



## Research Article

## Prevalence of Complementary and Alternative Medicine-use by UK Cancer Patients: A Systematic Review of Surveys

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## Abstract

**Background:** Cancer patients seem to frequently use Complementary and Alternative Medicine (CAM). However, estimates of the level of usage vary widely. This systematic review is aimed at determining the prevalence of CAM-use in cancer patients of the United Kingdom (UK).

**Method:** Five databases were searched for English language peer-reviewed surveys published between 01 January 2000 and 07 October 2011. In addition, relevant book chapters and our own departmental files were hand-searched.

**Results:** 25 surveys were included with a total sample size of 6798. Across all studies, the median prevalence rate of CAM-use was 30.5 (standard deviation=10.3). Herbal medicine was the most popular CAM modality, followed by homeopathy, aromatherapy, reflexology and relaxation. Conclusions: Many UK cancer patients use CAM. Oncologists need to be aware of these numbers as they can impact daily practice on the management of cancer patients.

**Keywords:** Complementary and alternative medicine; Cancer; Survey; Systematic review

## Introduction

Complementary and alternative medicine (CAM) has been defined as “diagnosis, treatment and/or prevention which complements mainstream medicine by contributing to a common whole, satisfying a demand not met by orthodoxy, or diversifying the conceptual framework of medicine” [1].

Many cancer patients seem to experience both physical (e.g. more energy, less pain or nausea) as well as psychological (e.g. less anxiety or depression) benefits from using CAM [2,3]. Thus, many cancer patients try at least, one type of CAM [4]. Reliable prevalence data do, however, not exist.

The aim of this systematic review was to summarize and critically evaluate surveys monitoring the prevalence of CAM use by UK cancer patients during the past decade.

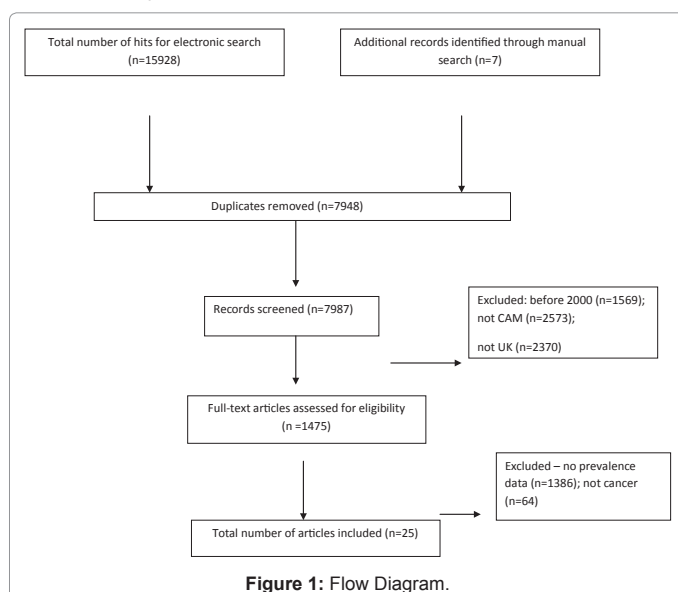


Figure 1: Flow Diagram.

## Method

Systematic literature searches were performed for all English language references using AMED, CINAHL, COCHRANE, EMBASE and MEDLINE for surveys published between 01 January 2000 and 07 October 2011. Details of the search strategy are presented in the appendix. Additionally, relevant book chapters, review articles and our own departmental files were hand-searched for further relevant articles. Surveys which examined the prevalence of CAM use by UK cancer patients providing quantitative prevalence data were included. Surveys reporting only qualitative data were excluded. Information from the included surveys were extracted according to pre-defined criteria and assessed descriptively by two independent reviewers. Disagreements were settled through discussion.

Acupuncture/acupressure, Alexander Technique, aromatherapy, autogenic training, Ayurveda, (Bach) flower remedies, biofeedback, chelation therapy, chiropractic, Feldenkrais, herbal medicine, homeopathy, hypnotherapy, imagery, kinesiology, massage (any type), meditation, naturopathy, neural therapy, osteopathy, qi gong, reflexology, relaxation therapy, shiatsu, spiritual healing, static magnets, tai chi, and yoga were all considered as CAM. Non-herbal dietary supplements and vitamins, psychotherapy, physical exercises or some physiotherapeutic modalities such as electrotherapy or ultrasound were not considered to be CAM and therefore were excluded from analyses.

The top 5 CAM modalities (1=most popular) from each survey were ranked and averaged across the surveys to generate an overall

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1 st Author (date) [ref]	Aim (quote)	Population (n=)/cancer site/location	Method	Sampling technique	Question(s) asked (quote)	Response rate	Main findings Prevalence rate	Most popular modalities	Perceived effectiveness	Adverse effect\$	Costs	Predictors of CAM modality use	CAM modality use recommended by	Other relevant finding\$
Catt (2006) [23]	To explore "the preferences for injection or tablets in the administration of breast cancer treatment"	208/breast/UK	Semi-structured interview	n.m.	Patients were asked about treatment they were receiving	n.m.	53% used of non-prescription therapies (currently)	Garlic (3.4%), echinacea (1.9%), black cohosh (1.9%), Chinese herbals (1.4%)	n.m.	n.m.	n.m.	Higher education, higher socio-economic status, and higher internal locus of control	n.m.	53% were self-treating, mainly with vitamin and mineral supplements
Van Tonder (2009) [10]	to compare "(...) the usage, benefits and side-effects of dietary-related CAM use among adult cancer patients and non-cancer adults (...)"	98/various/England	Self-administered questionnaires	Random sampling method	Whether health professionals were informed of CAM usage?	77.3%	36% used herbals	Green tea (15%), echinacea (9%), garlic (5%)	41% stated they benefited from CAM	2% reported AEs (diarrhoea)	n.m.	n.m.	Family/ neighbours (30%) and the media (29%), NHS staff (25%)	54% of cancer patients informed a health professional of their CAM use
Werneke (2004) [22]	"(...) to establish the type, frequency and pattern of herbal medicine and supplement use (...)"	500/various/England	n.m.	n.m.	n.m.	63.6%	51.6%	Herbal medicine(10.4%)	n.m.	12.2% patient were issued warnings from pharmacy	n.m.	n.m.	n.m.	11.0% reported supplements in higher than recommended doses.

AEs-adverse events

CAM-complementary and alternative medicine

**Table 1:** Main findings for specific CAM modalities.

ranking. Then the total number of surveys in which a particular CAM modality was the most prevalent/popular one was provided and the median of those figures was calculated. Where available, we calculated the average of the % of responders who stated they experienced benefit or were satisfied with CAM as well as those who reported adverse effects after using CAM and their cost for purchasing CAM.

## Results

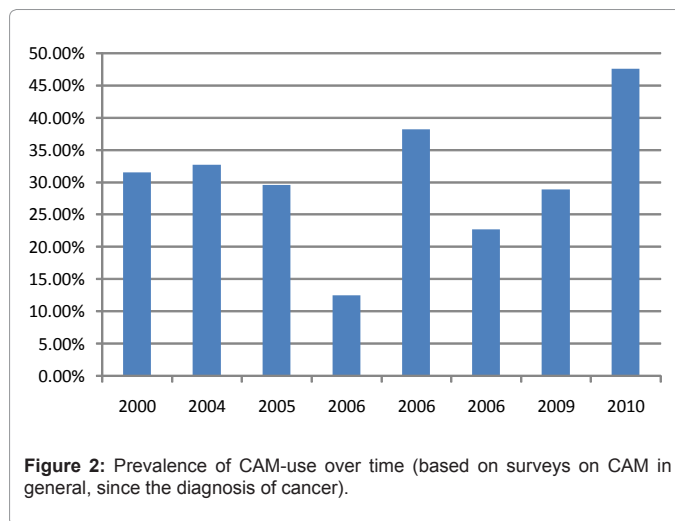
The searches generated 15935 articles, of which 15910 were excluded (see flow chart diagram (Figure 1)). Twenty five surveys met our eligibility criteria [2,5-28]. Detailed characteristics of the included surveys relating to CAM in general are presented in Supplementary

table. Table 1 represents the included surveys on specific CAM modalities. Fourteen surveys originated from England, 1 from England and Scotland, 1 from Scotland, 1 from Wales. The remaining 8 surveys pertained either to the whole of the UK, or their geographical location was not clearly specified.

The total number of patients included in the 25 surveys was 6798. Twenty two surveys were on CAM in general while three were specifically on herbal medicines. Across surveys on CAM in general, the median prevalence rate since the diagnosis of cancer was 30.5 (SD=10.3). The use of a random sampling method was mentioned in 2 (8%) surveys [10,17]. The median response rate was 71.0 (SD=14.3). Perceived effectiveness of CAM was mentioned in 16 (64%) surveys [2,7,9,10,13-

Sample size (N)	Median prevalence rate since cancer diagnosis (SD)
0-100	32.7 (7.8) (n=3)
101-500	38.2 (13.2) (n=2)
501-	31.5 (0.0) (n=1)
Response rate (%)	
50-70	30.8 (2.6) (n=2)
71-	31.5 (0.0) (n=1)
Survey design	
Postal surveys	31.5 (1.9) (n=3)
Interviews	47.6 (0.0) (n=1)

**Table 2:** The average prevalence rates as a function of sample size, response rate and survey design.



**Figure 2:** Prevalence of CAM-use over time (based on surveys on CAM in general, since the diagnosis of cancer).

CAM modality	Conclusions regarding effectiveness available at: <a href="http://www.cam-cancer.org">http://www.cam-cancer.org</a>
<b>I. Herbal medicine</b>	
<i>Aloe vera</i>	" <i>Aloe vera</i> gel is applied topically and is used for radiation-induced skin problems. However, clinical trials show that it is ineffective for that purpose. <i>Aloe vera</i> latex (juice) is taken orally. It has been insufficiently tested as a cancer therapy."
Black cohosh ( <i>Actaea racemosa</i> )	"Evidence from three randomised clinical trials is not sufficient to support the use of black cohosh extracts for treatment of hot flushes in breast cancer patients undergoing chemotherapy or receiving tamoxifen."
<i>Boswellia spp</i>	"No firm conclusions can be drawn on the effect of orally administered <i>Boswellia</i> extracts on peritumoural brain oedema, brain tumours, brain metastases or any other cancer in women, men or children."
Cannabinoids	"The antiemetic efficacy of cannabinoids in comparison to placebo in chemotherapy-induced nausea/vomiting has been established in a systematic review. The use of cannabinoids for anorexia-cachexia-syndrome in advanced cancer is not supported by the evidence from randomised controlled trials. Several randomised controlled trials indicate a mild analgesic effect of cannabinoids in cancer patients."
<i>Echinacea spp</i>	"Several potential uses of <i>echinacea</i> in cancer management have been investigated but there is currently insufficient robust evidence to support these."
Garlic ( <i>Allium sativum</i> )	"Garlic is said to reduce the risk of certain cancers. The evidence for this assumption is encouraging but not strong."
Green tea ( <i>Camellia Sinensis</i> )	"The evidence for an association between green tea consumption and the incidence of cancer is generally inconsistent."
Milk vetch ( <i>Astragalus mongolicus</i> )	"Data from clinical trials are of low quality and need to be confirmed."
Mistletoe ( <i>Viscum album</i> )	"Numerous in-vitro data suggest anti-cancer activity. Non-randomised trials suggest effectiveness. The results of rigorous RCTs are, however, less convincing."
<i>Panax ginseng</i> and <i>Panax quinquefolius</i>	"There is preliminary evidence from two pilot studies to support the use of both ginseng-species for cancer-related fatigue. <i>P.ginseng</i> and <i>P. quinquefolius</i> appear to be relatively safe when used as mono-substance and within the recommended dosage."
St. John's wort ( <i>Hypericum perforatum</i> )	"Some people also promote it as a cancer drug but there is no good evidence to support this claim. St. John's wort may reduce the blood levels of many conventional drugs, including some cancer medicines."
Sweet wormwood ( <i>Artemisia annua</i> )	"There is currently insufficient scientific evidence in humans to support the use of <i>Artemisia</i> in cancer patients."
<b>II.Homeopathy</b>	
"The evidence for homeopathy in oncology is not convincing"	
<b>III. Aromatherapy</b>	
"Weak evidence is available that aromatherapy can reduce anxiety, depression, sleep problems and improve a patient's general wellbeing. No evidence is available for long term effects of aromatherapy (over 2 weeks)."	
<b>IV. Reflexology</b>	
"There is insufficient objective evidence to suggest that reflexology provides valuable support for people with cancer."	
<b>V. Relaxation</b>	
Progressive muscle relaxation	"There is insufficient evidence for the effectiveness of PMR for cancer patients suffering from pain, anxiety, depression, sleep disorders and chemotherapy-induced nausea."
Autogenic training	"Based on one clinical trial and two pilot studies, it is not possible to draw conclusions about the effectiveness of autogenic therapy for people with cancer."

**Table 3:** The evidence for the 5 most popular forms of CAM.

18,20,21,25-28]. The median perceived effectiveness across all surveys was 42.5 (SD=20.2). Adverse effects were reported in 7 (28%) surveys [10,14,15,17,18,22,28] and the median incidence rate across all surveys was 2.5 (SD=4.6). The costs of CAM were mentioned in 11 (44%) surveys [8,9,13-20,25]. Based on 6 surveys (in which uniform methods of reporting were employed) the median cost of CAM-use per patient per month was £20.5 (SD=83.8) [13-18]. Predictors of CAM-use were mentioned in 11 (50%) surveys [6,11-19,25]. In the majority of those

surveys, being young, highly educated and female were predictors of CAM-use. Across surveys on herbal medicines, the median prevalence rate was 51.6 (SD=9.4).

Table 2 summarizes the prevalence rates according to sample size, response rate and survey design. The median prevalence rates did not differ significantly according to response rates. In surveys with sample size of >500, the median prevalence rate was 31.5 which was lower than

in surveys with sample size >100 and <500 (median of 38.2; SD=13.2). In the survey with the lowest sample size the prevalence of CAM-use was 22.7% [18]. In the survey with the highest sample size this estimate was 31.5% [19]. In postal surveys, the median prevalence rates were much lower than those that emerged from interviews. There was no clear trend in the use of CAM over time (Figure 2).

Herbal medicine was ranked as the most popular type of CAM in 9 (2 in 1; as 3 in 2; as 4 in 0; as 5 in 0) surveys, homeopathy in 3 (2 in 2; as 3 in 0; as 4 in 0; as 5 in 0) surveys, aromatherapy in 3 (2 in 1; as 3 in 1; as 4 in 1; as 5 in 0) surveys, reflexology in 2 (2 in 1; as 3 in 1; as 4 in 0; as 5 in 0) surveys and relaxation in 1 (2 in 1; as 3 in 0; as 4 in 1; as 5 in 0) surveys (based on CAM in general surveys). Using our ranking method, herbal medicine was the most popular form of CAM (in 40.9% of surveys), followed by homeopathy (13.6% of surveys) and aromatherapy (13.6%), reflexology (9%) and relaxation (4.5%). The median percentage values of the 5 most popular CAM modalities are as follows: herbal medicine (30.0; SD=14.9), homeopathy (13.0; SD=11.1), aromatherapy (19; SD=20.9), reflexology (22.5; SD=17.6) and relaxation (25.7; 0.0). Reiki was also ranked as the most popular form of CAM in 4.5% of all surveys.

## Discussion

Our review was aimed at summarizing and critically evaluating the evidence from surveys of CAM-use by UK cancer patients published in the past decade. Our findings suggest that, on average, almost a third of UK cancer patients used CAM since their cancer diagnosis. This figure is similar to the one found globally for any cancer [29] and for prostate cancer [30]. To the best of our knowledge, this is the first systematic review of surveys solely focusing on UK cancer patients. Our analyses suggest that the 5 most popular forms of CAM in the UK are: herbal medicine, homeopathy, aromatherapy, reflexology and relaxation.

This begs the question whether any of these treatments demonstrably generate more good than harm. In order to answer it, it is helpful to differentiate between CAM-use for curing a cancer and CAM-use for supportive or palliative cancer. None of the CAM treatments are effective cancer cures [31]. Their use for this purpose should therefore be discouraged [32].

The use of CAM for supportive or palliative care is a more complex issue [33]. The evidence for the 5 most popular forms of CAM is briefly summarized in Table 4. It shows that the evidence is mixed but mostly not positive. Where encouraging results exist, the evidence is usually not entirely convincing. Moreover, one should acknowledge the fact that none of these treatments are devoid of risks [1]. It follows that, even for supportive and palliative cancer care, we should not uncritically recommend all forms of CAM to our patients.

Our review has several limitations that should be kept in mind when interpreting its results. Firstly, even though our searches were extensive, we cannot be entirely sure that all relevant articles were located. Secondly, since there is no gold-standard assessment tool for surveys [34] formal quality assessment was neither planned nor performed. We noticed, however, that most surveys had reasonably high response rates or used validated outcome measures. Thirdly, we only calculated the prevalence rates since/after the diagnosis of cancer [30] and omitted e.g. 12 month or lifetime ones. Fourthly, a formal meta-analysis was deemed implausible due to significant heterogeneity of the primary data. Finally, one survey did not provide with sub-group analyses [16] which prevented us from accurately calculating the total sample size across all surveys.

In conclusion, large proportions of UK cancer patients use CAM, and herbal remedies are particularly popular. Oncologists should therefore be aware of the both harms and the benefits, the use of CAM may entail.

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