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Characteristics associated with use of complementary health approaches among long-term cancer survivors

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Abstract

Purpose—To identify the prevalence and characteristics of long-term adult cancer survivors who use complementary health approaches (CHA).

Methods—Participants completed the Follow-up Care Use Among Survivors (FOCUS) Survey, a cross-sectional investigation of long-term cancer survivors. Use of CHA and reasons for use were assessed. A multivariable logistic regression model was applied to identify if predisposing, enabling and need characteristics described in the Complementary and Alternative Medicine Healthcare Model were associated with CHA use in the past year.

Results—Long-term cancer survivors in the study (N=1,666) were predominately female (62%) and older (mean age=69.5), with breast, prostate, colorectal, ovarian and endometrial cancers. Thirty-three percent of survivors used CHA in the past year. Common reasons for CHA use were: to relieve stress (28%), treat or prevent cancer (21%), relieve cancer-related symptoms (18%), and deal with another condition (18%). Predisposing (i.e., higher optimism) and need factors (i.e., experienced cancer-related symptoms, ever had depression/anxiety) were significantly associated with CHA (p -values <0.05). Enabling factors (i.e., insurance coverage, financial resources) were not.

Conclusions—Cancer survivors continue to report a high prevalence of recent CHA use more than five years after initial diagnosis. Healthcare providers should be aware of increased use of CHA among subgroups of long-term cancer survivors in order to guide safe and optimal use.

Keywords

Complementary health approaches; oncology; symptoms; quality of life; optimism; long-term cancer survivors

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Conflict of Interest

The authors do not have a financial relationship with the organization that sponsored this research. We have full control of all primary data and agree to allow the journal to review the data if requested.

Introduction

Long-term cancer survivors five years or more post cancer diagnosis are a growing and understudied population [1]. Many of these survivors experience physiologic and psychosocial late and long-term effects of cancer treatment that differ from acute treatment concerns and are not yet well-documented [1]. Survivors frequently use complementary health approaches (CHA; formerly referred to as complementary and alternative medicine) to address persistent symptoms, including fatigue, cognitive limitations, depression/anxiety, sleep problems, pain, and sexual function [1,2], that are common among the most prevalent cancer types of cancer survivors (i.e., breast, prostate, colon/rectum, and gynecologic). The National Center for Complementary and Alternative Medicine (NCCAM) describes CHA as “developed outside of mainstream Western, or conventional, medicine for specific conditions or overall well-being” [3]. CHA use is more prevalent in cancer survivors than the general United States population [4,5] with 65% of cancer survivors (time since diagnosis ranging from the past year to 11 years) reporting *ever* using CHA (compared to 53% of the general population), and 43% of cancer survivors having used CHA in the past year [4].

Due to the increasing prevalence of CHA use in cancer survivors [6] and the unknown efficacy and safety of many CHA [7], identifying cancer survivors who are likely to use CHA is important to ensure safe use. There is particular concern regarding patient safety from the quality of herbs ingested or possible herb or vitamin interactions with cancer treatments, including treatments such as tamoxifen that continue to be used for years after diagnosis [8–10]. In addition, there is growing evidence for the efficacy of other CHA used to improve cancer-related stress and other side-effects in cancer patients and survivors (e.g., yoga, acupuncture [11]). Safe use of CHA can be facilitated in response to the increasing demand for treatments by identifying and guiding cancer survivors to choose evidence-based CHA. However, much of the research on patterns of CHA use has investigated racially/ethnically homogenous populations of cancer survivors during or shortly after treatment [12]. Long-term survivors may have different patterns and reasons for CHA use than recently diagnosed cancer patients as they shift their focus to long-term and late emerging effects of cancer treatment. Two studies have exclusively investigated long-term cancer survivors’ CHA use in specific cancer types (i.e., lymphoma [13], breast [14]). Hence, an overall understanding of CHA use patterns among the most prevalent long-term cancer survivors (i.e., breast, prostate, colon/rectal, gynecologic) [15] is needed.

The Complementary and Alternative Medicine Healthcare Model [16] adapted from the Behavioral Model of Health Service Use [17] explains the decision to use CHA through individual differences in: (1) *Predisposing factors* related to the tendency to use health care services; (2) *Enabling factors* that facilitate or impede use of CHA; and (3) *Need factors* related to the evaluated and perceived need from the illness experience (e.g., diagnosis, symptoms, comorbidities, perceived need for care, perceived health status). Prevalence of CHA use among cancer survivors has been shown to vary according to predisposing factors such that CHA users tend to be female, younger, and have a higher socioeconomic status [18,12]. Studies documenting the relationship between race/ethnicity and CHA use in cancer survivors have found inconsistent results [12,19]. Furthermore, of the few studies that considered optimism, some have found that CHA users report significantly higher optimism [20,21] and other find no significant association [22]. Factors that enable or impede use, such as having health insurance [23,24] and financial resources [12] are generally found to be associated with higher rates of CHA use. In addition, some need characteristics (i.e., type and severity of disease [25,26], use of conventional care [26, 27], perceived quality of care [28]) are not typically associated with overall use of CHA, whereas others tend to be

associated with increased use of CHA (i.e., experience of symptoms [5,25,26], more co-morbidities [14]), or have mixed results (i.e., physical health [14,18,29], mental health [14,18,29], perceived control [18,30]).

The objectives of the current analyses were to: (1) describe rates of CHA use and reasons for use in long-term survivors of the five most prevalent cancer types; and (2) determine the association of CHA use with predisposing, enabling and need factors within the context of the Complementary and Alternative Medicine Healthcare Model (Figure 1) [16]. These analyses were conducted to identify whether long-term cancer survivors had different patterns and reasons for CHA use than those more recently diagnosed with cancer to facilitate guiding the optimal use of CHA.

Methods

Sample selection

The participants in the study were cancer survivors who completed the Follow-up Care Use Among Survivors (FOCUS) Survey, a cross-sectional population-based investigation of the follow-up care experiences among long-term cancer survivors (<http://cancercontrol.cancer.gov/ocs/focus.html>). The study included a racially and ethnically diverse stratified sample of breast, prostate, colorectal, ovarian and endometrial cancer survivors selected from the Surveillance, Epidemiology and End Results (SEER) cancer registries in Los Angeles County and the Greater Bay Area. The methods used have previously been described in earlier reports using this dataset [31,32]. Briefly, data was collected via self-reported questionnaires that were mailed to survivors to complete on their own and return in a postage paid envelope. Extensive telephone follow-up was conducted and additional questionnaire mailings were sent in efforts to reach survivors and increase response rates. The study was approved by the Institutional Review Boards at the Cancer Prevention Institute of California and the University of Southern California, Los Angeles.

A total of 6,391 cases were sampled from the registries, and of those sampled, 4,981 were considered eligible for participation. To be eligible, patients had to be alive at study contact, be able to read English, reside within the designated areas when diagnosed, have no prior cancer diagnoses, and have completed active cancer treatment for any recurrent or second cancer. Of the eligible cases, 2,977 were located; of those, 1,666 (56%) patients who were 4–14 years post-diagnosis completed and returned the survey. Significantly fewer responses were received from eligible patients who were older, had a history of colorectal cancer, and had been diagnosed 11–14 years ago as compared to more recently ($p < 0.05$).

Measures

Use of Complementary Health Approaches (CHA)—Participants were asked about their use of specific types of CHA *since diagnosis* and specifically *in the past year* using questions included in a previous population-based study [33]. Total CHA use was operationalized consistent with the definition of CHA given by NCCAM [3] by combining affirmative responses regarding use of: natural products including high dose or mega vitamins (not including one-a-day multivitamins), nutritional supplements, or herbal remedies; mind and body practices including (1) movement or physical therapies such as yoga, tai chi, massage, chiropractic, or electromagnetic therapy, (2) mind/body therapies such as guided imagery/visualization, biofeedback, meditation, relaxation techniques, hypnosis/hypnotherapy, energy healing, therapeutic touch, or music therapy, (3) Oriental therapies such as acupuncture, acupressure, Qigong, or Shiatsu, (4) faith healing, laying on of hands, or any other spiritual or religious group experience; and other CHA including homeopathy. Use of approaches such as special diets, stress management and support groups

included in rates of CHA use in previous studies [4] were not included in this definition of CHA use because these practices have emerged within conventional medicine [3]. However, prevalence rates for these practices not included in the current CHA definition, yet considered to be CHA in other studies, were reported to facilitate comparison (i.e., personal prayer or personal spiritual healing, special diets such as low fat or mostly vegetarian, self-help or support groups, and psychological therapy or counseling from a psychologist, psychiatrist, social worker, or any other mental health professional) [4,33].

Reasons for CHA Use—Participants who used CHA were also asked about why they used any of these therapies and given the following options: to relieve symptoms or any treatment-related side effects (such as pain, nausea, fatigue, anxiety, depression, or other similar symptoms/side-effects), to relieve stress, to treat my cancer, to prevent my cancer from coming back, to help deal with a medical condition other than cancer, to get support or cancer information, and other reasons (open-ended responses). Using CHA to get support or information was expected to be primarily related to support groups or not specific to cancer and thus was not considered relevant to the definition of CHA used in these analyses.

Measures of predisposing, enabling and need factors are described below and their respective response formats are outlined in Table 1.

Predisposing Factors—The predisposing factors included: age at survey, race/ethnicity (determined by self-report and if not provided, then determined from SEER registry data), gender, highest level of education, and optimism. Optimism was assessed by the Life Orientation Test-Revised (LOT-R; [34]) a 6-item scale that has exhibited good reliability and validity in use with cancer patients [35].

Enabling Factors—The enabling factors included: health insurance status and perceived adequacy of financial resources to meet daily family needs during the past 4 weeks.

Need Factors—The need factors assessed both evaluated need and perceived need. Evaluated need factors included: cancer site, time since diagnosis, self-reported prevalence of cancer-related symptoms (assessed by an item adapted from another study [36]), number of comorbidities [30], depression/anxiety, and receipt of cancer-related follow-up care. Perceived need factors assessed included: quality of care [37, 38], physical (physical component summary score; PCS) and mental (mental health component summary score; MCS) health status measured by the Short-Form (SF)-12® health status survey [39], and perceived control measured by the Perceived Personal Control Scale (PPC) [38] adapted from validated scales and used to measure cancer-related control [40,41].

Statistical Methods

First, we determined the prevalence of total CHA use since diagnosis, CHA use in the past year (recent use in long-term cancer survivors), and reasons for CHA use. Next, we used chi-square and t-tests to identify bivariate differences in recent CHA use and reasons for CHA use by: (1) predisposing, (2) enabling and (3) need factors. All statistical tests were two-sided with $p < 0.05$ indicating significance. Multivariable logistic regression modeling was performed, including all variables that showed some association with recent CHA use in the bivariate analyses ($p < .20$) except for gender to reduce collinearity with cancer site. All analyses were weighted using the inverse of the sampling fraction to provide estimates reflecting the source population. Analyses were conducted using the Statistical Analysis Software callable version of SUDAAN 11.0 (RTI International, Research Triangle Park, NC).

Results

Long-term cancer survivors (N=1,666) had a mean age of 69.5 (SE=0.2; Range = 29–93) years at the time of questionnaire response. By design, the sample represented a diverse population of different race/ethnicities, age at diagnosis groups, and cancer diagnoses (Table 2).

Forty percent of the sample had used CHA since they were diagnosed with cancer, and 33.4% had used CHA in the past year (recent CHA use). Recent CHA use by overarching categories was: 26.7% used mind and body approaches, 15.1% used natural products, and 1.3% used other CHA (i.e., homeopathy). In addition, 22.4% used special diets; 10.3% of participants used specified psychological services in the past year (44.7% used any type of CHA when special diets and psychological services were included) and 40.8% reported using personal prayer or personal spiritual healing in the past year (59.4% used any of the above approaches when personal prayer was included).

Reasons participants used CHA (not mutually exclusive) included: 28.0% to relieve stress, 21.5% to treat (8.3%) or prevent (18.9%) cancer from coming back, 18.0% to relieve symptoms or any treatment-related side effects, and 17.8% to help deal with a medical condition other than cancer. Almost a quarter of participants gave more than one reason for CHA use. Open-ended responses for “other” reasons for CHA use were completed by 11.2% of respondents and primarily qualified the choice of using prayer or described an interest in increasing overall health and improving emotional well-being.

Recent CHA users differed from non CHA users in bivariate analyses based on their age (more likely to be younger), gender (female), level of education (college degree or higher), cancer diagnosis (breast or ovarian), experience of symptoms related to cancer in the past two years (yes), history of anxiety/depression (yes), and optimism score (higher) (Table 2). Characteristics that remained significantly associated with recent CHA use in a multivariable model were experience of cancer-related symptoms in the past two years, a history of depression/anxiety, and higher optimism (Table 3).

Each reason for CHA use was associated with a different set of patient characteristics in bivariate analyses (see Table 4). Specifically, those who used CHA to relieve stress and symptoms were more likely to be female and have a higher perceived need (i.e., lower mental health and less perceived control) and those who used CHA to relieve symptoms additionally reported lower physical functioning and not having adequate financial resources. Using CHA to treat or prevent cancer was associated with a higher level of education and likelihood of receiving follow-up care and was not significantly associated with gender or a history of depression/anxiety. Furthermore, those who used CHA to treat other conditions were more likely to be non-Hispanic White, more highly educated, older (i.e., the relationship with age was reversed for this reason), and have a higher number of comorbidities.

Discussion

In comparison to other studies, the prevalence of recent CHA use (when including special diets and psychological support) among long-term cancer survivors (44.7%) was similar to CHA use among cancer survivors in the United States overall (43.3%) and higher than CHA use in the general public (37.3%) [4]. Time since diagnosis was not associated with the prevalence of recent CHA use in long-term cancer survivors, consistent with the results of other studies that included cancer survivors closer to the time of diagnosis [e.g., 21,26]. However, one of these previous studies found varied results such that increased time since

diagnosis was associated with less use of some types of CHA (e.g., relaxation/imagery) and more use of others (e.g., acupuncture) [21].

Only one predisposing variable, optimism, was associated with use at recent CHA use (using the current definition) among long-term cancer survivors. This result contributes to the relatively sparse literature supporting the relationship between optimism and increased CHA use [20,21]. Evidence and theory supports that optimists, or people who generally expect a favorable outcome, are more likely to engage in a self-regulation process that is associated with positive health outcomes [42]. Thus, when confronted with a challenging situation such as cancer survivorship, optimists tend to seek out methods (e.g., CHA) to achieve their goals (e.g., relieving symptoms) as compared to pessimists who may not view such goals as attainable.

Need-related factors associated with higher recent CHA use in long-term cancer survivors included the presence of cancer-related symptoms, which have previously been found to be associated with increased CHA use [5,25,26]. In addition a history of depression/anxiety was also associated with increased use. This finding adds to the mixed literature on this topic [26,29]. Mental health problems may both precipitate and be affected by CHA use.

Long-term cancer survivors used CHA for similar reasons to those which have been previously reported, including using CHA for a perceived beneficial response or wanting control [12]. In particular, CHA was used for relieving stress and symptoms in those with a need for perceived control. In a general sample of cancer survivors, the most common reason given for CHA use was for wellness or general disease prevention [4], which was partially captured by those who reported using CHA to prevent or treat cancer.

Long-term cancer survivors with more need-related factors were more likely to use CHA to address a specific issue (i.e., stress, symptoms), whereas those using CHA for a general expected outcome (i.e., prevention or treatment of cancer) had a higher level of predisposing characteristics including higher education and likelihood for receiving cancer-related follow-up care. Although it has been proposed that cancer survivors may be 'pushed' away from conventional care to use CHA by factors such as lack of insurance in addition to being 'pulled' to use CHA for self-care [16], these results suggest that cancer survivors tend to be drawn to use CHA more than they are driven away from conventional care.

In addition, significant differences by race/ethnicity were found only among those long-term survivors who used CHA for the reason of treating medical conditions other than cancer. This result is consistent with previous findings that increased CHA use in the general population is associated with racial differences (e.g., White or American Indian/Alaskan Native race) [44] and having certain medical conditions (e.g., musculoskeletal) [43]. Our results showing no significant racial/ethnic difference in the use of CHA among cancer survivors may imply that factors associated with a cancer diagnosis may differentially increase the CHA use for some racial minorities thus equalizing use among all groups. One explanation supporting this hypothesis is the tendency for cancer survivors to receive more recommendations for CHA use from conventional providers than people in the general population [4].

The following limitations should be considered in the interpretation of these results. The items included in our survey grouped CHA into general categories and thus precluded analysis of CHA by specific type. Also, this study only included cancer survivors from California and may not reflect patterns in other parts of the country. Furthermore, although the current sample represented ethnic minorities, it only included those who were English speaking and literate. Those who are less acculturated may have different CHA use [e.g., 45]. Finally, the data were cross-sectional and self-reported, limiting the ability to make

conclusions regarding causality and possibly introducing response bias for variables such as perceived quality of care.

Future studies that measure additional enabling factors (i.e., access to CHA) and differentiate between approaches that are provider-directed versus self-directed would lead to a deeper understanding of CHA adoption [16]. Furthermore, longitudinal analyses would elucidate the direction of relationship between mental health and CHA use and variability of CHA use within a person over time. Next steps for research in this arena also include evaluating the efficacy of CHA interventions for improving issues related to long-term cancer survivorship, further understanding of the role of CHA use in the self-regulation process, and developing methods for guiding evidence-based CHA use.

In summary, these results provide an overview of CHA use specifically among long-term cancer survivors that was not previously available. In addition, results from this study are placed within the context of theory and based on a more racially and ethnically diverse sample than used in previous studies, which increases generalizability. Healthcare providers may target discussions regarding the safe use of CHA to long-term cancer survivors with the characteristics identified (i.e., higher optimism, elevated symptoms, history of depression/anxiety) who are more likely to be interested in using CHA. In addition, cancer survivors who do not have the tendency to use CHA may benefit from education about the availability of evidence-based CHA.

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Figure 1.
Characteristics Hypothesized to be Associated with the Use of Complementary Health Approaches as Informed by the Complementary and Alternative Medicine Healthcare Model

Table 1

Response options for measures of predisposing, enabling and need factors

<i>Predisposing Factors</i>	
Age at survey	<50, 50–64, 65 and over
Race/ethnicity	Non-Hispanic, White; Hispanic, White; African-American; Asian/Pacific Islander; American Indian/Alaskan Native
Gender	Male, female
Level of education	Less than college, college graduate or more
Optimism	Life Orientation Test-Revised items were summed to have a maximum possible range of 6–30 where a higher score represented greater optimism.
<i>Enabling Factors</i>	
Health insurance status	Private, public (Medicare or Medicaid) only, none/unknown
Financial resources	Perceived adequacy of financial resources to meet daily family needs during the past 4 weeks (<i>yes/no</i>)
<i>Need Factors – Evaluated</i>	
Cancer site	Breast, prostate, colon/rectum, ovary, endometrium
Time since diagnosis	5–9 years, 10 + years
Experienced cancer-related symptoms	“In the past 2 years, did you experience any symptoms that you thought might have been related to your cancer or its treatment?” (<i>yes/no</i>)
Number of comorbidities	Included the following conditions: congestive heart failure, heart attack, angina, hypertension, blood clots in the legs or lungs, stroke, chronic lung disease, liver disease, diabetes, arthritis, inflammatory bowel disease, osteoporosis) [30]
Depression/anxiety	Listed separately from other comorbidities in the present analysis
Receipt of cancer-related follow-up care	Assessed by asking, “In the past 2 years, did you see any doctor specifically for cancer-related follow-up care? This could either be a cancer specialist or some other doctor,” (<i>yes/no</i>).
<i>Need Factors – Perceived</i>	
Quality of care	Measured by one adapted question, “Overall, how would you rate the quality of the cancer-related follow-up care that you received in the past 2 years?” on a scale from 1 (<i>poor</i>) to 5 (<i>excellent</i>).
Physical functioning	Physical component summary score (PCS) of the Short-Form (SF)-12® health status survey with higher scores indicating better physical functioning.
Mental health	Mental health component summary score (MCS) of the Short-Form (SF)-12® health status survey with higher scores indicating better mental health.
Perceived control	Perceived Personal Control Scale (PPC), a 4-item scale. Items in the PPC asked, “To what extent do you feel you have control over” topics such as: “your emotional responses to cancer” and “the kind of follow-up care you receive for your cancer.” Responses were summed and transformed into a scale of 0 to 100, such that a higher score denotes more perceived control.

Table 2

Weighted Distribution of Individual Characteristics of the Total Sample and Weighted Percentages of Cancer Survivors who Used Complementary and Health Approaches (CHA)

Sample Characteristics	N	Total %	CHA Use %	No CHA Use %
<i>Predisposing Factors</i>				
Age			**	
Under 50 years	295	16.0	47.4	52.6
50–65 years	634	40.4	32.6	67.4
65 and over	737	43.6	28.5	71.5
Race/ethnicity			NS ^a	
Non-Hispanic, White	635	38.1	35.0	65.1
Hispanic, White	229	13.8	24.8	75.2
African-American	396	23.8	32.2	67.8
Asian/Pacific Islander	374	22.5	35.3	64.7
American Indian/Alaska Native	31	1.9	55.9	44.1
Gender			***	
Male	639	38.4	26.5	73.5
Female	1027	61.6	40.1	59.9
Highest level of education			**	
Graduated college or more	607	36.4	41.1	58.9
Less than college	1036	62.2	28.5	71.5
<i>Enabling Factors</i>				
Health insurance			NS	
None/unknown	109	6.5	29.7	70.3
Public Insurance	337	20.3	27.8	72.2
Private Insurance	1220	73.2	34.9	65.1
Adequate financial resources			NS	
Yes	1439	86.4	33.0	67.0
No	185	11.1	33.2	66.8
<i>Need Factors</i>				
Cancer Site			***	
Breast	404	24.3	42.6	57.4
Prostate	428	25.7	27.7	72.3
Colon/Rectum	411	24.7	29.9	70.1
Ovary	219	13.2	50.4	49.6
Endometrium	204	12.2	30.5	69.5
Time since diagnosis			NS	

Sample Characteristics	N	Total %	CHA Use %	No CHA Use %
5–9 years	876	52.6	34.4	65.6
10+	790	47.4	31.7	68.3
Experienced symptoms			**	
Yes	376	22.6	44.5	55.5
No	920	55.2	29.3	70.7
Ever had depression/anxiety			**	
Yes	369	22.2	44.2	55.84
No	1260	75.6	29.8	70.2
Received follow-up care			NS	
Yes	1215	72.9	34.1	65.9
No	326	19.6	32.6	67.4
Perceived quality of care			NS	
Very Good/Excellent	940	56.4	35.0	65.0
Good/Poor/Fair	312	18.7	33.8	66.2
Did not receive care	245	14.7	31.0	69.0
		M(SE)	M(SE)	M(SE)
Need Factors				
Number of co-morbidities (R: 0–12)	1666	1.90 (0.06)	1.96 (0.10)	1.87 (0.07)
Physical functioning (R: 0 to 100)	1627	44.72 (0.45)	45.06 (0.83)	44.56 (0.55)
Mental health (R: 0 to 100)	1629	51.66 (0.33)	51.00 (0.55) ^a	51.98 (0.43)
Perceived control (R: 0 to 100)	1627	62.77 (0.83)	63.52 (1.22)	62.40 (1.08)
Predisposing Factors				
Optimism (R: 6–30)	1568	16.52 (0.16)	17.36 (0.26) ^{***}	16.09 (0.19)

^a p<.20

* p<.05

** p<.01

*** p<.001

NS = not significant, M(SE) = mean (standard error), R = possible range

Note. Total scores that do not add up to 100% are due to missing responses. Row percents are reported for the other columns and significance tests compared those who endorsed the reported value to those who did not

Table 3

A Multivariable Logistic Regression Model of Characteristics Associated with Use of Complementary Health Approaches in Long-Term Cancer Survivors

Characteristic	OR ^a (95% CI)
<i>Predisposing Factors</i>	
Age	NS
Under 50 years	1.00 (Reference)
50–65 years	0.71 (0.42, 1.21)
65 and over	0.61 (0.36, 1.05)
Race [‡]	NS
Non-Hispanic, White	1.00 (Reference)
Hispanic, White	0.69 (0.37, 1.28)
African-American	1.14 (0.68, 1.91)
Asian/Pacific Islander	1.73 (1.04, 2.89)
Highest level of education	NS
Graduated college or more	1.00 (Reference)
Less than college	0.77 (0.51, 1.18)
Optimism	1.13 (1.07, 1.21) ***
<i>Need Factors</i>	
Cancer Site	NS
Breast	1.00 (Reference)
Prostate	0.64 (0.38, 1.08)
Colon/Rectum	0.82 (0.49, 1.39)
Ovary	1.28 (0.76, 2.17)
Endometrium	0.59 (0.26, 1.30)
Experienced symptoms	*
Yes	1.53 (1.01, 2.34)
No	1.00 (Reference)
Ever had depression/anxiety	*
Yes	1.87 (1.13, 3.09)
No	1.00 (Reference)
Mental health	0.98 (0.95, 1.00)

*
p<.05

**
p<.01

p<.001

^aOR = Adjusted Odds Ratio, CI = Confidence Interval

[†]American Indian/Alaska Native participants not included due to small cell size

Table 4

Weighted Percentage Mentioning Specific Reasons for Use of Complementary Health Approaches (CHA) in Context of the Complementary and Alternative Medicine Healthcare Model (N=857)

<i>Predisposing Factors</i>					
Age		**	*	***	**
Under 50 years	199	45.7	65.3	47.8	21.6
50–65 years	337	37.0	52.8	49.1	35.7
65 and over	321	23.7	46.8	31.7	40.9
<i>Race/ethnicity</i>					
		NS ^a	NS	NS	*
Non-Hispanic, White	348	35.6	53.1	32.6	41.5
Hispanic, White	106	21.3	45.8	60.7	21.9
African-American	208	31.3	60.4	48.3	26.5
Asian/Pacific Islander	178	42.8	50.9	53.5	31.3
American Indian/Alaska Native	17	33.4	45.6	39.4	43.6
<i>Gender</i>					
		**	***	NS	NS
Male	269	24.5	41.4	47.2	33.6
Female	588	40.6	62.0	38.0	35.8
<i>Highest level of education</i>					
		NS	NS	*	*
Graduated college or more	352	36.5	56.1	44.9	40.4
Less than college	500	30.9	50.3	39.5	29.9
<i>Enabling Factors</i>					
<i>Health insurance</i>					
		NS	NS ^a	NS ^a	NS
None/unknown	51	45.6	28.3	48.9	22.4
Public Insurance	155	35.9	49.1	36.8	41.1
Private Insurance	651	32.2	55.6	42.8	34.2
<i>Adequate financial resources</i>					
		*	NS	NS	NS
Yes	741	31.7	51.8	42.3	34.4
No	98	48.9	61.4	38.2	36.5
<i>Need Factors</i>					

Cancer Site		*	**	NS	NS
Breast	222	42.5	67.4	40.9	33.5
Prostate	182	24.6	42.4	49.4	32.3
Colon/Rectum	205	34.1	47.6	38.4	34.5
Ovary	138	45.4	62.3	43.2	34.9
Endometrium	110	31.4	56.5	29.1	45.6
Time since diagnosis		NS	NS	NS ^a	NS
5–9 years	459	31.8	50.8	45.4	32.2
10+	398	35.7	55.8	37.9	38.1
Experienced symptoms		*	*	**	NS
Yes	257	41.6	62.1	53.1	37.3
No	447	28.8	49.0	41.7	33.3
Ever had depression/anxiety		***	***	NS	NS ^a
Yes	251	46.5	68.0	29.1	42.0
No	595	28.4	45.8	47.8	31.5
Received follow-up care		NS	NS	**	NS
Yes	671	33.9	53.5	45.6	33.9
No	143	33.4	49.7	34.0	35.8
Perceived quality of care		NS	NS	NS ^a	NS
Very Good/Excellent	526	33.5	52.7	45.8	35.8
Good/Poor/Fair	165	33.2	57.6	44.1	31.4
Did not receive care	106	38.0	50.2	32.8	32.8
Need Factors					
		M(SE)	M(SE)	M(SE)	M(SE)
Co-morbidities (R: 0–12)	857	2.27 (0.16) ^a	2.05 (0.12) ^a	1.86 (0.14) ^a	2.38 (0.16) ^{**}
Physical functioning (R: 0–100)	843	42.50 (1.13) [*]	45.28 (0.83)	46.19 (0.95) ^a	42.78 (1.07) [*]
Mental health (R: 0–100)	847	47.74(0.77) ^{***}	49.09 (0.58) ^{***}	51.48 (0.65)	50.77 (0.71)

Perceived control (R: 0–100)	848	58.17 (1.68)**	58.93 (1.42)**	64.13 (1.74)	63.56 (1.64)
<i>Predisposing Factors</i>					
Optimism (R: 6–30)	828	16.45 (0.38)	16.68 (0.26)	17.17 (0.31)	16.87 (0.32)
* p<05					
** p<01					
*** p<001					

NS = not significant, M(SE) = mean (standard error), R = possible range

Note. Only participants who endorsed reasons for CHA use are included in this table. Row percents are reported and significance tests compared those who endorsed this reason for CHA use to those who used CHA for another reason(s).