

## Nursing Students' Attitudes About Complementary and Alternative Medicine Methods: A Cross Sectional Study

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### Abstract

**Objective:** In this study, it was aimed to determine nursing students' attitudes towards complementary and alternative treatment methods

**Material and methods:** A descriptive and cross-sectional study was carried out in the health sciences faculty of a university between February-March 2018. The sample consisted of first and fourth year students of nursing (n:197). The "Descriptive Information Form" and Holistic Complementary and Alternative Medicine Questionnaire (HCAMQ) were used to collect the data.

**Results:** In data analysis, descriptive statistics, student's t test and chi-square test were used. The mean scores the first and fourth year nursing students obtained from the overall HCAMQ were  $32.69 \pm 5.42$  and  $30.82 \pm 5.84$  respectively. There was a statistically significant difference between the first and fourth year nursing students in terms of the mean scores they obtained from the HCAMQ ( $p < 0.05$ ). There was no statistically significant difference between the first and fourth year students in terms of their mean scores for the CAM and HBB sub-dimensions ( $p > 0.05$ ).

**Conclusions:** The results of the study demonstrated that the participating nursing students displayed positive attitudes towards the methods of complementary and alternative medicine at a moderate level. Their being knowledgeable about CAM methods is important. In order for nurses to be primarily responsible for patient care and to provide care holistically, their being knowledgeable about CAM methods, and informing their patients about the CAM. Therefore, we recommended that the undergraduate nursing curriculum should also include information about CAM, and students should be provided with educational opportunities about different methods.

**Keywords:** Complementary therapies, nursing students, attitudes

## Hemşirelik Öğrencilerinin Tamamlayıcı ve Alternatif Tıp Yöntemlerine İlişkin Tutumları: Kesitsel Çalışma

### Öz

**Amaç:** Bu çalışmada hemşirelik öğrencilerinin tamamlayıcı ve alternatif tedavi yöntemlerine yönelik tutumlarının belirlenmesi amaçlanmıştır.

**Gereç ve Yöntemler:** Araştırma, bir üniversitenin sağlık bilimleri fakültesinde Şubat -Mart 2018 tarihleri arasında tanımlayıcı ve kesitsel nitelikte yapılmıştır. Örneklemi hemşirelik birinci ve dördüncü sınıf öğrencileri (n:197)

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oluşturmuştur. Verilerin toplanmasında “Tanımlayıcı Bilgi Formu” ve ‘Bütüncül Tamamlayıcı ve Alternatif Tıp Ölçeği’ (BTATÖ) kullanılmıştır. Verilerin analizinde tanımlayıcı istatistikler, student t testi ve ki-kare testi kullanılmıştır.

**Bulgular:** Birinci ve dördüncü sınıf hemşirelik öğrencilerinin genel BTATÖ'den aldıkları ortalama puanlar sırasıyla  $32,69 \pm 5,42$  ve  $30,82 \pm 5,84$ 'tür. Hemşirelik birinci ve dördüncü sınıf öğrencilerinin BTATÖ'den aldıkları puan ortalamaları arasında istatistiksel olarak anlamlı bir fark vardır ( $p < 0.05$ ). Birinci ve dördüncü sınıf öğrencilerinin tamamlayıcı ve alternatif tıp ve bütüncül sağlık inançları alt boyut puan ortalamaları arasında istatistiksel olarak anlamlı bir fark yoktur ( $p > 0.05$ ).

**Sonuç:** Araştırmanın sonuçları, katılan hemşirelik öğrencilerinin tamamlayıcı ve alternatif tıp yöntemlerine yönelik orta düzeyde olumlu tutum sergilediklerini göstermiştir. Tanımlayıcı ve alternatif tedavi yöntemleri hakkında bilgi sahibi olmaları önemlidir. Hemşirelerin hasta bakımından birinci derecede sorumlu olmaları ve bütüncül bakım verebilmeleri için TAT yöntemleri hakkında bilgi sahibi olmaları ve hastalarını TAT konusunda bilgilendirmeleri gerekmektedir. Bu nedenle lisans hemşirelik müfredatının tamamlayıcı ve alternatif tıp ile ilgili bilgilere de yer verilmesini ve öğrencilere farklı yöntemler konusunda eğitim olanaklarının sağlanmasını öneriyoruz.

**Anahtar Kelimeler:** Tamamlayıcı tedaviler, hemşirelik öğrencileri, tutum

## INTRODUCTION

Complementary and alternative medicine (CAM) is a method having been used to prevent or treat diseases since ancient times (1-3). People who use CAM often seek ways to improve their health and quality of life, or want to alleviate symptoms associated with chronic or even terminal illnesses or the side effects of conventional treatments (2-4). The World Health Organization (WHO) defines treatment approaches other than modern medicine as CAM. Complementary and alternative medicine is defined for the protection of health, diagnosis, and treatment of disease created within the framework of basic medicine to expand the conceptual scope of medicine or to meet traditional needs that cannot be met by modern medicine (5,6). The definition suggests that CAM practices are not part of conventional medicine because there is no evidence that they are

safe or effective. While complementary interventions are used in conjunction with traditional treatments, alternative interventions are used instead of traditional medicine (2).

Although the efficacy of many complementary and alternative medicine applications has been proven only to a very limited extent, people around the world are increasingly using CAM.(3,7,8). This tendency of people to CAM has made it inevitable for nurses who provide health services at all levels of the society and whose aim is to increase the optimal health level to take part in complementary treatment practices (6,9,10). Several methods such as aromatherapy, massage, reflexology, acupuncture, relaxation techniques, meditation, daydreaming, biofeedback and therapeutic touch are within the scope of CAM. While some of these treatment methods can be

implemented within nursing practices, others require special training (6,9-12).

However, in our country, Turkey, apart from these methods, a wide variety of methods is used by people. Strategic location of Turkey which functions like a bridge connecting Europe and Asia is an important determining factor in the diversity of use of CAM methods (1). However, there is not enough data on what these methods are, how often they are used and how health personnel approach this issue. Nurses who are in one-to-one communication with the patient in the health system assume substantial duties in the evaluation of CAM methods used by individuals, in explaining the purposes, effects, usage patterns and risks of these methods correctly, developing these methods and determining effective strategies (6,7,9,13,14). In particular, if nurses working in all areas of the society are to ensure the safe and effective use of CAM methods and to prevent potential side effects of the CAM, they should have accurate and adequate knowledge about CAM methods (14,15). Therefore, the knowledge and attitudes of nurse candidates who are prepared to fulfill the requirements of holistic care towards CAM methods should be investigated comprehensively. In this study, To determine whether there is a difference between the attitudes of nursing students towards complementary

alternative treatment methods at the end of four years of nursing education

## **MATERIAL AND METHODS**

### **Study Design and Sample**

This descriptive and cross-sectional study was carried out on the health sciences faculty of a university between February 2018 and March 2018. The study population consisted of first year students who received only basic education and fourth year students who received most of their nursing education, studying in the nursing department of the health sciences faculty (N: 301). The sample consisted of 197 (65.4% of the N) students who were  $\geq 18$  years old, were willing to communicate and cooperate, were not absent during the days when the study was conducted, filled out the questionnaire completely, and volunteered to participate in the study. No sampling method was implemented in the present study. All the students who agreed to participate in the study formed the sample of the study. After the study was completed, post power analysis was performed, which demonstrated that the sample had adequate power (80%). Standardized effect sizes determined by Cohen were used to determine the power of the sample size (16).

### **Measures**

The “Descriptive Information Form” and Holistic Complementary and Alternative

Medicine Questionnaire (HCAHQ) were used to collect the data. The data was collected from the students using the face-to-face interview technique.

### **Descriptive Information Form**

The form developed by the researchers consists of 12 items questioning the participating students' socio-demographic characteristics such as age, gender, socioeconomic status, family, education level, number of siblings, and their knowledge of complementary and alternative treatment methods.

### **Holistic Complementary and Alternative Medicine Questionnaire (HCAHQ)**

The HCAHQ was developed by Hyland et al. in 2003 (17). The Turkish validity and reliability of the HCAHQ was performed by Erci in 2007. The Cronbach's Alpha value, which is the reliability coefficient of the scale, was 0.72 in Erci's study (18). The scale consists of 11 questions whose responses are rated on a six-point Likert type scale ranging from 1 to 6. The scale has two sub-dimensions: Attitudes to Complementary and Alternative Medicine (ACAM), and Holistic Health Beliefs (HHB). While the ACAM sub-dimension of the scale consists of items 2, 4, 6, 8, 9 and 11, the HHB sub-dimension consists of items 1, 3, 5, 7 and 10. The minimum and maximum possible scores that can be obtained from the overall HCAHQ are 11

of 66 respectively. The low score obtained from the scale indicates a positive attitude towards CAM, and a high score indicates a negative attitude towards CAM (18). In our study, the Cronbach's Alpha value of the HCAHQ was 0.70.

### **Data Analysis**

To analyze the data, the SPSS 15.0 (Statistical Package for the Social Sciences) program was used. In data analysis, descriptive statistics (number, percentage, arithmetic mean, standard deviation, student's t test and chi-square test were used.

### **Ethics Committee Approval**

Before the study was conducted, ethics committee approval was obtained from the Non-Interventional Clinical Research Ethics Committee to conduct the study (decision date: February 07, 2018 and decision number: GO 2017/27). Written permission was obtained from the management of the faculty where the study was to be conducted. In order to administer the Holistic Complementary and Alternative Medicine Questionnaire to the participants, permission was obtained from Erci, who performed its Turkish validity and reliability study. In addition, after the students were informed about the purpose of the study, written consent was obtained from those who agreed to participate in the study.

## RESULTS

Sociodemographic characteristics of the first and fourth year students participating in the study were given in Table 1. The mean age of the first-year students included in the sample was  $19.08 \pm 1.77$  years (Min:18-Max:30). Of them, 84.2% were women, 85.1% had a medium economic status and 34.7% had two or three siblings. The longest place of residence was the city for 50.5% of the first-year students. As for their parents' educational status, 55.4% of the mothers and 55.8% of the fathers were primary school graduates.

The mean age of the fourth-year students included in the sample was  $22.22 \pm 1.10$  years varying between 20 and 26. Of them, 72.9% were women, 77.1% had a medium economic status and 37.5% had one sibling. The longest place of residence was the city for 58.3% of the fourth-year students. As for their parents' educational status, 56.3% of the mothers and 40.6% of the fathers were primary school graduates. There was no statistically significant difference between first and fourth year students in terms of variables such as sex, place of residence, income level, number of siblings, and education level of parents ( $p > 0.05$ ) (Table 1).

**Table 1. Comparison of Socio-demographic characteristics of the 1st year and 4th year students ( n:197)**

Variables	1st year n=101 $\bar{x} \pm SD$	4th year n=96 $\bar{x} \pm SD$	t	p*
Age (year)	19.08 $\pm$ 1.77 (min:18- max:30)	22.22 $\pm$ 1.10 (min:20 –max:26)	0.658	0.0000
	n(%)	n(%)	$\chi^2$	p**
<b>Gender</b>				
Male	16 (15.8)	70 (72.9)	3.068	0.080
Female	85 (84.2)	26 (27.1)		
<b>Longest lived place</b>				
Province	51 (50.5)	56 (58.3)	6.766	0.034
Town	36 (35.6)	19 (19.8)		
Village	14 (13.9)	21 (21.9)		
<b>Perceived income level</b>				
Income less than expenses	13 (12.9)	18 (18.8)	2.248	0.325
Income equal to expenses	86 (85.1)	74 (77.1)		
Income higher than expenses	2 (2.0)	4 (4.2)		

<b>Number of children in family</b>				
1	2 (2.0)	2 (2.1)	3.097	0.542
2	35 (34.7)	24 (25.0)		
3	35 (34.7)	36 (37.5)		
4 and over	29 (28.7)	34 (35.4)		
<b>Mother Education</b>				
Illiterate	9 (8.9)	8 (8.3)	6.191	0.185
Primary school	56 (55.4)	54 (56.3)		
Secondary school	22 (21.8)	11 (11.5)		
High School	9 (8.9)	17 (17.7)		
University or higher level of education	5 (5.0)	6 (6.3)		
<b>Father Education</b>				
Illiterate	1 (1.0)	2 (2.1)	3.435	0.488
Primary school	50 (49.5)	39 (40.6)		
Secondary school	22 (21.8)	18 (18.8)		
High School	15 (14.9)	22 (22.9)		
University or higher level of education	13 (12.9)	15 (15.6)		

$p^* < 0.05$ ;  $p^{**} > 0.05$ ; SD, Standard Deviation; t, Independent samples t-test;  $X^2$ , Chi-square test

The mean score the participating nursing students obtained from the overall HCAMQ was  $31.78 \pm 5.69$  and the attitude was positive. The mean scores the first and fourth year nursing students obtained from the overall HCAMQ were  $32.69 \pm 5.42$  and  $30.82 \pm 5.84$  respectively. There was a statistically significant difference between the first and fourth year nursing students in terms of the mean scores they obtained from the HCAMQ ( $p < 0.05$ ). The students' socio-demographic characteristics such as age, sex, place of residence, economic status, mother's and father's education level and

number of siblings did not affect their HCAMQ scores ( $p < 0.05$ ).

As for the mean scores the students obtained from the sub-dimensions of the HCAMQ, the first year students' mean ACAM and HHB scores were  $23.02 \pm 3.59$  and  $9.66 \pm 3.80$  respectively, and the fourth year students' mean ACAM and HHB scores were  $22.00 \pm 4.86$  and  $8.82 \pm 2.96$  respectively. There was no statistically significant difference between the first and fourth year students in terms of their mean scores for the ACAM and HHB sub-dimensions ( $p > 0.05$ ) (Table 2).

**Table 2. Comparison of the Holistic Complementary and Alternative Medicine Questionnaire Mean of Students in First and Fourth Class**

	Groups		t	p*
	1 <sup>st</sup> class (n:101)	4 <sup>th</sup> class (n:96)		
HCAMQ	$\bar{x} \pm SD$	$\bar{x} \pm SD$		
Total	32.69 ± 5.42	30.82 ± 5.84	2.328	0.021
<b>Sub Dimensions</b>				
ACAM	23.02 ± 3.59	22.00 ± 4.86	1.684	0.094
HHB	9.66 ± 3.80	8.82 ± 2.96	1.735	0.084

*p*\* < 0.05; *SD*, Standart Deviation; *t*, Independent samples *t*-test

The analysis of the situations in which they used CAM methods revealed that while the first year students mostly used them for the treatment of cold (40.6%), headache (29.7%) and toothache (22.8%), the fourth-year students used it mostly for the treatment of cold (64.6%), headache (56.3%), nausea and vomiting (49.0%), toothache (35.4%), bee sting (35.4%), burn care (29.2%) and wound care (28.1%), and for protection against diseases (32.3%). The comparison of the reasons why the students used CAM methods demonstrated that there was not a statistically significant difference between the first and fourth year students in terms of using them for the treatment of kidney stones and diseases, warts, cancer and diabetes ( $p > 0.05$ ) (Table 3). However,

a statistically significant difference was determined between the first and fourth year students in terms of using them for the treatment of headache, wound care, burn care, toothache, bleeding, nausea, vomiting, hypertension, cold, bee sting and protection against diseases ( $p \leq 0.05$ ).

The analysis of the CAM methods used by the participating students most frequently demonstrated that the first year students used herbal methods (52.5%), massage (27.7%) and prayers / spiritual practices (14.9%) whereas the fourth-year students used herbal methods (82.3%), massage (57.3%), and prayers / spiritual practices (41.7%), some mixtures (22.9%) and special diets (16.7%).

**Table 3. Comparison of CAM use of the 1st year and 4th year students ( n:197)**

Variables	1 <sup>st</sup> class (n:101) n(%)	4 <sup>th</sup> class (n:96) n(%)	$\chi^2$	p*
<b>CAM Usage</b>				
Yes	61 (60.4)	81 (84.4)	14.063	0.000
No	40 (39.6)	15 (15.6)		
<b>Reasons of CAM Usage<sup>a</sup></b>				
Headache	30 (29.7)	54 (56.3)	14.182	0.000
Wound care	8 (7.9)	27 (28.1)	13.752	0.000
Burn Care	5 (15.2)	28 (29.2)	20.697	0.000
Toothache	23 (22.8)	34 (35.4)	3.827	0.050
Kidney stones and diseases	1 (1.0)	2 (2.1)	0.614	0.481
Bleeding	1 (1.0)	11 (11.5)	9.429	0.002
Wart	6 (5.9)	13 (13.5)	3.263	0.071
Nausea and vomiting	15 (14.9)	47 (49.0)	26.547	0.000
Cancer	2 (2.0)	2 (2.1)	1.000	0.670
Diabetes	0 (0)	4 (4.2)	0.055	0.055
Hypertension	5 (5.0)	13 (13.5)	4.376	0.036
Colds	41 (40.6)	62 (64.6)	11.353	0.001
Bee sting	14 (13.9)	34 (35.4)	12.409	0.000
Protection against diseases	14 (13.9)	31 (32.3)	9.486	0.002
<b>CAM Methods Used<sup>a</sup></b>				
Herbal method	53 (52.5)	79 (82.3)	9.486	0.002
Animal method	6 (5.9)	8 (8.3)	0.427	0.514
Mixture	10 (9.9)	22 (22.9)	6.129	0.013
Massage	28 (27.7)	55 (57.3)	17.650	0.000
Acupuncture	2 (2.0)	3 (3.1)	0.677	0.476
Special diets	4 (4.0)	16 (16.7)	8.711	0.003
Multivitamins	10 (9.9)	13 (13.5)	0.633	0.426
Praying / spiritual practices	15 (14.9)	40 (41.7)	17.586	0.000
Yoga	3 (3.0)	3 (3.1)	1.000	0.634
Meditation	2 (2.0)	5 (5.2)	0.270	0.202

*p*\*<0.05; *p*\*\* >0.05;  $\chi^2$ , Chi-square test  
<sup>a</sup>More than one option was choosen

However, all of the students (100%) stated that they never used homeopathy, reflexology and tai chi exercises. The comparison of the CAM methods used by the students demonstrated that there was not a statistically significant difference between the first and fourth year students in terms of using animal methods, acupuncture, multivitamins, yoga and meditation

(*p*>0.05) (Table 3). However, there was a statistically significant difference between the first and fourth year students in terms of using herbal methods, some mixtures, massage, special diets and prayers / spiritual practices (*p*≤ 0.05) (Table 3).



## DISCUSSION

Currently, individuals may resort to CAM methods from time to time for preventive purposes or for treatment. The recent popularity of CAM requires nurses and nursing students to have knowledge about CAM in order to provide holistic care and to guide patients and their relatives (19,20). In the present study, nursing students' attitudes towards complementary and alternative medicine methods and their use of CAM were investigated. The mean score the students obtained from the overall HCAMQ was at a moderate level. They displayed positive attitudes towards CAM at a moderate level. The mean scores nursing students obtained from the overall HCAMQ in other studies were as follows:  $28.46 \pm 5.04$  (21),  $20.42 \pm 3.14$  (6),  $28.43 \pm 5.05$  (22), and  $25.41 \pm 5.25$  (19) (6,19,21,22). Our study results are consistent with the results of other studies. In the present study, the mean scores the first and fourth year students obtained from the overall HCAMQ were  $32.69 \pm 5.42$  and  $30.82 \pm 5.84$  respectively. Attitudes displayed towards CAM by the fourth year students were more positive, which was probably due to the fact that the prevalence of CAM use in the fourth year students was higher than was that in the first year students. Consistent with our study results, in several studies in the literature, it is stated

that the level of positive attitudes towards CAM increases as the students' year at school increases (6,10,19).

In the literature, it is stated that the use of complementary and alternative medicine methods is widespread and the use of these methods varies from one country to another (23). According to the data released by the Centers for Disease Control and Prevention (CDC) and National Center for Health Statistics (NCHS) 2012-2017, among the most frequently used CAM methods by individuals aged  $\geq 18$  years old in the USA are yoga, meditation and chiropraxis (24). In studies conducted in Europe, individuals undergo massage therapy, homeopathy, osteopathy, herbal therapies, acupuncture and chiropraxis (25). According to a study conducted in the USA in 2011, applications such as herbal methods, prayers / spiritual applications, massage, music therapy were more common (14). On the other hand, according to a recent study, applications such as acupuncture, aromatherapy, yoga, and chiropraxis have become widespread (26). According to our review of studies carried out in our country, Turkey, the most commonly used CAM methods are as follows: exercises and breathing exercises in the study conducted with nursing and midwifery intern students by Baltacı and Koç (2018), herbal treatments and acupuncture in Kavurmacı et al.'s study (2018) conducted with nursing, midwifery

and dietetics students, herbal methods and massage in Araz et al.'s study (2012), religious practices, massage and hydrotherapy in Doğanay et al.'s study (2018) conducted with health sciences and medical students (7,22,27,28). In our study, the participating nursing students used herbal methods, massage, and prayers / spiritual practices. The results obtained in our study are consistent with the results obtained in other studies in the literature.

All of the students stated that they never used homeopathy, reflexology and tai chi exercises. In Altınbaş and İster's study conducted with midwifery and nursing students (2019), the students stated that they had never heard of practices such as acupuncture, aromatherapy, Ayurveda, bioenergy, feng shui and homeopathy (29). Similarly, in Şahin et al.'s study (2019), the students stated that they had never heard of practices such as chiropraxis, shiatsu, bioresonance, homeopathy, and phytotherapy (21,29). These results suggest that the students were more knowledgeable about the applications frequently covered in the written and visual media, but had little or no information about the applications covered in the written and visual media less commonly.

In our study, the participating students mostly used CAM for the treatment of cold, headache, toothache and nausea and vomiting. In Baltacı and Koç's study

(2019), intern nursing and midwifery students most frequently used CAM methods for the alleviation of pain and stress, relaxation, and improvement of sleep quality (22). Similarly, in Açıkgöz et al.'s (2016) and Çöl Araz et al.'s (2012) studies, CAM was used most frequently to reduce pain (7,15). In our study, the fourth year students used CAM in more situations than did first year students, which was probably due to the fact that the first year students did not yet receive all the education related to the field of nursing. The scientific information presented in the courses conducted within the scope of the nursing curriculum includes evidence-based nursing and medical information.

In our study, there was no difference between the participants in terms of the effects of their sociodemographic characteristics on their attitudes to use CAM methods. In Aktaş's study (2017), of the variables, sex, mother's and father's education levels, place of residence, number of siblings, and socioeconomic status affected the participants' attitudes (6). On the other hand, in Çınar et al.'s (2016) and Şahin et al.'s (2019) studies, while gender variable affected the participants' attitudes, other variables did not (19,21).

## CONCLUSION

The results of the present study demonstrated that the participating nursing students displayed positive attitudes towards the methods of complementary and alternative medicine at a moderate level. Their being knowledgeable about CAM methods is important. In order for nurses to be primarily responsible for patient care and to provide care holistically, their being knowledgeable about CAM methods, and informing their patients about the indications, contraindications and side effects of CAM although they have limited authority in the application of CAM methods in our country are of great importance. Therefore, it is of great importance that nursing students should be enabled to acquire basic knowledge and skills about CAM methods in their undergraduate education, that their awareness of the prevalence of the use of CAM should be improved, and that they should be able to guide the individual and their families about the applications. Therefore, we recommended that the undergraduate nursing curriculum should also include information about complementary and alternative medicine, and students should be provided with educational opportunities about different methods.

**Ethical Approval:** This study was approved by Burdur Mehmet Akif Ersoy University Non-Interventional Clinical Research Ethics Committee with date ( Date: 02/07/2018) and decision number ( Decision no: GO 2017/27). Written permission was obtained from the management of the faculty where the study was to be conducted. In order to administer the Holistic Complementary and Alternative Medicine Questionnaire to the participants, permission was obtained from Erci, who performed its Turkish validity and reliability study. In addition, after the students were informed about the purpose of the study, written consent was obtained from those who agreed to participate in the study.

### **Author(s) Contributions:**

Contributed to the conception and design of this study: SÇ, EE; data collection: SÇ, EE; performed the statistical analysis: SÇ; drafted the manuscript: SÇ, EE; critically reviewed the manuscript and supervised the whole study process: SÇ, EE

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