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

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Abstract

Background: Cancer is a rapidly increasing worldwide health problem and despite medical interventions 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.

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 use 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 ± 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. Average 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

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

CM: Complementary medicine.
Table 2. Demographic characteristics and clinical features of patients in the study population

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

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

<table>
<thead>
<tr>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gastrointestinal system</td>
<td>250</td>
</tr>
<tr>
<td>Breast</td>
<td>236</td>
</tr>
<tr>
<td>Lung</td>
<td>163</td>
</tr>
<tr>
<td>Soft tissue sarcoma</td>
<td>28</td>
</tr>
<tr>
<td>Gynecological</td>
<td>26</td>
</tr>
<tr>
<td>Head and neck</td>
<td>22</td>
</tr>
<tr>
<td>Genitourinary</td>
<td>17</td>
</tr>
<tr>
<td>Lymphomas</td>
<td>15</td>
</tr>
<tr>
<td>Others</td>
<td>96</td>
</tr>
<tr>
<td>Unknown</td>
<td>19</td>
</tr>
</tbody>
</table>

Total 872 100.0

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

<table>
<thead>
<tr>
<th>Primary Diagnosis</th>
<th>Total patients (n)</th>
<th>Used CM (n)</th>
<th>Used CM (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prostate</td>
<td>6</td>
<td>2</td>
<td>33.3</td>
</tr>
<tr>
<td>Head and neck</td>
<td>22</td>
<td>6</td>
<td>27.3</td>
</tr>
<tr>
<td>Lung</td>
<td>163</td>
<td>36</td>
<td>22.1</td>
</tr>
<tr>
<td>Gastrointestinal system</td>
<td>250</td>
<td>52</td>
<td>20.8</td>
</tr>
<tr>
<td>Gynecological</td>
<td>26</td>
<td>5</td>
<td>19.2</td>
</tr>
<tr>
<td>Breast</td>
<td>236</td>
<td>44</td>
<td>18.6</td>
</tr>
<tr>
<td>Lymphoma</td>
<td>15</td>
<td>2</td>
<td>13.3</td>
</tr>
<tr>
<td>Genitourinary</td>
<td>17</td>
<td>2</td>
<td>11.8</td>
</tr>
<tr>
<td>Others</td>
<td>137</td>
<td>16</td>
<td>11.7</td>
</tr>
</tbody>
</table>

CM: Complementary medicine

Table 5. The most commonly used complementary methods

<table>
<thead>
<tr>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Herbs</td>
<td>140</td>
</tr>
<tr>
<td>Praying</td>
<td>18</td>
</tr>
<tr>
<td>Vitamins</td>
<td>14</td>
</tr>
<tr>
<td>Animal</td>
<td>7</td>
</tr>
<tr>
<td>Bioenergy</td>
<td>2</td>
</tr>
<tr>
<td>Combined*</td>
<td>16</td>
</tr>
</tbody>
</table>

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

Table 6. Reasons for complementary medicine use

<table>
<thead>
<tr>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>To heal their illnesses</td>
</tr>
<tr>
<td>To increase the body strength</td>
</tr>
<tr>
<td>To decrease the pain</td>
</tr>
<tr>
<td>To decrease the nausea</td>
</tr>
<tr>
<td>To decrease the side effects of the chemotherapy</td>
</tr>
<tr>
<td>More than one reason</td>
</tr>
</tbody>
</table>
As expected, the frequency of use of complementary interventions varied widely among geographical regions in Turkey [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 used 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.
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