for the scales used in data collection was also obtained from authorized persons. Online informed consent was obtained from each participating nurse. This study was conducted by the Declaration of Helsinki Principles of Good Clinical Practice.

### Results

The mean age of the participants was  $31.84 \pm 6.32$  years. Most of the participants (62.7%) were female. 69.9% of the participants had a bachelor's degree, 55.6% were single, and 75.2% had nuclear families. While 62.7% of the participants worked in hospital clinical services, 11.2% reported having chronic diseases (**Table 1**).

**Table 1.** Demographic characteristics of the nurses (N = 153)

	n	%
<b>Gender</b>		
Female	96	62.7
Male	57	37.3
<b>Income level</b>		
Income is less than expenses	22	14.4
Income equals expenses	96	62.7
Income is greater than expenses	35	22.9
<b>Marital status</b>		
Married	68	44.4
Single	85	55.6
<b>Education level</b>		
High school	7	4.6
Pre-licence	26	17.0
Undergraduate	107	69.9
Post-graduate	13	8.5
<b>Family structure</b>		
Nuclear family	115	75.2
Extended family	37	24.2
Fragmented family	1	0.6
<b>Working unit</b>		
Emergency Service Department	16	10.5
Service Department	96	62.7
Intensive Care Department	36	23.5
Operation Room	5	3.3
<b>Chronic disease status</b>		
Yes	18	11.8
No	135	88.2
	<b><math>\bar{X} \pm SD</math></b>	
<b>Age</b>	$31.84 \pm 6.32$	

In **Table 2**, it was determined that the variables related to COVID-19 status, seasonal flu status, herbal treatment knowledge and the use of herbal methods in seasonal flu were not statistically different according to the demographic factors of the participants ( $P>0.05$ ).

**Table 2.** Practices on COVID-19 disease or seasonal influenza and herbal treatment according to participants' demographic characteristics

	COVID-19 disease transmission status (2019-2022)		Seasonal flu exposure (2023)		Knowledge of herbal therapy		Use herbal methods when you have seasonal influenza		Side effects of herbal therapy	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
<b>Gender</b>										
Female	58 (%60.4)	38 (%39.6)	41 (%42.7)	55 (%57.3)	86 (%89.6)	10 (%10.4)	93 (%96.9)	3 (%3.1)	1 (%1.0)	95 (%99.0)
Male	31 (%54.4)	26 (%45.6)	23 (%40.4)	34 (%59.6)	54 (%94.7)	3 (%5.3)	54 (%94.7)	3 (%5.3)	1 (%1.8)	56 (%98.2)
Istatistical value*	P= 0.465		P=0.775		P=0.269		P=0.510		P=0.707	
<b>Income level</b>										
Income is less than expenses	12 (%54.5)	10 (%45.5)	9 (%40.9)	13 (%59.1)	20 (%90.9)	2 (%9.1)	22 (%100)	-	-	22 (%100)
Income equals expenses	55 (%57.3)	41 (%42.7)	35 (%36.5)	61 (%63.5)	87 (%90.6)	9 (%9.4)	90 (%93.8)	6 (%6.2)	2 (%2.1)	94 (%97.9)
Income is greater than expenses	22 (%62.9)	13 (%37.1)	20 (%57.1)	15 (%42.9)	33 (%94.3)	2 (%5.7)	35 (%100)	-	-	35 (%100)
Istatistical value*	P=0.792		P=0.104		P=0.797		P=0.157		P=0.548	
<b>Marital status</b>										
Married	44 (%64.7)	24 (%35.3)	29 (%42.6)	39 (%57.4)	64 (%94.1)	4 (%5.9)	67 (%98.5)	1 (%1.5)	1 (%1.5)	67 (%98.5)
Single	45 (%52.9)	40 (%47.1)	35 (%41.2)	50 (%58.8)	76 (%89.4)	9 (%10.6)	80 (%94.1)	5 (%5.9)	1 (%1.2)	84 (%98.8)
Istatistical value*	P=0.143		P=0.855		P=0.300		P=0.162		P=0.874	
<b>Education level</b>										
High school	4 (%57.1)	3 (%42.9)	1 (%14.3)	6 (%85.7)	7 (%100)	-	7 (%100)	-	-	7 (%100)
Pre-licence	13 (%50)	13 (%50)	13 (%50)	13 (%50)	26 (%100)	-	25 (%96.2)	1 (%3.8)	-	26 (%100)
Undergraduate	65 (%60.7)	42 (%39.3)	46 (%43)	61 (%57)	95 (%88.8)	12 (%11.2)	102 (%95.3)	5 (%4.7)	2 (%1.9)	105 (%98.1)
Post-graduate	7 (%53.8)	6 (%46.2)	4 (%30.8)	9 (%69.2)	12 (%92.3)	1 (%7.7)	13 (%100)	-	-	13 (%100)
Istatistical value*	P=0.775		P= 0.307		P=0.252		P=0.807		p=0.832	
<b>Family structure</b>										
Nuclear family	72 (%62.6)	43 (%37.4)	47 (%40.9)	68 (%59.1)	103 (%89.6)	12 (%10.4)	110 (%95.7)	5 (%4.3)	1 (%0.9)	114 (%99.1)
Extended family	17 (%45.9)	20 (%54.1)	17 (%45.9)	20 (%54.1)	36 (%97.3)	1 (%2.7)	36 (%97.3)	1 (%2.7)	1 (%2.7)	36 (%97.3)
Fragmented family	-	1 (%100)	-	1 (%100)	1 (%100)	-	1 (%100)	-	-	1 (%100)
Istatistical value*	P=0.101		P= 0.600		P=0.325		P=0.886		P=0.690	
<b>Working unit</b>										
Emergency Service Department	8 (%50)	8 (%50)	5 (%31.2)	11 (%68.8)	14 (%87.5)	2 (%12.5)	14 (%87.5)	2 (%12.5)	1 (%6.2)	15 (%93.8)

Service	55	41	42	54	86	10	92	4	-	96
Department	(%57.3)	(%42.7)	(%43.8)	(%56.2)	(%89.6)	(%10.4)	(%95.8)	(%4.2)		(%100)
Intensive Care	23	13	15	21	35	1	36	-	1 (%2.8)	35
Department	(%63.9)	(%36.1)	(%41.7)	(%58.3)	(%97.2)	(%2.8)	(%100)			(%97.2)
Operation	3	2	2	3	5	-	5	-	-	5
Room	(%60.0)	(%40.0)	(%40.0)	(%60.0)	(%100)		(%100)			(%100)
Istatistical value*	P=0.811		P=0.828		P=0.430		P=0.186		P=0.174	
<b>Chronic disease status</b>										
Yes	11	7	6	12	18	-	18	-	-	18
	(%61.1)	(%38.9)	(%33.3)	(%66.7)	(%100)		(%100)			(%100)
No	78	57	58	77	122	13	129	6	2	133
	(%57.8)	(%42.2)	(%43)	(%57)	(%90.4)	(%9.6)	(%95.6)	(%4.4)	(%1.5)	(%98.5)
Istatistical value*	P=0.788		P=0.437		P=0.169		P=0.362		P=0.603	

\*Chi-square test

According to **Table 3**, it is seen that female participants participate in herbal treatment more than male participants. It shows that there is a significant difference between genders especially in terms of herbal treatment information source, application process and reasons for using herbal treatment (P<0.05). There is no significant difference between different income levels in the use of herbal treatment. Regardless of income level, it is seen that the majority of the participants apply to herbal treatment for similar reasons. It is seen that marital status does not significantly affect the use of herbal treatment among the participants. However, there is a statistically significant difference between married and single people in terms of the reasons for using herbal treatment (P<0.05). There is a statistically significant difference in the reasons for using herbal treatment in those with higher education level (bachelor's and master's degree) (P<0.05). There is no significant difference between the participants' place of work and the presence of chronic diseases and herbal treatment practices.

**Table 3.** Practices on herbal treatment according to participants' demographic characteristics

	Source of herbal therapy information				Product used in herbal therapy			The application process for herbal methods		
	Social media	Family and friends	Television	Published sources	Herbal tea	Vegetables and fruits	Spices	At the onset of illness	In the process of medical drug therapy	When the medical drug treatment is finished
<b>Gender</b>										
Female	48	32	8	8	42	25	29	41	53	2
	(%50.1)	(%33.3)	(%8.3)	(%8.3)	(%43.8)	(%26.0)	(%30.2)	(%42.7)	(%55.2)	(%2.1)
Male	12	25	10	10	17	23	17	15	37	5
	(%21.1)	(%43.9)	(%17.5)	(%17.5)	(%29.8)	(%40.4)	(%29.8)	(%26.3)	(%64.9)	(%8.8)
Istatistical value*	P=0.003				P=0.127			P=0.035		
<b>Income level</b>										
Income is less than expenses	10	7	2	3	11	8	3	7	14	1
	(%45.5)	(%31.8)	(%9.1)	(%13.6)	(%50.0)	(%36.4)	(%13.6)	(%31.8)	(%63.6)	(%4.6)
Income equals expenses	36	37	12	11	33	33	30	33	58	5
	(%37.5)	(%38.5)	(%12.5)	(%11.5)	(%34.4)	(%34.4)	(%31.2)	(%34.4)	(%60.4)	(%5.2)
Income is greater than expenses	14	13	4	4	15	7	13	16	18	1
	(%40)	(%37.2)	(%11.4)	(%11.4)	(%42.9)	(%20.0)	(%37.1)	(%45.7)	(%51.4)	(%2.9)
Istatistical value*	P=0.993				P=0.211			P=0.768		

<b>Marital status</b>										
Married	34 (%40.0)	32 (%37.6)	10 (%11.8)	9 (%10.6)	34 (%40.0)	26 (%30.6)	25 (%29.4)	31 (%36.5)	50 (%58.8)	4 (%4.7)
Single	26 (%38.2)	25 (%36.8)	8 (%11.8)	9 (%13.2)	25 (%36.8)	22 (%32.4)	21 (%30.8)	25 (%36.8)	40 (%58.8)	3 (%4.4)
Istatistical value*	P=0.967				P=0.920			P=0.996		
<b>Education level</b>										
High school	3 (%42.8)	2 (%28.6)	1 (%14.3)	1 (%14.3)	3 (%42.8)	2 (%28.6)	2 (%28.6)	1 (%14.3)	5 (%71.4)	1 (%14.3)
Pre-licence	6 (%23.1)	8 (%30.8)	4 (%15.4)	8 (%30.7)	6 (%23.1)	13 (%50.09)	7 (%26.9)	7 (%26.9)	19 (%73.1)	-
Undergraduate	47 (%43.9)	40 (%37.4)	12 (%11.2)	8 (%7.5)	45 (%42.1)	29 (%27.1)	33 (%30.8)	40 (%37.4)	61 (%57)	6 (%5.6)
Post-graduate	4 (%30.8)	7 (%53.8)	1 (%7.7)	1 (%7.7)	5 (%38.4)	4 (%30.8)	4 (%30.8)	8 (%61.5)	5 (%38.5)	-
Istatistical value*	P=0.109				P=0.467			P=0.153		
<b>Family structure</b>										
Nuclear family	43 (%37.4)	46 (%40.0)	15 (%13.0)	11 (%9.6)	49 (%42.6)	33 (%28.7)	33 (%28.7)	46 (%40.0)	66 (%57.4)	3 (%2.6)
Extended family	16 (%43.3)	11 (%29.7)	3 (%8.1)	7 (%18.9)	10 (%27.0)	14 (%37.8)	13 (%35.2)	10 (%27.0)	24 (%64.9)	3 (%8.1)
Fragmented family	1 (%100.0)	-	-	-	-	1 (%100.0)	-	-	-	1 (%100.0)
Istatistical value*	P=0.511				P=0.278			P=0.000		
<b>Working unit</b>										
Emergency Service Department	8 (%50.0)	3 (%18.8)	3 (%18.8)	2 (%12.4)	6 (%37.4)	3 (%18.8)	7 (%43.8)	7 (%43.8)	8 (%50.0)	1 (%6.3)
Service Department	38 (%39.6)	39 (%40.6)	10 (%10.4)	9 (%9.4)	39 (%40.6)	32 (%33.3)	25 (%26.0)	34 (%35.4)	59 (%61.5)	3 (%3.1)
Intensive Care Department	12 (%33.3)	14 (%38.9)	4 (%11.1)	6 (%16.7)	12 (%33.3)	12 (%33.3)	12 (%33.3)	13 (%36.1)	20 (%55.6)	3 (%8.3)
Operation Room	2 (%40.0)	1 (%20.0)	1 (%20.0)	1 (%20.0)	2 (%40.0)	1 (%20.0)	2 (%40.0)	2 (%40.0)	3 (%60.0)	-
Istatistical value*	P=0.780				P=0.763			P=0.863		
<b>Chronic disease status</b>										
Yes	7 (%38.9)	6 (%33.3)	3 (%16.7)	2 (%11.1)	8 (%44.5)	6 (%33.3)	4 (%22.2)	6 (%33.3)	11 (%61.1)	1 (%5.6)
No	53 (%39.2)	51 (%37.8)	15 (%11.1)	16 (%11.9)	51 (%37.8)	42 (%31.1)	42 (%31.1)	50 (%37.1)	79 (%58.5)	6 (%4.4)
Istatistical value*	P=0.917				P=0.731			P=0.942		

p &lt; .05

\*Chi-square test



**Table 3.1.** Practices on herbal treatment according to participants' demographic characteristics

	Frequency of resorting to herbal therapy				Reasons to use herbal therapy				
	The appropriate time	One to two times a day	One to two times a week	Only once	Fighting the disease directly	Increasing the body's resistance	Feel good	Emotional recovery	Reduce the effects of illness
<b>Gender</b>									
Female	30 (%31.3)	38 (%39.6)	20 (%20.8)	8 (%8.3)	54 (%56.3)	21 (%21.8)	7 (%7.3)	9 (%9.4)	5 (%5.2)
Male	19 (%33.4)	17 (%29.8)	15 (%26.3)	6 (%10.5)	24 (%42.1)	24 (%42.1)	5 (%8.8)	4 (%7.0)	-
Istatistical value*	P=0.647				P=0.046				
<b>Income level</b>									
Income is less than expenses	8 (%36.4)	7 (%31.8)	6 (%27.3)	1 (%4.5)	11 (%50.0)	4 (%18.2)	4 (%18.2)	2 (%9.1)	1 (%4.5)
Income equals expenses	29 (%30.3)	37 (%38.5)	22 (%22.9)	8 (%8.3)	53 (%55.2)	26 (%27.1)	6 (%6.3)	7 (%7.3)	4 (%4.1)
Income is greater than expenses	12 (%34.3)	11 (%31.4)	7 (%20.0)	5 (%14.3)	14 (%40.0)	15 (%42.9)	2 (%5.7)	4 (%11.4)	-
Istatistical value*	P=0.849				P=0.267				
<b>Marital status</b>									
Married	24 (%28.2)	32 (%37.6)	20 (%23.6)	9 (%10.6)	47 (%55.3)	26 (%30.6)	7 (%8.2)	1 (%1.2)	4 (%4.7)
Single	25 (%36.8)	23 (%33.8)	15 (%22.0)	5 (%7.4)	31 (%45.6)	19 (%27.9)	5 (%7.4)	12 (%17.6)	1 (%1.5)
Istatistical value*	P=0.687				P=0.007				
<b>Education level</b>									
High school	4 (%57.1)	1 (%14.3)	1 (%14.3)	1 (%14.3)	4 (%57.1)	1 (%14.3)	-	-	2 (%28.6)
Pre-licence	10 (%38.5)	9 (%34.6)	5 (%19.2)	2 (%7.7)	10 (%38.5)	10 (%38.5)	1 (%3.8)	5 (%19.2)	-
Undergraduate	28 (%26.2)	41 (%38.3)	27 (%25.2)	11 (%10.3)	55 (%51.4)	31 (%29.0)	11 (%10.3)	7 (%6.5)	3 (%2.8)
Post-graduate	7 (%53.8)	4 (%30.8)	2 (%15.4)	-	9 (%69.2)	3 (%23.1)	-	1 (%7.7)	-
Istatistical value*	P=0.481				P=0.012				
<b>Family structure</b>									
Nuclear family	40 (%34.8)	39 (%33.9)	26 (%22.6)	10 (%8.7)	60 (%52.2)	33 (%28.7)	9 (%7.8)	9 (%7.8)	4 (%3.5)
Extended family	9 (%24.3)	16 (%43.2)	9 (%24.3)	3 (%8.1)	18 (%48.7)	12 (%32.4)	2 (%5.4)	4 (%10.8)	1 (%2.7)
Fragmented family	-	-	-	1 (%100.0)	-	-	1 (%100.0)	-	-
Istatistical value*	P=0.700				P=0.127				
<b>Working unit</b>									
Emergency Service Department	2 (%12.5)	6 (%37.5)	4 (%25.0)	4 (%25.0)	12 (%75.0)	3 (%18.7)	-	-	1 (%6.3)
Service Department	34 (%35.4)	38 (%39.6)	19 (%19.8)	5 (%5.2)	43 (%44.8)	32 (%33.3)	7 (%7.3)	10 (%10.4)	4 (%4.2)
Intensive Care Department	10 (%27.8)	11 (%30.6)	10 (%27.8)	5 (%13.8)	22 (%61.1)	6 (%16.7)	5 (%13.9)	3 (%8.3)	-
Operation Room	3 (%60.0)	-	2 (%40.0)	-	1 (%20.0)	4 (%80.0)	-	-	-
Istatistical value*	P=0.093				P=0.083				



Chronic disease status									
Yes	5 (%27.8)	5 (%27.8)	6 (%33.3)	2 (%11.1)	7 (%38.8)	8 (%44.4)	1 (%5.6)	1 (%5.6)	1 (%5.6)
No	44 (%32.6)	50 (%37.0)	29 (%21.5)	12 (%8.9)	71 (%52.6)	37 (%27.4)	11 (%8.1)	12 (%8.9)	4 (%3.0)
Istatistical value*	P=0.670				P=0.588				

p &lt; .05

\*Chi-square test

It is seen that teas and mixtures are mostly among the herbal methods used by nurses when they have seasonal influenza. Of the nurses, 64.7% stated that they drank rosemary tea, 64.1% rosehip tea, 46.4% thyme tea, 45.8% lemon tea with honey, 37.9% black elderberry extract tea, 37.3% licorice root tea, 34.6% green tea, 33.3% mint tea, 16.3% olive leaf tea, and 10.5% pomegranate flower tea. When we examined the mixtures used by the participants when they had influenza, 72.5% consumed black cumin honey mixture, 69.3% consumed linden honey mixture, 62.7% consumed horseradish honey mixture, 55.6% consumed ginger honey mixture, 43.1% consumed turmeric milk mixture, and 28.1% consumed black pepper milk mixture. In addition, 73.2% of the nurses consumed onion and onion peel, 49.7% consumed lemon and orange, 47.7% consumed dried berries and black grapes, and 32.7% consumed garlic. In addition, 88.9% of the nurses stated that they used chamomile oil against influenza symptoms, and 71.2% used eucalyptus oil (**Table 4**).

**Table 4.** Herbal methods used by nurses during seasonal influenza

Herbal CAM therapy	n	%
Lemon, orange, etc. fruits	76	49.7
Rosehip tea	98	64.1
A mixture of ginger and honey	85	55.6
Rosemary tea	99	64.7
Mint tea	51	33.3
Use of chamomile oil	136	88.9
Use of eucalyptus oil	109	71.2
Eating garlic	50	32.7
A mixture of milk and turmeric	66	43.1
Use onions and onion peel	112	73.2
Use lemon tea with honey	70	45.8
A mixture of black cumin and honey	111	72.5
Honey mixture of horseradish	96	62.7
Eating dried mulberries and dried black grapes	73	47.7
Black elderberry extract tea	58	37.9
Thyme tea	71	46.4
A mixture of milk with black pepper	43	28.1
A mixture of linden and honey	106	69.3
Liquorice tea	57	37.3
Olive leaf tea	25	16.3
Pomegranate flower tea	16	10.5
Green tea	53	34.6

Abbreviations: CAM, Complementary and Alternative Medicine

When the sociodemographic characteristics of the nurses and the ACTS total score were compared, the overall ACTS score was found to be 31.03±4.06. There was no statistically significant difference between nurses' sociodemographic and seasonal influenza characteristics and the ACTS total score ( $p > 0.05$ ) (**Table 5**).

**Table 5.** Comparison of sociodemographic and seasonal influenza-related characteristics of nurses and the mean total score of ACTS (N = 153)

Sociodemographic Characteristics of Nurses and Use of Herbal Methods in Seasonal Influenza	ACTS Total Mean±Sd
<b>Gender</b>	
Female	30.91 ±3.98
Male	31.22 ±4.21
p*	0.579
<b>Marital status</b>	
Married	30.77 ±3.96
Single	31.23 ±4.15
p*	0.543
<b>Income level</b>	
Income is less than expenses	30.45±3.69
Income equals expenses	30.88±4.31
Income is greater than expenses	31.80±3.52
p**	0.448
<b>COVID-19 disease transmission status</b>	
Yes	30.80±4.20
No	31.34±3.86
p*	0.443
<b>Seasonal flu exposure</b>	
Yes	30.42±4.23
No	31.47±3.89
p*	0.092
<b>Chronic disease status</b>	
Yes	31.16±4.03
No	31.01±4.07
p*	0.901
<b>Use herbal methods when you have seasonal influenza</b>	
Yes	31.11±3.96
No	29.00±6.09
p*	0.375
<b>The application process for herbal methods</b>	
At the onset of illness	30.41±4.45
In the process of medical drug therapy	31.31±3.64
When the medical drug treatment is finished	32.42±5.62
p**	0.355
<b>ACTS TOTAL SCORE</b>	<b>Mean±Sd</b>
	<b>Min-max</b>
Total scale score	31.03±4.06
	17-39

Abbreviations: ACTS, Attitudes Toward Using Complementary Therapies Scale

\*Mann Whitney U test, \*\*Kruskal Wallis test \*\*p &lt; . 05

## Discussion and Conclusion

This study aimed to investigate nurses' attitudes toward the use of herbal treatment for seasonal influenza in the post-COVID-19 pandemic period. The study revealed findings on nurses' experiences with COVID-19 and seasonal flu, as well as their knowledge and sources of information about herbal methods. The high ratio of women nurses (60.4 %) who reported having COVID-19 since the beginning of the COVID-19 pandemic (2019–2022) emphasizes the significant impact of the pandemic on healthcare professionals. Nurses, who are at the forefront of patient care, are at higher risk of exposure to infectious diseases. This finding underscores the challenges faced by nurses during the COVID-19 pandemic and the importance of ensuring their well-being and protection. Furthermore, 42.7% of women nurses reported having seasonal influenza this year (2023), indicating that healthcare workers are not immune to common respiratory infections. The study also found that the majority of nurses (91.5%) knew about herbal methods. This shows that there is widespread awareness of herbal treatments among nurses. The reasons behind this may be multifaceted. Nurses may have acquired knowledge through their professional training, personal

experiences, or patient interactions. The general popularity of herbal treatments and increased public interest during the COVID-19 pandemic may have contributed to nurses' familiarity with herbal methods. A study supports this result.<sup>19</sup> A significant portion of the women nurses (50.1%) stated that they used social media as a source of information about herbal methods. Social media platforms have become a common source of information about health, including alternative and complementary therapies. Studies have shown that social media and the internet are at the forefront of the use of herbal treatments.<sup>19,23</sup> However, the reliability and accuracy of information shared on social media can be significantly altered. As healthcare professionals, nurses need to critically evaluate the information they encounter and make sure that this information is evidence-based practice.

The findings presented in Table 2 indicate that there were no statistically significant differences observed in various variables related to COVID-19 status, seasonal flu status, herbal treatment knowledge, and the use of herbal methods in seasonal flu, based on the demographic factors of the participants. In previous studies, a significant proportion of nurses, especially those trained in herbal and complementary therapies, used herbal treatment during the COVID-19 pandemic.<sup>24</sup> This is influenced by factors such as age, perceived danger of the pandemic and concern about infection.<sup>24</sup> In Indonesia, a pro-herbal and complementary therapy attitude, magical and holistic health beliefs, and knowledge about herbal medicines were found to be key factors in their use.<sup>25</sup> In Saudi Arabia, male nurses aged 30-39 years, married, and with a diploma degree were more likely to use preventive measures against COVID-19.<sup>26</sup> In contrast to our study, different studies have shown that different beliefs and sociodemographic characteristics affect nurses' attitudes towards herbal therapy use.

According to the findings in Table 3, female participants exhibited a significantly higher rate of participation in herbal therapy compared to male participants, indicating a gender difference in participation in herbal therapy. Orabi et al. found that nurses had generally positive attitudes towards the use of herbal medicine during pregnancy and lactation, with age and number of children being important factors.<sup>27</sup> Income level did not significantly affect herbal therapy use, suggesting that individuals from different socioeconomic backgrounds had similar participation rates. Marital status did not affect overall herbal therapy use, but there were significant differences in reasons for use between married and single individuals. Education level played a role in influencing reasons for herbal therapy use, particularly among the highly educated. In contrast to our study, in Vietnam, herbal medicine use was particularly prevalent among those who were married, living in urban areas, and had higher incomes.<sup>28</sup> Place of employment and the presence of chronic diseases did not significantly affect herbal medicine practices. These findings emphasize the importance of considering gender, education and marital status when designing interventions and educational materials on herbal medicine.

The study findings showed that herbal teas were widely used by nurses as a complementary approach to medical drug treatments for influenza. This highlights the trend for nurses to incorporate alternative and complementary therapies into their health practice. Among the herbal teas consumed in the study, rosemary tea was the most popular, and 64.7% of the nurses reported using it. Research has shown that the use of herbal tea, particularly green tea and tea catechin extracts, can be effective in preventing influenza infection in high-risk groups such as nurses and elderly residents.<sup>29,30</sup> These studies also found that the use of herbal supplements, including an herbal formula and traditional Chinese medicine, can prevent the spread of severe acute respiratory syndrome (SARS) and improve quality of life and influenza-like symptoms in healthcare workers.<sup>31</sup> These findings suggest that the use of herbal tea and supplements may be a viable and safe option for preventing and managing influenza in nurses.

In our study, it was determined that nurses working in shifts had positive attitudes toward herbal treatment. Previous studies have also found that nurses have positive attitudes towards herbal complementary therapies.<sup>19,32</sup> However, despite the positive attitudes observed, it is very important to recognize that nurses also expressed concerns about the safety, efficacy, and regulation of herbal therapies. Efforts to provide nurses with education and training on herbal therapies can promote evidence-based practice and improve patient care. More research is needed to explore the context of herbal therapies.

In this study, the most frequently used methods for herbal treatment include herbal teas, the use of herbal oils, and mixtures. In the study, it was found that nurses used rosemary tea, chamomile oil, and black cumin honey mixtures the most, respectively. Influenza is a viral infection that affects millions of people worldwide. While vaccination is the most recommended method to prevent influenza, some nurses rely on herbal treatments to boost their immune systems and relieve symptoms. However, it is important to consider the safety and reliability of these herbs. Although there are limited studies on the effectiveness of herbal treatments for seasonal influenza, some herbs have been traditionally used to prevent or manage respiratory illnesses. Future similar studies are planned for the future, making it important for nurses to use herbal treatment methods in diseases such as influenza.

### **Ethical Limitations**

Results do not have an appropriate comparator as nurses' perceptions and attitudes during the pandemic before COVID-19 were not investigated. Therefore, it is unclear whether the results of nurses in this study were affected by the COVID-19 pandemic. This limitation should be taken into consideration in future studies.

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### **Ethical Approval**

To implement the study and collect the data, study permissions were obtained from the institutional permission of the university hospital (24.03.2023-E.489755) and the Local Ethics Committee of Selçuk University Faculty of Medicine (01.03.2023-E.471803). Permission for the scales used in data collection was also obtained from authorized persons. Online informed consent was obtained from each participating nurse.

### **Author Contributions**

Birsel Molu: Idea, design, data collection and processing, analysis and comment, source search, article writing, criticism

Alev Yildirim Keskin: Idea, design, data collection and processing, analysis and comment, source search, article writing, criticism

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