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PREDICTORS OF COMPLEMENTARY AND ALTERNATIVE MEDICINE USE AMONG HEALTHCARE PROFESSIONALS DURING THE COVID-19 PANDEMIC: A QUANTITATIVE STUDY

COVID-19 PANDEMİSİ SIRASINDA SAĞLIK ÇALIŞANLARI ARASINDA TAMAMLAYICI VE ALTERNATİF TIP KULLANIMININ YORDAYICILARI: NİCEL BİR ÇALIŞMA

Aylin Bilgin[1*], Leyla Özdemir[2], Kadir Baysoy[2]

[1]Department of Nursing, Faculty of Health Sciences, Sakarya University of Applied Sciences, Sakarya, Türkiye

[2]Department of Internal Medicine Nursing, Faculty of Nursing, Hacettepe University, Ankara, Türkiye

ABSTRACT

Objective: This research was aimed to investigate the effects of need-based, enabling, and predisposing factors on the use of complementary and alternative medicine that emerged only during the COVID-19 pandemic among healthcare professionals.

Method: This study was conducted with a descriptive design. The General Self-Efficacy Scale was used to assess self-efficacy, the Coronavirus Fear Scale was used to assess fear, and the Holistic Complementary and Alternative Medicine Questionnaire was used to assess attitude. In total, 374 healthcare professionals were included. Data were collected according to the complementary and alternative medicine Healthcare Model. In the analysis of the data, mean and standard deviation (SD) are given for quantitative data and percentage is given for categorical data. In addition, multinomial logistic regression analysis was performed.

Results: 53.2% of the healthcare professionals reported the use of at least one form of complementary and alternative medicine during the COVID-19 pandemic. The use of complementary and alternative medicine showed a relationship between gender, the Coronavirus Fear Scale and the Holistic Complementary and Alternative Medicine Questionnaire scores in predisposing factors. An association between the use of complementary and alternative medicine and the occupation in enabling factors was observed. The use of complementary and alternative medicine was found related to the nature of the workplace in need-based factors. The use of complementary and alternative medicine showed no association with age, marital status, education level, working time, chronic conditions, COVID-19 diagnosis, working status and General Self-Efficacy scores of the healthcare professionals in the COVID-19 clinic.

Conclusion: This study concluded that fear associated with COVID-19 and a positive attitude toward complementary and alternative medicine resulted in increased use of complementary and alternative medicine. It was observed that the use of complementary and alternative medicine in health workers working in intensive care, female health workers and nurses was higher than the others.

Key Words: Complementary Therapies, Health Personnel, COVID-19, Self-Efficacy

ÖZ

Amaç: Bu çalışma, sağlık profesyonelleri arasında sadece COVID-19 pandemisi sırasında ortaya çıkan tamamlayıcı ve alternatif tıp kullanımına zemin hazırlayan, kolaylaştırıcı ve ihtiyaca dayalı faktörlerin etkilerini araştırmak amacıyla yapıldı.

Yöntem: Bu çalışma tanımlayıcı bir tasarımla yürütüldü. Öz yeterliği değerlendirmek için Genel Öz-Yeterlilik Ölçeği, korkuyu değerlendirmek için Koronavirüs Korku Ölçeği, tutumu değerendirmek için Bütünsel Tamamlayıcı ve Alternatif Tıp Anketi kullanıldı. Toplamda 374 sağlık çalışanı dahil edildi. Veriler, tamamlayıcı ve alternatif tıp Sağlık Modeli'ne dayalı olarak toplandı. Verilerin analizinde nicel veriler için ortalama ve standart sapma, kategorik veriler için yüzde verildi. Ayrıca, multinomial lojistik regresyon analizi yapıldı.

Bulgular: Sağlık çalışanlarının %53.2'si COVID-19 pandemisi sırasında en az bir tamamlayıcı ve alternatif tıp formu kullandığını bildirdi. Tamamlayıcı ve alternatif tıp kullanımı, zemin hazırlayan faktörlerde cinsiyet, Koronovirüs Korku Ölçeği ve Bütünsel Tamamlayıcı ve Alternatif Tıp Anketi puanları arasında bir ilişki gösterdi. Kolaylaştırıcı faktörlerde tamamlayıcı ve alternatif tıp kullanımı ile meslek arasında bir ilişki gözlendi. Tamamlayıcı ve alternatif tıp kullanımı, ihtiyaca dayalı faktörler içinde işyerinin doğasıyla ilişkili bulundu. Tamamlayıcı ve alternatif tıp kullanımı, COVID-19 kliniğinde sağlık çalışanlarının yaşı, medeni durumu, eğitim düzeyi, çalışma süresi, kronik durumları, COVID-19 tanısı, çalışma durumu ve Genel Öz-Yeterlilik Ölçeği puanları ile ilişki göstermedi.

Sonuç: Bu çalışma, COVID-19 ile ilişkili korku ve tamamlayıcı ve alternatif tıbba karşı olumlu tutumun, tamamlayıcı ve alternatif tıp kullanımının artmasına neden olduğu sonucuna varıldı. Yoğun bakımda çalışan sağlık çalışanlarında, kadın sağlık çalışanlarında ve hemşirelerde tamamlayıcı ve alternatif tıp kullanımının diğerlerine göre daha fazla olduğu görüldü.

Anahtar Kelimeler: Tamamlayıcı Tedaviler, Sağlık Personeli, COVID-19, Öz-Yeterlilik

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***Sorumlu yazar/Corresponding author:** Sakarya University of Applied Sciences, Faculty of Health Sciences, Department of Nursing, Sakarya, Türkiye
[1*]Email: aylinhelvaci94@gmail.com, [2]Email: leylaceyran@yahoo.com, [3]Email: kadir.baysoy@gmail.com

INTRODUCTION

Healthcare professionals provide all types of care to COVID-19 patients in the clinics and remain in regular direct contact with the patients [1]. The proportion of infected healthcare workers increased to 43% by 2022 [2]. Healthcare workers are a group at high risk of COVID-19 infection [3]. Healthcare professionals try to protect themselves and thus use complementary and alternative medicine (CAM). In addition, healthcare professionals had to turn to CAM due to the lack of medical treatment for COVID-19 in the early stages [2,3]. A descriptive study that evaluated the views of healthcare professionals worldwide on the COVID-19 reported that 59.6% of healthcare professionals recommended the use of CAM [4-5].

CAM is defined as treatment and protection methods that are applied in addition to modern medicine and that meet the demands of the person and provide integrity to basic medicine [6]. CAM practices by the National Unit of Complementary and Integrative Health (NCCIH) grouped as natural products (herbs, vitamins, minerals, probiotics, dietary supplements), mind and body practices (acupuncture, relaxation techniques, tai chi, qi gong, Pilates, etc.) and other methods (Ayurvedic medicine, traditional Chinese medicine, homeopathy, naturopathy, etc.) [6,7]. CAM use is affected by many factors, and there are few studies reporting that various factors such as media, educational status, and fear of disease affect CAM use [8,9].

Fear is defined as an unpleasant emotion caused by the perception of a threatening stimulus [10]. Healthcare professionals, exposed directly to COVID-19 processes, experience fear as COVID-19 is a life-threatening, constantly evolving, and changing disease [11]. Furthermore, healthcare professionals feel afraid of the possibility of contamination/infection to them and their families with COVID-19 because of the associated uncertainties about where the process will go, what is effective treatment, and widespread negative experiences in the hospitals [12]. Fear affects individuals negatively, emotionally, cognitively, and behaviorally through manifestations of anger, burnout, and depression [13]. Healthcare professionals who are at risk of infection during the pandemic take measures against the disease due to the fear of infection and its effects [14]. Few studies highlighted the more common use of complementary medicine among individuals suffering from fear of disease [9].

The extent of fear, having a significant impact on the use of CAM, is influenced by the level of self-efficacy of healthcare professionals [15]. The literature has emphasized that healthcare professionals with low self-efficacy during the COVID-19 process showed high-stress levels and faced several physical and psychosocial problems [16]. Self-efficacy is the belief of oneself about how successful an individual could be in overcoming difficult status that he/she encounters in the future [17]. Poor self-efficacy significantly reduces the productivity of healthcare professionals and negatively affects their physical and psychosocial health [18]. In addition, self-efficacy is an important indicator to evaluate an individual's self-belief and coping skills, considering the heavy workload of health professionals and the fear of infection with COVID-19.

The frequency of CAM use has been investigated by health professionals in studies conducted so far. However, as far as we know, there is no study in the literature in which the use of CAM and its predictors were examined in a holistic way within the scope of a model. Several studies have highlighted that the CAM Healthcare model is used to identify and consider multiple factors associated with CAM use [19,20]. The CAM Healthcare model addresses predisposing, enabling, and need-based factors that affect the frequency of CAM use. Predisposing factors include social structure, belief systems, demographics, attitudes, personal factors, and risk perception. Enabling factors include financial factors such as income level and nature and the availability of employment that hinders or facilitates a person's use of CAM. Need-based factors are related to perceived need and include symptom severity, illness experience, chronic illness, and working in risky settings [20]. In this direction, the undermentioned research questions were addressed in the study:

•What is the frequency of use of CAM that emerged in healthcare professionals during only the COVID-19 pandemic?

•Do enabling factors, predisposing factors, and need factors affect the CAM use that emerged among healthcare professionals during only the COVID-19 pandemic?

METHOD

Study design

A descriptive study design was used.

Participants

The healthcare professionals comprised: a) nurses, doctors, midwives, physiotherapists, laboratory technicians, medical secretaries, emergency medical technicians, radiographers, and dentists who work actively in hospitals, and (b) those who could login the online survey with a computer or a smartphone.

The snowball sampling technique was employed to reach potential healthcare professionals. The individuals were requested to distribute the online survey link among their social circles and contacts. In order to determine the number of participants to be included in the study, a priori sample size calculation was made for structural equation modeling (https://www.danielsoper.com/statcalc/calculator.aspx?id=89). It was found that the required parameter values, including the expected effect size of 0.1, the desired statistical power level of 0.95, one latent variable, 13 observed indicators, and 0.05 probability values, were a minimum sample size of 328 people. A total of 374 healthcare professionals were enrolled in this study between March and July 2021.

The dependent variables

The dependent variable was the use of CAM which emerged only during the pandemic among healthcare professionals. The use of CAM was determined through a questionnaire as "Yes, I used CAM during the COVID-19 pandemic" or "No, I did not use CAM during the COVID-19 pandemic."

The independent variables

The following factors related to the CAM Healthcare Model were assessed:

Predisposing factors: Age, gender, marital status, and education level were examined. Self-efficacy, fear of contracting COVID-19, and attitudes about CAM of healthcare professionals were evaluated using specific scales. Self-efficacy was determined using the General Self-Efficacy Scale (GSE). Fear was determined using the Coronavirus Fear Scale (FCV-19S). The attitude toward the use of CAM was determined with the Holistic Complementary and Alternative Medicine Questionnaire (HCAMQ).

Enabling factors: Occupation (nurse vs. doctor vs. midwife vs. other) and working time (< 1 year vs. 1-8 years vs. > 8 years) were evaluated to assess the enabling factors.

Need-based factors: Among these factors, chronic conditions, diagnosis of COVID-19, working place, and working status in COVID-19 clinics were evaluated.

Data Collection Tools

General Self-Efficacy Scale (GSE): The scale was revised by the same researchers in 1981, and the number of items was reduced to 10. Each statement in the scale is evaluated in four-point Likert. All items in the scale are scored positively, and the total score varies between 10 and 40. A high score indicates a greater level of overall self-efficacy. The

Turkish reliability and validity study was performed by Aypay [21] and the Cronbach alpha ranged from 0.78 to 0.91.

Coronavirus Fear Scale (FCV-19S): FCV-19S consists of seven items in total and evaluates the fear levels of individuals in the general population regarding COVID-19. Each item in the scale is evaluated in five-point Likert type. The total score, obtained by summing the answers given to each item in the scale, varies between 7 and 35. High scores show a high level of coronavirus fears experienced. The Turkish reliability and validity study was conducted by Bakioğlu, Korkmaz [13] and Cronbach alpha was determined as 0.82.

Holistic Complementary and Alternative Medicine Questionnaire (HCAMQ): The scale is composed of 11 items and is divided into two sub-dimensions: "Complementary Alternative Medicine (six items)" and "Integrative Health (five items)". Each statement in the scale is evaluated in a six-point Likert type. The total score is obtained by summing the answers given to each item in the scale, and the total score varies between 11 and 66. An increase in the HCAMQ score indicates a decrease in positive attitude toward the use of CAM. The Turkish reliability and validity study was conducted by Erci [22] and Cronbach alpha value was reported as 0.72.

Data Collection Process

The online survey was distributed through various social media platforms such as WhatsApp, Facebook, Instagram, and email. The initial part of the survey presented information about the study, and participants were required to provide consent before proceeding with the questionnaire by ticking the box labeled "I have read the information and voluntarily agree to participate in this study." The healthcare professionals who agreed to take part were then given access to the survey questions and requested to complete them. The survey typically took approximately 10-15 minutes to finish.

Ethical Approval

This study was conducted with the approval of the Non-Interventional Clinical Trials Ethics Committee of Hacettepe University (Number: 16969557-613/2021/06-37), and the principles outlined in the Revised WMA Declaration of Helsinki, 2013 were followed. The informed consent form, including the study details, was on the first page of the survey. Each participant provided their informed consent by clicking on a confirmation button before accessing the survey questions, and the questionnaire was made inaccessible to those who did not agree to participate. The participants were explicitly informed that they had the option to decline participation in the study and that all provided information would remain confidential. Additionally, the healthcare professionals were guaranteed anonymity, the freedom to withdraw from the study at any point, and the assurance that their data would be utilized solely for academic purposes. These details were outlined in the informed consent form.

Statistical Analysis

The data were analyzed using Statistical Package for the Social Sciences (SPSS) version 25.0 (IBM Corp., Armonk, New York, USA). Kolmogorov Smirnov test, histogram, and Q-Q graph method were used to test the fit for normal distribution. In addition, skewness and kurtosis values were checked for compliance with the normal distribution. The skewness and kurtosis values between -1.5 and +1.5 indicate that the data are suitable for the normal distribution. Accordingly, in this study, it was found that the skewness and kurtosis values were between -1.235 and 1.324 and were suitable for normal distribution. Quantitative data are given mean and standard deviation (SD), while categorical data are presented as the number of healthcare professionals and percentage. To assess the disparities between the two groups, quantitative variables were compared using an independent samples t-test, while categorical variables were evaluated using a chi-square test. Moreover, multinomial logistic regression analysis was utilized to assess the effect of enabling factors, predisposing factors, and need factors on the use of CAM during pandemic. An odds ratio (OR) with a 95% confidence interval (CI) was utilized to determine associations between variables. The Beta (β) value was computed within the range of values for the logistic regression equation, which is used to forecast the dependent variable based on the independent variable. The Wald statistic test was used to determine whether each independent variable was statistically significant in predicting the use of CAM during pandemic. A statistically significant was the values of $p<0.05$.

RESULTS

Descriptive characteristics and comparison of data with use of CAM

The average age of healthcare professionals was 35.02 (SD=11.26) years. The majority of participants were female (76.5%) and had a bachelor's degree (52.7%). All the healthcare professionals were included in the study, primarily nurses (55.3%), doctors (27.3%), and midwives (8.3%). The working time/experience was mostly >8 years (52.4%). Healthcare professionals usually work in intensive care (21.7%) or inpatient clinics (28.3%). More than half of the participants (51.3%) had worked in COVID-19 clinics. 23.3% of healthcare professionals reported having a chronic disease. Healthcare professionals with chronic illness had hypertension (31%), chronic obstructive pulmonary disease (COPD)/Asthma (25.8%), diabetes mellitus (16%), thyroid diseases (10.3%), hyperlipidemia (6.8%), heart failure (5.7%), and coronary artery disease (4.4%). 26.5% of healthcare professionals were previously diagnosed with COVID-19 infection. The mean total score of the GSE, FCV-19S, HCAMQ was 30.90 (SD=6.49), 17.38 (SD=6.40), and 28.75 (SD=7.79), respectively (Table 1). When the relationship between sociodemographic variables and CAM use is examined, there is a difference between CAM use status according to gender, occupation, working place, FCV-19S and HCAMQ scale scores. The frequency of CAM use was higher among women, nurses, health workers working in intensive care clinics and inpatient clinics.

Use of CAM during COVID-19 pandemic by the healthcare professionals

While 53.2% of the healthcare professionals used at least one form of CAM during the pandemic, 46.8% of them used no CAM during the pandemic. The most-reported CAM approaches used during the pandemic were vitamins (38.7%), herbal therapies (30.8%), music therapy (9.0%), religious practices (8.7%), meditation (4.6%), yoga (4.1%), massage or reflexology (2.6%), and acupuncture (1.5%). As regards the source of information furnished, the healthcare professionals reported that the information regarding CAM during the COVID-19 pandemic was obtained from their friends (23.0%), social media (19.9%), and family members (18.1%). Also, healthcare professionals had benefited from articles (23.0%), seminars, congress, courses (11.5%), and in-service training (4.5%) for information on CAM during the pandemic. Reasons cited for the CAM use in the pandemic were support (32.0%), relaxation (28.2%), protection (29.3%), and treatment (10.4%) (Table 2).

Predictors of CAM use during COVID-19 pandemic

Predisposing factors

Gender was a notable predictor of the use of CAM during the pandemic, with an explanatory rate of 5.4% (OR=2.618, 95% CI=1.593-4.302, $p<0.001$). Females reported 2.618 times higher use of CAM during the pandemic than males. Education level was an important predictor of the CAM use in the pandemic, with a rate of 2.6%. There was 1.722 times higher the CAM use in the pandemic among healthcare professionals with a bachelor's degree than in those with a postgraduate degree (OR=1.722, 95% CI=1.098-2.701, $p=0.018$). FCV-19S (fear) scores were significant positive predictors of the CAM use in the pandemic and explained 2.4% of the use of CAM (OR=1.043, 95% CI=1.010-1.078, $p=0.011$). Moreover, the attitude scores evaluated with HCAMQ were important predictors for

Table 1. Descriptive characteristics of the healthcare professionals and comparison of data with use of CAM (n=374)

Variables		M	SD	CU	CNU	Test	p
Predisposing factors							
Age		35.02	11.26	34.28 (10.97)	35.86 (11.56)	1.356*	0.176
Self-efficacy (GSE)		30.90	6.49	30.54 (6.61)	31.30 (6.34)	1.139*	0.256
Fear (FCV-19S)		17.38	6.40	18.18 (6.39)	16.48 (6.31)	-2.582*	**0.010**
Attitude (HCAMQ)		28.75	7.79	27.85 (6.81)	29.77 (8.68)	2.389*	**0.017**
Predisposing factors		**n**	**%**	**CU**	**CNU**	**Test**	**p**
Gender	Male	88	23.5	31 (15.6)	57 (32.6)	14.945†	**<0.001**
	Female	286	76.5	168 (84.4)	118 (67.4)		
Marital status	Married	180	48.1	100 (50.3)	80 (45.7)	0.768†	0.381
	Single	194	51.9	99 (49.7)	95 (54.3)		
Education level	High-school graduate	15	4.0	6 (3.0)	9 (5.1)	7.349†	0.062
	Associate degree	35	9.4	21 (10.6)	14 (8.0)		
	Bachelor's degree	197	52.7	115 (57.8)	82 (46.9)		
Enabling factors		**n**	**%**	**CU**	**CNU**	**Test**	**P**
Occupation	Nurse	207	55.3	123 (61.8)	84 (48.0)	9.634†	**0.022**
	Doctor	102	27.3	43 (21.6)	59 (33.7)		
	Midwives	31	8.3	18 (9.0)	13 (7.4)		
	Other	34	9.1	15 (7.5)	19 (10.9)		
Working time	<1 year	70	18.7	39 (19.6)	31 (17.7)	1.744†	0.418
	1-8 years	108	28.9	62 (31.2)	46 (26.3)		
	>8 years	196	52.4	98 (48.7)	98 (55.4)		
Need-based factors (Chronic condicitons)							
Yes		87	23.3	49 (24.6)	38 (21.7)	0.441†	0.506
No		287	76.7	150 (75.4)	137 (78.3)		
Working status in COVID-19 clinics							
Yes		192	51.3	105 (52.8)	87 (49.7)	0.347†	0.556
No		182	48.7	94 (47.2)	88 (50.3)		
Diagnosis of COVID-19	Yes	99	26.5	60 (30.2)	39 (22.3)	2.959†	0.085
	No	275	73.5	139 (69.8)	136 (77.7)		
Working place	Intensive care unit	81	21.7	53 (26.6)	28 (16.0)	8.136†	**0.049**
	Inpatient clinic	106	28.3	56 (28.1)	50 (28.6)		
	Emergency	48	12.8	26 (13.1)	22 (12.6)		
	Policlinic	65	17.4	29 (14.6)	36 (20.6)		
	Family health center	42	11.2	21 (10.6)	21 (12.0)		
	Other	32	8.6	14 (7.0)	18 (10.3)		

*CU: Complementary and alternative medicine users during the COVID-19 pandemic; CNU: Complementary and alternative medicine non-users during the COVID-19 pandemic; GSE: General self-efficacy scale; FCV-19S: Coronavirus (Covid-19) Fear Scale; HCAMQ: Holistic complementary and alternative medicine questionnaire; M: Mean; SD: Standard Deviation; *Independent samples t-test; †Chi-square test.*

Table 2. The use of complementary and alternative medicine during the COVID-19 pandemic among healthcare professionals (n=374)

Variables		n	%
The use of CAM	Yes	199	53.2
	No	175	46.8
The type of CAM	Vitamins	151	38.7
	Herbal therapies	120	30.8
	Music therapy	35	9.0
	Religious practices	34	8.7
	Meditation	18	4.6
	Yoga	16	4.1
	Massage	10	2.6
	Acupuncture	6	1.5
Sources of information on CAM	Social media	83	19.9
	Friends	96	23.0
	Family	76	18.1
	Articles	96	23.0
	Seminar, congress, course	48	11.5
	In-service training	19	4.5
Reasons for CAM	Support	117	32.0
	Relaxation	103	28.2
	Protection	107	29.3
	Treatment	38	10.4

CAM: Complementary and alternative medicine.

the CAM use in the pandemic and explained the use of CAM during the pandemic by 2% (OR=0.968, 95% CI=0.943-0.995, p=0.019). However, age (OR=0.988, 95% CI=0.970-1.006, p=0.176), marital status (OR=0.834, 95% CI =0.555-1.252, p=0.381), and self-efficacy (OR=0.982, 95% CI=0.951-1.013, p=0.255) showed no predictive effect the CAM use in the pandemic (Table 3).

Enabling factors

The occupation was an essential estimator of the use of CAM, explaining 3.4% of the use of CAM during the pandemic. More specifically, the nurses had 2.855 times more likely to use CAM during the pandemic as compared to other healthcare professionals (OR=2.855, 95% CI=1.092-3.855, p=0.048). Working time evaluated within the scope of enabling factors was not an estimator of the use of CAM during the pandemic (p>0.05) (Table 3).

Need-based factors

The working place was a predictor for the CAM use in the pandemic and explained the use of CAM during the pandemic at 2.9%. Healthcare professionals working in intensive care units were 2.434

times more likely to use CAM during the pandemic compared to those working at other places (OR=2.434, 95% CI=1.056-5.610, p=0.037). Chronic conditions (OR=0.849, 95% CI=0.524-1.376, p=0.507), diagnosis of COVID-19 (OR=0.664, 95% CI=0.416-1.060, p=0.086), and working status in COVID-19 clinics (OR=0.885, 95% CI =0.589-1.329, p=0.556) had no predictive effect on the CAM use in the pandemic (Table 3).

Table 3. Predictors of the complementary and alternative medicine use during the COVID-19 pandemic (n=374)

Variables	B	SE	Wald	P value	OR	95% CI for OR	
Predisposing factors						**Lower**	**Upper**
Age	-0.013	0.009	1.832	0.176	0.988	0.970	1.006
Gender (reference: Male)							
Female	0.962	0.253	14.419	**0.000**	2.618	1.593	4.302
Marital status (reference: Married)							
Single	-0.182	0.208	0.767	0.381	0.834	0.555	1.252
Education level (reference: postgraduate)							
High-school graduate	-0.200	0.556	0.129	0.719	0.819	0.275	2.436
Associate degree	0.611	0.388	2.474	0.116	1.842	0.860	3.944
Bachelor's degree	0.544	0.230	5.606	**0.018**	1.722	1.098	2.701
Self-efficacy (GSE)	-0.018	0.016	1.294	0.255	0.982	0.951	1.013
Fear (FCV-19S)	0.042	0.017	6.479	**0.011**	1.043	1.010	1.078
Attitude (HCAMQ)	-0.032	0.014	5.535	**0.019**	0.968	0.943	0.995
Enabling factors							
Occupation (reference: Other)							
Nurse	0.618	0.373	4.857	**0.048**	2.855	1.092	3.855
Doctor	-0.080	0.399	0.040	0.841	0.923	0.422	2.019
Midwives	0.562	0.502	1.254	0.263	1.754	0.656	4.689
Working time (reference:> 8 years							
<1 year	0.230	0.280	0.671	0.413	1.258	0.726	2.179
1- 8 years	0.298	0.242	1.523	0.217	1.348	0.839	2.165
Need-based factors							
Chronic conditions (reference: Yes)							
No	-0.164	0.246	0.441	0.507	0.849	0.524	1.376
Diagnosis of COVID-19 (reference: Yes)							
No	-0.409	0.238	2.942	0.086	0.664	0.416	0.060
Working place (reference: Other)							
Intensive care unit	0.889	0.426	4,357	**0.037**	2.434	1.056	5.610
Inpatient clinic	0.365	0.406	0.807	0.369	1.440	0.650	3.191
Emergency	0.418	0.459	0.830	0.362	1.519	0.618	3.738
Policlinic	0.035	0.435	0.007	0.936	1.036	0.442	2.430
Family health center	0.251	0.471	0.284	0.594	1.286	0.510	3.239
Working status in COVID-19 clinics (reference: Yes)							
No	-0.122	0.207	0.347	0.556	0.885	0.589	1.329

CI: Confidence interval; OR: Odds ratio; SE: Standard error.

DISCUSSION

In this model-based study, we aimed to examine the factors that affect the use of complementary-alternative medical methods by health professionals in the COVID-19 outbreak, according to the factors in the primary three category groups; "preparing," "enabling," and "need-based" within the scope of a model. Model-based study findings provide more understandable, valid, and realistic data in the conceptual framework [23,24]. In this respect, this study, carried out according to the model with the related factors, can contribute to understanding the use of complementary-alternative medical methods and related factors.

The study showed that more than half of healthcare professionals used at least one CAM during the pandemic for support, relaxation, and protection. Additionally, healthcare professionals benefited from the use of vitamins and herbal therapies in the content of the type of CAM

during the pandemic. The literature confirms that the use of CAM is increasing during the COVID-19 process and there is a tendency towards mostly herbal products and vitamins [25,26]. Similarly, a study reported that the most used CAMs were dietary supplements (61.3%), prayer (57.9%), and herbal medicines (48.8%) during the COVID-19 process in the general population [27]. Healthcare professionals have obtained information about CAM during the pandemic from a variety of sources, including family, friends, and articles. In a study by Teke et al. (2021), 45.5% of healthcare professionals reported that they used CAM to protect themselves from COVID-19 in the last month [28]. There is currently no specific treatment for COVID-19, and thus healthcare professionals prefer to find the best way to prevent the disease, including herbal medicine, since the immune status plays an important role in COVID-19 infection [29]. Furthermore, the relationships between the immune system and the use of various types of CAM such as exercise, healthy nutrition, vitamins, and herbal products have also been demonstrated [30].

This study revealed that females use CAM during the pandemic 2.618 times more than males. These findings are consistent with previously reported findings in the general population. Studies have indicated that females used CAM more than males because they have a more positive attitude toward CAM [31,32]. Therefore, female's tendency to use traditional practices and seek support might have triggered more use of CAM during the pandemic in females. In addition to gender, the present study determined that healthcare professionals with a bachelor's degree had 1.722 times higher use of CAM during the pandemic than those with a postgraduate degree. Literature shows that a postgraduate degree is a field based on scientific foundations, and in it, modern science has priority [33,34]. Therefore, people with a postgraduate degree may move away from traditional and complementary approaches.

In this study, the mean COVID-19 fear score of healthcare workers according to FCV-19S was 17.38 (SD=6.40). Similarly, in a study conducted by Yılmaz and Uysal, the mean COVID-19 Fear Scale score in clinician nurses was determined as 20.01±6.91 and the level of fear was reported as moderate [35]. In another study, it was stated that the COVID-19 fear level in physiotherapists was moderate with 17.19±5.38 points [36]. As is seen, the literature [35,36] confirms that the COVID-19 fear level of health care professionals is moderate in this study. Fear is an important predictor of the use of CAM [9]. Our study showed that the fear level in healthcare professionals estimated the use of CAM during the pandemic at 2.9%. Similarly, Yildirim et al. (2021) reported that adults perceiving a high risk of infection and experiencing fear of the virus during the pandemic were more likely to engage in preventive behaviors [37]. Several studies have proven that fear, a characteristic emotion of infectious diseases, influences adherence to protective measures, including the use of CAM by a person against the disease [38,39]. Because of the actors such as the uncertainty about the COVID-19 process, separation from loved ones, and infecting others, it is not surprising that healthcare professionals experience fear and use CAM during the pandemic to protect themselves.

In this study, the average attitude towards the use of CAM was measured at 28.75 (SD=7.79) based on the HCAMQ. Likewise, in a study involving nurses, Gör and Duru Aşiret reported a favorable attitude towards the utilization of CAM during the COVID-19 process, scoring 22.16±6.06 [40]. This study showed that healthcare professionals with a positive attitude toward CAM tended to use more CAM during the pandemic. Similarly, Shorofi and Arbon (2017) reported a positive correlation between positive attitudes about CAM and its use [41]. Attitude is associated with an orientation toward healthy lifestyle behaviors, seeking treatment and support [42]. For this reason, higher use of CAM is an expectable behavior among healthcare professionals, who adopt a positive attitude toward CAM during this pandemic process.

In this study, the self-efficacy score of the health workers evaluated with the GSE was determined as 30.90 (SD=6.49). Similarly, in a study conducted by Özkan on intern nurses during the COVID-19 outbreak, the self-efficacy score was determined as 32.0 and it was reported to be at a good level [43]. In the current study, the self-efficacy level of healthcare workers was found to be at a good level. However, in this study, a relationship between self-efficacy level and CAM use during the pandemic could not be established. Chang et al. (2011) highlighted that self-efficacy did not show any relationship to CAM use [44]. Healthcare professionals feel inadequate and insecure due to the ever-changing patient population and treatment regimens [45]. Therefore, it is natural that there is no difference in the self-efficacy levels of healthcare professionals who try to cope with the pandemic process, and so the use of CAM during the pandemic is not affected by self-efficacy. Those with a high level of self-efficacy might have adopted different coping styles other than CAM applications in the fight against COVID-19.

Occupation and working time were evaluated within the scope of enabling factors in this study. Considering the occupation, it was revealed that nurses used CAM during the COVID-19 pandemic 2.855 times more than other healthcare professionals. A systematic review conducted by Balouchi et al. (2018) documented higher use of CAM in nurses than in other healthcare professionals [46]. Nurses have long been strong advocates of integrated care focusing on holistic mind, body, and spirit care. Furthermore, the types of CAM cover different basic care principles and are considered to be a fundamental component of care management [47]. Due to the content of education in nursing and nurses' adoption of holistic care, nurses are ordinarily more prone to the use of CAM. Besides, this study examined the working place within the scope of need-based factors. Healthcare professionals working in intensive care units were 2.434 times more likely to use CAM during the pandemic compared to those working in another place. Similar to our findings, Tracy et al. observed that critical care nurses used CAM commonly, including diet, exercise, and relaxation techniques [48]. Healthcare professionals working in intensive care units may have driven these nurses to use CAM due to their working with a heavier patient population during the COVID-19 process and having to deal more with the feeling of helplessness.

Implication to Practice

This study's findings revealed that healthcare professionals tend to turn to CAM and the importance of using CAM to increase the well-being of healthcare professionals. This study can guide the addition of CAM to strengthen the well-being of health workers, especially in extraordinary situations such as outbreaks. In addition, it should be taken into account that the fear of contracting an outbreak disease may be high, especially among healthcare workers who use CAM. Therefore, these fears must be avoided. In addition, since supplements such as vitamins are used in general, regular information bulletins by the hospital management may contribute to the use of products with proven effectiveness and safety by health professionals.

Limitations

The limitation of this study is that it was conducted by online survey. Due to pandemic conditions, data was collected online, which limited access to individuals who did not have internet access.

CONCLUSION

Overall, it can be concluded that healthcare professionals tend to use CAM during the pandemic for support, relaxation, and protection. Also, gender, education level, fear, and attitude of healthcare professionals toward CAM predicted CAM use during the pandemic within the scope of predisposing factors. Women with a bachelor's degree, with a greater level of fear, and with a positive attitude toward CAM used CAM during the pandemic more. Within the scope of enabling factors, the underlying profession predicted the use of CAM, and nurses preferred to use CAM during the pandemic more than other

healthcare professionals. Within the context of need-based factors, the workplace was also found to be a determinant of CAM use during the pandemic, and healthcare professionals working in intensive care units used CAM during the pandemic at a higher rate. It is suggested that in-service training and guides containing evidence-based CAM approaches should be prepared for all healthcare professionals and should be updated regularly in light of the daily new information in the literature.

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