

Original Article

Use of Complementary and Alternative Medicine by Osteoporosis and Osteopenia Patients

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Abstract

Background: CAM therapies are popular today. In Turkey, there have been many studies on the use of CAM, and a generally high rate of CAM use is noticeable. However, no study was found on the use of CAM methods by osteoporotic patients in this country.

Aim: The aim of the study was to determine the use of CAM methods by patients with osteoporosis or osteopenia and affecting factors.

Methods: The population of the descriptive study consisted of 201 patients with osteoporosis or osteopenia who had come to the university hospital in Izmir, Turkey between July 2016 and January 2017. The data of the study were collected with a questionnaire developed by the researchers. The questionnaire consisted of three sections and 30 questions. The presence of osteoporosis or osteopenia in patients was determined by examining the t score in the bone densitometry result obtained at the time of the research.

Results: The mean age of the patients was 58.05 ± 12.71 years. It was found that 70.6 % of the patients had used at least one type of CAM during the previous 12 months. The most preferred types of CAM were diet (66.9%), exercise (51.4%), vitamin D (32.4%), Ca (30.9%), and herbal therapies (%19.1). CAM users had a higher educational level than CAM non-users ($\chi^2=13.710$, $p<0.01$). There were no significant differences between CAM users and nonusers with regard to the other socio-demographic and disease characteristics.

Conclusions: In this study, CAM methods were used by a large proportion of osteoporosis patients. Health professionals should determine the use of CAM by osteoporosis patients and should be aware of the factors affecting its use. In order to prevent possible adverse clinical interactions between the use of CAM and medical treatment, it is recommended that health professionals should consult with patients.

Keywords: osteoporosis, osteopenia, complementary and alternative therapy.

Introduction

Osteoporosis is a disease which is estimated to affect 200 million women worldwide, and which causes more than 8.9 million bone fractures each year. One in three women and one in five men over the age of 50 will experience osteoporotic fracture in the future (IOF 2018). In Turkey, the prevalence of osteoporosis is 7.5% in men and 12.9% in women (Meray, Peker, & Tuzun 2012). Old people formed 7.5% of the total population in 2012, and in 2016 this rose to 8.3% (TSI 2017). With the increase in the aging population, the prevalence of osteoporosis is expected also to increase in the coming years.

In the medical treatment of osteoporosis, bisphosphonates, hormone replacement therapy, selective estrogen receptor modulators, Vitamin D analogs and calcitonin are used, and long-term drug treatment is needed (Vik 2007, Shi et al. 2017). Also, various non-pharmacological measures are employed for protection against osteoporosis such as having sufficient quantities of calcium and vitamin D in the diet, taking regular exercise, not smoking, and reducing the consumption of alcohol and salt (Demirel, Kumsar, & Yilmaz 2015).

Factors such as the side effects of medical treatment, the long-term character of medical treatment for osteoporosis, and the easy accessibility of alternative and complementary treatments and trust in them have directed patients towards alternative and complementary treatments outside conventional medical treatment (Lee et al. 2008). Complementary and alternative medicine (CAM) is defined as a group of diverse medical and health care systems, practices, and products that are not presently considered to be part of conventional medicine (National Center for Complementary and Integrative Health 2018). CAM therapies are popular today (Weia et al. 2015). According to the World Health Organization (WHO), more than three quarters of the world's population rely on complementary health practices (Ilgaz & Gozum 2016). Approximately half of all adults address their health problems using CAM methods (Erdal 2012). The factors affecting the use of these methods vary from country to country. Among these factors are dissatisfaction with the results of modern western medicine, the

desire to have more control over health decisions, having a chronic illness and a belief that CAM methods are natural and harmless (Ilgaz & Gozum 2016). In studies performed in Turkey, it is seen that CAM methods are used alongside existing medical treatments, mostly to manage symptoms and reduce the side effects of medication, or to strengthen the immune system, and are understood as being complementary and holistic (Ilgaz & Gozum 2016, Unsal & Gozum 2010).

In different countries, a large number of CAM methods are used in the prevention and treatment of osteoporosis. The commonest of these are dietary supplements such as calcium, magnesium, vitamin D, multivitamins or proteins, and herbal therapies and exercise (Chong et al. 2007, Mak & Faux 2010, Armstrong et al. 2011, Vik 2007). It has been said that the use of this kind of method is not so much an alternative treatment for osteoporosis as a method which is complementary to medical treatment (Erdal 2012). Regarding previous studies, Chong et al. (2007) found that 57% of 360 osteoporosis patients at an osteoporosis clinic in Canada used CAM methods; Mak & Faux (2010) in a study with 202 osteoporotic patients found that 51.5% used these methods, and in a study by Armstrong et al. (2011) it was found that 40% of patients used them.

In Turkey, there have been many studies on the use of CAM, and a generally high rate of CAM use is noticeable. In a study by Gozum, Arikan, & Buyukavsi (2007) conducted children with cancer, the rate of CAM use was found to be 48.9%, 76% in arthritic patients (Unsal & Gozum 2010), 58.9% in cancer patients (Avci, Koc, & Saglam 2011), 34.6% in old people (Kucukguclu et al. 2012), 81% in women in the climacteric period (Koc, Saglam, & Topatan 2013), and 46.9% in patients with rheumatoid arthritis (Tokem et al. 2014). However, no study was found on the use of CAM methods by osteoporotic patients in this country.

Today, the acceptability and use of CAM methods in society is steadily increasing. In Turkey, the Regulations on Traditional and Complementary Medical Practices came into force in 2014 (Republic of Turkey Ministry of Health 2014).

This regulation states that “health professionals with basic training in the field of practice may assist certified physicians in practice in the center and units”. In particular, the lack of quality standards for CAM products in this country suggests that care should be taken in their use. Nurses should have knowledge of the quality, reliability and use of CAM methods, and they should monitor and evaluate their use (Gozum, Arikan, & Buyukavsi 2007). It is also emphasized in the literature that it is important for nurses in particular to be aware of the increase in osteoporosis treatment choices (Higgs & Kessenich 2010).

The aim of the study was to determine the use of CAM methods by patients with osteoporosis or osteopenia and affecting factors.

Methods

Study design and subject

The descriptive study was carried out at a university hospital in Izmir, Turkey between July 2016 and January 2017. This university hospital is the largest medical center in western Turkey and provides health services for people from different socioeconomic classes. Approximately 40 people a day come to the hospital for bone densitometry examination.

The population of the study consisted of the patients with osteoporosis or osteopenia who had come to the hospital for bone densitometry results within the research dates. In order to determine sample size, the sample selection formula ($n=t^2.p.q/d^2$) was used for an unknown population as a probability sampling method with a 95% significance level and a 0.05 margin of error. Using an estimated prevalence of 48% (Gozum & Unsal 2004) with a desired precision of 5%, we calculated a required sample size of 195. Subjects included in the study were 18 years of age or older; they were able to communicate verbally in Turkish, and agreed verbally to participate in the study. They were patients who had been diagnosed with osteopenia or osteoporosis at least one year prior to the study. In total, 201 patients were included in the study.

Instruments and Data Collection

The data of the study were collected with a questionnaire developed by the researchers after

a review of the related literature (Gozum & Unsal 2004, Chang et al. 2007, Gozum, Arikan, & Buyukavsi 2007, Unsal & Gozum 2010, Higgs & Kessenich 2010, Kucukguclu et al. 2012, Koc, Saglam, & Topatan 2013, Tokem et al. 2014). The questionnaire consisted of three sections and 30 questions. The first section contained seven questions on the patients' socio-demographic characteristics such as age, gender, educational level, marital status, work status, place of residence and economic status. The second section of the questionnaire asked three questions about the patients' osteoporosis (the presence of osteopenia or osteoporosis according to bone mineral density, the duration of the disease, indications of osteoporosis). The presence of osteoporosis or osteopenia in patients was determined by examining the t score in the bone densitometry result obtained at the time of the research. In accordance with WHO criteria, patients with a bone mineral density (BMD) T-score of -1 or above were categorized as having normal BMD, those with a T-score lower than -1 and greater than -2.5 as having osteopenia, and those with a T-score of -2.5 or lower as having osteoporosis. Those with a T-score of -2.5 or lower and the presence of at least one fragility fracture were categorized as having severe osteoporosis.

The third section of the questionnaire contained ten questions on the patients' use of CAM: use of CAM in the past year, types of CAM used, time of starting CAM, reasons for use of CAM, sources of information, whether CAM use could be replaced with medical treatment, whether CAM was of benefit, what benefits were seen, sharing CAM use information with health care staff, health care staff reactions, and whether they had recommended CAM to others. This section contained a list of CAM prepared by Koc, Saglam & Topatan (2013) consisting of 22 popular methods: herbal treatment, diets, nutrition supplements, minerals and vitamins, homeopathy, massage, psychotherapy, yoga, meditation, aromatherapy, acupuncture, relaxation techniques, exercises, music therapy, support groups, imagination, hypnosis, humor, prayer, biofeedback, reflexology and hydrotherapy. Participants were asked to specify whether or not they used each method.

This questionnaire was pilot-tested for readability on ten osteoporosis patients. No changes were needed after pilot testing. Those who participated in the pilot test were not included in the research. The researchers explained CAM to the patients before the data was collected. Each patient was interviewed by the researchers for 10-15 minutes in the waiting room of the bone densitometry department using the questionnaire.

Data Analysis

The program SPSS 16.0 was used for statistical analysis. Frequencies were tabulated for categorical data, and mean values and SDs were calculated for continuous data. The Chi-square test was used to identify which of the socio-demographic and disease variables were related to the use of CAM. A p-value of <0.05 was considered significant.

Ethical Consideration

Written approval was obtained from the ethics committee of Ege University Faculty of Nursing and from the administrator of the hospital (Number: 69631334-302.14.03), and the patients' oral consent was obtained. Patients were informed about the aim of the study, and then asked if they agreed to participate in the interview. Participants were told that they could withdraw from the interview whenever they wished and that all information would be kept strictly confidential

Results

Socio-demographic and Disease Characteristics of the Patients with Osteoporosis and Osteopenia

The mean age of the patients was 58.05 ± 12.71 (min=18, max=84) years. A majority of patients were women (96%), 30.8% were educated to primary school level, more than half were married (67.7%), 63.2% were living in an urban area, most (79.6%) were not working and 76.1% stated that their expenses were equal to their income. It was found that 41.8% of the patients had osteopenia and 58.2% had osteoporosis. The mean disease duration of the patients was 7.42 ± 5.75 years (min=1, max=33). Backache and lumbar pain were the most common complaints of the patients.

Frequency of CAM use by patients with osteopenia or osteoporosis and, satisfaction levels

It was found that 70.6 % of the patients had used at least one type of CAM during the previous 12 months. The most preferred types of CAM were diet (66.9%), exercise (51.4%), vitamin D (32.4%), Ca (30.9%), and herbal therapies (%19.1) (Table 1). In diet, it was reported that foods such as calcium-rich foods, eggs, kefir, red meat, whole-grain foods, honey, bone broth and kelle paça soup (soup made with the heads and feet of sheep) were consumed. It was also reported that frogs and hedgehogs were eaten. Herbal remedies included green tea, lavender, St-John's Wort, red cabbage, marjoram, Aloe vera, cloves, turmeric, dill, celery, cinnamon, mallow, nigella and parsley, and minerals used included magnesium, zinc, glucosamine, calcium carbonate and B₁₂. Nutrient supplements included eggshells, royal jelly, pollen, fish oil and garlic, shark bones, and tablets containing ginseng. With massage, centaury oil and olive oil were used. Exercise was performed as walking, swimming, pilates-aerobics, running, cycling and fitness exercises.

Characteristics of CAM use

It was found that 69% of CAM users began CAM use after diagnosis. The reasons most frequently given for CAM use were that it was natural (37.8%) and that it was reliable (25.9%). Sources of information about CAM were health care professionals (36.3%), media reports (25.3%), and neighbors and friends (17.4%). Also, 80.9% stated that they found CAM use beneficial, 64.8% that it reduced pain, and 28.2% that it increased bone mineral density. 39.7% of the patients used CAM in place of medical treatment, 85.2% shared their use of CAM with health staff, and 83.5% were encouraged to use CAM by health staff. Finally, 94.4% of the patients had recommended others to use CAM (Table 2).

Comparison between users and non-users of CAM

As seen in Table 3, there was no significant difference in terms of most socio-demographic characteristics between CAM users and non-users, but a statistically significant difference

was found in educational level. CAM users with osteoporosis had a higher educational level than CAM non-users ($\chi^2=13.710$, $p<0.01$). There were no significant differences between CAM users and nonusers with regard to disease characteristics (Table 4).

Table 1. Types of CAM used by patients with osteopenia or osteoporosis (n=201)

Variable	n (%)
Patients using CAM	142 (70.6)
Patients non-using CAM	59 (29.4)
Types of CAM*	n (%)
Herbal therapies*	27 (19.1)
Green Tea	6 (22.2)
Cloves	4 (14.8)
Ginger	4 (14.8)
The Others (St-John's Wort, Turmeric Parsley, Red Cabbage, Aleovera, Dill, Celery, Cinnamon, Mallow, Nigella, Marjoram)	15 (55.6)
Diet*	95 (66.9)
Calcium-Rich Foods	83 (87.4)
Eggs	83 (87.4)
Kefir	12 (12.6)
Red Meat,, Kelle Paça Soup, Bone Broth	9 (9.5)
Honey	3 (3.2)
Whole-Grain Foods	3 (3.2)
Onion	2 (2.1)
The Other (Frogs And Hedgehogs)	3 (3.2)
Nutrient supplements*	20 (14.1)
Eggshells	7 (35.0)
Fish Oil	6 (30.0)
Garlic Pill, Shark Bones Pill	4 (20.0)
Royal Jelly, Pollen	2 (10.0)
Gingseng Pill	2 (10.0)
Minerals and Vitamins *	34 (23.9)
Calcium Carbonate	30 (88.2)
Magnesium, Zinc, Glucosamine, B ₁₂	7 (20.6)
Calcium	44 (30.9)
D vit	46 (32.4)
Massage	4 (2.8)
with centaury oil	2 (50.0)
with olive oil	2 (50.0)
Yoga	13 (9.2)
Meditation	6 (4.2)
Relaxation techniques	6 (4.2)
Exercises*	73 (51.4)
Walking	66 (90.4)
Fitness	12 (16.4)
Pilates-aerobics	4 (5.5)
Running, Cycling	5 (6.9)
Swimming	3 (4.1)
Prayer	9 (6.3)
The others (Imagery, Psychotherapy, Humor)	3 (2.1)

*More than one answer was given.

Table 2. Characteristics of CAM use (n=142)

Time to start CAM	n (%)
Before diagnosis	27 (19.0)
After diagnosis	98 (69.0)
When complications occurred	17 (12.0)
Reason for use of CAM*	
Medical therapy was not helpful for me	15 (7.5)
There was less side effect	24 (11.9)
I wanted to try it	29 (14.4)
It was natural	76 (37.8)
It was reliable	52 (25.9)
It was cheaper	10 (5.0)
Source of information about CAM*	
Health care professionals	73 (36.3)
Family members and relatives	33 (16.4)
Neighbours and friends	35 (17.4)
The other patients (people with osteoporosis)	5 (2.5)
Media reports (TV, newspaper and magazine, internet)	52 (25.3)
Was CAM beneficial?	
Yes	115 (80.9)
No	27 (19.1)
Beneficials of CAM according to patients	
Increased bone mineral density	40 (28.2)
Reduced pain	92 (64.8)
To feel good	10 (7.0)
Can it be replaced with medical treatment	
Yes	56 (39.7)
No	86 (60.3)
Sharing CAM use with health staff?	
Yes	121 (85.2)
No	21 (14.8)
Health staff's reaction (n=121)	
Health staff did not make any comments	17 (14.0)
Health staff got angry/did not agree with me	3 (2.5)
Health staff encouraged me to use CAM	101 (83.5)
CAM suggestion	
Yes	134 (94.4)
No	8 (5.6)

*More than one answer was given.

Table 3. Socio-demographic characteristics of CAM users and CAM non-users

Characteristic	CAM users n=142 n (%)	Nonusers n=59 n (%)	Total n=201 n (%)	Significance
Age (years), mean±SD = 58.05±12.71				
18-44	17 (12.0)	7 (11.9)	24 (11.9)	$\chi^2=1.084$
45-64	87 (61.3)	32 (54.2)	119 (59.2)	$p=0.581$
65-84	38 (26.8)	20 (33.9)	58 (28.9)	
Gender				
Woman	136 (95.8)	57 (96.6)	193 (96.0)	$\chi^2=0.076$
Man	6 (4.2)	2 (3.4)	8 (4.0)	$p=0.783$
Education				
Illiterate	5 (3.5)	9 (15.3)	14 (7.0)	$\chi^2=13.710$
Primary education	40 (28.2)	22 (37.3)	62 (30.8)	$p=0.003$
High school	41 (28.9)	8 (13.6)	49 (24.4)	
University	56 (39.2.4)	20 (33.9)	76 (37.8)	
Marital status				
Married	97 (68.3)	39 (66.1)	136 (67.7)	$\chi^2=0.093$
Single	45 (31.7)	20 (33.9)	65 (32.3)	$p=0.761$
The life place				
City	85 (59.9)	42 (71.2)	127 (63.2)	$\chi^2=2.299$
Town-Village	57 (40.1)	17 (28.8)	74 (36.8)	$p=0.129$
Work Status				
Working	27 (19.0)	14 (23.7)	41 (20.4)	$\chi^2=0.571$
No work	115 (81.0)	45 (76.3)	160 (79.6)	$p=0.450$
Income				
is less than expenses (Low)	14 (9.9)	6 (10.2)	20 (10.0)	$\chi^2=0.297$
is equal to expenses (Medium)	107 (75.4)	46 (78.0)	153 (76.1)	$p=0.862$
is more than expenses (High)	21 (14.8)	7 (11.9)	28 (13.9)	

Table 4. Disease characteristics of of CAM users and CAM non-users

Characteristic	CAM users n=142 n (%)	Non-users n=59 n (%)	Total n=201 n (%)	Significance
Disease (According to BMD categorization)				
Osteopeni	64 (45.1)	20 (33.9)	84 (41.8)	$\chi^2= 2.139$
Osteoporosis	78 (54.9)	39 (66.1)	117 (58.2)	p=0.144
Complaints with osteoporosis*				
Waist back pain	80 (56.3)	39 (66.1)	119 (59.2)	$\chi^2= 1.645$ p=0.200
Length shortening	46 (32.4)	25 (42.4)	71 (35.3)	$\chi^2= 1.817$ p=0.178
Raundback	27 (19.0)	10 (16.9)	37 (18.4)	$\chi^2= 0.118$ p=0.731
Fracture	20 (14.1)	6 (10.2)	26 (12.9)	$\chi^2= 0.567$ p=0.451
Disease duration (years)				
1-5	71 (50.0)	22 (37.3)	93 (46.3)	$\chi^2= 3.268$
6-10	41 (28.9)	24 (40.7)	65 (32.3)	p=0.195
≥11	30 (21.1)	13 (22.0)	43 (21.4)	

*More than one answer was given.

Discussion

CAM use is affected by a person's socioeconomic makeup, culture, and beliefs (Avcı, Koc, & Sağlam 2011, Kucukguclu et al. 2012). At the same time, it is thought that CAM use may be increased by the fact that osteoporosis is a chronic disease and its symptoms take a long time to develop. In studies conducted with osteoporosis patients in various countries, CAM use varied between 40% and 57% (Chong et al 2007, Mak & Faux 2010, Armstrong et al. 2011). In the present study, the rate of use of CAM in osteoporosis and osteopenia patients was very high (71%). In other studies, the frequency of CAM use was variable.

Non-pharmacological interventions for osteoporosis include exercise and adequate calcium intake, vitamin D supplement, and protein intake (Vik 2007). In the present study, the most preferred types of CAM were diet, exercise, vitamin D, calcium supplements and herbal therapies. Dietary recommendations for osteoporosis included both calcium-rich foods and also adequate dietary protein intake (IOF

2017a). In the present study it was seen that patients preferred a protein-rich diet including such foods as eggs, red meat, bone broth, kelle paça soup, and whole grain foods. Exercise has an important place both in preventing osteoporosis and in managing the disease (Weia et al. 2015). It is known that an exercise program including resistance, bearing and aerobic exercises increases bone density and reduces the risk of falling and fracture (Weia et al. 2015, IOF 2017b). In the present study, patients mostly chose walking and fitness exercises. In osteoporosis patients, calcium and vitamin D are needed to maintain bone mass, and for this reason calcium and vitamin D supplements are often recommended and prescribed by doctors (Armstrong et al. 2011). In the present study also it was found that approximately one patient in three used calcium and vitamin D supplements, and that supplements such as magnesium, zinc, glucosamine and B12 were also used. In a study by Mak & Faux (2010), the most commonly used CAM method among osteoporosis patients was multivitamins (24%). In a study by Chong et al. (2007), 39.3% of osteoporosis patients used

vitamin E, and 20.4% used magnesium. In a study by Mak & Faux (2010), 13% of patients used glucosamine. In the present study, approximately one in five patients used herbal therapies. Similarly, 23% of osteoporosis patients in a study by Chong et al. (2007) used herbal therapies. Many different plants are used for the prevention and treatment of osteoporosis. Patients generally choose those with a high content of minerals such as calcium, or estrogenic activity (Vik 2007). It was seen in various studies on different diseases that herbal therapies are widely used in Turkey (Gozum & Unsal 2004, Gozum, Arikan, & Buyukavsi 2007, Avci, Koc, & Saglam 2011, Kucukguclu et al. 2012). This is because the herbs are common in this country and because it is a cultural tradition. However, nurses must keep in mind that inadequate knowledge of the use of herbs, side effects, and interaction with other medication may cause problems, and that it is important to provide patients with information on this topic.

There were also other CAM methods which were used by few people in our study but which were commonly used by osteoporosis patients in previous studies in other countries. These included relaxation techniques (used by 20% of patients), massage therapy (19%) (Chong et al. 2007), fish oil (23%), acupuncture (19.2%), taichi (14.4%), and yoga (Mak & Faux, 2010). It was also seen in the present study that osteoporosis patients used CAM methods such as homeopathy, aromatherapy, acupuncture, hypnosis, biofeedback, reflexology and hydrotherapy. The limited use of these methods has been noted in studies of different patients in this country (Avci, Koc, & Saglam 2011, Kucukguclu et al. 2012, Gozum & Unsal 2004). This is thought to derive from a lack of knowledge by patients of these methods, and from the greater economic burden of these methods compared with other CAM methods.

More than half of the patients in the study began to use CAM after diagnosis. The disease is diagnosed with the appearance of such symptoms as pain and fractures, and therefore it may be thought that the use of CAM began as a way for patients to cope with these symptoms. Many patients found CAM to be both natural and reliable (Avci, Koc, & Saglam 2011, Basedow et al. 2014). In the present study, these were among

the most important reasons for the use of CAM. Differently, osteoporosis patients in a study by Mak & Faux (2010) used CAM methods because it was a holistic approach and because of inadequate pain control.

Generally, the sources of information about CAM were health care professionals and media reports. It was found in a study by Mak & Faux (2010) that only 27% of osteoporosis patients had obtained information from health care professionals, and in a study in this country with hypertension patients, 34.1% of patients had heard about CAM from health workers (Asilar & Gozum 2017). In a study by Koc, Saglam, & Topatan (2013), the media was the most important source of information. In the present study, health workers were seen to be inadequate as a source of information. This inadequacy on the part of health workers of knowledge on this topic means that patients are unable to obtain sufficient and correct knowledge on the use of CAM, and that they do not discuss this use with a health professional (Kucukguclu et al. 2012). This can cause patients to abandon medical treatment and use only CAM. In this study also, 39.7% of patients were using CAM methods in place of medical treatment. This finding is a significant problem in that medical treatment may be hindered.

Most patients reported that CAM was beneficial, more than half stated that it reduced pain, and approximately one in three said that it increased bone mineral density. It was reported in a study by Koc et al. (2013) on women in the climacteric period that most found CAM beneficial; in a study by Mak & Faux (2010), 81% of patients stated that their symptoms decreased after CAM use, while Basedow et al. (2014) reported that pain was reduced in 33% of osteoarthritis patients after CAM use.

In the present study, 85.2% of the patients shared their use of CAM with health staff, and most staff supported the participants' use of CAM. Similarly, Mak & Faux (2010) found that 77% of osteoporosis patients informed their doctors, and in another study, Basedow et al. (2014) found that the doctors of 90% of osteoarthritis patients knew. It is thought that this result arises from the fact that the commonly used methods in this study were practices recommended by health

professionals such as diet, exercise, vitamin D, and calcium supplements. It was seen that in other studies this rate was lower, and varied from 27% to 44% (Chong et al. 2007, Koc, Saglam, & Topatan (2013), Kucukguclu et al. 2012, Mak & Faux 2010). In Turkish culture, it is a widespread practice to recommend a medication, a kind of food or a product which we have seen to be beneficial to friends, relatives or neighbors. This was seen in our study, in that nearly all of the patients had recommended the use of CAM to others.

Researchers have found a correlation between the sociodemographic characteristics of individuals such as age, gender and economic status and their use of CAM (Armstrong et al. 2011). However, in our study, a correlation was found only between the educational level of patients and their CAM use: it was found that osteoporosis patients who used CAM had a higher educational level than those who did not. Similarly, Mak & Faux (2010) and Avci, Koc & Saglam (2011) found a correlation between CAM use and a high educational level, whereas Koc, Saglam & Topatan (2013) and Unsal & Gozum (2010) found that CAM users had a low level of education, and Kucukguclu et al. (2012), Asilar & Gozum (2017) and Armstrong et al. (2011) found no correlation between CAM use and educational level.

In our study, no significant differences were found between CAM users and non-users in terms of disease duration and their most common complaints. Similarly, Max & Faux (2010) found no correlation between CAM use and disease duration in osteoporosis patients.

Limitations

This study was conducted in a department of bone densitometry examination with a limited number of osteoporosis patients, and for this reason the results cannot be generalized to all osteoporosis patients.

Conclusion

In this study, CAM methods were used by a large proportion of osteoporosis patients and they reported that they derived benefit from them. It was found that many patients had obtained information about the use of CAM from health professionals and that they shared knowledge of

the use of CAM with health professionals, but that some patients were using CAM in place of medical treatment.

Health professionals should determine the use of CAM by osteoporosis patients and should be aware of the factors affecting its use. In order to prevent possible adverse clinical interactions between the use of CAM and medical treatment, it is recommended that health professionals should consult with patients. In order to facilitate this consultation, health professionals should have knowledge of the quality, reliability and use of CAM methods, and at the same time should monitor and evaluate CAM use by patients. This is an important health development intervention from the point of view of the continuation and effectiveness of a medical treatment plan.

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References

- Armstrong, A.R., Thiébaud, S.P., Brown, L.J., & Nepal, B. (2011) Australian adults use complementary and alternative medicine in the treatment of chronic illness: A national study Australian and New Zealand Journal Of Public Health, 35:384-390.
- Asilar, R.H., & Gozum, S. (2017). Hypertensive individuals' use of complementary health approaches and its effect on adherence with antihypertensive medication treatment. Turkish Journal of Family Medicine and Primary Care, 11(4): 235-244.
- Avci, I.A., Koc, Z., & Saglam, Z. (2011) Use of complementary and alternative medicine by patients with cancer in northern Turkey: Analysis of cost and satisfaction. Journal of Clinical Nursing, 21: 677-688.
- Basedow, M., Runciman, W.B., March, L., & Esterman, A. (2014). Australians with osteoarthritis; The use of and beliefs about complementary and alternative medicines. Complementary Therapies in Clinical Practice, 20: 237-242.
- Chong, C.A.K.Y., Diaz-Granados, N., Hawker, G.A., Jamal, S., Josse R.G., & Cheung, A.M. (2007) Complementary and alternative medicine use by osteoporosis clinic patients. Osteoporos Int, 18: 1547-1556.
- Demirel, G., Kumsar, A.K., & Yilmaz, F.T. (2015) The place of green tea in the prevention of osteoporosis in women. Turkish Journal of Osteoporosis, 21: 84-86.

- Erdal A. (2012) Complementary treatment in osteoporosis. *Turkiye Klinikleri J PM&R-Special Topics*, 5(3):131-133.
- Gozum, S., Arıkan, D., & Buyukavsi, M. (2007). Complementary and alternative medicine use in pediatric oncology patients in Eastern Turkey. *Cancer Nursing*, 30(1): 38-44.
- Gozum, S., Unsal, A. (2004). Use of herbal therapies by older, community-dwelling women. *Journal of Advanced Nursing*, 46(2): 171-178.
- Higgs, D., & Kessenich, C. (2010). Complementary therapies in osteoporosis. *The Journal for Nurse Practitioners*, 6(3): 193-198.
- Ilgaz A., & Gozum S. (2016). Importance of health literacy for safe use of complementary health approaches. *Dokuz Eylul University Faculty of Nursing Elektronik Journal* 9(2):67-77.
- International Osteoporosis Foundation (IOF) (2017a). Nutrition. Available at: <https://www.iofbonehealth.org/nutrition> (Accessed 20.10.2017).
- International Osteoporosis Foundation (IOF) (2017b). Exercise. Available at: <https://www.iofbonehealth.org/exercise> (Accessed 20.10.2017).
- International Osteoporosis Foundation (IOF) (2018) Osteoporosis - Incidence and burden. Available at: <https://www.iofbonehealth.org/facts-statistics> (Accessed 10.01.2018).
- Kucukguclu, O., Kizilci, S., Mert, H., Uğur, O., Besen, D.B., & Unsal, E. (2012) Complementary and alternative medicine use among people with diabetes in Turkey. *Western Journal of Nursing Research*, 34(7): 902 -916.
- Koc, A., Saglam, Z., Topatan, S. (2013) Determination of the use of complementary and alternative medicine by women in the climacteric period in the Turkish city of Samsun. *Contemporary Nurse*, 45(2): 197-209.
- Lee, M.S., Pittler, M.H., Shin, B.C., & Ernst, E. (2008) Tai chi for osteoporosis: A systematic review. *Osteoporos Int*, 19: 139-146.
- Mak, J.C.S., & Faux, S. (2010) Complementary and alternative medicine use by osteoporotic patients in Australia (CAMEO-A): A prospective study. *The Journal Of Alternative and Complementary Medicine*, 16(5): 579-584.
- Meray, J., Peker, O., & Tuzun, S. (2012) Turkey fracture epidemiology study. Diagnosis and treatment in osteoporosis. Turkey Osteoporosis Society, 1st Edition. ISBN: 978-605-63275-0-6, Galenos Publisher, İstanbul, Turkey.
- National Center for Complementary and Integrative Health. (2018) Complementary, alternative methods. Available at: <https://nccih.nih.gov/> (Accessed 08.01.2018)
- Republic of Turkey Ministry of Health. (2014) The regulations on traditional and complementary medical practices. Available at: <http://www.resmigazete.gov.tr/eskiler/2014/10/20141027-3.htm> (Accessed 18.03.2018)
- Shi, Z.Y., Zhang, X.G., Li C.V., Liu, K., Liang, B.C., & Shi X.L. (2017) Effect of traditional Chinese medicine product Qiang Gu Yin, on bone mineral density and bone turnover in chinese postmenopausal osteoporosis. *Hindawi Evidence-Based Complementary and Alternative Medicine*, article ID 6062707.
- Tokem, Y., Parlar, S., Özer, S., Nakas, D., & Argon, G. (2014) A multicenter analysis of the use of complementary and alternative medicine in Turkish patients with rheumatoid arthritis. *Holistic Nursing Practice*, 28(2): 98-105.
- Turkish Statistical Institute (TSI) (2017). Elders with statistical, 2016. Available at: <http://www.tuik.gov.tr/PreHaberBultenleri.do?id=24644> (Accessed 17.10.2017).
- Unsal, A., & Gozum, S. (2010) Use of complementary and alternative medicine by patients with arthritis. *Journal of Clinical Nursing*, 19: 1129-1138.
- Weia, X., Xub, A., Yinc, Y., & Zhangd, R. (2015) The potential effect of Wuqinxi exercise for primary osteoporosis: A systematic review and meta-analysis. *Maturitas*, 82: 346-354.
- Vik, S.A. (2007) Prevalence and correlates of complementary and alternative medicine use for osteoporosis. Department of Community Health Sciences Calgary, Alberta