

Complementary and integrative medicines methods used by internal medicine and surgical clinic nurses during the COVID-19 pandemic

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ABSTRACT

Purpose: This study is a descriptive study conducted to investigate the use of Complementary and Integrative Medicines (CIM) among internal medicine and surgical clinic nurses in the COVID-19 pandemic period.

Materials and methods: The study sample consisted of 1112 nurses working at the internal medicine and surgical clinics of a hospital in eastern Turkey. The data were collected between November 2020 and February 2021 by using a Nurse Identification Form and a Questionnaire Form for Complementary/Integrative Treatment. Ethics board approval and institutional permission were obtained.

Results: It was determined that 55.2% of the participants used at least one of the CIM methods, the most frequently used method was herbal treatment-phytotherapy (96.7%), and the least frequently used method was homeopathy (3.1%). On CIM usage, the having received CIM training

($\beta=0.395$), high levels of perceived danger regarding the effect of the COVID-19 pandemic on health ($\beta=0.321$), high levels of perceived infection probability ($\beta=0.249$), high levels of concern about being in crowded places ($\beta=0.187$), high levels of concern about getting the infection in oneself and/or family members ($\beta=0.262$) and being at the ages of 40-50 ($\beta=0.116$) had predictive effects.

Conclusions: It was determined that the majority of the nurses used CIM methods in the COVID-19 pandemic process, and they preferred herbal treatment most. To prevent a negative outcome that may potentially be caused by a CIM method that is used, it is recommended to provide nurses with training on CIM use for the COVID-19 pandemic.

Keywords: Complementary and integrative medicines, nurse, internal medicine, surgery, COVID-19

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INTRODUCTION

It is known that COVID-19, which has led to the deaths of many people since it emerged, affects some risk groups more [1,2]. In addition to the elderly, those with chronic diseases, those with compromised immune systems, etc., nurses are also at high risk in terms of COVID-19 as they are in close contact with patients [3-6]. Many nurses have been infected with the disease and died in this process [6].

There is a specific emphasis in the literature that getting COVID-19 is closely related to one's immune system [2,4,5]. Considering methods that are used in strengthening the immune system, it is seen that CIM use is a highly prevalently preferred method [1,2]. Likewise, in the COVID-19 pandemic too, it has been reported that the interest in CIM methods, especially herbal treatments, in the world has increased substantially [7,8]. Other reasons for CIM use may be listed as its lower costs, alleviation of symptoms, reduction of the side effects of various treatments, and curing of some diseases [1,2,4,5,9]. It is stated that CIM, which is prevalently used in many societies, has a usage rate that has increased up to 86% in European countries and plays a main role in the treatment and management of diseases in Asian countries such as China, Korea, Japan, and India [10,11].

The term 'complementary medicine' is used to denote therapies used along with standard medical treatments but are not considered standard treatments [4-6]. 'Integrative medicine' denotes a total approach to medical care that combines standard medicine with the complementary/integrative practices that have been shown to be safe and effective [8,12]. They treat the patient's mind, body, and spirit. The National Center for Complementary and Integrative Medicine (NCCIM), within the US National Institutes of Health, includes a range of therapeutic approaches under the heading of complementary and integrative medicine. NCCIM distinguishes between natural products and mind-body practices and defines its own role as determining, "through rigorous scientific investigation," the usefulness and safety of complementary and integrative health interventions and their roles in improving health and healthcare [2-5].

Despite their several known benefits, it should be kept in mind that some methods that are seen as complementary and integrative (especially some plants) may lead to significant problems by suppressing the immune system. Thus, evidence-based practices should be utilized [1].

It has been reported that various studies have been carried out on the effects of traditional and integrative methods used in the COVID-19 pandemic process, but there is no evidence-based information on this issue yet [1,2,4,5].

While the literature review revealed some studies on the use of CIM among different social, age, and occupation groups in the COVID-19 pandemic process [7-9].

No study on CIM use among nurses in the pandemic process has been encountered. Therefore, this study was conducted to investigate the CIM use of internal medicine and surgical clinic nurses who take on significant responsibilities in the COVID-19 pandemic process and constitute the vast majority of nurses.

MATERIALS AND METHODS

Study Design

This descriptive study was conducted to determine the CIM use of internal medicine and surgical clinic nurses in the COVID-19 pandemic process and influential factors. The study was carried out with nurses working at a state hospital located in a province in eastern Turkey between November 2020 and February 2021. The population of the study consisted of 1400 nurses working at this hospital.

Sample Determination

A convenience sample was used for the study. The study was completed with 1112 nurses who met the inclusion criteria and voluntarily agreed to fill out the questionnaire form. The inclusion criterion was as follows: (i) nurses working at internal medicine and surgical clinics. Exclusion criteria were as follows: (i) Not agreeing to participate in the study (96), (ii) being on sick, administrative, or maternity leave at the dates of the study (144), and (iii) not filling out the questionnaire form completely (48).

The participation rate of the population was 79% (1112/1400).

Data Collection

A Nurse Identification Form and a Questionnaire Form on views related to complementary/integrative treatment methods were used as the data collection instruments in the study. The researchers collected the data via face-to-face interviews with the nurses.

Nurse Identification Form: This form was prepared by the researchers in line with the literature [9-11]. Included 12 questions that were used to collect information on the participants' age, gender, education status, marital status, years of employment, department of employment, concerns of infection in themselves and/or family members, concerns about being in crowded places, perceived infection probability, perceive danger on the effect of the COVID-19 pandemic on health and status of having received training on complementary and integrative medicine.

Questionnaire Form on views towards complementary/integrative treatment methods:

This form developed by researchers for this study and included seven questions that were used to collect information on the presence of any complementary and integrative method used towards COVID-19, the purpose of using complementary/integrative medicine methods, effects of the method used, the status of having encountered any complication while using the complementary/integrative treatment, source of information on the used method, the status of recommending the use of CIM and reasons for not using CIM [10-12]. The Cronbach's alfa of the form was 0.87 in the current study.

Ethics

For the study to be conducted, approval was obtained from the Inonu University Non-Interventional Studies Ethics Board (2020-32698), and institutional permission was obtained from the hospital where the study was conducted. Information on the study was provided to the nurses who participated, the objective of the study was explained to them, and their verbal consent stating that they agreed to participate was received. Additionally, the study was carried out in compliance with the principles of the Declaration of Helsinki (2008).

Statistical Analysis

The collected data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 25.

Descriptive statistics were used to examine the sociodemographic characteristics of the respondents.

Pearson's Chi-squared test was performed to identify the differences in the sociodemographic characteristics and concerns experienced during the COVID-19 pandemic between CIM users and non-users. Lastly, multivariate logistic regression analysis was conducted to determine potential predictors of CIM use during the COVID-19 pandemic.

The significant factors from the previous chi-squared test (age, gender, concern about infection in oneself and/or family members, concern about being in crowded places, perceived infection probability, danger perceived regarding the effect of the COVID-19 pandemic on health, status of having received CIM training) were subjected to regression analysis. $p < 0.05$ was accepted as statistically significant for all analyses. The study's limitations included that the sample of the study consisted only of nurses working at a single hospital, and nurses who were infected with COVID-19 could not be included as they were not present at the hospital. The results of the study may not be generalized to all internal medicine and surgical clinic nurses.

RESULTS

The vast majority of the nurses who participated in the study were 29-39 years old (41.5%), women (77.8%), undergraduate degree holders (62.4%), married (65.5%), and working at internal medicine clinics (54.4%). They had 16-20 years of experience in the profession (31.3%). They stated their concerns about getting the infection themselves and/or in their family as high (56.5%), stated their concerns about being in crowded places as high (49.9%), perceived infection probability as high (43.4%), perceived danger about the effect of the COVID-19 pandemic on health as high (62.1%) and had not received CIM training (56.0%) (Table 1).

55.2% of respondents had used at least one of the listed CIM modalities during the COVID-19 outbreak. Significant differences were observed between the CIM users and non-users in terms of age ($p = 0.024$), gender ($p = 0.011$), concerns about infection in oneself and family members ($p = 0.019$), concerns about being in crowded places ($p = 0.041$), perceived infection probability ($p = 0.028$), perceived danger about the effect of COVID-19 on health ($p = 0.020$) and status of having received CIM training ($p = 0.018$).

The majority of the nurses who used CIM methods used herbal treatment-phytotherapy (96.7%) and vitamin and mineral supplementation (84.2%) among biology-based treatment methods. They used mostly ginger (69.2%) in herbal treatment-phytotherapy and vitamin C (94.4%) in vitamin and mineral supplementation, prayer (36.6%) among mind-body methods, massage (5.7%) among manipulative and body-based treatment methods, reiki (5.0%) among energy treatment methods and homeopathy (3.1%) among alternative and medical systems methods (Table 2).

The vast majority of the nurses who used CIM used it for protection purposes (63.3%), stated that they became healthier than before after using CIM (50.6%). They did not encounter any complication during CIM use (95.8%), they utilized books/journals as their source of information on CIM use (46.3%), and they recommended CIM use (83.6%). On the other hand, the vast majority of those who did not use CIM methods did not believe the effect of CIM methods (67.3%) (Table 3).

The determinants of CIM use were assessed by multiple regression analysis. It is seen that gender was not a significant determinant. The determinants of CIM use were found as having received CIM training ($\beta = 0.395$), high perception of danger about the effect of COVID-19 on health ($\beta = 0.321$), high perception of infection probability ($\beta = 0.249$), high concerns of being in crowded places ($\beta = 0.187$), high concerns about getting the infection oneself and/or in family members ($\beta = 0.262$) and being at the ages

of 40-50 ($\beta=0.116$), and an increase in these determinants led to the rise in CIM use ($R^2=0.318$).

These determinants explained 32% of CIM use ($R^2=0.318$)- Table 4.

Table 1. Sociodemographic and COVID-19-related characteristics

Sociodemographic Characteristics	Total n (1112)	CIM users n:614 55.2%	CIM non-users n:498 44.8%	Significance test
Age				
18-28	206(18.5)	79(12.9)	127(25.5)	$\chi^2=0.858$ p=0.024
29-39	462(41.5)	198(32.2)	264(53.0)	
40-50	444(40.0)	337(54.9)	107(21.5)	
Gender				
Female	865(77.8)	543(88.4)	322(64.7)	$\chi^2 =0.114$ p=0.011
Male	247(22.2)	71(11.6)	176(35.3)	
Education status				
Vocational high school of health	374(33.6)	153(24.9)	221(44.4)	$\chi^2 =1.891$ p=0.235
Undergraduate	694(62.4)	442(72.0)	252(50.6)	
Postgraduate	44(4.0)	19(3.1)	25(5.0)	
Marital status				
Single	384(34.5)	166(27.0)	218(43.8)	$\chi^2 =3.543$ p=0.340
Married	728(65.5)	448(73.0)	280(56.2)	
Department of Employment				
Internal Medicine Clinic	605(54.4)	344(56.0)	261(52.4)	$\chi^2 =3.407$ p=0.981
Surgical Clinic	507(45.6)	270(44.0)	237(47.6)	
Years of Employment				
0-5 years	103(9.3)	47(7.7)	56(11.2)	$\chi^2 =2.106$ p=0.449
6-10 years	276(24.8)	143(23.3)	133(26.7)	
11-15 years	200(18.0)	123(20.0)	77(15.5)	
16-20 years	348(31.3)	217(35.3)	131(26.3)	
21 years or longer	185(16.6)	84(13.7)	101(20.3)	
Concern about getting infection oneself and/or in family members^a				
Low (1,2)	197(17.7)	118(19.2)	79(15.9)	$\chi^2 =1.083$ p=0.019
Moderate (3)	287(25.8)	113(18.4)	174(34.9)	
High (4,5)	628(56.5)	383(62.4)	245(49.2)	
Concern about being in crowded places				
Low (1,2)	256(23.0)	97(15.8)	159(31.9)	$\chi^2 =0.390$ p=0.041
Moderate (3)	301(27.1)	167(27.2)	134(26.9)	
High (4,5)	555(49.9)	350(57.0)	205(41.2)	
Perceived infection probability				
Low (1,2)	257(23.1)	108(17.6)	149(30.0)	$\chi^2 =0.771$ p=0.028
Moderate (3)	372(33.5)	194(31.6)	178(35.7)	
High (4,5)	483(43.4)	312(50.8)	171(34.3)	
Perceived danger on the effect of the COVID-19 pandemic on health				

Low (1,2)	99(8.9)	70(11.4)	29(5.8)	$\chi^2 = 1.032$ p=0.020
Moderate (3)	322(29.0)	130(21.1)	192(38.6)	
High (4,5)	691(62.1)	414(67.4)	277(55.6)	
Status of having received CIM training				
Yes	489(44.0)	368	121(24.3)	$\chi^2 = 2.702$ p=0.018
No	623(56.0)	246	377(75.7)	

^a Participants were asked to rate their degree of concern (1 = Not at all, 5 = Very much)

^o Participants were asked to rate their self-perceived likelihood of contracting the disease (1 = Not at all, 5 = Very likely)

1 Participants were asked to rate their self-perceived danger of the COVID-19 on health (1 = Not at all, 5 = Very much)

* Columns do not add up to 100% due to the selection of multiple answers

Table 2. Complementary and integrative medicines use status of the nurses

CIM Management	CIM Management Users n=614 (%)
Biology-Based Treatment Methods*	
Herbal Treatment-Phytotherapy	594(96.7)
Ginger	411(69.2)
Turmeric	382(64.3)
Sage	377(63.5)
Honey	365(61.4)
Linden tea	338(56.9)
Rosehip tea	289(48.7)
Black cumin oil	250(42.1)
Propolis	216(36.4)
Thyme oil	202(34.0)
Vitamin and Mineral Supplementation	517(84.2)
Vitamin C	488(94.4)
Vitamin D	370(71.6)
Zinc	213(41.2)
Probiotics	180(29.3)
Mind-Body Methods*	
Prayer	225(36.6)
Deep Breathing Exercises	156(25.4)
Progressive Muscle Relaxation Exercises	94(15.3)
Yoga	76(12.4)
Manipulative and Body-Based Treatment Methods*	
Massage	35(5.7)
Reflexology	18(2.9)
Energy Treatment Methods	
Reiki	31(5.0)
Therapeutic Touch	24(3.9)
Alternative and Medical Systems	
Homeopathy	19(3.1)

*Columns do not add up to 100% due to the use of multiple treatments

Table 3. Complementary and integrative medicines method use characteristics

Variables	n (%)
Purpose of CIM use (n:614)	
For treatment	77(12.5)
For support	80(13.0)
For protection	388(63.3)
For relaxation	69(11.2)
Effect of CIM use (n:614)	
Did not have any benefit	35(5.7)
I became healthier than before	311(50.6)
It disrupted my health	17(2.8)
It only relaxed me psychologically	251(40.9)
Status of encountering a complication during CIM use (n:614)	
I have	26(4.2)
I have not	588(95.8)
Source of information on CIM use (n:614)	
Book/Journal	284(46.3)
Television/Newspaper/Internet	172(28.0)
Family members	101(16.4)
Friends/relatives	57(9.3)
Status of recommending CIM use (n:614)	
Yes	513(83.6)
No	101(16.4)
Reason for not using CIM (n = 498)	
I do not believe in the effect of CIM methods	335(67.3)
I think CIM methods would rather be harmful	163(32.7)

Table 4. Determinants of Complementary and integrative medicines use in the COVID-19 pandemic process

Variables	CIM use			
	β	t	p	B
Constant	.258	.201	.001	.120
Age (40-50)	.116	.125	.002	.029
Gender (Female)	.001	.376	.258	.002
Concern of getting the infection in oneself and/or family members (high)	.262	.280	.003	.136
Concern on being in crowded places (high)	.187	.502	.004	.095
Perceived infection probability (high)	.249	1.166	.002	.127
Perceived danger regarding the effect of the COVID-19 pandemic on health (high)	.321	.207	.006	.141
Status of having received CIM training (yes)	.395	1.0354	.008	.155
	R-squared:0.318 F=3.107 p:0.005			

DISCUSSION

This study was conducted to investigate the CIM methods used by internal medicine and surgical clinic nurses working at a hospital in Turkey in the COVID-19 pandemic process. In this study, findings on the personal CIM use of the nurses, the CIM methods that were used, and the factors influential on CIM use are presented.

The study determined that 55.2% of the participants used at least one CIM method in the COVID-19 pandemic process. In nursing studies

conducted outside the pandemic period, it was found in a study that almost all (95.7%) nurses personally used CIM [3]. Sanghee et al. observed that 60.6% of nurses used CIM [14]. Similar results have been reported in the literature [15,16]. A study conducted in the COVID-19 pandemic process with healthcare professionals in Turkey most of whom were nurses, reported the rate of CIM use as 45.5% [17]. It is seen that the CIM use rates in this study and other studies conducted in the COVID-19 pandemic period were lower than those reported in other studies conducted outside the COVID-19 pandemic period. That COVID-19 may have caused this is a disease that has

not been completely known yet, and there may be concerns of any CIM method causing an interaction-related problem.

Considering the most frequently used CIM methods in this study, it was observed that herbal treatment-phytotherapy methods were at the top place (mostly ginger and turmeric were used), and alternative medical systems constituted the least frequently used method. While some similar findings to those in this study were encountered in the literature, it was also seen that several studies have obtained different results. Studies conducted in Africa and Iran also reported that herbal treatments were prominent [16,18]. Although the antiviral benefits of various substances in some plant contents (curcumin, *E. purpurea* extracts) are known, it is emphasized that they have the potential to sometimes induce various unwanted effects on tissues, and it is still not recommended to use a supplement containing one of these compounds to prevent COVID-19 [7,9,19]. In our study, it was noteworthy that the use of turmeric, whose active ingredient is curcumin, was frequent. In this study that herbal treatment methods were the most frequently utilized methods originated from the fact that a substantial rate of nurses had not received training on CIM use, and their sources of information were not reliable or accurate.

On the other hand, in some studies, the most frequently used CIM methods were reported as massage therapy, non-herbal supplements, and meditation/relaxation techniques/imagery techniques [13,15,20]. These results suggested that cultural, educational, and belief-related differences are effective on the CIM methods that are used. Considering the least frequently used methods, it was observed in this study that the usage rate of homeopathy was very low, and other studies have obtained similar results [13,15,16]. Nevertheless, in a study conducted in Mexico, it was reported that homeopathy was the most frequently used CIM method among physicians [21]. It is known that homeopathy is more prevalently used in Western countries [22]. The reason why the usage rate of homeopathy in this study was very low is considered to be the fact that it is not a well-known and recognized method in Turkish society yet.

It was found that the vast majority of the nurses who used CIM used it for protection from disease. Similarly, studies conducted in the COVID-19 pandemic period have reported that herbal treatment methods and nutritional supplements were used rather for the purpose of "protection from disease" [17,23]. In other studies, it is seen that "improvement of health" has become prominent as a reason for CIM use [13,15,24,25]. As a result of this study, it was seen that concerns about getting the infection themselves and/or in their family members, concerns about being in crowded places, perceived infection probability, and perceived danger in

relation to the effect of the COVID-19 pandemic on health were high among the nurses. It is considered that this situation may have affected the use "with protection purposes" in CIM use.

As a result of the multiple regression analysis that was conducted to determine the variables predictive on CIM use, it was determined that being 40-50 years old, being a woman, and having received training on CIM were predictors of CIM use. In the literature, no study where variables affecting CIM use in the pandemic process were investigated were found. This is why this issue is discussed here alongside other research results. Some studies have shown that women use complementary medicine more prevalently in comparison to men [15,16,21,26,27]. Especially the higher interest in health problems among women is a factor that increases their interest in complementary medicine [28]. It is known that advanced age poses a risk in terms of COVID-19. Training individuals receive about CIM becomes highly effective on their points of view and awareness levels regarding health. In this context, education/training is a significant variable in accessing, using, and assessing information on complementary medicine [29]. The results of this study supported the literature. In this study that great concerns of getting the infection in oneself and/or in family members, great concerns of being in crowded places, high perceived infection probability, and serious perceived danger regarding the effect of the COVID-19 pandemic on health were other predictive variables for CIM use. It is believed that reasons such as the fast spread of COVID-19, the constant increase in the number of cases and mortalities, and the differently progressing clinical prognosis of the disease were influential on this result. Such that "protection from disease" was at the top of the reasons of the nurses in this study to use CIM.

CONCLUSIONS

In this study, it was determined that 55.2% of the nurses who participated in the study used at least one CIM method in the COVID-19 pandemic process, the most frequently used method was herbal treatment-phytotherapy (96.7%) which involved ginger most. The least prevalently used method was homeopathy. On CIM use, having received training on CIM, great perceived danger in terms of the effect of the COVID-19 pandemic on health, high perceived infection probability, high concerns of being in crowded places, high concerns of getting the infection oneself and in family members and being at the ages of 40-50 had a predictive effect. Considering studies on the use of complementary and integrative treatments towards COVID-19, it is seen that no evidence-based result has been reached. And it is recommended to utilize existing and known

protection measures like facemasks, distancing, hygiene, quarantine, good nutrition, and stress reduction [30].

Based on these results, in order to prevent a negative effect that could be induced by a CIM method that will be used, it may be recommended to provide nurses with training on CIM use in relation to the COVID-19 pandemic and to conduct research in larger samples.

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Conflicts of interest

The authors have declared no conflict of interest.

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