

A Multisite, Community Oncology-Based Randomized Trial of a Brief Educational Intervention to Increase Communication Regarding Complementary and Alternative Medicine

Patricia A. Parker, PhD¹; Diana Urbauer, MS¹; Michael J. Fisch, MD, MPH¹; Bryan Fellman, MS¹; Holly Hough, PhD²; Jessica Miller, BA, CCRP³; Victor Lanzotti, MD⁴; Mindy Whisnant, CRA, CCRP⁴; Matthias Weiss, MD⁵; Lori Fellenz, RN⁵; Martin Bury, MD⁶; Patricia Kokx, RN, OCN⁶; Kathleen Finn, MSN, AOCN⁷; Maureen Daily, BA¹; and Lorenzo Cohen, PhD¹

BACKGROUND: The use of complementary and alternative medicine (CAM) is widespread, yet there is relatively little discussion regarding its use between oncology patients and their health care practitioners. **METHODS:** This multisite randomized trial examined the efficacy of an educational intervention designed to encourage oncology nurses to discuss CAM use with their patients. A total of 175 nurses completed questionnaires about discussing CAM use with patients at baseline and 2 months after the intervention. Patients at baseline (N = 699) and different patients at follow-up (N = 650) completed questionnaires regarding CAM. **RESULTS:** At the 2-month follow-up, nurses in the intervention reported they were more likely to ask about CAM use than those in the control group (odds ratio, 4.2; $P = .005$). However, no significant effect was found for the percentage of patients who indicated that they were asked about CAM use (odds ratio, 2.1; $P > .10$). Approximately 40% of patients reported using CAM after their cancer diagnosis, yet the majority of nurses estimated that < 25% of their patients were using CAM. **CONCLUSIONS:** CAM use in community-based oncology patients is common and is underestimated by oncology nurses. The brief, low-intensity intervention presented herein was found to be sufficiently powerful to change nurses' perceptions of their behavior but may not have been intensive enough to yield changes that were evident to patients. *Cancer* 2013;119:3514-22. © 2013 UT MD Anderson Cancer Center. Cancer published by Wiley Periodicals, Inc. on behalf of American Cancer Society. This is an open access article under the terms of the Creative Commons Attribution- NonCommercial License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited and is not used for commercial purposes.

KEYWORDS: cancer; community-based; complementary and alternative medicine; educational intervention.

INTRODUCTION

The widespread use of complementary and alternative medicine (CAM) among the general population in the United States has been documented to be approximately 30%.¹⁻⁴ Estimates of use are higher for certain subgroups such as those who are white, aged 25 years to 49 years, and those with more formal education.¹ CAM use among cancer patients is even higher, with estimates approaching 83%, with most patients combining CAM with conventional medical treatments.⁵⁻¹⁰

In light of these trends and because some CAM therapies have potential negative interactions with conventional medical treatment,¹¹⁻¹⁴ more discussion is needed between patients and health care professionals regarding their use. Although many patients believe that CAM therapies are "natural" and therefore harmless, it has been shown that herbal therapies and dietary supplements could decrease the effectiveness of chemotherapy or radiation,¹⁵ and many health care professionals openly discourage the use of antioxidants and other natural products while patients are undergoing conventional medical treatment.

Several studies have examined experiences of health care practitioners with and attitudes toward CAM use and found that nurses reported that patients rarely initiated conversations about CAM,¹⁶ nurses tended to have little knowledge about CAM,^{17,18} and nurses tended not to raise the topic.¹⁸ Metz¹⁹ assessed the prevalence of CAM use among patients

Corresponding author: Lorenzo Cohen, PhD, Department of General Oncology, Unit 0462, The University of Texas MD Anderson Cancer Center, PO Box 301439, Houston, TX 77230; Fax: (713) 745-4286; lcohen@mdanderson.org

¹Department of General Oncology, The University of Texas MD Anderson Cancer Center, Houston, Texas; ²Cancer Monthly, Raleigh, North Carolina; ³Metro Minnesota Community Clinical Oncology Program, St. Louis Park, Minnesota; ⁴Central Illinois Community Clinical Oncology Program, Decatur, Illinois; ⁵Marshfield Clinic, Marshfield, Wisconsin; ⁶Grand Rapids Community Clinical Oncology Program, Grand Rapids, Michigan; ⁷Boston Medical Center Minority-based Community Clinical Oncology Program, Boston, Massachusetts.

We thank the Community Clinical Oncology Program sites and the nurses and patients who participated in the current study. We also thank Sunita Patterson from Scientific Publications at The University of Texas MD Anderson Cancer Center for her helpful editorial comments.

DOI: 10.1002/cncr.28240, **Received:** February 8, 2013; **Revised:** March 26, 2013; **Accepted:** April 29, 2013, **Published online** July 3, 2013 in Wiley Online Library (wileyonlinelibrary.com)

undergoing radiotherapy. When patients were asked routine questions regarding medical history and medications, approximately 5% disclosed that they were using some form of CAM. However, when patients were asked directly about CAM, an additional 40% reported using CAM. Sparber et al²⁰ found that greater than one-half of the patients enrolled in clinical trials had used CAM and that 57% of the physicians did not ask patients about CAM usage, although patients indicated they would like to have discussed CAM therapies with their physicians. The results of these studies suggest that clinicians will fail to uncover the majority of CAM use by patients if questions are not asked directly. In a survey of patients with breast and gynecologic cancers,²¹ only 53.3% of CAM users had discussed CAM use with their health care team. The most common reasons were that they were not asked and the topic never came up. These data suggest that the use of CAM therapies is frequently not discussed during oncology visits, yet patients may look to health care professionals for information regarding CAM.

Additional research also has suggested that many patients fail to disclose CAM use to their health care providers.^{22,23} In a survey of patients with breast cancer, Adler⁶ found that approximately 54% of women being treated by a CAM practitioner did not disclose CAM use to their physicians. Reasons for this nondisclosure included fear or anticipation of a negative reaction from the physician, the perception that CAM therapies are irrelevant to conventional medical treatment, the belief that the health care professional is unable or unwilling to contribute useful information, and a sense of protection and privacy regarding treatment choices.

To our knowledge to date, few educational interventions in CAM have been geared toward health care professionals and none were specific to the field of oncology. Kemper et al²⁴ conducted a randomized trial of an Internet curriculum versus waitlist control to educate health care professionals about the risks and benefits of herbs and dietary supplements. At the time of initial follow-up, the immediate-intervention group scored higher on knowledge, confidence, and communication practices regarding herbs than did the waitlist control group. The second follow-up, administered after the waitlist control group also underwent the training, revealed improved knowledge in the waitlist control group, but scores for confidence and communication were similar for both groups.²⁴

We targeted an educational intervention toward nurses who have direct clinical contact with oncology patients. Communication about CAM is included as part of a pharmacologic assessment as one of the nurse compe-

tencies of the Oncology Nurse Practitioner Competencies as outlined by the Oncology Nursing Society.²⁵

The goal of the current study was to examine the efficacy of a brief educational intervention to increase the frequency with which oncology nurses ask their patients about their use of CAM. Secondary objectives were to examine the frequency and types of CAM use and reasons for using or not using CAM among cancer patients in community oncology settings.

MATERIALS AND METHODS

Participants

Participants were oncology nurses at Community Clinical Oncology Program (CCOP) sites and a sample of patients from each nurse's practice. Clinical nurses with regular contact with oncology patients at the participating CCOP site were eligible. Patients had to be aged 18 years or older, have a current diagnosis of any type of cancer, had to have received their diagnosis > 1 week before, had to have completed treatment < 6 months before, and speak English. Patients were excluded if they had participated in the study at a previous visit; therefore, different sets of patients were recruited at baseline and at follow-up. Participants were recruited from June 2008 through September 2011.

Study Design

This study used a randomized experimental design with the CCOP component site as the unit of randomization. The University of Texas MD Anderson Cancer Center CCOP Research Base is composed of 24 main sites, some of which have different components. Each participating CCOP component site was assigned to either the intervention or waitlist control group (see Figure 1 for study design and flow). The intervention and control groups were matched based on the average number of nurses at each CCOP component site so that the numbers of nurses in each group were similar. The study had 80% power to detect a 14.4% difference between the intervention and control groups, assuming that the null rate for asking about CAM use was 10%.¹⁸ This assumed an intraclass correlation (ICC) of 0.045 based on ICCs noted in the literature for other diseases/clustering groups of < 0.05 and recommendations for using ICCs between 0.01 and 0.05²⁶ when specific data were not available. In addition, this was calculated for 17 sites per treatment, 5 providers per site, and 4 patients per provider. All testing was 2-sided, with a 5% level of statistical significance.

The trial was registered in the clinical trials.gov database (#NCT00608933). All study participants provided informed consent.

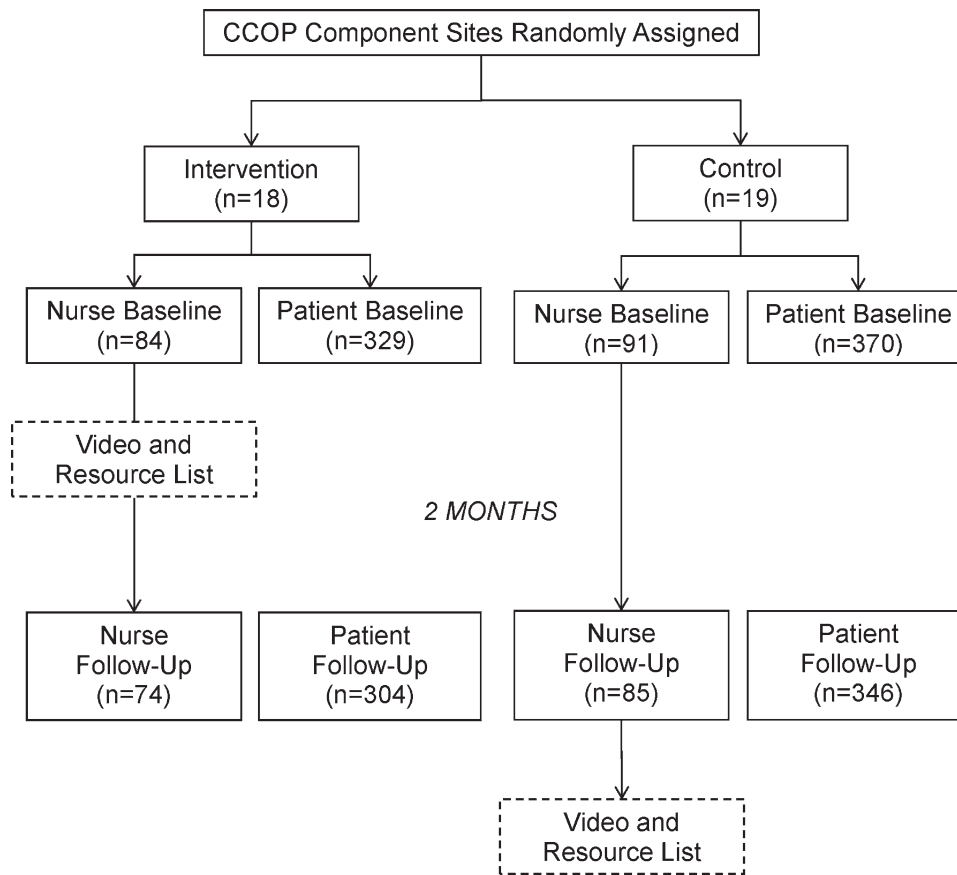


Figure 1. The study design is shown.

Procedures

At each participating CCOP component site, the study was introduced to the nurses by a study coordinator and interested nurses signed the consent form and completed the baseline provider survey. Four patients of each participating nurse (baseline patients) completed a baseline patient survey. The study coordinator identified consecutive patients from the nurses' schedule on the day the assessment was to be completed and nurses were unaware of which patients were selected. This helped to decrease bias as the nurse was not the one selecting patients for participation. The patients were approached and consented to complete the questionnaire immediately after their clinic visit.

The CCOP component sites were then randomized to intervention and waitlist control groups. At sites assigned to the intervention group, the nurses attended a meeting in which they watched a 20-minute video and were given a laminated card with a reminder to ask patients about CAM use and a resource list. Nurses assigned to the intervention group who did not attend the

meeting were contacted by the study coordinator and informed about the study; arrangements were made for them to complete the baseline assessment and watch the video. Nurses assigned to the intervention group received 1 follow-up e-mail approximately 2 weeks after the video intervention that reminded them to ask their patients about CAM and provided resources for obtaining CAM information. At CCOP component sites that were assigned to the waitlist control group, nurses continued usual care and no intervention took place until after the follow-up assessment. At that time, providers at these sites were given copies of the video on a compact disc.

Nurses in both the intervention and waitlist control groups completed brief follow-up questionnaires 2 months after the initial assessment. Four patients cared for by each participating nurse (follow-up patients; a different set than baseline patients) also completed patient questionnaires.

The video used as the intervention was developed by the Integrative Medicine Program at The University of Texas MD Anderson Cancer Center in Houston. The

video includes experts in nutrition, pharmacology, law, medicine, and practitioner-patient communication. The video highlights the importance of communicating with patients about possible interactions between CAM therapies and conventional treatment. Issues related to diet, herbal supplementation, and the legal and ethical obligation to the patient are discussed, as well as the steps nurses can take to initiate communication with and provide guidance to their patients regarding CAM, including role-playing. The study was approved by the Institutional Review Board at The University of Texas MD Anderson Cancer Center and each of the participating sites.

Measures

Provider Measures

A complementary and alternative medicine provider survey assessed the rate of asking patients about CAM use ("How often do you ask patients about current or contemplated use of CAM therapies?" [not at all to every visit] and "Of the last 5 patients you have seen, how many did you ask about CAM use? [0-5]), the estimation of what percentage of patients use CAM, perceptions about why patients may not disclose CAM use, comfort with discussing CAM use with patients, and level of knowledge concerning a variety of CAM modalities. In the survey, we used the National Center for Complementary and Alternative Medicine (NCCAM) categories of CAM use.²⁷ The main categories were natural products (eg, herbal medicine, megadose vitamins), mind-body practices (eg, meditation, acupuncture), manipulative and body-based practices (eg, massage therapy, spinal manipulation), movement therapies (eg, qi gong, healing touch), and whole medical systems (eg, Ayurvedic medicine, traditional Chinese medicine). This questionnaire was created based on surveys developed by Barrett et al²⁸ and Sparber et al.²⁰ Nurses were also asked their sex, age, race/ethnicity, how long they had practiced nursing, and their nursing role.

Patient Measures

A complementary and alternative medicine patient survey included items about whether patients were asked by their nurses at that visit about their use of CAM, whether they had used CAM (using the same NCCAM categories described earlier) before and/or after their cancer diagnosis, reasons for using CAM (eg, to address emotional and/or spiritual concerns, help with the side effects of standard cancer therapy) or not using CAM (eg, a lack of information, physician or nurse advised against it, therapies are too expensive), and reasons they may not have told their health care professionals about their use of

CAM (eg, health care professional would discourage or disapprove, use of CAM is not relevant to my medical treatment, my health care professional never asked). This questionnaire also was created based on surveys developed by Barrett et al²⁸ and Sparber et al.²⁰

Patients also were asked to provide demographic information (sex, race/ethnicity, age, and educational background) and cancer-related information (current cancer diagnosis, date of diagnosis, whether their cancer had recurred).

Statistical Analysis

Demographic characteristics for both nurses and patients were summarized using means and frequencies. The baseline characteristics of the nurses were compared between the intervention and control groups using Fisher exact tests and Student *t* tests when appropriate. Patient characteristics were compared using Fisher exact tests and analyses of variance that had terms for intervention arm and assessment time. There were 2 main study outcomes, each of which was assessed at baseline and 2 months after the intervention: 1) examining the intervention versus control groups with respect to the report from patients concerning whether their nurses asked them about CAM use; and 2) the nurses' self-report of their asking their patients about CAM. It was hypothesized that the intervention would lead to a higher CAM discussion probability than that for the control group. Generalized linear mixed models using a logit link function to account for the binomial distribution of the primary endpoints were used to assess the primary objectives. The model examining patient report nested patient within provider and provider within site, whereas the model examining provider report only nested provider within site. The model had terms for treatment group, time of assessment, and treatment by time interaction to determine whether the report changed differentially between groups, indicating a treatment effect. Intercept was included in the model as both a fixed and random effect. The covariance matrix for the random intercepts was modeled as unstructured to avoid imposing any assumptions regarding correlations between the random coefficients. We also calculated descriptive statistics for the frequency and type of CAM use among patients diagnosed with cancer, reasons for using and not using CAM, and nurses' estimates of CAM use among their patients.

RESULTS

A total of 175 nurses from 37 CCOP component sites participated. Approximately 97% were female and 96% were non-Hispanic white, with a mean age 45 years

TABLE 1. Demographic and Practice Characteristics of Nurses

	Control (n = 91)		Intervention (n = 84)		Total (n = 175)		P
	No.	%	No.	%	N	%	
Institutional role							.35
Nurse practitioner	6	6.9	11	13.4	17	10.1	
Staff nurse	72	82.8	67	81.7	139	82.2	
Advance practice nurse	2	2.3	1	1.2	3	1.8	
Other	7	8.1	3	3.7	10	5.9	
Missing	4	—	2	—	6	—	
Years in Nursing							.35
No.	87		80		167		
Mean (SD)	20.41 (9.0)		19.05 (10.0)		19.76 (9.5)		
Range	1-40		0-41		0-41		
Sex							>.99
Female	88	96.7	81	96.4	169	96.6	
Male	3	3.3	3	3.6	6	3.4	
Race/ethnicity							>.99 ^a
Black (non-Hispanic)	2	2.2	3	3.6	5	2.9	
White (non-Hispanic)	86	95.6	81	96.4	167	96	
Asian	1	1.1	0	0	1	0.6	
Hispanic	1	1.1	0	0	1	0.6	
Missing data	1	—	0	—	0	—	
Age, y							.41
No.	90		82		172		
Mean (SD)	45.68 (8.0)		44.56 (9.8)		45.14 (8.9)		
Range	29-62		24-66		24-66		

Abbreviation: SD, standard deviation.

^aWhite versus non-white.

(range, 24 years-66 years) (Table 1). Approximately 82% were staff nurses and 10% were nurse practitioners. Sixteen nurses dropped out between baseline and follow-up, primarily because they either no longer worked at the institution or were out on leave when the follow-up was conducted.

A total of 1349 patients participated (699 patients at baseline and 650 patients at the time of follow-up). Patients were 66% female and 87% non-Hispanic white, with mean age 59 years (range, 19 years-91 years). Approximately 33% of the patients had completed college or had advanced degrees. The most common cancers were breast (33%), gastrointestinal (17%), and lung (12%) and 26% of patients had experienced a cancer recurrence (Table 2).

Compared with nurses in the waitlist control group, nurses in the intervention group were significantly more likely to report that they asked patients about CAM use at the time of follow-up (odds ratio [OR], 4.2; 95% confidence interval [95% CI], 1.56-11.21 [$P = .005$]), but these results should be interpreted with caution given the wide range of the 95% CI (Fig. 2). Nurses in the intervention group reported that they asked more of their last 5 patients about CAM use than did those in the control group (mean difference, 0.69; 95% CI, 0.24-1.15 [$P = .003$]) (Fig. 3). However, there was no significant

intervention effect noted for the percentage of patients in the clinic who indicated that they were asked by their nurses about CAM use at their follow-up visit (OR, 2.1; 95% CI, 0.62-7.28 [$P > .10$]) (Fig. 4). It is important to note that there were no differences at baseline between nurses in the intervention and control groups with regard to how comfortable they were discussing CAM with patients ($P = .22$) but at the time of follow-up, nurses in the intervention group indicated they were more comfortable discussing CAM than those in the control group ($P = .01$) (Fig. 5).

At baseline, 18% of the patients of the nurses in the intervention group and 26% of the patients of the nurses in the control group reported that they initiated a conversation with their health care practitioners about CAM. At the time of follow-up, 18% of the patients of the nurses in the intervention group and 22% of the patients of the nurses in the control group reported initiating a conversation about CAM use. The difference from baseline was not found to be statistically significantly different between the intervention and control groups (OR, 1.32; 95% CI, 0.76-2.30 [$P = .3258$]).

Approximately 64% of nurses estimated that between 1% and 25% of their patients used CAM, and only 24% estimated between 26% and 50% of their patients used CAM. Nevertheless, 40% of patients

TABLE 2. Demographic and Medical Characteristics of Patients

	Control				Intervention				Total		<i>P</i> ^a
	Baseline		Follow-Up		Baseline		Follow-Up		No.	%	
	No.	%	No.	%	No.	%	No.	%			
Current diagnosis											.12
Brain	8	2.2	1	0.3	0	0.0	2	0.7	11	0.8	
Breast	114	30.8	117	33.8	114	34.7	97	31.9	442	32.8	
Gastrointestinal	71	19.2	50	14.5	54	16.4	53	17.4	228	16.9	
Genitourinary	24	6.5	25	7.2	20	6.1	23	7.6	92	6.8	
Gynecologic	30	8.1	24	6.9	32	9.7	30	9.9	116	8.6	
Head and neck	9	2.4	12	3.5	9	2.7	8	2.6	38	2.8	
Hematology	6	1.6	6	1.7	2	0.6	2	0.7	16	1.2	
Leukemia	10	2.7	5	1.4	1	0.3	7	2.3	23	1.7	
Lung	40	10.8	43	12.4	38	11.6	35	11.5	156	11.6	
Lymphoma	30	8.1	29	8.4	20	6.1	12	3.9	91	6.8	
Melanoma	2	0.5	2	0.6	1	0.3	2	0.7	7	0.5	
Myeloma	9	2.4	12	3.5	13	4.0	5	1.6	39	2.9	
Sarcoma	0	0.0	2	0.6	5	1.5	3	1.0	10	0.7	
Other/not defined	17	4.6	18	5.2	20	6.1	25	8.2	80	5.9	
Ever had recurrent disease											.98
No	258	74.1	238	74.4	226	74.1	212	75.4	934	74.5	
Yes	90	25.9	82	25.6	79	25.9	69	24.6	320	25.5	
Missing data	22	—	26	—	24	—	23	—	95	—	
Education level											.29 ^b
Less than high school graduate	31	8.6	29	8.6	13	4.0	23	7.7	96	7.2	
High school graduate	224	61.9	189	55.8	205	63.1	177	59	795	60.0	
College graduate	64	17.7	82	24.2	70	21.5	61	20.3	277	20.9	
Graduate degree	43	11.9	39	11.5	37	11.4	39	13	158	11.9	
Missing data	8	—	7	—	4	—	4	—	23	—	
Sex											.60
Female	235	64.6	222	65.3	226	69.1	202	67.1	885	66.4	
Male	129	35.4	118	34.7	101	30.9	99	32.9	447	33.6	
Missing data	6	—	6	—	2	—	3	—	17	—	
Race/ethnicity											.11 ^c
Black (non-Hispanic)	26	7.2	31	9.1	28	8.6	21	7.0	106	8.0	
White (non-Hispanic)	316	87.1	285	83.6	289	88.4	269	89.7	1,159	87.1	
Asian	3	0.8	3	0.9	0	0	2	0.7	8	0.6	
Hispanic	6	1.7	6	1.8	2	0.6	4	1.3	18	1.4	
Native American	5	1.4	9	2.6	4	1.2	3	1.0	21	1.6	
Other	7	1.9	7	2.1	4	1.2	1	0.3	19	1.4	
Missing data	7	—	5	—	2	—	4	—	18	—	
Age, y											.87
No.	361		341		324		301		1327		
Mean (SD),	58.9 (12.4)		59.3 (13.3)		59.6 (11.7)		59.5 (12.4)		59.3 (12.5)		
Range	24-88		20-91		23-91		19-91		19-91		

Abbreviation: SD, standard deviation.

^a*P* values are comparing all 4 groups.^bLess than high school versus high school and some college versus college graduate/community college/technical school versus graduate or postgraduate degree.^cWhite versus non-white.

reported using CAM after their cancer diagnosis. Among those who used CAM, the most common reasons for doing so were that CAM was perceived to be beneficial (70%), to address the emotional and spiritual aspects of cancer (62%), to boost the immune system (52%), and to help with the side effects of treatment (40%). Among those who did not use CAM, the most common reasons for not doing so were a lack of available information (54%) and skepticism regarding using those therapies (28%). Among CAM users, the most common modalities

on the survey that were used before cancer diagnosis were manipulative and body-based practices (31%), mind and body practices (13%), and natural products (11%) and the most common modalities used during cancer treatment were natural products (9%), mind and body practices (7%), and manipulative and body-based practices (6%).

DISCUSSION

To the best of our knowledge, the current study is the first multisite educational intervention trial to encourage

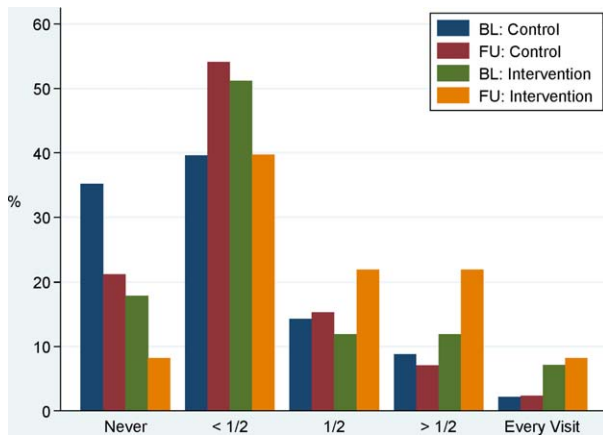


Figure 2. Frequency of nurses asking patients about their use of complementary and alternative medicine as reported by nurses is shown. BL indicates baseline; FU, follow-up.

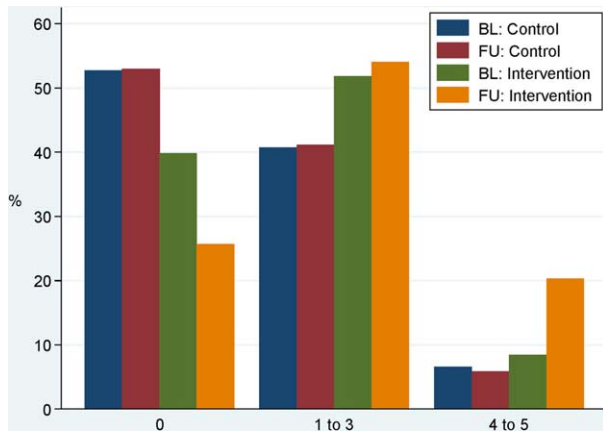


Figure 3. Frequency of the number of the last 5 patients asked about their use of complementary and alternative medicine as reported by nurses is shown. BL indicates baseline; FU, follow-up.

communication about CAM between oncology health care professionals and patients. This extremely brief intervention significantly improved how often nurses reported asking about CAM use, but not how often patients reported that their nurses asked about CAM use, although the OR of 2.1 indicated a trend toward patients reporting increased CAM-related discussions. In addition, at the time of follow-up, the nurses in the intervention group reported they were more comfortable discussing CAM with patients whereas there were no differences noted between groups at baseline before the intervention. These results suggest that this brief, low-intensity intervention was sufficiently powerful to change nurses' perceptions of their behavior but may not have been intensive enough to yield changes that were evident to patients in the clinic. It is possible that the nurses

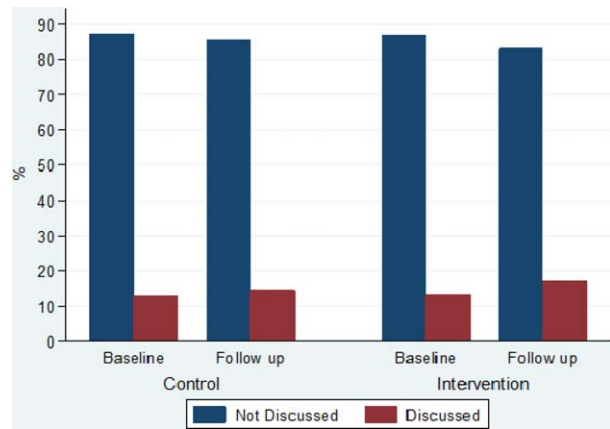


Figure 4. Frequency of whether nurses asked about complementary and alternative medicine use as reported by patients is shown.

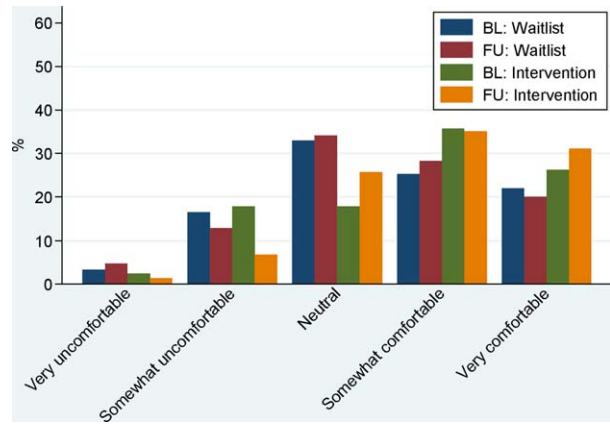


Figure 5. Frequency of whether nurses were comfortable discussing complementary and alternative medicine use with patients is shown. BL indicates baseline; FU, follow-up.

were more aware of the value of discussing CAM use and more comfortable with their knowledge of the topic, but need more training or role-playing opportunities to practice actually introducing the topic within the real flow of patient care. In addition, it is important to supplement educational interventions with procedural or practice guidelines that mandate that asking about CAM use is part of the nursing duties when discussing medications and other related issues. This is consistent with the guidelines developed by the Oncology Nursing Society.²⁵ It is also important to develop a comprehensive approach to changing key aspects of cancer care delivery. The educational targets may need to include physicians, patients, and families to improve both patient knowledge related to CAM use and their skills regarding communicating effectively with their health care team.

Data from the current study indicate that CAM use in community-based oncology patients remains high and that, despite the vast literature on this topic, CAM use by individual patients remains underestimated by oncology nurses involved in their care.^{10,29} Clearly, additional interventions are necessary to improve communication between nurses and other members of the health care team and patients regarding CAM use. In addition to avoiding potential interactions with chemotherapy or other treatment modalities, enhancing communication about CAM use may also improve communication between the health care practitioner and the patient by demonstrating care and concern for the patients and providing an opportunity for patients to discuss how they are coping with their cancer, identifying and addressing the psychosocial needs of the patient, and potentially enhancing the patient-centered nature of the interaction.³⁰⁻³² Enhancing education and communication about CAM may also result in improved patient care by increasing the use of evidenced-based CAM practices that have been shown to improve symptom control and clinical outcomes.³³

The results of the current study provide unique information regarding CAM use in community oncology settings and found that 40% of community oncology patients reported using CAM after their cancer diagnosis. These results generally resemble the findings from academic medical centers,⁷⁻⁹ as well as data from the National Health Interview Survey⁵ concerning the widespread use of CAM among patients with cancer, but are somewhat lower than those reported in recent studies.^{10,29} These lower numbers may reflect differences in the CAM modalities included. The current study used NCCAM categories and did not include prayer or psychotherapy, which have been included in some studies. It is also possible that there may have been differences in how nurses and patients thought about and characterized what CAM included, despite the finding that we included the NCCAM categories of CAM on the cover page of both the nurse and patient surveys.³⁴ An important strength of the current study was that it was conducted in community clinics throughout the United States and represented a diverse cancer population in terms of demographic and cancer characteristics.

There are several limitations to the current study. The intervention was extremely brief and required few resources for implementation. Although a more intensive intervention might have produced greater changes in behavior, we opted for a brief, easy-to-implement intervention to encourage participation and allow for ease of implementation across multiple community settings. The intervention was

also limited to nurses and did not include other members of the health care team. We focused on nurses because typically they are the practitioners who obtain information regarding the medical history and medication use and because this is recommended within the scope of practice by the Oncology Nurse Practitioner Competencies published by the Oncology Nursing Society.²⁵ However, an intervention aimed at physicians might provide more robust results. All the assessments were subjective in nature and this increases the possibility that nurses in the intervention group overreported their asking behavior. However, given that the study coordinators at each site were completely independent of the investigators who designed and proposed the study, there was little incentive for nurses to overreport to please the investigators. Nonetheless, it is possible that completing a questionnaire about CAM use and watching the video may have heightened awareness about CAM and prompted nurses to report more favorably on their practices. A study design that included audio recordings of the medical visit would provide more accurate reports of what was discussed, and future studies should consider adding this important component. We were not able to systematically record the number of nurses who refused participation at each site; however, we do not expect this number to be significantly different between the intervention and control sites. The follow-up period was also quite short and stronger effects could have emerged over time. However, we expected to observe the biggest practice change early in the follow-up period with potential dampening of the effect over time. Finally, there was an underrepresentation of minority groups within the nurse population, although the racial composition of the nurses was reflective of that of the nurses employed at the participating CCOP sites.

Overall, the results of the current study demonstrated that even a very brief (20 minutes) intervention significantly improved how often nurses reported asking patients about their use of CAM. However, reports by the patients of the nurses did not reflect this change in communication. More intensive and/or more widespread targets for interventions are needed for both practitioners and patients to enhance communication regarding CAM.

FUNDING SUPPORT

This research was supported by grant number U10CA045809 from The National Institutes of Health and in part by the National Institutes of Health through The University of Texas MD Anderson Cancer Center Support Grant CA016672.

CONFLICT OF INTEREST DISCLOSURES

Drs. Fisch and Daily received support from a National Cancer Institute (NCI) University of Texas MD Anderson Cancer Center

CCOP Research Base grant. Dr. Miller received a Metro-MN CCOP NCI grant. Dr. Weiss received a Marshfield Clinic Research Foundation grant (NCI Community Clinical Oncology Program grant supporting accrual to clinical trial). Ms. Kokx is employed as a research nurse at the Grand Rapids Clinical Oncology Program.

REFERENCES

- Eisenberg DM, Kessler RC, Foster C, Norlock FE, Calkins DR, Delbanco TL. Unconventional medicine in the United States. Prevalence, costs, and patterns of use. *N Engl J Med*. 1993;328:246-252.
- Eisenberg DM, Davis RB, Ettner SL, et al. Trends in alternative medicine use in the United States, 1990-1997: results of a follow-up national survey. *JAMA*. 1998;280:1569-1575.
- Tindle HA, Davis RB, Phillips RS, Eisenberg DM. Trends in use of complementary and alternative medicine by US adults: 1997-2002. *Altern Ther Health Med*. 2005;11:42-49.
- Barnes PM, Bloom B, Nahin RL. Complementary and alternative medicine use among adults and children: United States, 2007. *Natl Health Stat Report*. 2008;12:1-23.
- Anderson JG, Taylor AG. Use of complementary therapies for cancer symptom management: results of the 2007 National Health Interview Survey. *J Altern Complement Med*. 2012;18:235-241.
- Adler SR. Complementary and alternative medicine use among women with breast cancer. *Med Anthropol Q*. 1999;13:214-222.
- Burstein HJ, Gelber S, Guadagnoli E, Weeks JC. Use of alternative medicine by women with early-stage breast cancer. *N Engl J Med*. 1999;340:1733-1739.
- Richardson MA, Sanders T, Palmer JL, Greisinger A, Singletary SE. Complementary/alternative medicine use in a comprehensive cancer center and the implications for oncology. *J Clin Oncol*. 2000;18:2505-2514.
- Goldstein MS, Lee JH, Ballard-Barbash R, Brown ER. The use and perceived benefit of complementary and alternative medicine among Californians with cancer. *Psychooncology*. 2008;17:19-25.
- Perlman A, Lontok O, Huhmann M, Parrott JS, Simmons LA, Patrick-Miller L. Prevalence and correlates of postdiagnosis initiation of complementary and alternative medicine among patients at a comprehensive cancer center. *J Oncol Pract*. 2013;9:34-41.
- Srivastava R. What's the alternative? The worldwide web of integrative medicine. *N Engl J Med*. 2012;366:783-785.
- McCune JS, Hatfield AJ, Blackburn AA, Leith PO, Livingston RB, Ellis GK. Potential of chemotherapy-herb interactions in adult cancer patients. *Support Care Cancer*. 2004;12:454-462.
- Seely D, Oneschuk D. Interactions of natural health products with biomedical cancer treatments. *Curr Oncol*. 2008;15(suppl 2):s109.es81-s10.es6.
- Tascilar M, de Jong FA, Verweij J, Mathijssen RHJ. Complementary and alternative medicine during cancer treatment: beyond innocence. *Oncologist*. 2006;11:732-741.
- Moyad MA. The prevalence and effectiveness of complementary and alternative medicine: what has been learned and what it may be telling us about our patients, ourselves, and conventional medical treatment. *Semin Urol Oncol*. 2001;19:257-269.
- Rojas-Cooley MT, Grant M. Complementary and alternative medicine: oncology nurses' experiences, educational interests, and resources. *Oncol Nurs Forum*. 2006;33:581-588.
- DeKeyser FG, Bar Cohen B, Wagner N. Knowledge levels and attitudes of staff nurses in Israel towards complementary and alternative medicine. *J Adv Nurs*. 2001;36:41-48.
- Hayes KM, Alexander IM. Alternative therapies and nurse practitioners: knowledge, professional experience, and personal use. *Holist Nurs Pract*. 2000;14:49-58.
- Metz JM. "Alternative medicine" and the cancer patient: an overview. *Med Pediatr Oncol*. 2000;34:20-26.
- Sparber A, Bauer L, Curt G, et al. Use of complementary medicine by adult patients participating in cancer clinical trials. *Oncol Nurs Forum*. 2000;27:623-630.
- Navo MA, Phan J, Vaughan C, et al. An assessment of the utilization of complementary and alternative medication in women with gynecologic or breast malignancies. *J Clin Oncol*. 2004;22:671-677.
- Rausch SM, Winegardner F, Kruk KM, et al. Complementary and alternative medicine: use and disclosure in radiation oncology community practice. *Support Care Cancer*. 2011;19:521-529.
- Ashikaga T, Bosompra K, O'Brien P, Nelson L. Use of complementary and alternative medicine by breast cancer patients: prevalence, patterns and communication with physicians. *Support Care Cancer*. 2002;10:542-548.
- Kemper KJ, Amata-Kynvi A, Sanghavi D, et al. Randomized trial of an internet curriculum on herbs and other dietary supplements for health care professionals. *Acad Med*. 2002;77:882-889.
- Oncology Nursing Society. Oncology Nurse Practitioner Competencies. [ons.org/media/ons/docs/publications/npcompentencies.pdf](http://media/ons/docs/publications/npcompentencies.pdf). Accessed March 19, 2013.
- Hannan PJ, Murray DM, Jacobs DR Jr, McGovern PG. Parameters to aid in the design and analysis of community trials: intraclass correlations from the Minnesota Heart Health Program. *Epidemiology*. 1994;5:88-95.
- National Center for Complementary and Alternative Medicine (NCCAM). What Is Complementary and Alternative Medicine? Available at: <http://nccam.nih.gov/health/whatiscam#term> [accessed October 4, 2012].
- Barrett B, Marchand L, Scheder J, et al. Bridging the gap between conventional and alternative medicine. *J Fam Pract*. 2000;49:234-239.
- Mao JJ, Cronholm PF, Stein E, Straton JB, Palmer SC, Barg FK. Positive changes, increased spiritual importance, and complementary and alternative medicine (CAM) use among cancer survivors. *Integr Cancer Ther*. 2010;9:339-347.
- Ford S, Fallowfield L, Lewis S. Doctor-patient interactions in oncology. *Soc Sci Med*. 1996;42:1511-1519.
- Epstein RM, Franks P, Fiscella K, et al. Measuring patient-centered communication in patient-physician consultations: theoretical and practical issues. *Soc Sci Med*. 2005;61:1516-1528.
- Goold SD, Lipkin M. The doctor-patient relationship: challenges, opportunities and strategies. *J Gen Intern Med*. 1999;14(suppl 1):S26-S33.
- Deng GE, Frenkel M, Cohen L, et al. Evidence-based clinical practice guidelines for integrative oncology: complementary therapies and botanicals. *J Soc Integr Oncol*. 2009;7:85-120.
- Horneber M, Bueschel G, Dennert G, Less D, Ritter E, Zwahlen M. How many cancer patients use complementary and alternative medicine: a systematic review and metaanalysis. *Integr Cancer Ther*. 2012;11:187-203.