Factors Related to the Use of Dietary Supplements by Cancer Survivors

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Abstract

Objectives: Estimates of the use of complementary and alternative medicine (CAM) among cancer survivors vary widely. Dietary supplements are an important CAM therapy to examine because of their potential to interact with conventional cancer therapies. We estimated the prevalence of dietary supplement use in a population-based sample of cancer survivors of the 10 most common cancers and examined potential correlates of use.

Design and subjects: This cross-sectional analysis included participants from the American Cancer Society's longitudinal Study of Cancer Survivors-I recruited in Connecticut who completed self-administered baseline and supplemental questionnaires. Using univariate and multivariate logistic regression, we examined demographic, clinical, and psychosocial predictors of dietary supplement use after cancer diagnosis.

Results: Of the 827 cancer survivors, 573 (69.3%) reported using dietary supplements after their cancer diagnosis. Female gender [odds ratio (OR) = 1.72, 95% confidence interval (CI) = 1.25–2.36] and higher-education levels (OR = 5.44, 95% CI = 2.98–9.93) were significantly associated with supplement use. Common reasons for using dietary supplements included "something they could do to help themselves" (56.2%) and "to boost their immune system" (51.1%). Most survivors (82.4%) informed their physician of their supplement use. Patients obtained information from a variety of sources including physicians, friends or family, and magazines or books.

Conclusions: Use of dietary supplements after cancer diagnosis was quite common among this population-based sample of cancer survivors. Although gender and education were associated with use, it is important that clinicians discuss supplement use with all cancer survivors.

Introduction

THERE ARE AN ESTIMATED 10.8 million people alive in the United States with a history of cancer.[1] With the number of cancer survivors growing rapidly, it is important to better understand the health-related practices of this population. Of special interest is the use of complementary and alternative medicine (CAM), "a group of diverse medical and health care systems, practices, and products that are not presently considered to be part of conventional medicine."[2] Utilization of CAM among the general public in the United States is estimated to be increasing, with national surveys estimating prevalence rates of 34% in 1990,[3] 42% in 1997,[3] and 62% in 2002.[4]

In 1998, a systematic review found that overall CAM use among cancer survivors ranged from 7% to 64%.[5] More recent estimates suggest that utilization of CAM is even higher, with studies finding prevalence rates of 91% among newly diagnosed patients with a range of cancers,[6] 75% among patients with colorectal cancer,[7] and 69%[8] to 81.9%[9] among patients with breast cancer. Within CAM, there are many types of therapies and the wide range of usage in previous studies could be due to varying definitions of CAM, differences in data collection instruments, as well as overall population characteristics.

Recent evidence suggests that the factors associated with CAM use in cancer survivors vary depending upon the type of CAM therapy,[10] making studies focused on specific forms

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of CAM important. Dietary supplements are a particularly relevant form of CAM therapy for cancer survivors as these products have the greatest potential to interact with conventional cancer therapies.[11–13] Dietary supplements are defined as any product that contains vitamins, minerals, herbs or other botanicals, amino acids, enzymes, and/or other ingredients intended to supplement the diet.[2]

Use of dietary supplements is common among both the general population[3,14,15] and cancer survivors.[12,16–22] Some research has indicated that overall CAM use among those with chronic diseases[23,24] and at least one medical condition[24,25] is higher than in the general public. However, studies comparing dietary supplement use between cancer survivors and those without a history of cancer have had mixed results. Some studies suggest that dietary supplement use among cancer survivors is comparable to use among those without cancer,[16,26,27] while a study of colon cancer survivors found significantly higher levels of use among survivors as compared to those without cancer.[21] Additionally, a systematic review of 32 studies of adult cancer survivors in the United States found that use of vitamin and mineral supplements (excluding herbal products) was generally higher among cancer survivors than in the general population.[28]

Although many studies have estimated use of dietary supplements among cancer survivors, only a few have been population based.[12,21,27] Other research in this area has generally been limited by the use of convenience samples, small sample sizes, or coverage of only some types of cancer. Additionally, the largest study of dietary supplement use in cancer survivors may not provide accurate estimates, as the original Vitamins and Lifestyle cohort oversampled people who used dietary supplements for enrollment.[16] The aim of the present study was to expand upon our knowledge of the prevalence of dietary supplement use after cancer diagnosis in a population-based sample of survivors of ten cancers. We also sought to examine associations among demographic, clinical, and psychosocial characteristics and dietary supplement use.

Methods

Study population

Data were collected as part of the American Cancer Society's Study of Cancer Survivors-I (SCS-I), a national, prospective study of quality of life among cancer survivors of one of the 10 most common cancers in the United States. Population-based samples of survivors of bladder, colorectal, female breast, kidney, lung, non-Hodgkin's lymphoma, ovarian, prostate, skin melanoma, and uterine cancer were identified through 11 state cancer registry databases. Survivor inclusion criteria were (1) diagnosis of one of the above cancers; (2) ≥18 years of age at time of diagnosis; (3) residence in the state from which they were sampled at the time of diagnosis; and (4) ability to read/write English or Spanish. Stratified sampling was conducted by cancer type, age (<55, 55+), and ethnicity (in some states, but not Connecticut). The sampling and recruitment procedures, identification and selection of cases, and physician notification and consent have been described elsewhere.[29,30]

The present analysis is restricted to SCS-I participants who were recruited in Connecticut and completed a self-administered baseline questionnaire, the National Quality of Life Survey (NQLS), and a self-administered Dietary Supplement Insert (DSI). The DSI was included in the NQLS and was mailed only to Connecticut participants by researchers at Yale University. Of the 1013 SCS-I Connecticut participants, 855 (84.4%) returned both questionnaires. Twenty-eight (28) participants were excluded due to incomplete DSIs, leaving a total of 827 (81.6%) participants. SCS-I was approved by the Institutional Review Board (IRB) of Emory University, as well as the IRBs in participating states. In Connecticut, SCS-I was approved by the Connecticut Department of Public Health Human Investigation Committee and the individual hospital IRBs.

Data collection

Dietary supplement use after cancer diagnosis was based on responses to the following question on the DSI: "Have you used any dietary supplement, including vitamins, minerals, or herbs after your diagnosis of cancer?" Participants were also asked to report the specific dietary supplements they used after cancer diagnosis and whether they had used these supplements prior to their diagnosis. Participants also reported if they had told their physicians about their supplement use. Participants specified their main reasons for dietary supplement use after cancer diagnosis (chose from a list based on common reasons in the literature), as well as where they obtained information on supplements. The dietary supplement questions were based on a questionnaire developed by Dr. Lenore Arab and her group (L. Arab, personal communication).

Demographic, psychosocial, and clinical information was collected via the NQLS, as well as cancer registry records. Certain data used in this study were obtained from the Connecticut Tumor Registry (CTR) located in the Connecticut Department of Public Health. The authors assume full responsibility for analyses and interpretation of these data. Data collected via the CTR included name, phone number, address, doctor name, social security number, date of birth, date of diagnosis, gender, cancer type, primary site, race, Hispanic origin, and stage and grade at diagnosis. Self-reported data included marital status, education, income, place of birth, insurance status, comorbidities, cancer treatment status, and additional cancer (e.g., recurrence, metastasis, and second primary cancer). If demographic characteristics were missing from the CTR, information was obtained from the NQLS. We utilized the general health subscale from the SF-36 Health Survey (SF-36®), a widely used 36-item measure of physical and mental health status,[31] which was included in the NQLS.

Statistical analysis

Simple descriptive statistics were calculated to characterize the population. The χ^2 test was used to assess the unadjusted associations among demographic, clinical, and psychosocial characteristics of the patients and dietary supplement use. Multivariate logistic regression was performed to determine the independent effect of variables that were significant in the unadjusted associations. Using backward elimination, the significant characteristics were placed in the model and removed one at a time to derive the most parsimonious model. To ensure that there was no negative confounding or other

significant characteristics, the other nonsignificant variables were placed into the adjusted model one at a time. Variables significant at the 0.05 level were retained in the final model. All analyses were performed using SAS, version 9.1.3 (SAS, Cary, NC).

Results

The majority of the 827 cancer survivors were women (61.2%) (Table 1). Since SCS-I was stratified by age to over-sample younger patients, just over half (56.0%) of the sample was 55 years of age or older. Most of the participants were white (88.0%) and born in the United States (91.5%). Participants had a wide range of income, with the highest percentage reporting incomes of $75,000 or more (38.4%). The majority of patients were either married or in a marriage-like relationship (70.6%). Additionally, most of the sample (98.9%) reported having health insurance.

The most common diagnosis was breast cancer (29.5%), followed by prostate cancer (18.3%), and colorectal cancer (14.6%) (Table 2). The average time between cancer diagnosis and questionnaire completion was 18.8 months, and most survivors (85.5%) were 12–23 months postdiagnosis. Just over half of the sample had localized disease (55.6%) and most did not have a recurrence, metastasis, or multiple cancers (78.2%).

The vast majority (97.3%) of patients had received conventional treatment (e.g., surgery, chemotherapy, and/or radiation) for their most recently diagnosed cancer, and just under half of the patients (43.3%) were not being treated for other non–cancer-related comorbidities. The majority of patients rated their general health as either very good (37.2%) or good (36.5%).

Characteristics associated with dietary supplement use

Of the 827 cancer survivors, 573 (69.3%) reported using dietary supplements after their cancer diagnosis. In univariate analyses, use of dietary supplements was associated with gender, ethnicity, and education (Tables 1 and 2). Women were more likely to use supplements as compared to men. Nonwhites were less likely than whites to use supplements after cancer diagnosis. Finally, use of supplements increased with increasing levels of education. Utilization of dietary supplements tended to increase with increasing income, but this did not reach statistical significance. Supplement use across the 10 cancer sites varied widely, although the difference was only borderline statistically significant ($p = 0.057$, Table 2). Those participants who reported a better general health rating also tended to use supplements more than those

TABLE 1. UNADJUSTED ASSOCIATIONS BETWEEN SOCIODEMOGRAPHIC CHARACTERISTICS AND DIETARY SUPPLEMENT USE AFTER CANCER DIAGNOSIS ($N = 827$)

Characteristic	N (%)[a]	% Used dietary supplements	p-value*	OR (95% CI)
Age at diagnosis[b]			0.430	
Less than 55	364 (44.0)	67.9		1.00
55 and over	463 (56.0)	70.4		1.13 (0.84–1.52)
Gender			<0.001	
Male	321 (38.8)	62.0		1.00
Female	506 (61.2)	73.9		1.74 (1.29–2.35)
Ethnicity			0.014	
White	728 (88.0)	70.7		1.00
Nonwhite	99 (12.0)	58.6		0.59 (0.38–0.90)
Place of birth			0.417	
United States	748 (91.5)	69.9		1.00
Other	69 (8.5)	65.2		0.81 (0.48–1.36)
Income				
$0–$39,999	223 (31.9)	66.4	0.522	1.00
$40,000–$74,999	208 (29.7)	67.8		1.07 (0.71–1.59)
$75,000 or more	269 (38.4)	71.0		1.24 (0.85–1.82)
Education			<0.001	
Some high school or less	67 (8.3)	38.8		1.00
High school diploma or GED	195 (24.0)	66.7		3.15 (1.78–5.60)
Vocational school or some college	180 (22.2)	70.0		3.68 (2.05–6.61)
College degree	175 (21.6)	74.3		4.56 (2.51–8.28)
Professional or graduate school	195 (24.0)	78.0		5.57 (3.07–10.12)
Marital status			0.881	
Married or marriage-like	581 (70.6)	69.5		1.00
Not married	242 (29.4)	69.0		0.98 (0.71–1.35)
Insurance status			0.105	
Yes	814 (98.9)	69.5		1.00
No	9 (1.1)	44.4		0.35 (0.09–1.32)

OR, odds ratio; CI, confidence interval; GED, general equivalency diploma.
[a]Numbers may not add up to 827 due to missing data.
[b]Estimated from date of birth and date of cancer diagnosis.
*p-value is for χ^2 test.

TABLE 2. UNADJUSTED ASSOCIATIONS BETWEEN CLINICAL AND PSYCHOSOCIAL CHARACTERISTICS AND DIETARY
SUPPLEMENT USE AFTER CANCER DIAGNOSIS

Characteristic	N (%)[a]	% Used dietary supplements	p-value*	OR (95% CI)
Cancer type			0.057	
Breast	244 (29.5)	74.2		1.00
Prostate	151 (18.3)	64.9		0.64 (0.41–1.00)
Colorectal	121 (14.6)	71.9		0.89 (0.55–1.45)
Lung	88 (10.6)	58.0		0.48 (0.29–0.80)
Non-Hodgkin's lymphoma	74 (9.0)	68.9		0.77 (0.44–1.36)
Uterine	36 (4.4)	77.8		1.22 (0.53–2.81)
Melanoma of skin	33 (4.0)	63.4		0.61 (0.28–1.31)
Kidney	29 (3.5)	55.2		0.43 (0.20–0.94)
Ovarian	27 (3.3)	81.5		1.53 (0.56–4.22)
Bladder	24 (2.9)	75.0		1.04 (0.40–2.75)
Time since cancer diagnosis			0.69	
<12 months	49 (5.9)	69.4		1.00
12–23 months	707 (85.5)	69.7		1.02 (0.54–1.91)
≥24 months	71 (8.6)	64.8		0.81 (0.37–1.77)
Recurrence, metastasis or multiple cancer			0.497	
No	180 (21.8)	69.9		1.00
Yes	647 (78.2)	67.2		0.89 (0.62–1.26)
Cancer stage			0.962	
In situ	22 (2.7)	68.2		1.00
Localized	448 (55.6)	68.3		1.01 (0.40–2.52)
Regional	209 (25.9)	70.3		1.11 (0.43–2.85)
Distant	127 (15.8)	69.3		1.05 (0.40–2.79)
Received treatment			0.912	
Yes	804 (97.3)	69.3		1.00
No	22 (2.7)	68.2		0.95 (0.38–2.36)
Noncancer comorbidities being treated			0.151	
0	358 (43.3)	66.5		1.00
1	245 (29.6)	73.9		1.43 (0.99–2.04)
≥2	224 (27.1)	68.8		1.11 (0.78–1.59)
General health rating			0.600	
Excellent	82 (9.9)	73.2		1.00
Very good	307 (37.2)	71.0		0.90 (0.52–1.55)
Good	301 (36.5)	68.8		0.81 (0.47–1.39)
Fair	115 (13.9)	65.2		0.69 (0.37–1.28)
Poor	20 (2.4)	60.0		0.55 (0.20–1.52)

OR, odds ratio; CI, confidence interval.
[a]Numbers may not add up to 827 due to missing data.
*p-value is for χ^2 test.

with a lower health rating, but this was also not statistically significant.

Multivariate model

Of the three characteristics associated with supplement use in the univariate analyses, two were statistically significant in the multivariate model (Table 3). No other characteristics were significant at the 0.05 level. Both gender and education were strong predictors of dietary supplement use among this population of cancer survivors ($p < 0.001$). Females were 1.72 times [95% confidence interval (CI) = 1.25–2.36] more likely to use supplements than men. Use of dietary supplements increased with increasing levels of education. Compared to survivors with some high school education or less, survivors with a high school diploma or general equivalency diploma were 2.77 times (95% CI = 1.55–4.96) more likely to use supplements and those with professional or graduate school education were 5.44 times (95% CI = 2.98–9.93) more likely to use dietary supplements.

TABLE 3. MULTIVARIATE MODEL PREDICTING DIETARY
SUPPLEMENT USE AFTER CANCER DIAGNOSIS

Characteristic	Adjusted OR (95% CI)	p-value
Gender		
Male	1.00	
Female	1.72 (1.25–2.36)	<0.001
Education		
Some high school or less	1.00	
High school diploma or GED	2.77 (1.55–4.96)	<0.001
Vocational school or some college	3.46 (1.92–6.25)	<0.001
College degree	4.35 (2.38–7.94)	<0.001
Professional or graduate school	5.44 (2.98–9.93)	<0.001

OR, odds ratio; CI, confidence interval; GED, general equivalency diploma.

Specific dietary supplements used after cancer diagnosis

Among the 573 cancer survivors reporting supplement use after cancer diagnosis, 479 (83.6%) reported the types of dietary supplements they used (Fig. 1). Multivitamins were the most common type of supplement, used by a total of 300 participants. Overall, the next most common dietary supplements were green tea ($n = 149$), calcium ($n = 122$), and vitamins C ($n = 110$) and E ($n = 100$) (Fig. 1). The most common dietary supplements participants reported they started taking after cancer diagnosis were green tea ($n = 57$), multivitamins ($n = 37$), Ensure ($n = 37$), and calcium ($n = 31$). There was wide variation in the percentage of users who reported that they starting using specific products following diagnosis (6.1% for chamomile and 86.0% for Ensure). Notably, of the participants who reported use of Ensure, black cohosh, iron, selenium, coenzyme Q10, fish oil, and flax seed oil after cancer diagnosis, more than 50% of them were new users of these products.

Reasons for using supplements, communication with physicians, and information sources

Most patients reported using dietary supplements because it was something they could do to help themselves (56.2%) (Table 4). Other commonly cited reasons included to boost their immune system (51.1%) and to give them more energy (43.6%). The majority of patients (82.4%) in this sample informed their physician that they were taking dietary supplements (Table 4). Patients' physicians were the most common source of information (47.3%), followed by friends or family members (37.5%), and magazines or books (23.4%) (Table 4). Less common sources were nutritionists, herbalists, or naturopathic physicians (14.7%) and the Internet (7.9%). A greater percentage of survivors less than 55 years of age obtained dietary supplement information from the Internet and nutritionists, herbalists, or naturopaths compared to those 55 and over (Table 4). Additionally, compared to younger survivors, patients 55 and over were more likely to obtain information from their doctors.

Discussion

This study examined predictors of dietary supplement use in a population-based sample of cancer survivors of the 10 most common cancers. Sixty-nine percent (69%) of participants reported using dietary supplements after their cancer diagnosis. Since participants were an average of 18.8 months postdiagnosis, this provides an estimate of any dietary supplement use among short-term cancer survivors. This figure is at the higher end of estimates of CAM use within the current literature, especially given that it focused only on one form of CAM: dietary supplements. The high rate may in part be due to the inclusion of multivitamins and herbal products as part of dietary supplements. In this population, multivitamins and green tea were the two most commonly reported products. Multivitamins were seen as the most commonly used form of CAM (80.3%) in a small sample of veterans with cancer.[19] A study of patients with breast, prostate, and colorectal cancer also found that 48.0% started taking a new dietary supplement after diagnosis[20] and in the Women's Healthy Eating and Living Study, 80.9% of women with breast cancer
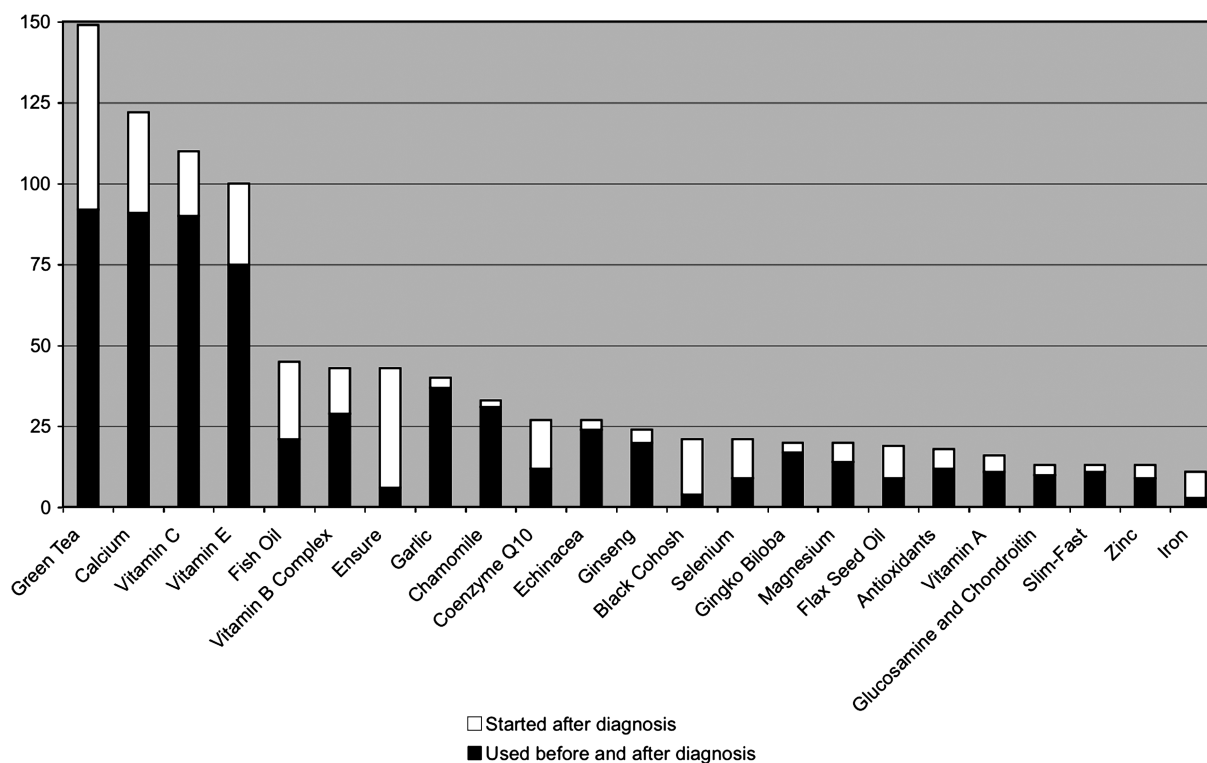

FIG. 1. Specific dietary supplements,* other than multivitamins, used after cancer diagnosis by 10 or more participants. *Participants could select multiple items.

Table 4. Reasons for Use, Information Sources, and Information Provided to Doctor
Among Cancer Survivors Using Dietary Supplements (N = 573)

	N (%)			
Reasons for using supplements[a]				
To give me more energy	250 (43.6)			
To boost my immune system	293 (51.1)			
It's something I can do to help myself	322 (56.2)			
To help in my treatment	106 (18.5)			
To help prevent cancer	116 (20.2)			
Other	112 (19.5)			
Told doctor taking dietary supplement				
Yes	472 (82.4)			
No	85 (14.8)			
Missing	16 (2.8)			
		Age less than 55 (N [%])	*Age 55 and Over (N [%])*	*p-value*[b]
Source of information[a]				
Friend or family member	215 (37.5)	99 (40.1)	116 (35.6)	0.271
Nutritionist/herbalist/naturopath	84 (14.7)	46 (18.6)	38 (11.6)	0.020
My doctor	271 (47.3)	102 (41.3)	169 (51.8)	0.012
Magazine or book	134 (23.4)	63 (25.6)	71 (21.8)	0.284
Internet	45 (7.9)	27 (10.9)	18 (5.5)	0.017
Other	76 (13.3)	35 (14.2)	41 (12.6)	0.578

[a]Participants could select more than one reason or information source.
[b]*p*-value is for χ^2 test for difference by age group.

reported use of dietary supplements.[22] Finally, a recent survey among European cancer survivors found that herbal medicines and remedies were the most popular form of CAM and that rates of use after diagnosis tripled.[32] Additional population-based studies isolating dietary supplements as a form of CAM are needed to determine whether utilization is comparable among other cancer survivors.

Similar to previous studies of overall CAM use and dietary supplement use among patients with cancer, the demographic characteristics of female gender[7,12,16,17,21,27,32–35] and higher education[19,22,32,34,35] were associated with supplement use. A recent review of vitamin and mineral supplement use (excluding herbal supplements) among U.S. adult cancer survivors concluded that these factors were most consistently associated with use.[28] Although some studies have identified younger age[7,8,10,18,32,34] as a correlate of CAM use, age was not a significant predictor in this population. Instead, survivors 55 and over tended to use supplements more than those less than 55. Our findings are similar to the increased use of dietary supplements seen among older colon cancer survivors after diagnosis,[21] older patients with breast cancer,[22] and older adults (with and without cancer).[24,27]

The SF-36® general health subscale was not associated with use of supplements. Other analyses among patients with colorectal cancer,[7] breast cancer,[10,36] and a range of advanced[18] and nonadvanced cancers[34] found that utilization of CAM was associated with poorer health status. Although not significant in this population, supplement use tended to be higher among those survivors with better general health ratings. Since the SF-36® was administered after cancer diagnosis and concurrently with the assessment of supplement use, we were unable to determine the temporal relationship between these characteristics.

Several other studies of patients with cancer have observed associations between CAM use and clinical variables, such as greater number[33,36] and intensity of symptoms,[36] as well as more progressive cancers,[37] advanced stage,[22,33,38] and receiving standard treatment for cancer,[32,33] but none of the clinical variables in this population were associated with supplement use. The variation in clinical correlates may be due to the fact that this analysis addresses only dietary supplement use whereas others studies have explored all forms of CAM. In addition, the participants in this study were an average of 18.8 months postdiagnosis, with many not currently undergoing active treatment. Thus, both the number and intensity of symptoms may have abated following the cessation of treatment.

One of the strengths of this study is the general population-based sample of cancer survivors with registry confirmed diagnoses. Although most SCS-I Connecticut participants completed the DSI, the participation rate for SCS-I in Connecticut was 42.9%, introducing the possibility of response bias. However, the overall response rates for SCS-I were comparable to other national surveys.[29] Since most participants enrolled in SCS-I within 2 years of cancer diagnosis, poor recall of events should be limited. Our analysis was limited in some ways, as the DSI did not comprehensively assess dose, duration, or exact time of initiation of use. Other research has found associations between specific cancer types and the use of certain supplements,[16] and this should be explored further in larger samples. In an observational study such as this, it is possible that the findings may be due to confounding by unmeasured variables. However, the SCS-I questionnaire comprehensively gathered information on a wide range of demographic and clinical characteristics. Finally, there is the possibility of survival bias, as individuals

who died between diagnosis and recruitment for SCS-I may have had a different pattern of CAM use.

Interestingly, the majority of patients in this population taking dietary supplements after their cancer diagnosis informed their physician of this use. In the U.S. general population, less than 40% of people using CAM told their physician.[3] One study of newly diagnosed cancer patients undergoing treatment found that a little more than half of patients told their physician about their CAM use.[7] Among cancer patients using vitamins or minerals, a recent review found that 31%–68% did not inform their physicians.[28] Since our estimate is slightly higher than previous studies, our population may not be nationally representative. In our population, 47.3% of patients reported getting information on dietary supplements from their doctor. With numerous visits to physicians during cancer treatment, our participants had multiple opportunities to ask their doctors about a range of topics. We did not ask the participants whether their physicians were recommending dietary supplement use, only whether they were a source of information, and we are unable to determine whether the physician or the cancer survivors brought up the topic of dietary supplements. In support of our findings, one study of cancer survivors found that patients were more likely to report CAM use to their doctor if the CAM therapy was related to diet or herbal medicine.[6]

Participants reported taking a wide range of dietary supplements after cancer diagnosis. Of note, 23% of the cancer survivors reporting using vitamin C, which was recently found to diminish the effectiveness of chemotherapy agents used during cancer treatment.[39] Little is known about the effects of dietary supplements on cancer survivors, especially when undergoing treatment. The sharing of information between patient and clinician is important as it would enable physicians to monitor potential contraindications between CAM therapies and traditional treatments.

Many of the patients in our sample obtained information on supplements from friends and family, as well as magazines or books. Similar sources of information on CAM were identified in a European-based sample.[32] It is important to note that the quality of information from these sources varies widely and may not provide appropriate information for patients with different cancer diagnoses, especially those undergoing active treatment. Although in our study relatively few patients (7.9%) obtained information from the Internet, we saw that younger cancer survivors were more likely to obtain information on dietary supplements from this source. A recent analysis of Internet information on breast cancer found a low prevalence of inaccurate statements (5.2%), but webpages containing CAM information were 15.6 times more likely to contain inaccurate statements than webpages that did not contain information about CAM.[40] Physicians should ask cancer survivors about dietary supplement use, as they can be a valuable avenue for patients to obtain accurate and appropriate information.

Conclusions

In conclusion, use of dietary supplements after cancer diagnosis among a population-based sample of cancer survivors was very common. Although female gender and higher education were associated with dietary supplement use, it is important that clinicians obtain comprehensive information on dietary supplement use from all patients with cancer.

Author Disclosure Statement

No competing financial interests exist.

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