

# Prevalence of use of complementary and alternative medicine (CAM) by physicians in the UK: a systematic review of surveys

Paul Posadzki, Amani Alotaibi and Edzard Ernst

**ABSTRACT** – This systematic review aims to estimate the prevalence of use of complementary and alternative medicine (CAM) by physicians in the UK. Five databases were searched for surveys monitoring the prevalence of use of CAM, which were published between 1 January 1995 and 7 December 2011. In total, 14 papers that reported 13 separate surveys met our inclusion criteria. Most were of poor methodological quality. The average prevalence of use of CAM across all surveys was 20.6% (range 12.1–32%). The average referral rate to CAM was 39% (range 24.6–86%), and CAM was recommended by 46% of physicians (range 38–55%). The average percentage of physicians who had received training in CAM was 10.3% (range 4.8–21%). The three most commonly used methods of CAM were acupuncture, homeopathy and relaxation therapy. A sizable proportion of physicians in the UK seem to employ some type of CAM, yet many have not received any training in CAM. This raises issues related to medical ethics, professional competence and education of physicians.

**KEY WORDS:** complementary and alternative medicine, 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’.<sup>1</sup> The prevalence of use of CAM by physicians in the UK has been reported to be high, yet few doctors have sufficient training in this area.<sup>2</sup> Different surveys have generated vastly different prevalence rates; the true level of use of CAM by physicians in the UK is therefore less than clear. This systematic review aimed to summarise and critically evaluate surveys monitoring the prevalence of use of CAM by physicians in the UK during the last 15 years.

## Methods

Systematic literature searches were performed for all English language references using AMED, CINAHL, Cochrane, Embase and Medline for surveys published between 1 January 1995 and 7 December 2011 (a previous review evaluated earlier surveys).<sup>3</sup> Details of the search strategy are summarised in the appendix. In addition, relevant book chapters, review articles and our own departmental files were searched by hand for further relevant articles.

Only surveys that reported quantitative data on prevalence of use of CAM by physicians in the UK were included. Surveys that reported only qualitative data were excluded. Information from the included surveys was extracted according to predefined criteria and assessed by two independent reviewers. Any disagreements were settled through discussion.

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

Use of CAM was defined as the provision of any type of access to CAM, including recommendations, referrals, provision of treatment or self-administration. Where available, we calculated the average of the percentage of responders who stated that they recommended, referred or practised CAM.

In studies in which percentage values for more than two methods of CAM were provided, we ranked the top three methods of CAM from each survey (I = most popular) and then averaged the rank numbers across the surveys to generate an overall ranking. We also provided the total number of surveys in which a particular method of CAM was the most prevalent/popular and then calculated the averages of those figures. Where available, we calculated the average of the percentage of responders who stated that they experienced benefit or were satisfied with CAM, as well as those who reported adverse effects (AEs) after using CAM and the cost of purchasing CAM.

Surveys were further classified according to the following criteria: sample size, response rate and random sampling. We also

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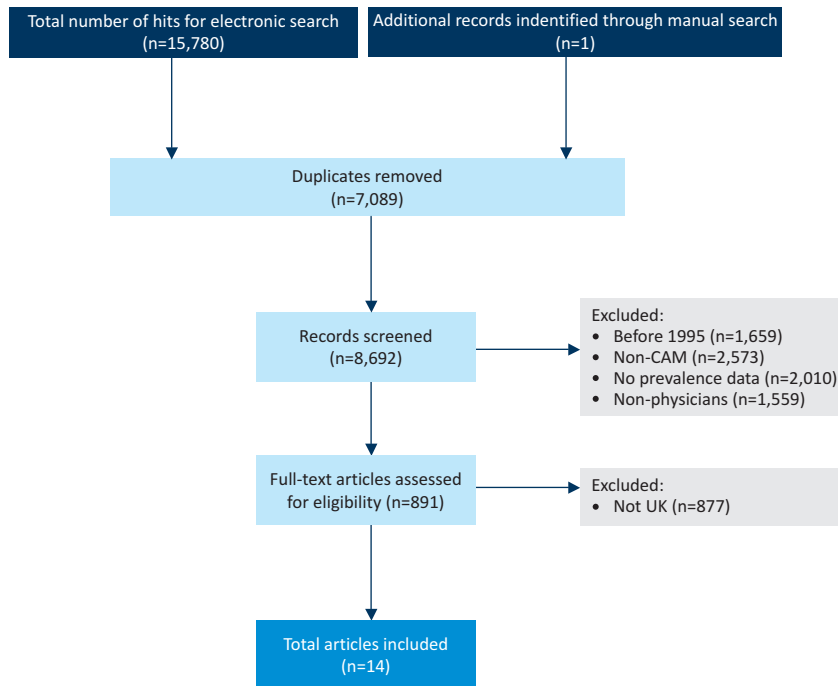


Fig 1. Study flow diagram.

created a category of ‘high-quality surveys’, which had to have a sample size >1,000 and a response rate >70% and had to employ a random-sampling technique.

## Results

The searches generated 15,781 potentially relevant titles and abstracts, of which 15,767 were excluded (Fig 1). This resulted in a total of 14 articles, which reported 13 separate surveys.<sup>2,4–16</sup> Detailed characteristics of the included surveys are presented in Tables 1 and 2. Eight surveys originated from England, three from Scotland and three from the whole of the UK.

Seven surveys investigated the use of CAM in general terms (see Table 1).<sup>2,5,6,10,13–15</sup> Across these surveys, the average prevalence of use of CAM (within the past week) was 20.6% (range 12.1–32%). The average prevalence of referrals to CAM was 39% (range 24.6–86%). On average, CAM was recommended by 46% (range 38–55%) of physicians. The average percentage of physicians who had received any training in CAM was 10.3% (range 4.8–21%).

In surveys with a response rate >50%, the average prevalence of use of CAM was 21.3% (range 13–29.5%). In surveys with a response rate <50%, the average prevalence of use of CAM was 20% (range 12.1–32%). Two surveys<sup>13,14</sup> met all of the above criteria for methodological quality. They reported an average prevalence of 25.4% (range 21.4–29.5%).

Seven surveys assessed the use of two specific methods of CAM: homeopathy<sup>4,9,12,16</sup> and acupuncture<sup>7,8,11</sup> (see Table 2). The average prevalence for physicians’ use was 21.6% (range 6.5–49%) for homeopathy and 59.8% (range 13–90%) for acupuncture.

Figures 2 and 3 estimate changes over time. From Fig 2, one might assume that the prevalence of use of CAM in 2001 and

2003 was higher than in 1997 and 2000: the average physicians’ use of CAM in 1997 and 2000 was 14.5% (range 13–16%); this percentage was 27.6% (range 21.4–32) in 2001 and 2003. Fig 3 fails to indicate any clear changes in referral rates between 1997 and 2003.

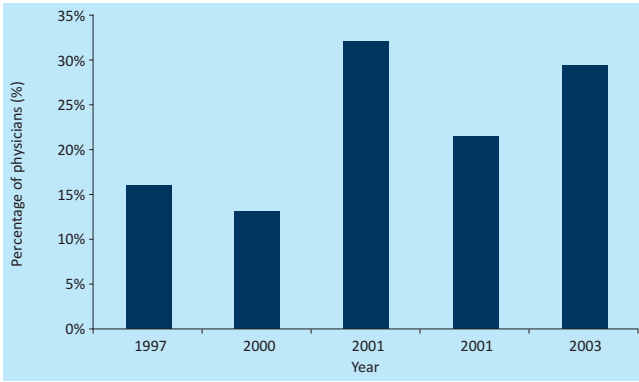
The methodological quality of most surveys was poor. Frequent weaknesses included no mention of sampling technique, small sample size, low response rate and lack of validated outcome measures. The use of a random-sampling method was mentioned in three (23%) surveys.<sup>8,13,14</sup> The response rates ranged between 9% and 78.6% (average 55.3%).

Perceived effectiveness of CAM was mentioned in three (23%) surveys.<sup>4,9,10,15</sup> The average perceived effectiveness for these three surveys was 24.5% (range 18–31%). The percentage of physicians who reported AEs was mentioned in two (15.3%) surveys,<sup>9,10,15</sup> for which the average was 24.3% (range 14–38%). The costs of CAM were given in four (30.7%) surveys.<sup>7,11,13,14</sup> Based on one survey, the median annual cost of acupuncture was £2,008 per eight acupuncture GP practices.<sup>7</sup>

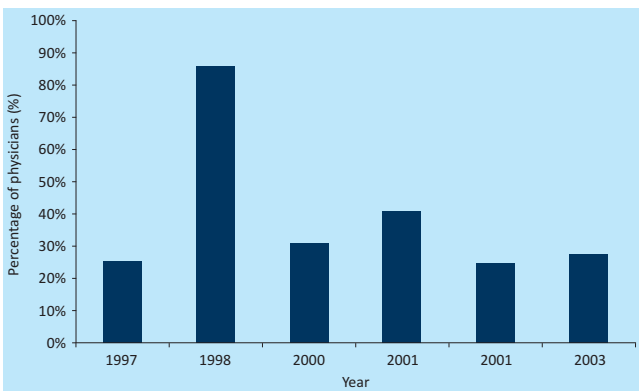
Acupuncture was the most popular type of CAM in three surveys (second most popular in three surveys; third in no surveys), homeopathy was the most popular in two studies (second in one survey; third in three surveys) and relaxation techniques were most popular in one survey (second in one survey; third in no surveys) (Table 3). Using our ranking method, acupuncture was the most popular form of CAM (23% of surveys), followed by homeopathy (15.3%) and relaxation techniques (7.6%).

## Discussion

Our review suggests that physicians in the UK make ample use of CAM. There are, however, many caveats. Most surveys were of



**Fig 2. Changes over time in physicians' use of complementary and alternative medicine (CAM) (only surveys of use of CAM in general).**



**Fig 3. Changes over time in physicians' referral to complementary and alternative medicine (CAM) (only surveys of use of CAM in general).**

Method of CAM	Score*		
	I	II	III
Acupuncture	3	3	0
Chiropractic	0	1	1
Homeopathy	2	1	1
Hypnosis	0	0	1
Magnetotherapy	0	0	1
Osteopathy	0	3	1
Relaxation	1	1	0

\*I = most popular; III = third most popular.

poor quality and their findings are thus less than reliable. The methods employed varied considerably and so comparisons between surveys and trends over time must be interpreted cautiously. It is obvious that the results of such surveys will depend on the population targeted. If, for instance, members of an acupuncture organisation are surveyed, it is hardly surprising to find that 90% of them use acupuncture.<sup>11</sup> Similarly, it might be suspected that physicians with an interest in CAM tend to reply to such surveys, while others do not. This, in turn, would result in erroneously high prevalence rates, particularly in surveys with low response rates.

The relatively high percentage of physicians who reported AEs is of concern. For example, in the survey of White *et al* (1997), 38% of physicians reported AEs, mostly after spinal manipulation therapy (SMT).<sup>15</sup> As several hundred severe complications have been reported after upper spinal manipulations and the effectiveness of SMT is not well documented (for example references 17 and 18) many authors have questioned whether this therapy generates more good than harm.<sup>19,20</sup>

As many doctors in the UK seem to use or recommend CAM, one ought to ask whether this is ethical. Doctors have a duty of care that essentially means they should treat each patient with the optimal treatment for his or her condition. As the evidence for most forms of CAM is far from strong,<sup>21</sup> the use of CAM in routine healthcare may present an ethical problem. It has been argued that the use of homeopathy, a form of CAM that is biologically implausible<sup>22</sup> and for which clinical evidence is weak,<sup>23</sup> conflicts with medical ethics.<sup>24,25</sup> Similarly, one ought to investigate why only 10.3% of doctors claim to have training in CAM yet many more seem to use CAM, as our analyses reveal. This discrepancy seems to indicate that there is an urgent need to educate doctors about the essential facts related to this area.<sup>26</sup> In turn, this should be seen in the context of the current debate about the scientific rigor of courses in CAM for healthcare professionals.<sup>27</sup>

Our review has several limitations. Even though our searches were extensive, we cannot be entirely sure that all relevant articles containing prevalence rates were located. Secondly, there is no gold-standard assessment tool for surveys,<sup>28</sup> so a formal quality assessment was deemed implausible. In addition, the results of our analyses should be interpreted with caution for several reasons. First and foremost, calculating average percentage values may promote a positive or negative skew as surveys were based on various sample sizes. Secondly, in eight surveys<sup>4,5,7-9,11,12,16</sup> the percentage values of the most popular CAM modalities were not provided. This means that our top three ranking list is based on six surveys. Thirdly, six surveys<sup>4,7-9,11,16</sup> investigated the use of single methods of CAM, namely homeopathy and acupuncture, and did not include other CAMs.

In conclusion, most surveys that have monitored physicians' use of CAM in the UK are less than rigorous. The current evidence suggests that the prevalence is high, which raises ethical and competence issues. The most popular treatments are acupuncture, homeopathy and relaxation techniques.

Table 1. Prevalence of the use of or referrals to CAM by physicians in UK since 1995.

Study	Aim (quote)	Population	Method	Sampling technique	Question(s) asked where appropriate	Response rate (%)	Prevalence (%)	Most popular CAMs (% where given)	Perceived effectiveness	Adverse effects reported (% of respondents)	Costs	Other relevant findings
Fewell (2005) <sup>5</sup>	To investigate 'awareness of CTs by healthcare professionals currently employed by a local healthcare trust'	500 GPs in England	Postal questionnaire	NM	'...indicate whether their practice area currently use CTs'	9	Currently using CAM (12.1)	Acupuncture Relaxation Magnetotherapy	NM	NM	NM	4.8% of trust employees held qualification in CM
Grenfell (1998) <sup>6</sup>	'To investigate local GPs' provision of and referral to CTs'	275 GPs in England	Postal questionnaire	NM	'...information on their provision of and referral to CTs...'	66	Referred patients to CAM (86)	Relaxation (25) Acupuncture (16) Osteopathy (13)	NM	NM	NM	68% received requests for CAM on monthly basis
Lewith (2001) <sup>2</sup>	'To evaluate the use of [and] attitudes to CAM among UK physicians'	12,168 physicians in UK	Postal questionnaire	NM	'...specific use of, and referral to, a variety of different CAM therapies'	23	Practised CAM (32) Referred to CAM (41)	Acupuncture (5.4) Osteopathy (3.6) Hypnotherapy (2.7)	NM	NM	NM	85.3% agreed or strongly agreed that CAM should be subject to more rigorous testing
Perry (2000) <sup>10</sup>	'To ascertain use of and attitudes towards CM, amongst GPs...'	252 GPs in England	Postal questionnaire	NM	'The questionnaire was based on those previously used by Wharton & Lewith, and White <i>et al</i> '	52	In one week: • Involved in CAM (56) • Had treated patients (13) • Had referred to CAM (31) • Had endorsed CAM (38)	Homeopathy (28) Osteopathy (23) Acupuncture (23) Chiropractic (18)	Osteopathy and acupuncture perceived as most effective	21	NM	18% used CAM regularly
Thomas (2001) <sup>13</sup>	'To describe the scale and scope of access to CM via general practice in England'	1,226 GPs in England	Postal questionnaire	Multi-stage random sampling	'...the questionnaire relating to practice provision or referrals for any of the named CTs'	78.6	In one week: • Referred to CAM (24.6) • Practised CAM (21.4) • Recommended CAM to patients (45)	Acupuncture (21.2) Homeopathy (16.8) Hypnotherapy (8.3)	NM	NM	Patients made some payment for 25% of CM	160 made referrals to CAM via NHS 64% offered CAM

Table 1. Continued.

Study	Aim (quote)	Population	Method	Sampling technique	Question(s) asked where appropriate	Response rate (%)	Prevalence (%)	Most popular CAMs (% where given)	Perceived effectiveness	Adverse effects reported (% of respondents)	Costs	Other relevant findings
Thomas (2003) <sup>14</sup>	'To generate new national estimates of the provision of CAMs in NHS primary care in England...'	1,203 GPs in England	Postal questionnaire	Stratified random cluster sampling	Questions from Thomas <i>et al</i> (2001)	72.3	Referred to CAM (26.8) Practised CAM (29.5)	Acupuncture (33.6) Chiropractic or osteopathy (23) Homeopathy (21.1)	NM	NM	Patients made some payment for 42% of practice-based provision	Current use was reported by: • 11% for patients with cancer • 10% for elderly patients • 9% for patients with mental health conditions • 5% for patients with diabetes • 5% for patients with CHD
White (1997) <sup>15</sup>	'...to determine the use of, and attitudes towards, CM among GPs'	461 GPs in England	Questionnaire	NM	Questions from Thomas <i>et al</i> (1995)	47.4	In one week: • referred to CAM (25) • Practised CAM (16) • Recommended CAM (55)	Homeopathy (5.9) Acupuncture (4.3)	Chiropractic, acupuncture and osteopathy rated as most effective	38, most commonly after SMT	NM	68% were 'active' in CAM

AE = adverse effect; BMAS = British Medical Acupuncture Society; CAM = complementary and alternative medicine; CHD = coronary heart disease; CM = complementary medicine; CT = complementary therapy; FMS = fibromyalgia syndrome; GP = general practitioner; NM = not mentioned; OA = osteoarthritis; OT = occupational therapist; PCT = primary care trust; PT = physical therapist; SMT = spinal manipulative therapy.  
\*Average estimate.

**Table 2. Prevalence of use of specific methods of CAM by physicians in UK since 1995.**

Study	Aim (quote)	Population	Method	Sampling technique	Question(s) asked (quote where appropriate)	Response rate (%)	Prevalence of use (%)	Most popular CAMs	Perceived effectiveness (%)	Adverse effects (% of respondents)	Costs	Other relevant findings
Ekins-Daukes (2004) <sup>4</sup>	'To investigate the extent of homeopathic prescribing in primary care for childhood diseases...'	161 GPs in Scotland	questionnaire	NM	'...to determine reasons for or against prescribing homeopathic medicines to children...'	75	Prescribed homeopathic medicines (22)	Homeopathy	Frequent prescribers strongly agreed homeopathy was efficacious (18)	NM	NM	94% of GPs perceived homeopathy as safe
Johnson (2008) <sup>7</sup>	'...to test the feasibility of surveying national data on referrals and prescribing'	3 PCTs including orthopaedic, pain, physiotherapy and rheumatology practice managers in England	questionnaire	Non-random sampling	'...whether any member of the primary care team offered acupuncture, and if so how many appointments per week'	65*	Provided acupuncture (13)	Acupuncture	NM	NM	Median of £2,008 annually	Considerable variation in acupuncture provision between different PCTs
Orpen (2004) <sup>8</sup>	'...to establish whether acupuncture services are provided...'	Nurses, medical staff, physiotherapists and pharmacists in 42 hospitals in UK	Postal questionnaire	Random sampling	'...to supply information on the number of staff who performed acupuncture...'	71	Provided acupuncture (76.6)	Acupuncture	NM	NM	NM	Average waiting time for first acupuncture treatment was 18.5 weeks
Perry (2000) <sup>9</sup>	'...to ascertain the use of and attitudes towards homeopathy amongst GPs...'	252 GPs in England	Postal questionnaire	NM	'The questionnaire was based on those previously used by Wharnton and Lewith, and White <i>et al</i> '	52	Used homeopathy (6.5)	Homeopathy	31	14	NM	23% of GPs considered homeopathy to have valid basis
Price (2004) <sup>11</sup>	'To assess the usage of acupuncture by members of BMAS...'	2,312 GPs, doctors, other health professionals in UK	Postal questionnaire	NM	'...whether they currently treated patients with acupuncture'	48	Respondents provided acupuncture (90)	Acupuncture	NM	NM	61% of acupuncture treatments given free within NHS	More than one million acupuncture treatments each year provided by members of BMAS
Ross (2006) <sup>12</sup>	'To investigate the current levels of homeopathic and herbal prescribing in Scottish general practice'	323 GPs in Scotland	Descriptive survey	NM		NM	Prescribed homeopathic (32) Prescribed herbal remedies (49)	Homeopathy Herbal medicine	NM	NM	NM	60% of GPs prescribed homeopathic or herbal medicines
Wyllie (1998) <sup>16</sup>	'...to assess the attitude of GPs in Lothian, Scotland, to homeopathy'	540 GPs in Scotland	Postal questionnaire	NM	'Have you received any training in complementary medicine?'	56.3%	Prescribed homeopathy (9)	Homeopathy	NM	NM	NM	69% of GPs had referred patients for homeopathy

BMAS = British Medical Acupuncture Society; NM = not mentioned; PCT = primary care trust.

## Appendix 1. Detailed search strategy for Medline.

- 1 An?esthetist\$ OR Anatomist\$ OR andrologist\$ OR Audiologist\$ OR Chiropracist\$ OR Cytogeneticist\$ OR Dermatologist\$ OR Embryologist\$ OR Endocrinologist\$ OR Gastroenterologist\$ OR geneticist\$ OR Geriatrician\$ OR Gynaecologist\$ OR Haematologist\$ OR Histopathologist\$ OR Hospitalist\$ OR Immunologist\$ OR Microbiologist\$ OR Nephrologist\$ OR Neurologist\$ OR Neurophysiologist\$ OR Neurosurgeon\$ OR Obstetrician\$ OR Oncologist\$ OR Ophthalmologist\$ OR Optometrist\$ OR Orthotist\$ OR Otolaryngologist\$ OR P?ediatrician\$ OR Pathologist\$ OR Perfusionist\$ OR Phlebotomist\$ OR physiologist\$ OR Physiotherapist\$ OR Podiatrist\$ OR Prosthetist\$ OR Radiologist\$ OR Respiriologist\$ OR Rheumatologist\$ OR Urologist\$ .ti,ab
- 2 Clinical ADJ3 (assistant\$ OR research\$).ti,ab
- 3 Staff ADJ3 (associate\$ OR grade\$).ti,ab
- 4 GP\$.ti,ab
- 5 Physician\$.ti,ab
- 6 doctor\$.ti,ab
- 7 surgeon\$.ti,ab
- 8 house officer\$.ti,ab
- 9 therapist\$ ADJ3 (Cardi\$ OR Hearing OR Occupational OR Physical OR Radiation OR Respiratory OR sport OR exercise).ti,ab
- 10 Practitioner\$ ADJ3 (Associate OR Critical Care OR Endoscopy OR General OR registrar\$ OR hospital OR Infection Control OR Operating OR Perioperative OR special\$ OR Respiratory OR medical).ti,ab
- 11 specialist\$.ti,ab
- 12 Consultant\$.ti,ab
- 13 Registrar\$ ADJ3 (Hospital OR Special\$).ti,ab
- 14 trust grade\$.ti,ab
- 15 locum\$.ti,ab
- 16 MD\$.ti,ab
- 17 Exp Physician
- 18 Alternative ADJ3 (heal\$ OR medic\$ OR remed\$ OR therap\$ OR treatment\$).ti,ab Complementary ADJ3 (heal\$ OR medic\$ OR remed\$ OR therap\$ OR treatment\$).ti,ab
- 19 integrat\$ ADJ3 (heal\$ OR medic\$ OR remed\$ OR therap\$ OR treatment\$).ti,ab CAM.ti,ab
- 20 exp Complementary Therapies/
- 21 Prevalen\$.ti,ab.
- 22 Focus group\$ OR Interview\$ OR Question\$ OR Survey\$).ti,ab
- 23 exp health surveys/ or exp health care surveys/ or exp interviews as topic/ or exp questionnaires/
- 24 1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12 OR 13 OR 14 OR 15 OR 16 OR 17
- 25 18 OR 19 OR 20 OR 21 OR 22 OR 23
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