



PSYCHOMETRIC VALIDATION OF THE TURKISH VERSION OF THE QUESTIONNAIRE ON THE INTEGRATION OF COMPLEMENTARY AND ALTERNATIVE MEDICINE IN ONCOLOGICAL TREATMENT

G. CAN¹, A. SEKERCİ², F. AKYUZ OZDEMİR³, D. EGELİ⁴,
M. NUR AKBAS⁵, B. SUMBUL SEKERCİ⁶, A. AKCAKAYA⁷

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¹Medical Nursing Department, Istanbul University – Cerrahpasa Florence Nightingale Nursing Faculty, Istanbul, Turkey

²Internal Medicine Department, Bezmialem Medical Faculty Hospital, Istanbul, Turkey

³Department of Medical Nursing, Mugla Sitki Kocman University, Fethiye Faculty of Health Sciences, Mugla, Turkey

⁴Department of Pharmacognosy and Natural Products Chemistry, Bezmialem Vakif University, Institute of Health Sciences, Istanbul, Turkey

⁵Department of Medical Pharmacology, Medipol University, Institute of Health Sciences, Istanbul, Turkey

⁶Clinical Pharmacy Department, Bezmialem Vakif University Faculty of Pharmacy, Istanbul, Turkey

⁷Head of Surgery Department, Bezmialem Vakif University Faculty of Medicine, Istanbul, Turkey

CORRESPONDING AUTHOR

Gulbeyaz CAN, RN, PhD; e-mail: gulbeyaz@istanbul.edu.tr

ABSTRACT – Objective: The aim of this study was to psychometrically validate the Turkish version of the questionnaire on the integration of complementary and alternative medicine (cam) in oncological treatment.

Patients and Methods: This methodological study was conducted between December 2020 and September 2021 involving 247 cancer patients. To ensure cultural appropriateness of the scale, the sample size for each item of the scale was set at 5-10 patients.

Results: Expectations for integrating CAM therapies into health care were improvement in the patient's overall ability to cope with the disease, improvement in the patient's daily functioning, emotional and spiritual support for the patient, and support for the patient's family ($p < 0.05$).

Conclusions: The results of this study suggest that the Turkish version of the Questionnaire on Integration of CAM in oncology treatment is an appropriate tool to assess beliefs and attitudes toward the integration of CAM approaches in cancer treatment and care.

KEYWORDS: Cancer, Complementary Therapies, Delivery of Health Care, Questionnaires.

INTRODUCTION

Cancer is one of the most important health problems that are prevalent worldwide and can cause significant mortality and morbidity ¹. Chemotherapy, targeted therapy, and immunotherapy are the most commonly used pharmacological approaches in the treatment of cancer. In general, all of these treatments



are effective in curing patients or preventing disease recurrence ^{2,3}. However, many side effects such as nausea and vomiting, mucositis, alopecia, intestinal problems, skin problems, nail changes, and many other organ toxicities can occur within a week after treatment, which affect patients' quality of life. To cope with these treatment-related side effects and prevent relapse of disease, most cancer patients request the use of various Complementary and Alternative Medicine (CAM) therapies ⁴. Some of these therapies, e.g., religious practices, black mulberry, cupping, honey, etc. have been widely used in Turkish society from ancient times to the present and are generally accepted as "folk medicine" that support healing ^{5,6}. In a study conducted in our country, it was found that 31.5% of patients used CAM therapies during chemotherapy ⁷. However, the reported frequency of use is 39.6% in breast cancer patients, 37% in ovarian cancer patients, 38.7% in colorectal cancer patients, and 44.4% in prostate cancer patients ⁸.

There are many factors such as ethnicity, geographic location, religion, lifestyle, economic status, and health beliefs that influence patients' use of CAM therapies ^{9,10}. One study reported that feelings of religiosity and spirituality were associated with the use of CAM therapies ¹¹. Another study found that the use of more than two CAM approaches in patients was associated with spirituality, willingness to try different things, and improvement in mood ¹². Considering these reasons, we can state that CAM therapies are widely used depending on cultural factors and religious reasons in our country. Usually, the behavior and beliefs related to health are shaped by spiritual values and cultural structure in Turkish society. Due to the tendency to develop faith-based health behaviors, it is believed that diseases can be prevented or cured if people believe that CAM approaches are beneficial.

However, the unconscious use of CAM therapies may cause some problems ^{7,13}. One study reported that 86% of patients were not informed about the risks of CAM therapies ¹⁴. Most patients do not inform health professionals that they are using CAM therapies in our country ⁴. To avoid the harmful or negative effects of these treatments, it's important to integrate these therapies into the treatment and care process of patients ¹³. The integration of CAM therapies into medical treatment and care and their evidence-based use can prevent the harmful effects of these therapies and increase the success of treatment and care.

First, the type of the CAM therapies, and at what dose and frequency used by patients and thoughts, beliefs, and expectations of patients about the integration of CAM therapies in treatment and care should be assessed and then, using the evidenced-based approached selected CAM therapies should be integrated as part of medical treatment and care ¹⁵.

The beliefs, and expectations of patients about the integration of selected CAM therapies into treatment and care was evaluated with specific tool, in different countries ¹⁵⁻¹⁷. In our country, there is no specific evaluation tool that evaluate the effect of integrating CAM therapies into treatment and care. Therefore, this study was designed to carry out the psychometric validation of the Turkish version of the Questionnaire on the Integration of CAM in oncological treatment.

PATIENTS AND METHODS

Sample Size

This methodological study was conducted between 25.12.2020 and 15.09.2021 with the participation of 247 cancer patients treated in the Outpatient Chemotherapy Department of Bezmialem Vakif University Medical Faculty Hospital. The literature indicates that the number of patients included in the psychometric analysis should be at least 5-10 times the scale items ¹⁸. To ensure the cultural appropriateness of the scale, the sample size was calculated as 5-10 patients for each item of the scale, i.e., $28 \times 7 = 196$ patients. The study was completed with the participation of 247 patients to obtain a larger number of samples reflecting the cultural characteristics of Turkish society.

Language Validity

The linguistic validity of the questionnaire was based on the approach in the literature. First, the questionnaire was translated into Turkish by 2 professional translators who speak English and Turkish. Then, the Turkish version of the scale was created as a single form by reviewing and combining the 2 translations. Some approaches and health system-specific features, such as "mistletoe injection, Bach medicine," which are not used in our country, were removed, or modified from the original survey and replaced with features specific to Turkish society without disturbing the overall structure of the questionnaire. The Turkish version of the questionnaire was translated back into English by 2 translators who were proficient in Turkish and English at

an advanced level but whose native language was English, and a single form was created. The version of the questionnaire translated into English was sent to the owner of the scale, Eran Ben Arye, for comparison with the original English version and the final Turkish version of the scale was prepared according to the owner's recommendations. Due to structure of the questionnaire, it was not possible to conduct a reliability analysis.

Ethical Approval

Approval for the validity of the "Questionnaire on Integrating CAM in Oncological Treatment" was obtained from the owner of the scale, Eran Ben Arye. Ethical approval for the study was obtained from the GETAT (Traditional and Complementary Medicine Practices (T&CM)) Ethics Committee of Istanbul Medipol University, (Decision No: E-95961207-604.01.01-66112 and Date: 24/12/2020). This study was conducted in accordance with the Declaration of Helsinki of 1975 (as revised in 2013). Written informed consent was obtained from the patients involved in the study.

Data Collection

The inclusion criteria of the study were set as follows: be older than 18 years, have no mental disability, and have cancer. All patients who met the inclusion criteria between the dates of the study were asked to complete the questionnaire and give us their opinion about the questionnaire. A total of 249 patients who reported to the outpatient clinic agreed to participate in the study. A total of 2 patients were excluded because they had incompletely or incorrectly completed the scale. The study was completed with the participation of 247 patients.

Data Collection Tool

The Questionnaire on Integrating CAM in Oncological Treatment was used for data collection. This questionnaire, developed by Ben-Arye et al ¹⁹, consists of different types of questions: 12 open-ended questions to assess patients' use of CAM approaches, 1 question to assess the effectiveness of the use of CAM approaches, 4 questions to assess the attitude of the health care system toward the use of CAM approaches, 7 questions to assess patients' expectations regarding the use of CAM approaches, 2 questions on the side effects of the use of CAM approaches, 2 questions on the costs of use, and 13 questions to assess patients' demographic characteristics.

Statistical Analysis

Statistical analysis of data was performed with the SPSS 28.0 package program (IBM Corp., Armonk, NY, USA). Descriptive statistics such as percentage, standard deviation, median, count, and mean were used to analyze the data. Chi square test, *t*-test was used as comparative statistics. Logistic regression analysis with the enter method was performed to determine which factors had the greatest influence on the use of CAM approaches.

RESULTS

Two hundred forty-seven patients participated in the study. The mean age of the patients was 53.07±12.56 years. Male patients, elementary school graduates, patients with breast and gastrointestinal cancers, and patients who had been treated and had relapsed formed the main group (Table 1). Seven (2%) patients were new patients who started chemotherapy, 204 (82.5%) patients who underwent chemotherapy or up to 6 months after chemotherapy, 15 (6%) patients who received radiation, and 6 (2%) patients who were monitored only.

Eighty-six patients (34.8%) reported using CAM therapies and all of these patients were using these applications as a complementary therapy. Herbal medicine was the main complementary approach used by patients to treat the disease (n=71, 82.6%). However, nutritional counselling (n=27, 31.4%), dietary supplements (n=21, 24.4%), and traditional and folk treatment approaches (n=12, 14%) were other complementary health approaches commonly used by patients (Figure 1).

Table 1. Demographic characteristic of patients.

	Total (n=247)		CAM users (n=86)		Non-CAM users (n=161)		p-value
	\bar{x}	$\pm sd$	\bar{x}	$\pm sd$	\bar{x}	$\pm sd$	
Age	53.07	12.56	51	11.68	54.2	12.91	0.054
	n	%	n	%	n	%	
Gender							
Female	71	29	18	21.2	53	33.1	0.05
Male	174	71	67	78.8	107	66.9	
Education							
Primary school	152	62.3	50	58.8	102	64.2	0.413
High school	92	37.7	35	41.2	57	35.8	
Disease diagnosis							
Breast	79	33.5	32	38.6	47	30.7	0.337
Gastrointestinal	66	28	19	22.9	47	30.7	
Lung	26	11	10	12	16	10.5	
Testicular	26	11	6	7.2	20	13.1	
Others	39	16.5	16	19.3	23	15	
Disease recurrence							
Yes	182	75.8	56	67.5	126	80.3	0.028
No	58	24.2	27	32.5	31	19.7	
Beliefs and values							
Secular	42	17.7	16	19.5	26	16.8	0.853
Traditional	58	24.5	19	23.2	39	25.2	
Religious	137	57.8	47	57.3	90	58.1	

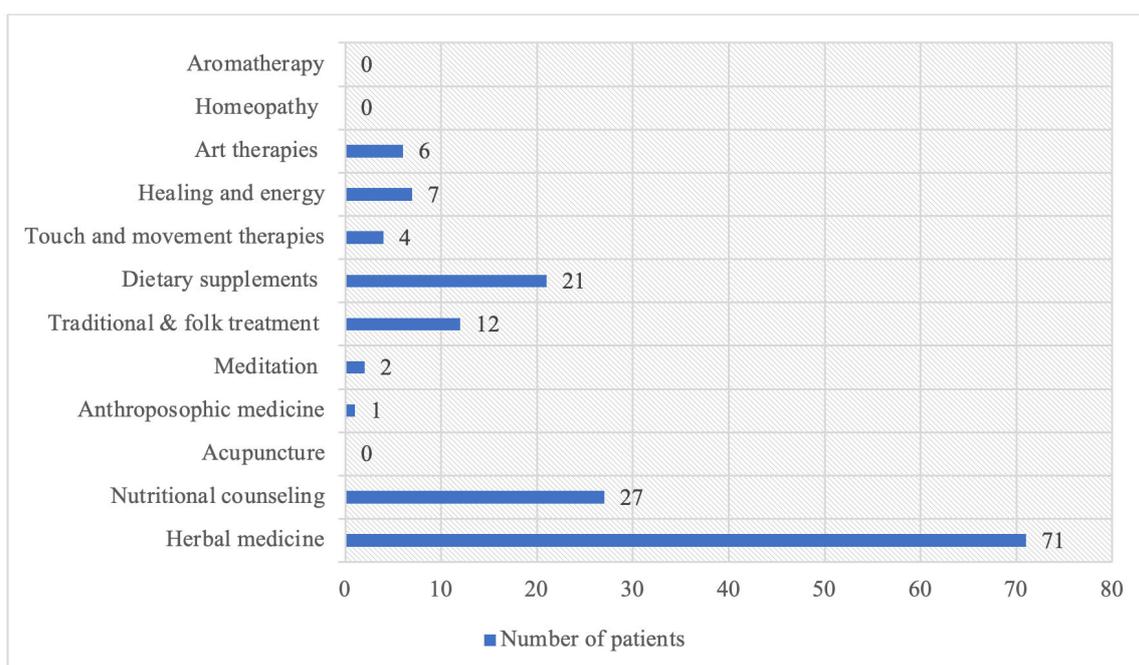


Figure 1. CAM used by patients.

The extent to which CAM approaches influence cancer treatment was studied in patients using CAM approaches. Twenty-eight patients (34.6%) reported that CAM approaches had no effect or a negative effect on their treatment, and 53 patients (65.4%) reported that CAM approaches had a very good effect on their treatment.

All patients were surveyed to determine if there were any objections or concerns about the use of complementary medicine in the treatment of cancer. One hundred and eighty patients (72.9%) indicated that they had no concerns, and 52 patients (21.1%) indicated that they had concerns.

All patients were assessed to determine whether they had the opportunity to consult with a health professional about the use of CAM approaches in their cancer treatment. Forty-six patients (18.6%) reported that they had the opportunity to consult with a health professional about the use of CAM approaches, whereas 188 patients (76.1%) did not. However, only 28 (34.6%) patients reported that they had used complementary therapy and had the opportunity to consult a physician.

The 3 most troublesome problems (side effects of treatment or signs of cancer) that patients would like to improve with CAM approaches were assessed. Pain ($n=99$; 40.1%), weakness ($n=99$; 40.1%), nausea and vomiting ($n=85$; 34.4%) were cited as the most bothersome problems that patients would like to improve with CAM approaches. Others were constipation ($n=54$; 21.9%), mouth sores/taste changes ($n=48$; 19.4%), sleep ($n=33$; 13.4%), numbness/tingling in feet or hands (neuropathy) ($n=31$; 12.6%), appetite changes ($n=28$; 11.3%), anxiety ($n=25$; 10.1%), diarrhea ($n=22$; 8.9%), weight changes ($n=17$; 6.9%), depression ($n=14$; 5.7%), shortness of breath ($n=16$; 6.5%), hot flashes ($n=13$; 5.3%), difficulty performing daily activities ($n=14$; 5.7%), skin problems ($n=11$; 4.5%), difficulty with household management/childcare ($n=11$; 4.5%), memory/concentration problems ($n=9$; 3.6%), spiritual suffering or distress ($n=8$; 3.2%), difficulty with work ($n=2$; 0.8%), or difficulty with social/leisure activities ($n=2$; 0.8%) (Figure 2).

Patients' main expectations from staff regarding CAM approaches were assessed. A total of 53% of patients ($n=131$) expect the oncologist to refer them to appropriate CAM approaches and to include these therapies in the treatment plan. The expectation to include CAM approaches in the treatment plan was higher in CAM users [61.6% ($n=53$)] than in non-users [48.4% ($n=78$)] and in women [58% ($n=101$)] than in men [40.8% ($n=71$)] and a significant difference was found between groups ($p=0.048$) and ($p=0.014$), respectively. The patients' expectations about the integration of CAM approaches in oncology treatment and care was evaluated.

Expectations of strengthening the patient's overall ability to cope with the disease, improving the patient's daily functioning, providing emotional and spiritual support to the patient, and providing support to the patient's family were higher among users than among nonusers ($p < 0.05$) (Table 2).

Fifty-eight patients reported being interested to a low degree, 79 patients to a moderate degree, and 104 patients to a high degree. Expectations of different levels of self-assessed spiritual interest in the integration of CAM approaches in oncology are compared in Table 3. The expectation of supporting the patient's family and complete cure of the disease was higher in patients with high spiritual interest than in patients with low spiritual interest ($p < 0.05$) (Table 3). The expectation of reducing the side effects of chemotherapy by integrating CAM approaches was higher in patients with higher education than in those with primary education ($p=0.009$). No significant difference was found between the expectations of patients with and without recurrence regarding the integration of CAM approaches ($p > 0.05$).

Logistic Regression Model

Significant variables were included in logistic regression by performing univariate analyzes. Logistic regression using the enter method was used to determine which factors had the greatest influence on the use of CAM approaches. Our model was evaluated using omnibus tests of model coefficients, which were found to be statistically significant $p < 0.001$ (chi-squared 22.508). The rate of our model is 67.7% (Nagelkerke R-squared 0.130). The result of the regression analyzes was presented in Table 4. The main parameters that predicted the use of complementary therapy were gender (female), age, disease recurrence, and expectation to strengthen the patient's overall ability to cope with disease.

DISCUSSION

Male patients, elementary school graduates, patients with breast and gastrointestinal cancers, patients undergoing chemotherapy or up to 6 months after chemotherapy, and patients who had been treated and had relapsed, formed the main study group. Identifying the approaches commonly used by patients

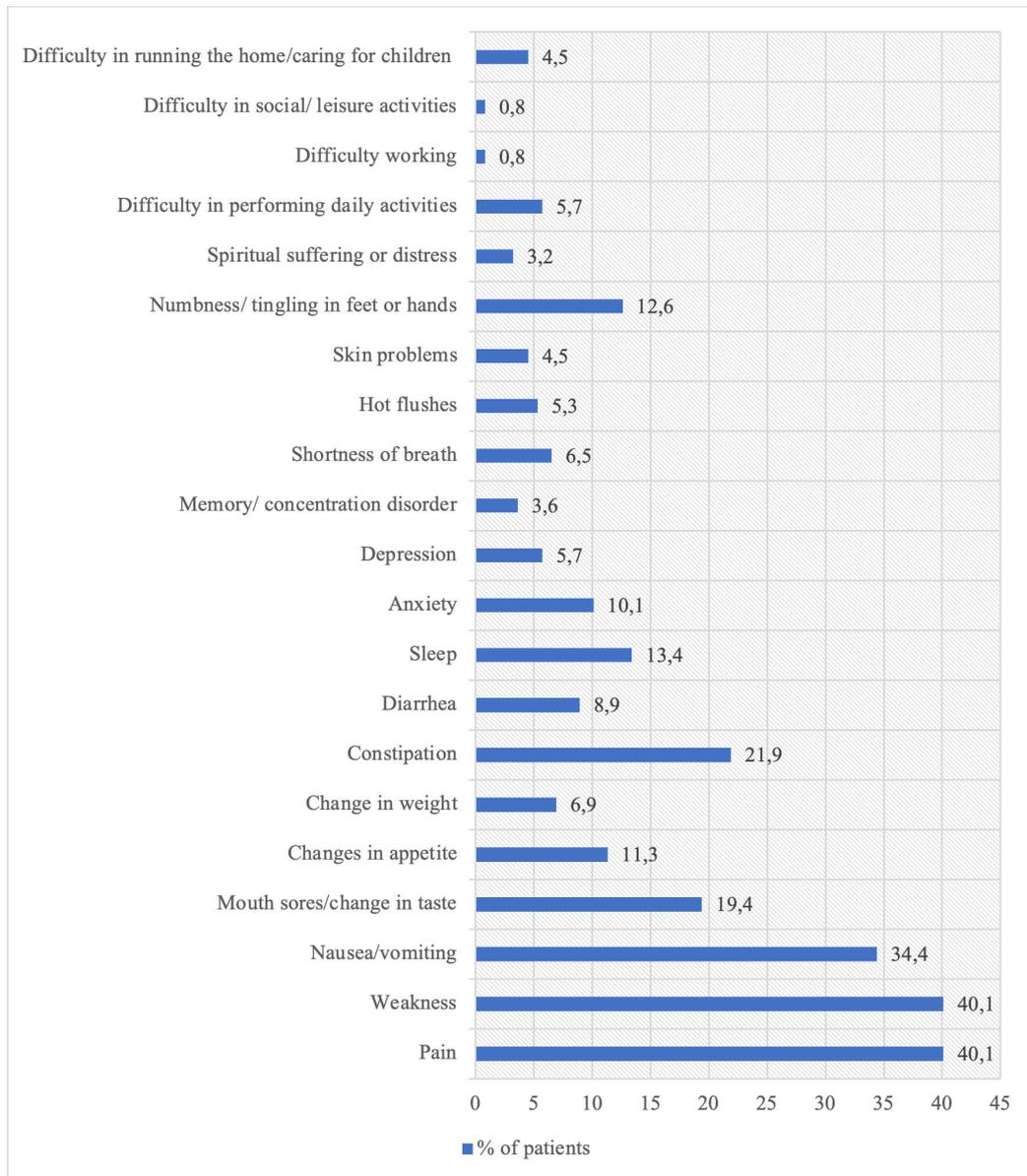


Figure 2. The 3 most troublesome problems that patients want to improve with use of complementary therapies.

and the factors that influence the use of these approaches may facilitate the integration of complementary approaches into health care ²⁰. The aim of this study was to psychometrically validate the Turkish version of the questionnaire for integrating CAM into oncology treatment.

Integrating CAM approaches into nursing practice can facilitate patient access to these therapies and make them more reliable. The Questionnaire on Integrating CAM in Oncological Treatment asks “whether patients use a complementary medicine approach, how the complementary medicine approach used affects the patient’s health status, whether there have been recent concerns about the use of complementary medicine approaches, whether the complementary medicine approach is used in consultation with the physician, what the patient’s expectations are for this service when incorporating complementary medicine approaches into care and treatment, what health problem the patient most wants resolved, whether the patient has religious beliefs, and whether the patient needs spiritual support ¹⁵. The use of this questionnaire in clinics can help us to assess patients’ thoughts and behaviors regarding the integration of CAM approaches into oncology treatment and care. This questionnaire, which has been used in different countries ¹⁵⁻¹⁷, needs to be adapted to Turkish society to put it in a form that can be used in oncology clinics in our country.

Table 2. Comparison of complementary therapy user and non-user expectations regarding the integration of CAM approaches in oncology.

Expectations of patients (1 very low -----7 very high)	Complementary therapy				p-value
	Users (n=86)		Non-users (n=161)		
	\bar{x}	$\pm sd$	\bar{x}	$\pm sd$	
To improve the patients' daily functioning	5.33	1.59	4.68	1.84	0.006
To strengthen the patient's general ability to cope with disease	5.57	1.59	4.90	1.75	0.001
To reduce the side effects of chemotherapy	5.6	1.59	5.19	1.9	0.10
To support the patient emotionally	5.26	1.92	4.83	1.9	0.04
To support the patient spiritually	5.4	1.85	4.77	2.03	0.01
To support the patient's family	5.27	1.81	4.79	1.91	0.04
To cure the disease completely	5.32	1.68	4.83	2.08	0.13

Table 3. Comparison of the expectations of patients with different spiritual aspirations regarding the integration of CAM approaches in the oncology Department.

Expectations of patients (1 very low -----7 very high)	Low spiritual quest (n=45)	Average spiritual quest (n=62)	High spiritual quest (n=79)	p-value
To improve the patients' daily functioning	4.82±1.81	4.82±1.88	5.18±1.73	0.392
To strengthen the patient's general ability to cope with disease	5.17±1.76	5.05±1.81	5.23±1.69	0.855
To reduce the side effects of chemotherapy	5.13±1.97	5.31±1.90	5.63±1.68	0.452
To support the patient emotionally	4.29±2.16	4.85±1.85	5.52±1.78	0.003*
To support the patient spiritually	4.56±2.11	5.05±2.04	5.38±1.94	0.095
To support the patient's family	4.70±1.88	4.71±2.10	5.40±1.76	0.052
To cure the disease completely	4.24±1.92	4.98±2.13	5.38±1.81	0.006*

*The p-value of pairwise comparisons between low and high spiritual quest is 0.004.

Table 4. Logistic regression model to assessing the effect of multiple factors on the use of CAM approaches.

Variables	B	P	OR	95% CI for Exp (B)	
				Lower	Upper
Sex (female)	0.346	0.042	1.41	1.01	1.97
Age	-0.016	0.181	0.98	0.96	1
Recurrence	0.380	0.023	1.46	1.05	2.03
To strengthen the patient's general ability to cope with disease	0.319	0.001	1.37	1.14	1.66

Depending on the results of this assessment tool, this study showed that the most important parameters that predicted the use of complementary therapy were gender (female), age, recurrence of the disease, and expectation to strengthen the patient's overall ability to cope with the disease.

Eighty-six patients (34.8%) reported using CAM approaches. Twenty-eight patients (34.6%) reported that CAM approaches had no effect or a negative effect on their treatment. Fifty-three patients (65.4%) indicated that CAM approaches had a very good effect on their treatment, and most of them indicated that they had no concerns. However, herbal medicine was the main complementary approach used by patients to treat their disease (n=71, 82.6%). The literature reports that the use of some CAM approaches can have both harmful and beneficial effects^{7,13}. For this reason, it is important to ask patients which approaches they are using and at what dose and frequency¹⁵.

Most patients did not have the opportunity to consult with a health professional about the use of CAM approaches, and only one-third of those who used a CAM approach reported informing the physician about the approach they used and questioning the effect. We should not forget that CAM approaches are commonly used in cancer treatment and disease recurrence prevention²¹. Cancer patients may use CAM approaches for many reasons, including prolonging survival, relieving symptoms, and preventing disease recurrence²².

Pain, weakness, nausea and vomiting were cited as the most troublesome problems that patients would like to improve with CAM approaches.

It is reported that oncology physicians have a higher level of knowledge about CAM. For this reason, patients need to be guided by physicians for the use of CAM²³. However, in a different study, the reasons for using CAM were questioned. As a result of the study, it was reported that the second most common reason for the use of CAM by the patients was the recommendation of the physician²⁴. In our study, half of patients expect the oncologist to refer them to appropriate CAM approaches and to include these therapies in the treatment plan. Expectation to include CAM approaches in the treatment plan was higher among users of CAM approaches than nonusers and higher among women than men.

Expectation of reducing chemotherapy side effects by including CAM approaches was higher among patients with higher education than among those with primary education. Typically, none of the patients with postgraduate education used CAM approaches⁷. However, reducing side effects of chemotherapy was the primary expectation of the higher-educated patients for the use of these therapies in this study. The increase in evidence-based outcomes on the efficacy of CAM approaches may increase the use of CAM approaches by highly educated patients.

It is important to assess cancer patients' perspectives on the integration of CAM approaches into treatment and health care. Expectations of improvement in the patient's overall ability to cope with the disease, improvement in the patient's daily functioning, emotional and spiritual support for the patient, and support for the patient's family were higher among users than among nonusers. However, the expectation of supporting the patient's family and completely curing the disease was higher among patients with high spiritual interest than among patients with low spiritual interest.

One of the most important factors influencing the use of CAM approaches in the world and in our country is religious beliefs and culture²¹. In a study conducted with the participation of 43 public health centers in Indonesia, it was found that patients with negative attitudes toward the use of complementary approaches did not want to use them because they were not consistent with their personal values and were in conflict with their religious values, so they showed negative attitudes²⁰. Patients who use CAM approaches prefer methods that fit their cultural values and religious beliefs. In another study conducted in our country, it was reported that patients using a second CAM therapy in addition to herbal products resorted to spiritual methods such as visiting shrines, pouring lead, and drinking groundwater⁷. In our study, two-thirds of patients who used CAM approaches were religious and nearly one-third had traditional beliefs. This suggests that religion may have a strong influence on patient preference in choosing CAM approaches. The spiritual and religious approaches (praying, visiting shrines, etc.) and herbal products are the most commonly used CAM approaches in our country³. The widespread use of herbal products is a cultural feature of our country. Since ancient times, many patients believe and accept that herbal products are important medicine for health. In a study that examined the use of CAM approaches before and after cancer diagnosis, it was reported that, in particular, the rate of use of herbal products increased from 15.6% to 51.8% after cancer diagnosis²⁵. Many factors can influence the use of CAM approaches in patients²⁶. Therefore, identifying the factors that may affect the use of CAM approaches may facilitate the integration of these therapies into treatment and care. In our study, the main parameters that predicted the use of CAM approaches were gender (female), age, disease recurrence, and expectation to strengthen the patient's overall ability to manage the disease.

It is important to determine whether cancer patients need complementary medicine approaches that should be integrated into health care. One study has shown that patients are positive about complementary approaches when they are recommended and guided by healthcare professionals²⁰. In our study, half of the patients reported that they expected the oncologist to refer them to appropriate CAM approaches and to include them in the treatment plan. Because only a small group of patients had the opportunity to ask healthcare professionals about CAM approaches, it is important to integrate CAM approaches into the healthcare system.

CONCLUSIONS

Integrating CAM approaches into treatment and care will benefit patients if they can safely use these approaches under the supervision of health professionals. However, it is important to identify the CAM approaches commonly used by patients and seek their opinions before integrating these therapies into the health care system. This need of patients can be identified using specific instruments developed for this purpose. Some countries use the Questionnaire on Integration of CAM in Oncology Care, which is used to identify the need for integration of complementary approaches in oncology treatment and care. The results of this study show that the Turkish version of the Questionnaire on Integration of CAM in Oncology Treatment is an appropriate tool to assess beliefs and attitudes about the integration of CAM approaches in cancer treatment and care.

FINANCIAL SUPPORT:

This research did not receive any financial support.

ETHICS APPROVAL:

Ethical approval for the study was obtained from the GETAT (Traditional and Complementary Medicine Practices (T&CM)) Ethics Committee of Istanbul Medipol University, (Decision No: E-95961207-604.01.01-66112 and Date: 24/12/2020).

INFORMED CONSENT:

Written informed consent was obtained from the patients involved in the study.

AVAILABILITY OF DATA AND MATERIAL:

All relevant data are available from the authors upon request.

CONFLICTS OF INTERESTS:

All authors declare that there is no conflict of interest.

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AUTHOR CONTRIBUTIONS:

Gulbeyaz CAN: Conceptualization, Methodology, Validation, Formal analysis, Resources, Writing - Original Draft, Writing - Review & Editing. Abdusselam Sekerci: Investigation, Writing - Original Draft. Adem Akcakaya: Conceptualization, Methodology, Validation, Formal analysis. Ferda Akyuz Ozdemir: Investigation, Writing - Original Draft. Derya Egeli: Investigation, Writing - Original Draft. Melike Nur Akbas: Investigation, Writing - Original Draft. Betül Sumbul Sekerci: Investigation, Writing - Original Draft.

ORCID ID:

Gülbeşaz Can, <https://orcid.org/0000-0002-5368-0893>
Abdusselam Sekerci, <https://orcid.org/0000-0002-5849-7545>
Ferda Akyuz Ozdemir, <https://orcid.org/0000-0001-9109-3692>
Derya Egeli, <https://orcid.org/0000-0003-0933-881X>
Melike Nur Akbas, <https://orcid.org/0000-0002-7367-049X>
Betül Sumbul Sekerci, <https://orcid.org/0000-0001-9970-3491>
Adem Akcakaya, <https://orcid.org/0000-0003-3116-7033>

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