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Complementary and Alternative Treatment Use in Breast Cancer Patients in the Eastern Black Sea Region—A Cross-Sectional Study

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Abstract

Introduction Complementary and alternative therapies (CAMs) are being increasingly and frequently used in the treatment of cancer patients in the last two decades.

Objectives It was aimed to examine the frequency of the use of CAMs in patients with breast cancer who applied to the outpatient clinic.

Materials and Methods Patients who were admitted to our clinic between January 2020 and 2021 and diagnosed with breast cancer for at least 3 months were included in the study. A questionnaire consisting of 37 questions was asked to the patients by the interviewer. Sociodemographic characteristics and CAM methods of the patients were questioned in the questionnaire.

Results This is a cross-sectional study that includes 338 patients. After the questionnaire was completed, the answers were evaluated, and it was detected that 147 (43.4%) patients were using CAM. Herbal treatment methods were preferred most frequently. The most frequently used herbs were turmeric, nettle, ginger, and linden. The second method used was treatments based on religious belief. The use of CAM increased as the income level of the patients increased and the duration of diagnosis increased.

Conclusion It was determined that our patients frequently used CAM methods and mostly preferred herbal methods. Since the use of CAMs during or after treatment may create undesirable results in the treatment of patients, it is necessary to be careful about this issue and inform as well as question the patients about the same.

Keywords

- breast cancer
- complementary and alternative therapies
- herbal

Introduction

Breast cancer is the most frequently diagnosed cancer worldwide, after lung cancer, with more than 2 million cases diagnosed each year.[1] In women, it is the most common cancer that is diagnosed and the second most common cause of cancer-related deaths.[2] There are treatment methods in breast cancer such as surgery, radiotherapy, chemotherapy, hormone therapy, and immunotherapy. Depending on the stage of the disease and the patient's clinic, one or more of these treatment methods can be used. Many side effects such as nausea, vomiting, weakness, suppression of immunity,

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and impaired blood count may develop during treatment or depending on the disease itself. These side effects and factors such as the long duration of the treatments may lead patients to use complementary and alternative treatments (CAMs) to improve their quality of life.

Complementary therapies like vitamin supplements, massage, yoga, acupuncture, and herbal remedies are supportive treatments used to control symptoms, reduce drug side effects, contribute to the general care of the patient, and improve quality of life. Alternative treatments, on the other hand, are treatments that are used instead of the prescribed patient's medical treatment and whose effectiveness has not been proven yet.[3] CAMs are frequently used in cancer patients. Various studies are reporting that this rate is between 10 and 60% in cancer patients.[4] Across Europe, ~40% of all cancer patients refer to CAM during their oncological treatment.[5,6] There has been an increase in the rate of using these treatments in the last two decades.[7] A guideline on CAMs used in breast cancer patients reported that meditation, yoga, and relaxation are routinely recommended for the treatment of problems such as anxiety and mood disorders.[8] This study was aimed to reveal the rates of CAM use in patients with breast cancer after diagnosis, whether receiving chemotherapy or not, the factors affecting this situation, the side effects or benefits observed under these treatments, and the reasons that lead people to try these treatments.

Materials and Methods

This is a single-center, cross-sectional study conducted between January 2020 and January 2021. A total of 338 volunteers from patients over the age of 18, who applied to Karadeniz Technical University outpatient clinics and chemotherapy units, who were followed up with a breast cancer diagnosis, were included in the study. Patients with poor performance, communication problems, and those who did not want to participate in the survey were not included in the study.

After reviewing the literature, a total of 37 questions were asked by a single interviewer (medical oncologist) to explore the use of CAM.[9–11] The primary outcome of our study was to detect the frequency of the use of CAM in breast cancer patients. The secondary outcome was to detect the most common CAM that is used by the patients. In the survey, the sociodemographic status of the patients such as age, place of birth, education level, place of residence, occupation, number of children, income level, and medical characteristics such as diagnosis time, family history, disease stage, and other accompanying diseases were questioned. Questions based on whether they use CAM, if they do, what they use, how long they use it, why and with what expectation they use it, in which periods of the disease they use it, whether they experience any side effects while using it, what kind of side effects develop in those who do, whether they benefit or not were asked to the patients. Additionally, q u e s t i o n s like how the beneficiaries benefited, where they heard about these treatments, how much they paid monthly for these treatments, whether they informed their follow-up doctors, why those who did not inform, why the informants did, and whether they continued the CAMs were asked.

Statistical Analysis

Data analysis was done in IBM SPSS Statistics 25.0 (IBM Corporation, Armonk, New York, United States) package program. Whether the distribution of discrete numerical variables was close to normal was examined using the Kolmogorov–Smirnov test. For discrete numerical variables, they were expressed as mean ± standard deviation or median (minimum- maximum), while categorical variables were expressed as several cases and in percent (%). The significance of the difference between the groups in terms of mean values was evaluated with the Student's *t*-test, and the significance of the difference in terms of discrete numerical variables with a far-normal distribution was evaluated with the Mann–Whitney U test. Pearson's $\chi 2$ test was used in the analysis of categorical data unless otherwise stated. On the other hand, if the expected frequency is below 5 in at least ¼ of the cells in the 2×2 cross tables, the categorical data in question were evaluated with Fisher's exact probability test, in cases where the expected frequency was between 5 and 25, evaluation was made with continuity corrected $\chi 2$ test. Multivariate logistic regression analysis was used to determine the most determinant factor in differentiating the group that did not use CAM before versus the group that used CAM. All variables found to be $p < 0.25$ as a result of univariate statistical analyzes were included in the regression model as candidate factors. In addition, odds ratio, 95% confidence interval (CI), and Wald statistics for each variable were calculated. For $p < 0.05$, the results were considered statistically significant.

Results

The mean age of the patients included was 52.8 ± 11.6 years. When the clinical and demographic characteristics of the patients using and not using CAM were compared, there was no statistically significant difference found between the groups in terms of mean age, marital status, number of children, education level, place of residence, occupation, active employment, family history, and disease stage ($p > 0.05$). On the other hand, the income level of the group using alternative treatment was statistically significantly higher ($p < 0.001$) and the duration of diagnosis was statistically significantly longer ($p = 0.030$) compared with the group that did not use alternative treatment (►**Table 1**). The percentage of coexisting disease was 42.9%. Hypertension is the most frequent coexisting disease and there was no statistically significant difference between the group not using CAM and the group using CAM in terms of comorbidities ($p > 0.05$).

Of the 39 patients who had never tried these alternative treatments, 43.6% considered trying them. ►**Table 2** shows 147 (43.4%) patients using CAM, the reasons for taking these treatments, their expectations while taking them, when and for how long they started using CAM, whether they

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Table 1 Demographic and clinical characteristics of the cases according to the groups using and not using CAM

	Total ($n = 338$)	Nonuser ($n = 191$)	User ($n = 147$)	*p*-Value
Age (years)	52.8 ± 11.6	53.7 ± 10.8	51.6 ± 12.5	0.096[a]
Marital status				0.977[b]
Never married	24 (7.1%)	13 (6.8%)	11 (7.5%)	
Married	283 (83.7%)	161 (84.3%)	122 (83.0%)	
Divorced	12 (3.6%)	7 (3.7%)	5 (3.4%)	
Widow	19 (5.6%)	10 (5.2%)	9 (6.1%)	
Number of children	2 (0–5)	2 (0–5)	3 (0–5)	0.357[c]
Education status				0.502[b]
Illiterate	51 (15.1%)	32 (16.8%)	19 (12.9%)	
Primary school	171 (50.6%)	94 (49.2%)	77 (52.4%)	
Middle school	21 (6.2%)	14 (7.3%)	7 (4.8%)	
High school	51 (15.1%)	30 (15.7%)	21 (14.3%)	
University	44 (13.0%)	21 (11.0%)	23 (15.6%)	
Abode				0.678[b]
Village, town	44 (13.0%)	27 (14.1%)	17 (11.6%)	
District	125 (37.0%)	72 (37.7%)	53 (36.0%)	
Province	169 (50.0%)	92 (48.2%)	77 (52.4%)	
Job				0.495[b]
Housewife	263 (77.8%)	152 (79.6%)	111 (75.5%)	
Health employee	10 (3.0%)	4 (2.1%)	6 (4.1%)	
Teacher	20 (5.9%)	9 (4.7%)	11 (7.5%)	
Other	45 (13.3%)	26 (13.6%)	19 (12.9%)	
Working status				0.709[d]
Working	31 (9.2%)	19 (9.9%)	12 (8.2%)	
Not working	307 (90.8%)	172 (90.1%)	135 (91.8%)	
Income level				**<0.001[b]**
≤1,000 TL	195 (57.7%)	128 (67.0%)	67 (45.6%)	
1,001–3,000 TL	84 (24.8%)	37 (19.4%)	47 (32.0%)	
>3,000 TL	59 (17.5%)	26 (13.6%)	33 (22.4%)	
Diagnosis time				**0.030[b]**
<1 year	184 (54.4%)	116 (60.7%)	68 (46.2%)	
1–5 years	84 (24.9%)	41 (21.5%)	43 (29.3%)	
>5 years	70 (20.7%)	34 (17.8%)	36 (24.5%)	
Family history	71 (21.0%)	42 (22.0%)	29 (19.7%)	0.613[b]
Stage				0.055[b]
Early	83 (24.6%)	44 (23.0%)	39 (26.5%)	
Locally advanced	144 (42.6%)	92 (48.2%)	52 (35.4%)	
Metastatic	111 (32.8%)	55 (28.8%)	56 (38.1%)	

Abbreviation: CAM, complementary and alternative therapy.
[a]Student's *t*-test.
[b]Pearson's χ^2 test.
[c]Mann–Whitney U test.
[d]Continuity correction χ^2 test.

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Table 2 Findings related to the experiences of cases who have tried alternative treatment before ($n = 147$)

	Number of cases	%
Reason for seeking alternative treatment		
Failure to respond to medical treatment	10	6.8
Disbelief in medical treatment	1	0.7
Environmental effects	60	40.8
Hopelessness, despair	21	14.3
Believing that alternative therapy can be helpful	95	64.6
Other	1	0.7
The expectation in the use of alternative therapy		
Supporting and assisting the treatment given by the doctor	74	50.3
Decreasing complaints	61	41.5
Recovering from illness	86	58.5
Other	4	2.7
At what stage of the disease did the patient start using it?		
From the moment of diagnosis	110	74.8
As the disease progresses	37	25.2
How long did the patient use it?		
<1 year	117	79.6
1–3 years	23	15.6
>3 years	7	4.8
Currently using an alternative therapy	82	55.8
Continuing medical treatment with alternative therapy	137	93.2
Side effects associated with alternative therapy	8	5.4
How did the patient find alternative therapy?		
Useful	55	37.4
Little useful	10	6.8
Indecisive	59	40.1
Useless	11	7.5
Harmful	3	2.0
Didn't use enough	20	13.6
How was the alternative treatment helpful? ($n = 68$)		
İncreased resistance	20	29.4
Felt better	18	26.5
Blood values are improved	9	13.2
Complaints are decreased	24	35.3
Not used enough	2	2.9

continued these treatments, whether they had side effects, and whether they benefit from these treatments. ►**Table 3** shows where the patients using CAM have heard about these treatments, the monthly cost of these treatments, whether they have informed their follow-up doctor about it, whether they found these treatments to be effective from their medical treatments, and whether there was anyone who had applied them before. The distribution of treatment types used by patients who have tried CAMs is shown in ►**Table 4**.

All variables found to be $p < 0.25$ as a result of univariate statistical analyses were included in the regression model as candidate factors. There is no candidate level effect statistically when the characteristics such as education level and place of residence were taken into the regression model as confounding factors. The factors that were the most deciding in differentiating the groups who tried an alternative treatment and those who did not, respectively, income level and duration of diagnosis. Regardless of other factors, those with

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Table 3 Findings related to the experiences of subjects who had previously tried CAM ($n = 147$)

	Number of cases	%
Where did the patient hear about alternative therapy?		
Television	28	19.0
Newspaper	2	1.4
Friend	66	44.9
Family members	52	35.4
Internet	22	15.0
Doctor	14	9.5
Own decision	23	15.6
The average cost of alternative therapy		
None	14	9.5
≤50 TL	44	29.9
51–100 TL	34	23.1
101–200 TL	8	5.4
201–500 TL	12	8.2
501–1000 TL	14	9.5
> 1000 TL	21	14.3
Explaining to the doctor whether the patient is using CAM		
Yes	57	38.8
Reason for disclosure		
Interaction with chemotherapy	10	17.5
Side effect	23	40.4
Due to being asked	9	15.8
Whether it is harmful	5	8.8
Thinking that the doctor should know	14	24.6
Other	3	5.3
No	90	61.2
Reason for nondisclosure		
Short time use	15	16.7
Considering not necessary	47	52.2
Thinking that it will hurt	13	14.4
Other	15	16.7
Alternative therapy versus drug therapy		
Finding more effective	9	6.1
Finding less effective	65	44.2
Indecisive	73	49.7
If alternative treatment was administered by someone else		
The patient was informed in advance	91	63.2
The patient was not informed in advance	53	36.8

Abbreviation: CAM, complementary and alternative therapy.

an income between 1,000 and 3,000 TL were 2.85 (95% CI: 1.617–5.030) times more likely to seek alternative treatment than those with an income below 1,000 TL. This difference was 3.03 (95% CI: 1.431–6.421) times higher for those with an income of more than 3,000 TL ($p < 0.001$ and $p = 0.004$). When adjustments were made for other factors, the tendency to choose alternative treatment increased 1.860 times (95% CI: 1.045–3.308) statistically in patients who had been diagnosed for 1 to 5 years compared with those diagnosed less than 1 year ago ($p = 0.035$). In ►**Table 5**, the combined

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Table 4 Frequency distributions of alternative treatment types used/tried by subjects who have tried CAM

	Number of cases	%
Herbal mix	31	21.1
Turmeric	23	15.6
Religious faith-based treatment	22	15.0
Nettle	18	12.2
Ginger	16	10.9
Linden	13	8.8
Honey	11	7.5
Grape molasses	9	6.1
Black seeds	9	6.1
Cerago	9	6.1
Psychotherapy	8	5.4
Exercise	8	5.4
Garlic	6	4.1
Leech	6	4.1
Blueberries	5	3.4
Cinnamon	5	3.4
Carob	5	3.4
St. John's Wort (Tipton weed)	4	2.7
Vitamin	4	2.7
Kefir	3	2.0
Rosehip	3	2.0
Oregano	2	1.4
Celery	1	0.7
Other	58	39.5
Total	147	100.0

Abbreviation: CAM, complementary and alternative therapy.

effects of the factors that are thought to be determinative in differentiating these two groups were analyzed by multivariate logistic regression analysis.

Discussion

Classical treatment methods such as surgery, chemotherapy, radiotherapy, and endocrine therapy can cause many physical and psychological side effects such as fatigue, nausea, vomiting, anxiety, pain, and depression in breast cancer patients.[12,13] Patients seek to get rid of these side effects and improve their quality of life, so CAMs are among the methods frequently used in breast cancer patients.[14,15] In this study, which we conducted with 338 patients in our clinic, 147 (43.4%) of the patients were using CAMs. Various studies in the literature show that this rate varies between 20 and 80%.[15,16] This rate varies similarly in studies conducted in our country.[17,18]

In our study, no statistically significant difference was found between the use of CAM and the patients' mean age, marital status, number of children, educational status, place of residence, occupation, active employment or not, and family history. However, the income level of the group using CAM was found to be statistically significantly higher than the group that did not use it. Independent of other factors, it was determined that those with an income level of 1,000 to 3,000 TL were 2.8 times more likely to turn to alternative treatment, and those with an income of more than 3,000 TL were found to be 3.03 times more likely. Similar to our study, in the study conducted in China in 2004 on the use of CAM in patients followed up with breast cancer, an increase in the use of CAM was found with an increase in income level.[19] This is because patients cannot allocate additional budgets for these treatments.

There are studies in the literature showing that patients with a life expectancy of less than 1 year apply to these treatments more frequently.[20] In our study, no significant difference was found in terms of the stage of the disease and these treatments. When adjusted for other factors, orientation to alternative treatment was found to be statistically significant 1.8 times more in those who were diagnosed for 1 to 5 years compared with those who were diagnosed less than 1 year ago. It was thought that the reason for this was the prolongation of the treatment period, increase in

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Table 5 Examination of the effects of factors thought to be determinative in differentiating the groups using and not using CAM therapy together with multivariate logistic regression analysis—alternative table

	Odds ratio	% 95 confidence interval	Wald	*p*-Value
Age	0.983	0.963–1.003	2.686	0.101
Income level				
1,001–3,000 TL	2.688	1.546–4.676	12.263	<0.001
>3,000 TL	2.281	1.232–4.223	6.884	0.009
Diagnosis time				
1–5 years	1.849	1.043–3.279	4.430	0.035
>5 years	1.773	0.933–3.372	3.053	0.081
Stage				
Locally advanced	0.759	0.426–1.355	0.869	0.351
Metastatic	1.163	0.611–2.215	0.211	0.646

Abbreviation: CAM, complementary and alternative therapy.

exposure to drug side effects, and accordingly, personal research and referral from the patient's relatives.

There are many herbs and herbal products that cancer patients frequently use, but the interaction between drugs used in cancer treatment and herbal products can be high.[21,22] In our study, the majority of our patients who applied to CAM were using herbal treatments. Herbal treatments were most often used in admixture. The single most commonly used methods were turmeric, nettle, ginger, and linden. Similar to our study, there are studies in which herbal treatment options are frequently used.[23] It was thought that the reason for frequent referral to herbal treatments was because patients thought that herbal treatments were safer, cheaper, and easily accessible. Since herbal CAMs may interact with many therapeutic agents, it is important to warn patients about this issue. It was understood that methods such as psychotherapy, aromatherapy, meditation, acupuncture, homeopathy, relaxation exercises, which were determined to be used frequently in studies conducted in Europe, were less tried for cancer treatment. Also, in case of Turkey, since the patients did not have sufficient knowledge on this subject, the same was perceived.[24]

Since the majority of the patients in our study believed that these treatments were beneficial, they resorted to these methods to cure their diseases and to support the treatment given by their doctors. They started CAMs most often with the suggestion of their friends. Again, the majority of patients stated that these treatments were less effective than their original treatment. These findings were also consistent with the literature.[25] About 38.8% of the patients told like how side effects. However, 61.2% of the patients did not report the use of CAM stating that they did not find it necessary. This situation may be because patients believe that these treatments are innocent and do not have enough information about the toxicities that may develop. Only 5% of the patients stated that they developed side effects related to CAM. This rate was thought to be low because the patients did not attribute the side effects they experienced to CAMs.

The most important limitation of this study is that it is single-centered and cross-sectional. For this reason, it may not reflect the CAM usage of the whole country. It is possible to reach more comprehensive results with a study involving a multicenter design.

Conclusion

Our study showed that the use of CAM was quite high in breast cancer patients. Doctors should question this situation in every patient, and patients should be informed about their decisions. Thus, it may be possible to protect patients from possible side effects and interruption of treatment because of them.

Ethics

The research was conducted out in line with the principles of the Declaration of Helsinki and was approved by the local ethical committee (No. 2020/31), dated 11.06.2020. The patients were included in the study after the written consent form was read and their signed consent was obtained. After oral explanation was given to illiterate patients and their consent was obtained, a questionnaire was administered in the presence of their attendants.

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Conflict of interest

None declared.

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