

# The association between socio-demographic parameters and the use of complementary interventions in cancer patients in Turkey: A Turkish Oncology Group study

Turhal NS<sup>1\*</sup>, Sevinc A<sup>2</sup>, Yalcin S<sup>3</sup>, Sezgin C<sup>4</sup>, Yamac D<sup>5</sup>, Dogan M<sup>6</sup>, Ozyilkan O<sup>7</sup>, Kilickap S<sup>8</sup>, Ozdemir F<sup>9</sup> and Cabuk D<sup>10</sup>

\*Correspondence: [turhal@superonline.com](mailto:turhal@superonline.com)

<sup>1</sup>Marmara University, Division of Oncology Istanbul, Turkey. <sup>2</sup>Gaziantep University, Division of Oncology Gaziantep, Turkey.

<sup>3</sup>Hacettepe University, Division of Oncology, Ankara, Turkey. <sup>4</sup>Ege University, Division of Oncology, Izmir, Turkey. <sup>5</sup>Gazi

University, Division of Oncology, Ankara, Turkey. <sup>6</sup>Ankara University, Division of Oncology, Ankara, Turkey. <sup>7</sup>Baskent University,

Division of Oncology, Adana, Turkey. <sup>8</sup>Cumhuriyet University, Division of Oncology, Sivas, Turkey. <sup>9</sup>Karadeniz Technical

University, Division of Oncology, Trabzon, Turkey. <sup>10</sup>Sakarya Education and Research Hospital, Sakarya, Turkey.

## Abstract

**Background:** Cancer is a rapidly increasing worldwide health problem and despite medical interventions success rates are not very high. Complementary approaches are commonly used by patients in conjunction with standard therapies. Our aim is to investigate the extent of the use of complementary interventions in Turkey.

**Methods:** A questionnaire consisting of 32 questions was completed by 872 patients in ten different medical institutions, which included over 90% of the oncological care given in 7 geographical regions of Turkey, were represented. To allay patients' concerns that their answers could influence their treatment, the questionnaire was given to each patient by support people and not by the attending physician.

**Results:** Eight hundred and seventy two patients were included in the study. Fifty five percent of the patients were female. The median age was 55 (16-89). Of all patients, 165 (18.9%) used some form of complementary interventions during their illnesses. There was no association between the use of complementary treatments and demographic variables. Frequency of patients who used complementary interventions varied significantly among medical institutions ( $p < 0.002$ ). The most frequent cancers were gastrointestinal system cancers (28.7%), breast cancer (27.1%), and lung cancer (18.7%). However, complementary interventions were used most frequently by patients with prostate cancer (33.3%), head and neck cancer (27.3%), and lung cancer (22.1%). The most frequently used method (85%) was a mixture of various herbs. Sources of information regarding complementary interventions included relatives (37%), television (26%), other patients with cancer (22%), and the internet (21%).

**Conclusions:** Approximately 20% of cancer patients in Turkey used complementary interventions and this frequency was lower than expected.

**Keywords:** Complementary medicine, cancer, Turkey, multicentre

## Introduction

Cancer is a rapidly increasing worldwide health problem. Despite medical interventions, especially in advanced stages, success rates are not very high. Complementary approaches are methods used by patients in conjunction with standard therapy prescribed by doctors. The extent of the use of complementary interventions can vary with factors such as the level of education of the individual, geographical location, and age. Certainly, there are other variables that can affect the extent of the use of complementary medicine by a particular patient. Many individual institutions in Turkey have assessed the extent of the use of complementary interventions by cancer

patients and reported in various journals [1-4]. However, the extent of the use of complementary interventions has not yet been assessed in a multicentre study in the entire country. Because of the homogeneity of the data, our study is the first to evaluate the use of complementary interventions in Turkey.

The most commonly used interventions by Turkish patients that reported in earlier local studies are herbs and food supplements. Most probable factors associated with their commonality is the easy access, the fact that some respected physicians and the popular media figures' endorsement of these interventions in mass media. Our recent PubMed research shows use of various herbs

reported from Eastern neighbors of Turkey. There was also one report of traditional dancing used by Greek breast cancer survivors [5-7].

## Material and methods

A questionnaire consisting of 32 questions was completed by 872 patients who were approached in the waiting room of the Outpatient Oncology Unit. These questions in this questionnaire initially compiled upon studying the questions of previous studies. We refined these questions upon consultation with oncology faculty, nurses, pharmacists, medical students and non-medical people. An institutional ethical committee review and approval obtained before the initiation of the study. Ten different medical institutions, which included over 90% of the oncological care given in Turkey, were represented in the study (Table 1). We approached patients waiting to be seen in the outpatient clinic and undergoing treatment at outpatient chemotherapy unit. They were eligible if they had cancer and consent to filling out the questionnaire. No patient is excluded from the study if they filled out the questionnaire. To allay patients' concerns that their answers could influence their treatment, the questionnaire was given to each patient by support people and not by the attending physician.

A database was constituted to assess the data that was obtained from the questionnaire. For this purpose, the Statistical Package for Social Sciences (SPSS, Chicago, IL, USA) version 15.0 was used. This study must recruit the least 779 individuals to have 80% power with 5% type I error level to detect 10% minimum clinically significant difference.

Chi-square tests were used to evaluate the differences among nominal and ordinal variables. Student's t-test was used to evaluate numeric variables with

normally distributed random errors. After the analysis, frequency tables and graphics were constituted using Excel 2010 software (Microsoft Co., Redmond, WA, USA). P values less than 0.05 were considered statistically significant.

## Results

For the sample of 872 patients, 44% were male and 55% were female. Each medical institution provided at least 3% of the patients. The median age of the patients was  $55 \pm 13$  (range 16-89). The average age of the male patients was significantly greater than that of females (57 versus 53;  $p < 0.001$ ).

Of all patients, 165 (18.9%) used some form of complementary interventions during their illnesses. Demographic data for the patients are summarized in Table 2. The extent of the progression of disease was the only demographic variable that was associated with the frequency of patients who used complementary interventions. Patients who used complementary interventions were more frequent if they had a more advanced stage of the disease ( $p = 0.001$ ). We found no evidence that the use of complementary treatments was associated with any of the remaining demographic variables.

Frequency of patients who used complementary interventions varied significantly ( $p = 0.002$ ) among medical institutions. The most frequent cancers in the sample were gastrointestinal system cancers (28.7%), breast cancer (27.1%), and lung cancer (18.7%) (Table 3). However, complementary interventions were used most frequently by patients with prostate cancer (33.3%), head and neck cancer (27.3%), and lung cancer (22.1%) (Table 4). The patients who were least likely to use complementary interventions were the patients with soft tissue tumors. Distribution of the tumor type in patients who used complementary interventions and who did not were similar ( $p = 0.637$ ). The type of cancer in patients according to either use of complementary interventions or not were equally distributed.

Of all patients who used complementary interventions, approximately 10% used more than one method. Alternative methods and their frequency are summarized in Table 5. The most frequently used method (85%) was a mixture of various herbs. Other common methods included praying (10%) and vitamins (8%). Forty-one percent of the patients who used complementary interventions were using some sort of it during the time that they filled out the questionnaire. Forty-five percent of patients, were using complementary interventions when their disease was first diagnosed; 28% of patients started to use them after they had first learned that various methods were beneficial for their condition and 12% started to use them following persistent requests of family members.

Fifteen percent of patients used complementary interventions at various stages of their illnesses. Only 2% of patients started to use them after the completion of treatments that had been prescribed by their physicians.

**Table 1. Oncology centers contributed to the study and the ratio used complementary medicine according to centers**

	N	%	Used CM (%)	P value
Gaziantep University, Gaziantep	149	17.1	10.0	0.002
Hacettepe University, Ankara	140	16.0	14.2	
Ege University, Izmir	113	13.0	29.2	
Gazi University, Ankara	104	11.9	19.4	
Ankara University, Ankara	92	10.6	16.3	
Adana Baskent University, Adana	81	9.3	17.3	
Marmara University, Istanbul	74	8.5	24.3	
Cumhuriyet University, Sivas	60	6.9	21.7	
Karadeniz Technical University, Trabzon	37	4.2	21.6	
Sakarya University, Sakarya	22	2.5	40.9	
<b>Total</b>	<b>872</b>	<b>100.0</b>		

CM: Complementary medicine.

**Table 2. Demographic characteristics and clinical features of patients in the study population**

	Complementary Medicine		P
	Not Used n (%)	Used n(%)	
<b>Total</b>	707 (81.1)	165 (18.9)	
<b>Age (mean±sd)</b>	55.5±13.2	54.2±12.4	0.272
<b>Gender</b>			0.778
Female	382 (54.0)	87 (52.8)	
Male	305 (43.1)	73 (44.2)	
Unknown	20 (2.9)	5 (3.0)	
<b>Education Level</b>			0.119
Primary school	378 (53.5)	81 (49.1)	
High school	141 (19.9)	32 (19.4)	
University	120(17.0)	38 (23.0)	
Illiterate	51(7.2)	6 (3.6)	
Unknown	17(2.4)	8 (4.8)	
<b>Working status</b>			0.355
Works	129 (18.2)	37 (22.4)	
Unemployed	56 (7.9)	7 (4.2)	
Retired	254 (35.9)	57 (34.5)	
Student	9 (1.3)	1 (0.6)	
Housewife	252 (35.6)	61 (37.0)	
Unknown	7 (1.0)	2 (1.2)	
<b>Place of residence</b>			0.187
Metropolis	450 (63.6)	106 (64.2)	
City	61 (8.6)	7 (4.2)	
Town	141 (19.9)	41 (24.8)	
Village	47(6.6)	11 (6.7)	
Unknown	8 (1.1)	-	
<b>Income (TL/month)</b>			0.310
≤1000	353 (49.9)	76 (46.1)	
1001-4000	284 (40.2)	78 (47.3)	
>4000	37(5.3)	5 (3.0)	
Unknown	32 (4.6)	6 (3.6)	
<b>Stage</b>			0.001
Locally advanced	346 (48.9)	59 (35.8)	
Metastatic	269 (38.1)	88 (53.3)	
Unknown	92 (13.0)	18 (10.9)	
<b>Treatment Status</b>			0.185
Active	530 (75.0)	133 (80.6)	
Completed	146 (20.7)	27 (16.4)	
Unknown	31 (4.3)	5 (3.0)	
<b>Time since diagnosis (months)</b>			0.080
≤12	327 (46.2)	60 (36.4)	
13-36	177 (25.0)	44 (26.6)	
>36	175 (24.8)	51 (30.9)	
Unknown	28 (4.0)	10 (6.1)	

TL: Turkish Lira (1TL= 1.8 US dollar= 2.3 Euro); sd: standard deviation.

A majority of patients (60%) used complementary treatments to reduce or to heal their illnesses, 52% for increasing the strength of the body, 7% to decrease pain, another 7% to decrease nausea, and 5% to decrease the side effects of chemotherapy. Thirty-one percent of patients used them for more than one reason (Table 6).

Sources of information regarding complementary interventions included relatives (37%), television (26%), other patients with cancer (22%), and the internet (21%). Fifty-five percent of patients thought that they benefited from these methods. Only two patients stated that the

**Table 3. Primary cancers in the study population**

	n	%
Gastrointestinal system	250	28.7
Breast	236	27.1
Lung	163	18.7
Soft tissue sarcoma	28	3.2
Gynecological	26	3.0
Head and neck	22	2.5
Genitourinary	17	1.9
Lymphomas	15	1.7
Others	96	11.0
Unknown	19	2.2
<b>Total</b>	<b>872</b>	<b>100.0</b>

**Table 4. The frequency of the use of complementary medicine according to primary diagnosis**

	Total patients (n)	Used CM (n)	Used CM (%)
Prostate	6	2	33,3
Head and neck	22	6	27,3
Lung	163	36	22,1
Gastrointestinal system	250	52	20,8
Gynecological	26	5	19,2
Breast	236	44	18,6
Lymphoma	15	2	13,3
Genitourinary	17	2	11,8
Others	137	16	11,7

CM: Complementary medicine

**Table 5. The most commonly used complementary methods**

	n	%
Herbs	140	84,8
Praying	18	10,9
Vitamins	14	8,5
Animal	7	4,2
Bioenergy	2	1,2
Combined*	16	9,7

\*Totally 181 methods of complementary medicine was used. Sixteen of these methods were used together.

**Table 6. Reasons for complementary medicine use**

	%
To heal their illnesses	60.5
To increase the body strength	52.7
To decrease the pain	7.3
To decrease the nausea	7.3
To decrease the side effects of the chemotherapy	5.5
More than one reason	31.0

method that they used had one or more adverse effects but none of the remaining patients answered this question on the questionnaire. One patient admitted that because of the complementary interventions, his main treatment was compromised. Each of the remaining 151 patients who answered this question thought that their complementary interventions had no effect on their chemotherapy schedule. The proportion of patients who said they did not tell their doctors about the fact that they are using complementary treatment was 50%, and of these patients 47% said that they did not tell their primary physicians about their use of complementary interventions because the physicians would disapprove not like to hear that they are using it, and 20% said that their primary physicians had not asked them about their use of it.

At the time that the questionnaire was completed, 47% of patients reported that they were using complementary interventions, 16% of patients reported that they did not benefit from it, and 9% of patients reported that they had stopped the use of it because they thought that they were doing something wrong. This question was not answered by 25% of patients. The proportion of patients who reported that they had wanted their physicians to inform them about complementary interventions was 13% and 6% said that they had wanted their physicians to guide them to find the most appropriate complementary interventions. The proportion of patients who reported that they believed that their physicians did not know enough to provide information on complementary interventions was 1%.

Of all patients who used complementary treatment modalities, 63% had wanted their physicians to provide information that would increase their feelings of security, 30% had wanted their physician to guide them to choose the most appropriate treatment, and 5% had believed that their physicians did not have adequate information on complementary interventions.

## Discussion

In our study, about 20% of patients used complementary interventions, which was a lower proportion than we had expected. The use of complementary alternative medicine of Turkish patient population with cancer in previously published studies varied from 41% to 90% [1,3]. The patients may have concealed their use of complementary interventions in an attempt to prevent this knowledge from affecting the judgments of their physicians. However, we paid particular attention to prevent physicians from providing the questionnaire to patients. Furthermore, to ensure that patients would feel secure when responding to the questionnaire, the name of the patient was not recorded. As expected, the frequency of use of complementary interventions varied widely among geographical regions in Turkey [1-4,8]. However, we found no evidence of variation in frequency from east to west or from south to north. Some previous studies of complementary interventions in

Turkey were conducted in hospitals that serve patients from lower socioeconomic classes [1-4]. The university hospitals that participated in our study may serve patients at higher socioeconomic status. This difference could explain why the frequency of use of complementary interventions was lower in our study.

In our study, herbal therapies were the most frequently complementary intervention. This result was consistent with previous findings [8-10]. In some of the previous, local studies from Turkey, breast cancer was frequent in patients who used complementary interventions [11,12]. This frequency may have been lower in our study because we choose only those patients in advanced stages of the breast, colorectal, and lung disease and we did not include patients who were admitted to the oncology outpatient unit only for adjuvant treatment purposes. In previous, local studies from Turkey, patients who used complementary interventions were frequently young and frequently had high socioeconomic status, but we were not able to assess these variables in our study [13,14]. We found that patients were reluctant to share this information with their physician. Consequently, physicians should encourage their patients who use complementary interventions to share this information.

There is limitation of our study. The study population included cancer patients followed at university hospitals. The university hospitals may usually serve patients at higher socioeconomic status in Turkey. This factor may lead to selection bias that can potentially affect the results of our study.

## Conclusion

Approximately 20% of cancer patients in Turkey used complementary interventions and this frequency was lower than expected.

Physicians should encourage their patients to share information regarding the use of complementary interventions so that physicians can more effectively manage the treatment of their patients.

Although our initial expectations were higher, only carefully designed studies can efficiently answer questions that were addressed in our study. To confirm our findings, larger studies in Turkey should be encouraged; it would be useful to have a clearer picture of healthcare and patient's behaviors in Turkey.

## Competing interests

The authors declare that they have no competing interests.

## Authors contributions

DC, NST, SK conceived and designed the research, acquired the data, analyzed and interpreted the data, drafted the manuscript, made critical revision of the manuscript for important intellectual content, MD acquired the data, FO, OO, AS, CS, DY conceived and designed the research, acquired the data SY conceived and designed the research, acquired the data, handled funding and supervision.

## Publication history

Received: 03-Nov-2012 Revised: 26-Nov-2012 Re-Revised:  
30-Nov-2012 Accepted: 11-Dec-2012 Published: 17-Dec-2012

## References

1. Gozum S, Tezel A, Koc M: **Complementary alternative treatments used by patients with cancer in eastern Turkey.** *Cancer Nurs* 2003, **26**:230-236. | [Article](#) | [PubMed](#)
2. Ucan O, Pehlivan S, Ovayolu N, Sevinc A, Camci C: **The use of complementary therapies in cancer patients: a questionnaire-based descriptive survey from southeastern Turkey.** *Am J Clin Oncol* 2008, **31**:589-594. | [Article](#) | [PubMed](#)
3. Er O, Mistik S, Ozkan M, Ozturk A, Altinbas M: **Factors related to complementary/alternative medicine use among cancer patients in central Anatolia.** *Tumori* 2008, **94**:833-837. | [Pdf](#) | [PubMed](#)
4. Yildirim Y: **Patterns of the use of complementary and alternative medicine in women with metastatic cancer.** *Cancer Nurs* 2010, **33**:194-200. | [Article](#) | [PubMed](#)
5. Amirghofran Z, Bahmani M, Azadmehr A, Javidnia K: **Anticancer effects of various Iranian native medicinal plants on human tumor cell lines.** *Neoplasma* 2006, **53**:428-433. | [Article](#) | [PubMed](#)
6. Bora KS, Sharma A: **Phytochemical and pharmacological potential of *Medicago sativa*: a review.** *Pharm Biol* 2011, **49**:211-220. | [Article](#) | [PubMed](#)
7. Kaltsatou A, Mameletzi D, Douka S: **Physical and psychological benefits of a 24-week traditional dance program in breast cancer survivors.** *J Bodyw Mov Ther* 2011, **15**:162-167. | [Article](#) | [PubMed](#)
8. Tarhan O, Alacacioglu A, Somali I, Sipahi H, Zencir M, Oztop I, Dirioz M, Yilmaz U: **Complementary-alternative medicine among cancer patients in the western region of Turkey.** *J BUON* 2009, **14**:265-269. | [PubMed](#)
9. Can G, Erol O, Aydiner A, Topuz E: **Quality of life and complementary and alternative medicine use among cancer patients in Turkey.** *Eur J Oncol Nurs* 2009, **13**:287-294. | [Article](#) | [PubMed](#)
10. Malak AT, Karayurt O, Demir E, Yumer AS: **Complementary and alternative medicine in cancer patients - analysis of influencing factors in Turkey.** *Asian Pac J Cancer Prev* 2009, **10**:1083-1087. | [Article](#) | [PubMed](#)
11. Isikhan V, Komurcu S, Ozet A, Arpacı F, Ozturk B, Balbay O, Guner P: **The status of alternative treatment in cancer patients in Turkey.** *Cancer Nurs* 2005, **28**:355-362. | [Article](#) | [PubMed](#)
12. Algier LA, Hanoglu Z, Ozden G, Kara F: **The use of complementary and alternative (non-conventional) medicine in cancer patients in Turkey.** *Eur J Oncol Nurs* 2005, **9**:138-146. | [Article](#) | [PubMed](#)
13. Tas F, Ustuner Z, Can G, Eralp Y, Camlica H, Basaran M, Karagol H, Sakar B, Disci R, Topuz E: **The prevalence and determinants of the use of complementary and alternative medicine in adult Turkish cancer patients.** *Acta Oncol* 2005, **44**:161-167. | [Article](#) | [PubMed](#)
14. Ceylan S, Hamzaoglu O, Komurcu S, Beyan C, Yalcin A: **Survey of the use of complementary and alternative medicine among Turkish cancer patients.** *Complement Ther Med* 2002, **10**:94-99. | [Article](#) | [PubMed](#)