


Discrepant Views of Oncologists and Cancer Patients on Complementary and Alternative Medicine in a Chinese General Hospital

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Abstract

Purpose: Complementary and alternative medicine (CAM) has been widely used by cancer patients but rarely discussed by oncologists. This study was designed to evaluate the communication gap between China's oncologists and cancer patients on CAM. **Methods:** Two parallel cross-sectional studies assessed 83 oncologists and 402 cancer patients on CAM communication between patients and oncologists, and attitudes toward CAM use and clinical decisions about CAM. **Results:** A majority (75.1%) of the cancer patients (302/402) were identified as CAM users within the most recent three months while 77.6% of the cancer patients (312/402) were identified as CAM users since diagnosis of cancer. Oncologists and patients responded differently ($P < .001$) on CAM communications. Both oncologists and patients expected that CAM could improve the immune system. They both agreed that oncologists usually discouraged their patients from using CAM. Regarding the effectiveness of CAM, cancer patients were more likely to believe that CAM was effective while oncologists had more concerns about adverse effects of CAM use. CAM use by patients was predicted by disease duration (≥ 9 months) in the multivariable logistic regression model. **Conclusion:** China's oncologists and cancer patients may hold discrepant views on CAM. China's oncologists are encouraged to improve their knowledge on CAM and to initiate more discussions with their patients regarding effective and the safe use of CAM.

Keywords

oncologist, cancer patient, complementary and alternative medicine, attitude, communication

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Introduction

According to the Report on Global Cancer Statistics 2012, a total of 14.1 million new cancer cases and 8.2 million deaths occurred in 2012 worldwide.¹ Interest in complementary and alternative medicine (CAM) has grown rapidly in the past decade. The use of CAM in the United States increased from 30% in 1990 to 40% in 2007.² Despite the high prevalence of CAM use by cancer patients, it has also been reported that oncologists often have negative perceptions of CAM use due to a lack of proven efficacy and safety.³⁻⁴

Several studies regarding discrepant views of CAM use between cancer patients and oncologists have been performed in different countries,³⁻⁵ indicating that the discrepant views from oncologists and cancer patients might be great barriers to the communication between oncologist and their patient, and could ultimately affect treatment decisions and adherence.

In China, CAM is largely dominated by traditional Chinese medicine (TCM), which has been widely used for cancer treatment for thousands of years.^{6,7} A study on utilization of and attitudes toward TCM reported that 83.5% of cancer patients used TCM in a China's cancer center.⁸ However, the views of China's oncologists and cancer

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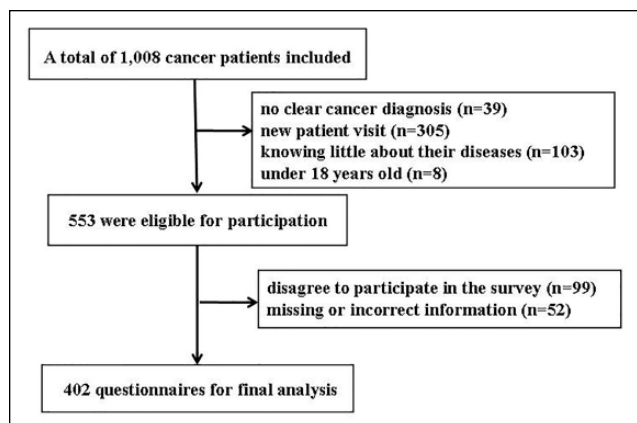


Figure 1. Flowchart for inclusion and exclusion of cancer patients.

patients about CAM use remain unclear. There has been no study investigating how China's oncologists and cancer patients view CAM. The purpose of this study was to investigate the communications and attitudes toward CAM use of oncologists and cancer patients in China.

Materials and Methods

Participants

The 2 parallel cross-sectional surveys were conducted at the Shanghai Changhai Hospital affiliated with the Second Military Medical University between July 2015 and December 2015. One survey was completed by qualified inpatients who were 18 years and older, were not new patients in the hospital, literate in Chinese, with clear diagnosis and physically and emotionally able to read the survey. The other survey was completed by oncologists from 5 clinics (medical oncology, respiratory, gastroenterology, gastrointestinal surgery, and urology) at the hospital. Inpatients signed a written informed consent, whereas oncologists passively consented by completing the survey. The flowcharts for inclusion and exclusion of cancer patients (Figure 1) and oncologists (Figure 2) were analyzed. The study was approved by Ethics Committee of Integrative Medicine Institution, Changhai Hospital, Second Military Medical University.

Surveys

The survey was originally designed through reviews of the literature and by discussions with experienced medical oncologists. The questionnaire was distributed to a group of consultants for review. The structure was further modified, questions and response elements reworded for clarity according to feedback.

The survey for the cancer patients and the survey for the medical oncologists were consistent on demographics,

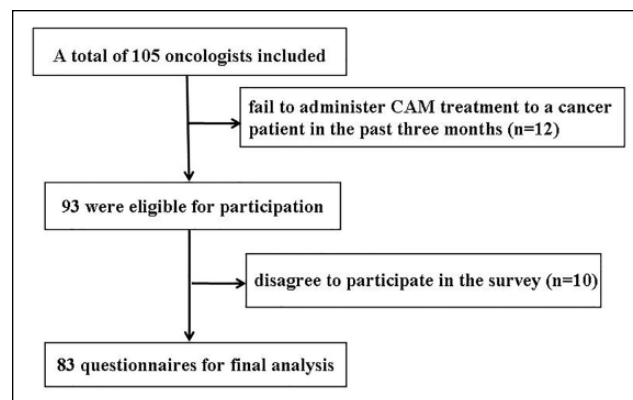


Figure 2. Flowchart for inclusion and exclusion of oncologists.

attitudes, practice, and communication regarding CAM use. The initial question requires either the cancer patients or oncologists to provide demographic information (the patient survey assessed cancer treatment and disease status). In the last question of the demographic information, patients were asked whether they had received CAM treatments in the past 3 months whereas oncologists were asked whether they had ever administered any treatment to a cancer patient in the past 3 months? If participants or oncologists chose "Yes," they would be asked to complete the rest of the survey. If patients chose "No," they would be asked to end the survey and give the reason, the possible answers included (1) do not believe CAM, (2) do not know CAM, (3) declined by oncologist, (4) too expensive, (5) concerned about adverse effects, and (6) other reasons. If oncologists chose "No," they would be asked to end the survey as well. The National Center for Complementary and Integrative Health (NCCIH) defines CAM simply as a group of diverse medical and health care interventions, practices, products, or disciplines that are not generally considered part of conventional medicine. Clearly, the boundaries between CAM and conventional medicine (also called Western or allopathic medicine) are not absolute.⁹ In the United States, instead of CAM, a new expression used since 2015 is "Complementary Health Approaches." In this study, folk medicine, healthy food, nutrient supplements, herbal tea, and meditation were also included.

The communications and attitudes of patients and oncologists about CAM were compared on 8 specific questions in each survey. These items differed only in terms of subjects (oncologists or patients).

Communications of CAM Between Patients and Oncologists (Questions 1-3)

- In question 1, patients were asked whether oncologists initiated a discussion on CAM use while oncologists were asked whether they initiated a discussion with their patients about CAM use.

- In question 2, patients were asked whether they consulted with their oncologists about CAM use and oncologists were asked whether their patients mentioned or asked them about CAM use. Patients who did not consult with oncologists were asked the reason for that.
- Question 3 addressed how oncologists reacted to patients who disclosed they were using or would use CAM. Patients were asked how oncologists reacted whereas oncologists were asked how they reacted to patient disclosure of CAM use.

Attitude Toward CAM Use and Clinical Decision About CAM (Questions 4-8)

- In question 4, both patients and oncologists were asked whether they hold that CAM treatment is effective.
- Question 5 listed the expectations of CAM use. Patients were asked about opinions on the expected benefits of CAM whereas oncologists were asked what benefits they expect from CAM.
- Question 6 listed types of CAM treatments. Both patients and oncologists were asked about the types of CAM therapies that patients used.
- Question 7 was related to symptoms that patients were suffering from; both patients and oncologists were asked about the symptoms to be treated.
- Question 8 was related to adverse effects of CAM use. Patients were asked whether they had any adverse effects from CAM use during conventional treatments while oncologists were asked whether their patients experienced any adverse effects during conventional treatments caused by CAM use.

Question 1 and 2 were designed to use a dichotomous (yes/no) response format. Question 3 was designed to check a specific answer. Questions 5 to 7 were designed to have multiple answers. Questions 4 and 8 were rated with a 5-point (Likert-type scale: strongly agree, agree, undecided, disagree, or strongly disagree) response form for oncologists and with a dichotomous response format for patients. The 5-point response form was dichotomized to be able to compare the responses; strongly agree and agree were grouped as yes while a neutral response, disagree, and strongly disagree were grouped as a no.

Statistical Analysis

Descriptive statistics (frequency distribution, mean \pm standard deviation [SD]) were used to summarize patients' and oncologists' baseline characteristics and outcome variables. Differences between the two groups of the cancer patients (CAM users vs non-CAM users) were assessed by Student's *t* test, chi-square test, and Mann-Whitney *U* test where appropriate. Multivariable logistic regression models were

Table 1. Characteristics of Cancer Patients (N = 402).

| Variable | CAM Users (n = 302) | Non-CAM Users (n = 100) | P |
|---|------------------------|----------------------------|-------|
| Age, years, mean \pm SD | 56.1 \pm 10.8 | 56.2 \pm 12.0 | .135 |
| Sex, n (%) | | | |
| Male | 161 (53.3) | 66 (66.0) | <.05 |
| Female | 141 (46.7) | 34 (34.0) | |
| Education, n (%) | | | |
| Primary school | 9 (3.0) | 4 (4.0) | .437 |
| High school | 226 (74.8) | 77 (77.0) | |
| College or university | 67 (22.2) | 19 (19.0) | |
| Annual household income, \$, n (%) | | | |
| <12000 | 10 (3.3) | 2 (2.0) | <.05 |
| 12000-18000 | 98 (32.5) | 51 (51.0) | |
| 18000-30000 | 100 (33.1) | 29 (29.0) | |
| 30000-45000 | 68 (22.5) | 17 (17.0) | |
| 45000-150000 | 24 (7.9) | 0 (0.0) | |
| >150000 | 2 (0.7) | 1 (1.0) | |
| Health insurance, n (%) | | | |
| National medical card | 86 (28.5) | 22 (22.0) | .206 |
| Non-national medical card | 216 (71.5) | 78 (78.0) | |
| Disease duration, months, mean \pm SD | 25.6 \pm 37.4 | 6.7 \pm 11.5 | <.001 |
| Cancer stage, n (%) | | | |
| Stage I | 5 (1.7) | 1 (1.0) | <.001 |
| Stage II | 32 (10.6) | 21 (21.0) | |
| Stage III | 47 (15.6) | 25 (25.0) | |
| Stage IV | 218 (72.2) | 53 (53.0) | |
| ECOG performance status, n (%) | | | |
| 0 | 55 (18.2) | 17 (17.0) | .667 |
| 1 | 229 (75.8) | 81 (81.0) | |
| 2 | 18 (6.0) | 2 (2.0) | |

Abbreviations: CAM, complementary and alternative medicine; ECOG, Eastern Cooperative Oncology Group.

used to determine whether associations of baseline characteristics and CAM use persisted after controlling for demographics and other relevant factors. Model building began with all variables having a *P* value $<$.25 from the univariate analysis. A *P* value cutoff at .10 to enter and .05 to remain in the model were used. Age and sex were kept in the model regardless of their significance. Once the list of variables to be used in our final model was selected, the functional form of each variable and multicollinearity between the variables were examined. All analyses were performed using SAS version 9.4 (SAS Institute, Cary, NC, USA).

Results

Baseline Descriptive Information

A total of 402 questionnaires (response rate: 39.9%) were valid for final analysis, including 302 CAM users (75.1%) and 100 non-CAM users (Figure 1).

Demographic information is provided in Table 1 and the information on cancer patients' diagnosis and treatment is

Table 2. Diagnosis and Treatment of Cancer Patients (N = 402).

| Variable | CAM Users (n = 302) | Non-CAM Users (n = 100) | P | |
|---------------------------------|------------------------|----------------------------|------|------|
| Cancer type, n (%) | | | | |
| Colorectal | 89 (29.5) | 21 (21.0) | .061 | |
| Stomach | 54 (17.9) | 31 (31.0) | | |
| Breast | 43 (14.2) | 9 (9.0) | | |
| Esophagus | 28 (9.3) | 15 (15.0) | | |
| Lung | 24 (7.9) | 8 (8.0) | | |
| Pancreas | 14 (4.6) | 8 (8.0) | | |
| Cervix | 7 (2.3) | 0 | | |
| Bladder | 7 (2.3) | 1 (1.0) | | |
| Ovarian | 5 (1.7) | 1 (1.0) | | |
| Lymphoma | 4 (1.3) | 0 | | |
| Other | 27 (8.9) | 6 (6.0) | | |
| Prior treatment, n (%) | | | | |
| Chemotherapy | 285 (94.4) | 79 (79.0) | | .018 |
| CAM therapy | 249 (82.5) | 10 (10.0) | | |
| Surgery | 232 (76.8) | 51 (51.0) | | |
| Radiation therapy | 68 (22.5) | 8 (8.0) | | |
| Targeted therapy | 66 (21.9) | 11 (11.0) | | |
| Hormone therapy | 21 (7.0) | 1 (1.0) | | |
| Other therapy | 14 (4.6) | 2 (2.0) | | |
| Current treatment, n (%) | | | | |
| Chemotherapy | 262 (86.8) | 93 (93.0) | .268 | |
| Targeted therapy | 55 (18.2) | 7 (7.0) | | |
| Other therapy | 42 (13.9) | 7 (7.0) | | |

Abbreviation: CAM, complementary and alternative medicine.

presented in Table 2. The average age of CAM users was 56.1 years (SD, 10.8). A similar number of women and men participated. Three-fourths of CAM users (74.8%) were high school graduates while 22.2% of them had completed college or university training. The mean disease duration time of CAM users was 25.6 months (SD, 37.4). Most CAM users (72.2%) were at stage IV. Colorectal (29.5%) was the most common cancer site, followed by stomach (17.9%) and breast (14.2%). The most common conventional treatment that CAM users received was chemotherapy (94.4%), followed by surgery (76.8%). Among the 100 non-CAM users, 14 did not believe in CAM, 41 did not know of CAM, 26 reported CAM was declined by oncologist, 12 were concerned about adverse effects, and 11 suggested other reasons. Three-fourths of the cancer patients (75.1%, 302/402) were identified as CAM users within the past 3 months while 77.6% of the cancer patients (312/402) were identified as CAM users since diagnosis of cancer ($P = .406$). By multivariable analyses, CAM use by patients was predicted only by disease duration (≥ 9 months) (odds ratio [OR] = 6.18, 95% CI = 3.46-11.04) after analyzing other characteristics in the multivariable logistic regression model (Table 3).

Table 3. Multivariable Analysis of Factors Predictive of Patients' CAM Use (N=402).

| Predictor | Received CAM Treatment in Past 3 Months | | |
|---|---|------------|----------|
| | Odds Ratio | 95% CI | P |
| Age (≥ 56 vs < 56 years) | 0.93 | 0.55-1.56 | .771 |
| Sex (female vs male) | 1.47 | 0.87-2.50 | .153 |
| Disease duration (≥ 9 vs < 9 months) | 6.18 | 3.46-11.04 | $< .001$ |
| Clinical stage (advanced vs early) ^a | 1.70 | 0.88-3.29 | .113 |
| National health insurance (no vs yes) | 0.62 | 0.35-1.13 | .118 |
| Annual household income ($\geq \$30,000$ vs $< \$30,000$) | 1.80 | 0.98-3.31 | .060 |

Abbreviation: CAM, complementary and alternative medicine.

^aEarly included clinical stage I and II; advanced included clinical stage III and IV.

Table 4. Characteristics of Oncologists (N = 83).

| Characteristics | Mean \pm SD | n (%) |
|------------------------------|----------------|-----------|
| Age (years) | 33.7 \pm 6.0 | |
| Sex | | |
| Male | | 58 (69.9) |
| Female | | 25 (30.1) |
| Specialty | | |
| Medical oncology | | 24 (28.9) |
| Respiratory | | 13 (15.7) |
| Gastroenterology | | 16 (19.3) |
| Gastrointestinal surgery | | 17 (20.5) |
| Urology | | 13 (15.7) |
| Working duration (years) | 8.0 \pm 6.0 | |
| Type of medical license | | |
| Clinical medicine | | 76 (91.6) |
| Traditional Chinese medicine | | 7 (8.4) |
| Personal use of CAM | | |
| Yes | | 63 (76.0) |
| No | | 20 (24.1) |

Abbreviation: CAM, complementary and alternative medicine.

Eighty-three (83) out of 105 oncologists' surveys were returned and analyzed (response rate: 79.0%) (Figure 2). The mean age of the oncologists was 33.7 years (SD, 6.0) with 70% male. The mean time of working duration was 8.0 years (SD, 6.0). A total of 91.6% of the oncologists indicated that they had a medical license of clinical medicine while 8.4% had a TCM license. Additionally, three-fourths of the oncologists reported previous personal use of CAM therapies (Table 4).

Communications of CAM Between Cancer Patients and Oncologists

Only 42.1% of the patients indicated that their oncologists initiated a discussion on CAM use during the consultation but 63.9% of the oncologists thought that they themselves

Table 5. Distribution of Answers Provided by Patients and Oncologists: The Response of the Patients Versus the Response of the Oncologists.

| Questions | Patients (N = 302), Yes (%) | Oncologists (N = 83), Yes (%) | P |
|---|--------------------------------|----------------------------------|-------|
| 1. Initiating a discussion on CAM use from oncologists | 42.1 | 63.9 | <.001 |
| 2. Patients' consultation with the oncologists about CAM use | 65.6 | 42.1 | <.001 |
| 3. Oncologists' reaction to their patients who disclose they were using or would use CAM ^a | 37.0 | 34.9 | .719 |
| 4. CAM treatments' effectiveness | 90.1 | 45.8 | <.001 |
| 5. Expectations for CAM use | | | |
| Cure disease | 17.5 | 32.5 | .003 |
| Improve immune system | 53.3 | 78.3 | <.001 |
| Manage symptoms | 47.0 | 51.8 | .439 |
| Increase the effect of conventional treatment | 22.5 | 40.0 | .002 |
| Improve quality of life | 30.1 | 73.5 | <.001 |
| Other | 3.6 | 13.3 | .001 |
| 6. Types of CAM treatments used ^b | | | |
| Chinese herbal medicine | 43.7 | 67.5 | <.001 |
| Proprietary Chinese medicine | 74.2 | 60.2 | .013 |
| Acupuncture | 7.3 | 20.5 | <.001 |
| Massage therapy | 1.7 | 8.4 | .002 |
| Dietary therapy | 16.9 | 40.0 | <.001 |
| Tai chi | 4.0 | 15.7 | <.001 |
| Chi gong | 2.0 | 6.0 | .051 |
| Other | 2.0 | 15.7 | <.001 |
| 7. Symptoms to be given priority to CAM use | | | |
| Excess sweating | 12.3 | 57.8 | <.001 |
| Fatigue | 37.1 | 66.3 | <.001 |
| Lack of appetite | 19.9 | 65.1 | <.001 |
| Nausea/vomiting | 14.2 | 28.9 | .002 |
| Abdominal distension | 16.2 | 38.6 | <.001 |
| Pain | 12.3 | 16.9 | .272 |
| Numbness/tingling | 9.9 | 15.7 | .142 |
| Dry mouth | 5.0 | 28.9 | <.001 |
| Sleep disorder | 7.6 | 61.4 | <.001 |
| Other | 19.2 | 9.6 | .041 |
| 8. Adverse effects of CAM use happen during conventional treatments | 3.0 | 19.3 | <.001 |

Abbreviation: CAM, complementary and alternative medicine.

^aYes, encourage; no, neutral response and discourage.

^bChinese herbal medicine accounts for the majority of treatments in traditional Chinese medicine, as a personalized decoction with single herbs or mixtures. Proprietary Chinese medicine generally consists of extracted condensed pills, which are made of Chinese herb for commercial preparations. Dietary therapy in China is a mode of dieting rooted in Chinese understandings of the effects of food on the human organism, and centered on concepts such as eating in moderation and tonic diets.

initiated a discussion on CAM use ($P < .001$). About 65.6% of the patients reported that they consulted with their oncologists on CAM use and only 42.1% of the oncologists agreed with the statement ($P < .001$). The major reason why they did not discuss CAM use with their oncologists was limited time (46.2%). Both patients and oncologists agreed that oncologists usually discourage their patients from CAM use (Table 5).

Attitude Toward CAM Use and Clinical Decision About CAM

Patients and oncologists responded differently to the effectiveness of CAM. The majority (90.1%) of the patients believed that CAM was effective while only 45.8% of the oncologists agreed on the same issue. In question 5, the oncologists showed very different views from the patients.

Most patients expected quality of life improvement, but the oncologists preferred to manage their patients' symptoms. However, both the patients and the oncologists expected an improvement of the immune system due to CAM use. Patients and oncologists hold significantly different views on the types of CAM treatments used. Almost three-fourths (74.2%) of the patients used proprietary Chinese medicine, while the oncologists considered Chinese herbal medicine as the most popular CAM treatments. The difference in responses to question 7 from patients and oncologists revealed that oncologists failed to find what symptoms CAM was good for. Meanwhile, 19.3% of the oncologists witnessed adverse effects during the combined treatments and they were more concerned about the adverse effects of CAM than their patients.

Discussion

This study was the first study to evaluate the communication between patients and oncologists and their attitudes toward and clinical decisions about CAM. The study revealed that oncologists and patients responded differently on most questions.

The usage of CAM by cancer patients in our study (75.1%) was similar to that found at a Chinese cancer hospital in 2012,⁸ but was significantly higher than usage reported in other countries, including the United States (34.0%) and Japan (44.6%).^{5,10,11} The difference might be due to the percentage (87.8%) of advanced cancer patients (clinical stages III and IV). Advanced cancer patients always become dissatisfied with conventional treatments, and are apt to turn to CAM treatments. Another reason may be related to the fact that the department of integrative oncology in the hospital is quite famous for integrative treatment in China, and has a good reputation, which attracts more cancer patients to receive CAM treatments. Besides, from the results of the multivariate analyses we find that CAM use by patients was predicted only by disease duration, which indicated that longer survival time meant more chances of CAM use for cancer patients.

A prior study reported that oncologists in China (Taiwan) communicated more often about CAM with patients by asking about and recommending CAM. However, they reported a much lower rate of combining CAM with conventional treatment among curable patients than responding US oncologists.¹² Another study also indicated physicians in the Fudan University Shanghai Cancer Center were generally well informed and supportive of patients' TCM use.⁸ However, in this study, patients were supportive of CAM use while oncologists did not show positive attitude toward CAM use.

Many oncologists and scientists like to discuss the discrepancies between CAM use and level of evidence. In contrast to standard therapies, CAM may lack enough evidence from randomized controlled trials. In our study,

more than half of the oncologists considered CAM treatments ineffective. This finding was consistent with a nationwide survey in Japan, which indicated that 80% of oncologists considered CAM as ineffective.¹³ In contrast, patients seemed confident of the benefits of CAM for various reasons, which included dissatisfaction with mainstream treatments, Internet CAM marketing, and a desire to be involved in their own health care.^{14,15}

When it came to the expectations for CAM use, the majority of the patients and oncologists reported improving the immune system. However, in clinical practice, for most advanced cancer patients, the most common reason for CAM use is to prolong life or improve quality of life because CAM treatments might be the only choice for them after inefficient conventional treatments.⁸ For oncologists, when their patients become confused with the ineffectiveness of conventional treatments, they have no better idea but to expect their patients to prolong life to some extent by CAM use instead of the best supportive care. In addition, the different responses by cancer patients and oncologists to the types of CAM treatments used and the symptoms to be given priority to, indicated that the oncologists in the study overestimated how often patients were using most of these CAM treatments. A surprising finding was the fact that acupuncture was rarely used while it is quite popular among cancer patients in America and many European countries.

Moreover, many oncologists often show concerns about the potential adverse effects of CAM's concurrent use with conventional treatments, some of them even believe that CAM therapies can be harmful to their patients.¹¹ However, in the current study, only 3.0% of the cancer patients showed concerns about the potential adverse interactions while nearly 20% of the oncologists did so. In clinical practice, once cancer patients undergo the adverse effects caused by anticancer treatment, it is difficult to assess the cause of the adverse effects because China's patients are used to receiving various treatments, and their oncologists usually know little about the details of CAM treatments, such as Chinese herbs. Although CAM products, such as herbs and green tea, have been found to have treatment-related toxicity and will interact with medications, especially chemotherapies,¹⁶⁻²⁰ there are no recent clinical studies showing direct evidence for adverse interactions such as adverse outcomes and increased toxicities. However, it is essential for oncologists to discuss with their patients about the potential risks and benefits of the combination.

Some limitations of our study have to be acknowledged. First, the findings may not be representative of all cancer patients and oncologists in China as it was conducted at one general hospital in a large urban center. Second, we only recruited cancer patients and oncologists who voluntarily completed the survey. Moreover, the survey was designed based on prior surveys conducted in other countries; a more appropriate survey may be needed for China's health care system.

Conclusion

This is the first study to demonstrate China's cancer patients' and oncologists' attitudes toward CAM. We found that China's oncologists and cancer patients hold greatly discrepant views on CAM. We suggest that cancer patients actively initiate a discussion with their oncologists about their symptoms, expectations, and worries about CAM use, while at the same time, professional education and training on CAM be provided to China's oncologists to effectively and safely use CAM for their patients.

Declaration of Conflicting Interests

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