

Complementary and Alternative Medicine Use and Benefit Finding Among Cancer Patients

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Abstract

Purpose: An increasing number of cancer patients are choosing Complementary and Alternative Medicine (CAM) as an active way to manage the physical, psychological, and spiritual consequences of cancer. This trend parallels a movement to understand how a difficult experience, such as a cancer diagnosis, may help facilitate positive growth, also referred to as *benefit finding*. Little is known about the associations between the use of CAM and the ability to find benefit in the cancer experience.

Methods: We conducted a cross-sectional survey of medical oncology outpatients in an urban academic cancer center. Patients completed measures of CAM use and benefit finding following a diagnosis of cancer. A hierarchical regression, adjusting for covariates, was performed to evaluate the unique contribution of CAM use on benefit finding. The relationship between specific CAM modalities and benefit finding was explored.

Results: Among 316 participants, 193 (61.3%) reported CAM use following diagnosis. Factors associated with CAM use were female gender ($p=0.005$); college, or higher, education ($p=0.09$); breast cancer diagnosis ($p=0.016$); and being 12 to 36 months post-diagnosis ($p=0.017$). In the hierarchical regression, race contributed the greatest unique variance to benefit finding (23%), followed by time from diagnosis (18%), and age (14%). Adjusting for covariates, CAM use uniquely accounted for 13% of the variance in benefit finding. Individuals using energy healing and healing arts reported significantly more benefit than nonusers. Special diet, herbal remedies, vitamin use, and massage saw a smaller increase in benefit finding, while acupuncture, chiropractic, homeopathy, relaxation, yoga, and tai chi were not significantly associated with benefit finding.

Conclusions: Patients who used CAM following a cancer diagnosis reported higher levels of benefit finding than those who did not. More research is required to evaluate the causal relationship between CAM use, benefit finding, and better psychosocial well-being.

Introduction

APPROXIMATELY TWO-THIRDS of cancer patients report using complementary and alternative medicine (CAM) at some point before, during, or after their cancer treatment.¹ CAM, as defined by the National Center for Complementary and Alternative Medicine (NCCAM), is a diverse group of medical and health-care systems, practices, and products that may not yet be incorporated into conventional medicine.² The types of treatments or therapies that are considered part of CAM can be organized into the following categories: natural products (herbs, vitamins, minerals); mind/body medicine (meditation, yoga); body-based approaches (massage, chiropractic); whole medical systems (acupuncture, Ayurveda, traditional Chinese medicine, homeopathy), and energy healing (reiki). As the evidence base of certain CAM treatments has grown, patients are increasingly interested in

comprehensive, integrative cancer care that considers not only physical but also psychological and spiritual well-being.³

CAM use as a form of active coping

Although it was once thought to be used only by individuals dissatisfied with conventional cancer treatments, research has demonstrated that CAM is used more frequently alongside and in tandem with mainstream medicine.⁴ The typical reasons for utilizing CAM interventions are the promotion of wellness, disease prevention, and symptom management (hot flashes, pain, insomnia, etc.).¹ Recently researchers have turned their attention to psychological and spiritual reasons for choosing CAM. The need to lessen feelings of helplessness and to “do something” to better manage persistent symptoms or to potentially influence future cancer risk appears to be particularly important in the period following chemotherapy

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or radiotherapy.⁵ Active coping strategies include psychological or behavioral efforts to modify the thoughts or feelings associated with the stressful event. In the case of cancer, active coping frequently includes seeking information, making changes to diet and lifestyle, increasing available social support, and learning techniques to reduce perceived stress. Individuals with cancer who engage in active coping strategies report improved emotional and physical well-being.^{6,7} A desire for increased control and a preference for a more active and collaborative role in treatment decisions has been consistently linked to CAM use.^{8,9} In this way, then, the use of CAM can be thought of as a form of active coping.

Active coping and benefit finding

Despite the negative physical and psychological consequences of the diagnosis and subsequent treatment of cancer, some individuals have reported positive changes, interpersonal benefits, and spiritual growth regardless of prognosis.¹⁰ The identification of such positive outcomes has been referred to as “benefit finding” or, alternately, “meaning making” or “post-traumatic growth.” There is ongoing debate over how to define these terms and how to best distinguish between them.¹¹ For the purposes of this paper, we will refer to the overall process of evaluating and assigning benefit or meaning to one’s experience as benefit finding. The benefits reported by individuals diagnosed with cancer include better psychological functioning, improved relationships with others, increased appreciation for life, and greater personal strength.^{12–14} Because active coping encourages the individual to engage in efforts to manage distress in constructive ways, it is one method of facilitating benefit finding.^{15,16} As active coping and benefit finding are related to improved psychosocial well-being, it is important to better understand the association between specific coping behaviors, such as the use of CAM, and the ability to find benefit in the cancer experience.

Benefit finding and CAM use

Emerging research suggests that particular CAM therapies may encourage a positive reframing of the cancer experience and lead to benefit finding. In a randomized, controlled clinical trial of 61 breast cancer patients, for example, Chandwani et al. found that a 12-session yoga program during and after radiotherapy enhanced benefit finding three months after treatment.¹⁷ A cross-sectional study of 614 heterogeneous cancer survivors found that those who used CAM were more likely to report enhancements in hopefulness, positive changes, and purpose in life.¹⁸ To better understand the associations between benefit finding and CAM use, we conducted a cross-sectional study in which we characterized the factors related to CAM use, examined the demographic and clinical predictors of benefit finding following a diagnosis of cancer, and explored which CAM therapies were associated with greater self-reported benefits.

Methods

Study design and patient population

Our study, which was conducted at three outpatient oncology clinics (Breast, Lung, Gastrointestinal) at the Abramson Cancer Center of the University of Pennsylvania Health System in Philadelphia, was a cross-sectional survey of a large,

heterogeneous sample of cancer patients. Participants were at least 18 years of age, had a primary diagnosis of cancer and a Karnofsky score of 60 or greater (i.e., ambulatory). The approval of their oncologists and the ability to understand and provide informed consent in English was also required. Trained research assistants screened medical records and approached potential participants in the waiting area of the oncology clinics. After the informed consent process, each participant completed the questionnaire battery. The study was approved by the Institutional Review Board of the University of Pennsylvania.

Benefit finding

The benefit finding scale assesses the perception of life benefits after a cancer diagnosis.¹⁹ The scale is unidimensional and consists of 14 items, making it an abbreviated version of the original 20-item scale designed by Tomich and Helgeson.²⁰ Patients were asked to rate on a 4-point Likert scale how much their attitudes and behaviors had changed due to having cancer. Each question began with the statement, “Having had cancer...,” and continued with a potential positive change that might logically arise from dealing with cancer in the following categories: personal priorities, daily activities, and family. The scale has acceptable internal, convergent, and discriminant validity.^{19–21}

CAM use

To measure CAM use, we modified questions from the 2002 National Health Interview Survey (NHIS). Individuals were asked, “Have you used the following CAM therapies since your cancer diagnosis?” The categories included 12 common CAM therapies (e.g., herbs, relaxation techniques, massage, chiropractic, acupuncture, yoga, tai chi, etc.), and an “Other” category for participants to record the use of a CAM therapy not listed.

Statistical analysis

Analysis was conducted using STATA 11.0 (StataCorp, College Station, TX) and IBM SPSS Statistics for Windows 20.0 (IBM Corp, Armonk, NY). CAM data was dichotomized into use or no use. Univariate analyses were used to compare patients who did and did not use CAM on demographic and clinical variables. Variables with $p < 0.10$ through univariate analysis were entered into the multivariate model to adjust for the influence of potential covariates. Hierarchical regression was performed to evaluate the association between CAM use and benefit finding, adjusting for significant predictors in the univariate analyses. Independent samples *t*-tests examined levels of benefit finding in individuals who endorsed the use of specific CAM therapies compared with those who did not. All analyses were two-sided with $p < 0.05$ indicating statistical significance.

Results

Of the 382 consecutive patients screened for eligibility based on the initial criteria, 339 (88.7%) agreed to participate. Of the 43 (11%) patients who declined, 6 (1.6%) did so due to lack of time to complete the survey. The remaining 37 (9.7%) were not interested in the research. In addition, 9 patients withdrew consent, and 14 did not return the survey,

resulting in a final sample of 316 with a response rate of 83% among eligible subjects.

Participant characteristics related to CAM use

Table 1 describes the demographic, medical, and CAM use characteristics of the sample (N=316). The overall mean age of the sample was 58 years, and women comprised two-thirds (64.6%) of the participants. Caucasians made up 76.9% of the sample, followed by African Americans, 17.7%, Asians, 2.5%, Hispanic individuals, 1.9%, and "Other," 1.0%. Within the sample, 27.7% of the participants reported an education status of high school or less and 72.3% had college or graduate education. Overall, 31.1% of the participants were diagnosed with lung cancer, 28.6% with breast cancer, 27.3% with gastrointestinal cancer, and 13.0% with other types of cancer.

Among the participants, 61.3% reported CAM use. Women were more likely to use CAM than men (67.0% vs. 50.9% for men, $p=0.005$). Patients with an educational level of college or higher were also more likely to use CAM than those with an educational level of high school or less (63.9% vs. 53.5%, $p=0.093$). Across cancer types, patients with breast cancer were the most likely to use CAM (72.2%), while those with lung cancer were the least likely (52.6%, $p=0.016$). Patients who were 12 to 36 months postdiagnosis showed greater levels of CAM use than patients who were less than 12 months postdiagnosis or more than 36 months postdiagnosis (72.5% vs. 53.9% and 65.2%, $p=0.018$). No significant difference was seen in CAM use in relation to employment, cancer stage, chemotherapy use, or survivor status.

Factors related to benefit finding

Table 2 summarizes the demographic and clinical factors associated with benefit finding. Significantly higher levels of benefit finding were reported in patients younger than 65 years of age ($p=0.001$), and in women ($p=.019$). Benefit finding was also higher among nonwhite patients than white patients ($p<0.001$). Patients who were more than 36 months postdiagnosis described more benefits than those who were 12 to 36 months postdiagnosis ($p=0.001$). No significant difference in benefit finding was seen across educational level, employment status, cancer type, cancer stage, surgery history, radiation history or chemotherapy. Patients who used CAM from the time of their cancer diagnosis had a 9.1% increase in benefit finding compared with nonusers ($p=0.003$).

In order to determine whether CAM use accounted for unique variance in benefit finding, the covariates of race, age, gender, and time from diagnosis were entered into the first step of a hierarchical regression model (Table 3). In total, these variables explained 12% of the variance in benefit finding ($F(4, 300)=10.072, p<.001$). CAM use was then entered in step 2 and accounted for a significant increase in the amount of explained variance (R^2 change=0.016; F change (1, 299)=5.635, $p=.018$). In the full model, which included the four covariates and one predictor, gender was no longer a significant predictor of benefit finding. Race contributed the most unique variance to the total R^2 (23%), followed by time from diagnosis (18%), age ≤ 65 years (14%). CAM use contributed 13% to the total variance accounted for in the model.

TABLE 1. DEMOGRAPHIC INFORMATION AND COMPLEMENTARY AND ALTERNATIVE MEDICINE USE

	N (%)	CAM use		No CAM use		P-Value
		N	%	N	%	
Total	316	193	61.3	122	38.7	
Age, years						0.118
≤ 65	220 (69.6)	141	64.1	79	35.9	
> 65	96 (30.4)	52	54.7	43	45.3	
Gender						0.005
Male	112 (35.4)	57	50.9	55	49.1	
Female	204 (64.6)	136	67.0	67	33.0	
Race/ethnicity						0.636
White	243 (76.9)	150	62.0	92	38.0	
Nonwhite*	73 (23.1)	43	58.9	30	41.1	
Educational Level						0.093
High school or less	87 (27.7)	46	53.5	40	46.5	
College or above	227 (72.3)	145	63.9	82	36.1	
Employment						0.776
Not employed	175 (56.3)	106	60.9	68	39.1	
Employed	136 (43.7)	85	62.5	51	37.5	
Cancer Type						0.016
Breast	90 (28.6)	65	72.2	25	27.8	
GI	86 (27.3)	48	55.8	38	44.2	
Lung	98 (31.1)	51	52.6	46	47.4	
Other	41 (13.0)	29	61.5	12	29.3	
Cancer Stage						0.957
Localized disease	146 (46.6)	89	61.4	56	38.6	
Metastatic disease	167 (53.4)	103	61.7	64	38.3	
Surgery						0.043
No	142 (45.1)	78	55.3	63	44.7	
Yes	173 (54.9)	115	66.5	58	33.5	
Radiation						0.221
No	168 (53.3)	98	58.3	70	41.7	
Yes	147 (46.7)	95	65.1	51	34.9	
Chemotherapy						0.738
No	34 (10.8)	20	58.8	14	41.2	
Yes	281 (89.2)	173	61.8	107	38.2	
Time since diagnosis						0.018
≤ 12 months	141 (45.5)	76	53.9	65	46.1	
> 12 and ≤ 36 months	80 (25.8)	58	72.5	22	27.5	
> 36 months	89 (28.7)	58	65.2	31	34.8	

P-values in boldface type are statistically significant.

*Mostly African American.

CAM, complementary and alternative medicine.

Specific CAM interventions and benefit finding

Among the CAM modalities measured (see Figure 1), individuals using special diets ($t(1, 304) = -2.828, p=.005$), energy healing ($t(1, 308) = -2.925, p=.004$), healing arts ($t(1, 307) = -2.902, p=.004$), and herbs ($t(1, 307) = -2.715, p=.007$), reported higher levels of benefit finding than individuals not using these therapies. The use of massage ($t(1, 308) = -2.201; p=.03$) and vitamins ($t(1, 308) = -2.141, p=.03$) were also associated with higher levels of benefit finding, although to a lesser degree. Individuals using relaxation strategies, acupuncture, chiropractic, homeopathy,

TABLE 2. DEMOGRAPHIC AND CLINICAL PREDICTORS OF BENEFIT FINDING

	Benefit finding score		p-Value
	Mean	SD	
Age, years			0.001
≤65	2.76	0.68	
>65	2.49	0.60	
Gender			0.019
Male	2.56	0.62	
Female	2.75	0.68	
Race/ethnicity			<0.001
White	2.60	0.66	
Nonwhite*	2.95	0.63	
Educational Level			0.179
High school or less	2.77	0.73	
College or above	2.65	0.64	
Employment			0.833
Not employed	2.67	0.69	
Employed	2.69	0.64	
Cancer Type			0.637
Breast	2.72	0.71	-
GI	2.73	0.66	0.966
Lung	2.61	0.64	0.274
Other	2.67	0.67	0.698
Cancer Stage			0.937
Localized disease	2.69	0.68	
Metastatic disease	2.68	0.66	
Surgery			0.114
No	2.61	0.65	
Yes	2.74	0.68	
Radiation			0.508
No	2.66	0.70	
Yes	2.71	0.63	
Chemotherapy			0.175
No	2.53	0.62	
Yes	2.70	0.67	
Time since cancer diagnosis			0.005
≤12 months	2.56	0.70	-
>12 and ≤36 months	2.69	0.61	0.174
>36 months	2.86	0.61	0.001
CAM use			0.003
No	2.54	0.68	
Yes	2.77	0.64	

P-values in boldface type are statistically significant.
 *Mostly African American.

yoga, and Tai Chi did not report higher levels of benefit finding than nonusers. Considering the exploratory nature of these analyses, a familywise error rate correction was not applied; however, even with a Bonferroni correction ($p = .004$), reported benefits would remain statistically higher

in those individuals using energy healing and healing arts than in those who did not.

Discussion

In this cross-sectional study, the use of CAM therapies was associated with increased benefit finding in a heterogeneous sample of cancer patients. Benefit finding increased as the time from diagnosis increased and was more prevalent among individuals who were less than age 65 and those whose race was nonwhite. Individuals using CAM therapies tended to be female, have a college education or more, and a diagnosis of breast cancer. Other factors significantly associated with CAM use included having had surgery and being at least 12 months postdiagnosis. The observed demographic patterns in CAM use were consistent with other published studies^{22,23}.

We hypothesize that CAM use represents an active coping strategy for the management of cancer-related symptoms and distress. As active coping strategies have been linked to benefit finding,^{8,9} it follows that encouraging evidence-based CAM use may represent a unique way to facilitate the growth of benefit finding. Bann, Sirois, and Walsh suggest there are three components of the CAM provider-patient relationship that may contribute to greater patient perception of benefit.²⁴ First, patient-centered care has been recognized for its role in positive therapeutic outcomes and is considered an integral part of CAM. Second, there is some evidence that patients perceive their relationship with their CAM provider as more emotionally supportive than their relationship with their oncologist. They are apt to report feeling more accepted, trusted, and cared for by their CAM provider.²⁵ Last, patient empowerment is a key component that distinguishes CAM from conventional biomedicine.

While currently the role of the CAM provider in the patient's support network and its effect on health outcomes is vague, it may well prove to be a valuable concept in the effort to better understand CAM treatment effects. A Swiss study of 318 primary-care practices found that patients said their CAM providers had more time, were more interested in their concerns, had better communication and listening skills, were more available, and were more thorough in their examination than conventional medical practitioners.²⁶ As a result, patients reported significantly greater satisfaction with their treatment and found it a more positive experience. In their sample of 131 cancer patients, Scignaro, Barni, and Magrin demonstrated that perceived support was significantly associated with benefit finding.²⁷ They suggest that the experience of support that encourages autonomy, competence, and relatedness is an important facilitator of positive growth and benefit finding. It would seem evidence is

TABLE 3. CAM USE AND BENEFIT FINDING

	Step	Predictor	B	SE	β	t	p	R ²	R ² change	sr ² inc*
Benefit Finding	1	Age ≤65	-.221	.080	-.152	-2.767	.006	.118		-.141
		Female gender	.099	.078	.071	1.280	.202			.052
		Nonwhite race	.348	.085	.222	4.077	.000			.227
		>36 months post diagnosis	.151	.043	.193	3.487	.001			.178
	2	CAM use	.178	.075	.130	2.374	.018	.135	.016	.128

*Full model.

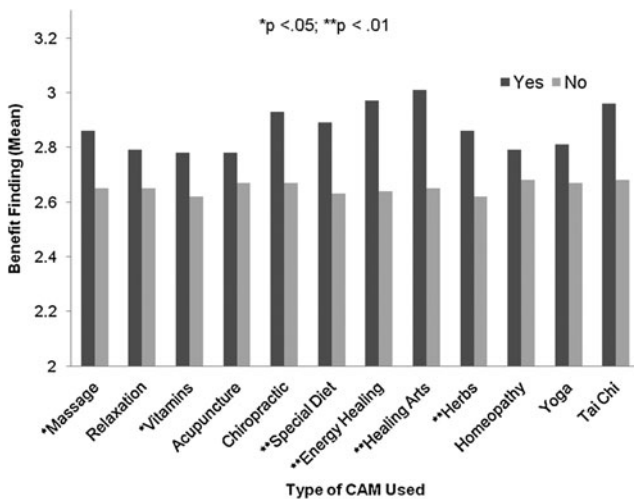


FIG. 1. Specific complementary and alternative medicine modalities and benefit finding.

beginning to support the impact of CAM use on coping and positive treatment outcomes, such as benefit finding.

Although, as we have reported, race was not a significant predictor of CAM use, it did contribute the greatest variance (23%) to the level of perceived benefit. This is a novel finding, given that many of the studies examining benefit finding to date have use samples largely comprised of white women.^{14,28,29} The data available, although limited, supports differential benefit finding in racial populations.²⁰ In an evaluation of a cognitive-behavioral stress management program for men with prostate cancer, Penedo et al. report that Black and Hispanic individuals endorsed higher pre-intervention levels of benefit finding, regardless of income or education, than white individuals.³⁰ Future qualitative and quantitative research is required to understand the reasons for this difference.

Notable in our results is the apparent difference among CAM modalities and their perceived benefits. In particular, energy healing and healing arts are correlated with the greatest increase in benefit finding. Special diet, herbal remedies, vitamin use, and massage saw a lesser increase in benefit finding, while acupuncture, chiropractic, homeopathy, relaxation, yoga, and tai chi were not significantly associated with enhanced benefit finding. It is possible that different reasons for utilizing CAM play a role in the tendency to experience benefits. Grzywacz et al. show that most CAM users who employ mind-body techniques, such as energy healing and healing arts, do so to promote health and prevent illness, while most of those who use acupuncture and chiropractic care do so to treat an existing condition.³¹ Following this line of reasoning, however, we would expect to find a positive association between benefit finding and other mind-body therapies, such as yoga. Clearly additional research is needed to understand the mechanisms by which certain CAM modalities promote positive coping strategies and increased perceived benefit.

The cross-sectional design of this study precludes any causal conclusions concerning the relationship between benefit finding and CAM use. It is possible that the benefits described by CAM users are not a result of CAM use but

rather a part of its use. In other words, the relationship may be bidirectional rather than unidirectional. For example, while vitamin use can be considered a CAM modality in itself, patients may consider daily vitamin intake a positive change arising from their cancer experience. Statistical mediation models may represent the next step in understanding the role of CAM in promoting positive health outcomes.

By having a large, ethnically diverse sample and the use of a validated instrument, this study, despite its limitations, contributes to the very limited literature on benefit finding and CAM in significant ways. Our results suggest different CAM modalities affect benefit finding to different extents, and greater understanding of these variances might enhance biopsychosocial approaches to cancer treatment and improve future cancer treatment regimens.

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Disclosure Statement

No competing financial interests exist.

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