Prevalence of complementary and alternative medicine (CAM) use by the general population: a systematic review and update.

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Abstract

Objectives: To update previous systematic reviews of 12-month prevalence of CAM use by general populations; to explore trends in CAM use by national populations; to develop and apply a brief tool for assessing methodological quality of published CAM-use prevalence surveys.

Design: Nine databases were searched for published studies from 1998 onwards. Studies prior to 1998 were identified from two previous systematic reviews. A six-item literature-based tool was devised to assess robustness and interpretability of CAM-use estimates.

Results: Fifty-one reports from 49 surveys conducted in 15 countries met the inclusion criteria. We extracted 32 estimates of 12-month prevalence of use of any CAM (range 9.8% to 76%) and 33 estimates of 12-month prevalence of visits to CAM practitioners (range 1.8% to 48.7%). Quality of methodological reporting was variable; 30/51 survey reports (59%) met four or more of six quality criteria. Estimates of 12-month prevalence of any CAM use (excluding prayer) from surveys using consistent measurement methods showed remarkable stability in Australia (49%, 52%, 52%; 1993, 2000, 2004) and USA (36%, 38%; 2002, 2007).

Conclusions: There was evidence of substantial CAM use in the 15 countries surveyed. Where national trends were discernable due to consistent measurement, there was no evidence to suggest a change in 12-month prevalence of CAM use since the previous systematic reviews were published in 2000. Periodic surveys are important to monitor population-level CAM use. Use of government-sponsored health surveys may enhance robustness of population-based prevalence estimates. Comparisons across countries could be improved by standardising approaches to data collection.

Review Criteria

- Nine databases were searched from 1998 onwards; prior studies were identified from two previous systematic reviews.
- Studies were included if they reported prevalence of CAM use over 12-months in a representative sample of the general population. Studies were excluded if restricted to a single CAM therapy, or not written in English.
- A six-item tool to assess quality of published CAM-use prevalence surveys was devised and applied.

Message for the Clinic

- The review included 51 reports from 49 surveys in 15 countries: estimates of 12-month prevalence of any CAM use ranged from 9.8% to 76%; and 1.8% to 48.7% for visits to CAM practitioners.
- There was no evidence of a change in CAM use since previous reviews were published in 2000.
- Periodic surveys with consistent measurement methods are needed to determine trends in CAM use by national populations.

Introduction

It has been more than ten years since two systematic reviews of surveys of complementary and alternative medicine (CAM) use by the general public were published [1, 2]. The reviews concluded, independently, that despite the methodological limitations of the surveys included, CAM was used by substantial proportions of the general populations of a number of countries. One source [3] suggested that CAM use increased significantly in the USA between 1990 and 1997. A further review is timely to examine more recent trends and their implications for healthcare systems and policy as well as for consumers of CAM.

The use of all types of medicine is influenced by economic and socio-cultural factors. In economically disadvantaged societies where access to biomedical services is poor, there is evidence of a pervasive reliance on traditional healers, even for serious disease [4]. In affluent countries, where biomedical services are more accessible, a substantial amount of CAM is used for illness prevention and health promotion purposes [3]. There is also evidence that CAM is frequently used as an adjunct to biomedical treatment by patients with serious disease such as cancers [5, 6] and to self-manage long-term health complaints like low back pain [7]. However, the socio-cultural factors influencing CAM use in affluent societies are still not well understood. Studies have persistently shown that CAM users are more likely to be female, better educated, middle-aged, and report poorer health status than non users [6, 8-12]. CAM use appears to be driven more by congruence with values and beliefs than by dissatisfaction with biomedicine [10] but motivation to use CAM is further complicated by costs and benefits as experienced by consumers.

While the true rate of CAM use can be expected to differ between countries due to economic, social and cultural factors, the prevalence rates estimated by surveys are also affected by methodological factors. Some of these have been identified [2] with the recommendation that surveys justify the types of CAM surveyed; use pretested data collection methods; distinguish between consultations with CAM practitioners and over-the-counter products; seek reports of usage for each of the practitioner therapies and products identified; and specify the period over which CAM use is estimated (most surveys choose a 12 month retrospective period). Others have also recommended a more standardised method of collecting data to improve the comparability of CAM use estimates [13].

The two previous reviews of CAM prevalence [1, 2] each included 12 surveys for review with seven[1] common to both studies due to differences in search methods and selection criteria. The current study has drawn on these two earlier reviews to develop more rigorous criteria for searching and selection and aims to i) systematically review all surveys of CAM use by the general public, ii) identify trends in CAM use by national populations, iii) develop a brief tool for assessing methodological quality and apply it to each survey.

Methods

Search strategy

The systematic review followed the recommendations in the PRISMA statement [16]. The following databases were searched in February 2011: MEDLINE, Medline in Process, EMBASE, Cochrane Database of Systematic Reviews, Cochrane CENTRAL Register of Controlled Trials, HTA database, Science Citation Index, AMED, and PsycINFO. The search strategy combined terms for: i) complementary and alternative medicines, ii) prevalence, surveys or patterns of

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[1] Data for Thomas 1993 [14] and Vickers 1994 [15] are from the same survey source.

use, and iii) population-level or national-level data. The full search strategy is provided in Appendix 1. The search was restricted to studies published from 1998 onwards. Studies published prior to 1998 were identified from two previous systematic reviews of CAM prevalence [1, 2]. Bibliographies of included papers were checked for further relevant studies.

Inclusion and exclusion criteria

Studies were included if they reported prevalence of CAM use over a 12-month retrospective period within a representative general population sample of a nation or a defined geographical area. Surveys of clearly-defined age groups (such as adults or children) were also included. Included studies used survey methods such as structured interviews or self-complete questionnaires. Studies were excluded if they were restricted to a single therapy (rather than CAM use overall), did not report 12-month prevalence, or were not written in English. Studies were also excluded if they were not based on representative samples of the general population; for example, surveys of sub-populations with specific clinical conditions or socio-demographic characteristics (other than age).

Study selection and data extraction

Study titles retrieved by the search were assessed for inclusion by one reviewer and a sample of excluded titles was checked by a second reviewer: no instances of discrepancy were found. Potentially relevant abstracts and full texts were assessed by two reviewers and any discrepancies resolved through discussion. Data were extracted by one reviewer and checked by a second.

Quality assessment

There is no agreed set of criteria for assessing quality of health-related surveys, although various publications have explored issues relating to the critical review of questionnaire-based surveys in health research [17-22], and previous studies of CAM-use prevalence have commented on these issues [2, 14, 23, 24].

For the purposes of this review, we derived a short, literature-based quality assessment tool comprising important and assessable criteria of methodological quality, and applied this to each of the eligible papers identified. Our rationale for selecting quality criteria related to the need to assess the robustness and interpretability of published CAM-use estimates. Our quality criteria reflect a combination of aspects of study design, study conduct and the reporting of results (Box 1).

Rationale for quality criteria

Study design

As with all surveys of prevalence, the estimates produced are the direct product of the questions asked; slight changes in the form of questions will have the potential to affect the resulting estimates. This is particularly important in surveys of CAM where multiple, and sometimes culturally specific understandings exist in relation to the practice and to the constituent therapies [2, 23]. CAM prevalence surveys have employed one of two data collection methods; either a list of named therapies is presented, or more exploratory, open question(s) are used to elicit CAM use. Our first criterion required papers to reproduce the CAM survey question(s) verbatim or describe the CAM question in the text (e.g. "we asked about…"). For closed questions, we required a list of the pre-specified therapies (and exclusions) presented to survey respondents (described clearly enough for the individual therapies to be counted reliably). Where

open question(s) were used to collect CAM-use data, we sought evidence of the content and number of open questions employed.

Since the measurement process for CAM-use is complex and variable, the validity of the survey instrument is strengthened if it has been tested in a pilot study for ease of completion and comprehensibility [2, 14, 18]. Evidence of such piloting formed our second criterion. Explicit mention of a pilot was sought for all studies, but routine, government-sponsored surveys were assumed to have undergone a piloting phase as this is standard practice and frequently described in separate, methodological papers or reports.

Adequate sample size enhances the robustness of the estimates produced and, if something is known about expected prevalence prior to the survey, a sample size calculation can be performed to ensure adequate numbers for each item of importance to be measured [18, 20-22]. Surveys of CAM use that are part of wider-scope studies of health behaviour tend to have large samples, but may not perform sample size calculations in relation to items measuring CAM use. Our third criterion was met if studies reported a sample of at least 1,000, and/or if they reported a sample size calculation specific to CAM use.

Data collection
Previous papers have cited 'good' response rates for surveys as between 70-80%, and 'acceptable' response rates for postal surveys between 50% and 60% [18, 20-22, 24]. Our fourth criterion was deemed to have been met if studies reported a response rate of at least 60% (we accepted adjusted or unadjusted response rates and report these in Table 1).

Analysis
Our fifth quality criterion was deemed to have been met if appropriate correction for non-response bias was used; for example, weighting the responses to the known characteristics of the original sample population [18, 20-22].

Reporting of estimates
Finally, 95% confidence intervals (CIs) provide an estimate of the range in which the true prevalence value is expected to lie [18, 20-22, 25] and therefore provide more information whilst reducing the likelihood of 'false' precision being attributed to the estimates. Our sixth and final quality criterion was therefore met when studies reported 95% CIs, or standard errors (SEs) from which the CI can be calculated, for the main CAM-use prevalence estimates.

Insert Box 1 about here

Results

Number of surveys included
The search identified 2312 unique citations, as shown in Figure 1. Of these, 2208 were excluded at the title and abstract stage, while the full texts of 104 references were examined. Forty-seven references were included in the review; three references [11, 26, 27] together contained reports from seven independent surveys, while four references [24, 28-30] relating to two surveys gave separate reports for adults and children. In total, the 47 references reviewed contained 51 reports from 49 independent surveys. From these reports, we extracted 32 separate estimates

of the 12-month prevalence of the use of any CAM and 33 estimates of the 12-month prevalence of visits to CAM practitioners.

Insert Figure 1 about here

Quality assessment

Table 1 identifies the 49 surveys ordered by the number of surveys per country, the country of origin, and the year of data collection. Each of the 51 survey reports (two surveys giving separate reports for adults and children) is assessed using the six quality criteria developed for this review.

Based on the information reported, we assessed all surveys reviewed with regards to our six quality criteria (see Table 2). The proportion of all survey reports achieving each of our criteria ranged from 43% to 84%. The criteria least likely to be met were (5) data weighting to reduce non-response bias, and (6) reporting CI or SE for key prevalence estimates. Fifty-nine percent of all survey reports met four or more of our quality criteria. Although proportionately more reports from government–sponsored surveys achieved four or more of the quality criteria compared to other survey reports, and there was a trend towards more of these reports meeting each individual criterion, the only marked difference observed was for the piloting criterion, where we made the assumption that all government-sponsored surveys were piloted. We found no evidence of an association between date of publication and quality.

Insert Table 2 about here

Prevalence of CAM use

Table 3 is a quick access guide to CAM use over a 12-month period as reported from the 49 surveys conducted in 15 countries. It shows the percentage of the general population using at least one type of CAM (all-CAM use),the percentage visiting any CAM practitioner (all CAM-visits), and gives an assessment of each survey using our quality criteria. Table 4 gives details for each survey of the survey population, the sampling and data collection method, the sample itself, and CAM use estimates with 95% CIs (CIs calculated by the review authors are identified). In both tables the survey data are grouped by age: adults or all ages; children; and older adults. Where possible, the following narrative identifies trends in CAM use by national populations from data obtained using consistent methodologies.

USA

Of the surveys (see Table 1) conducted in the USA from 1990 to 2007, five were government-sponsored surveys [24, 31-34]. Data from the National Health Interview Surveys (NHIS) provided the best available evidence of recent trends in CAM use by adults (Tables 3 & 4). *Excluding* prayer, all-CAM use by adults (age 18+), over a 12-month period, was estimated to be 36% in 2002 [32] and 38% in 2007 [31]. Four US independent national surveys of adults (age 18+) conducted in the 1990s [3, 10, 35, 36] estimated rates for all-CAM use of 34 to 42%.Visits by adults to CAM practitioners in the USA (Tables 3 & 4) increased from 13% in 2002 to 16% in 2007 with substantial variation in the use of specific CAM therapies and reported significant increases in usage of some types of therapy including acupuncture and massage therapy [31, 32].

The data from the 2007 NHIS [31] indicates that all-CAM use in children (age 0-17) is considerably lower than for adults: 12% versus 38%. The Medical Expenditure Panel Survey (MEPS) of 1996 [28] also shows that adults (age

18+) were much more likely than children (age <18) to visit CAM practitioners (8% versus 2%). The three independent studies [37-39] of CAM use in later life (age 60+ or 65+) gave rates for all-CAM use varying from 41 to 63% (Table 3).

UK

In the UK, 12-month prevalence estimates for all-CAM use by adults in 1998 [40], 1999 [41] and 2005 [42] were 28%; 20%; and 26% respectively. Fourteen percent of the adult population (age 18+) of England were reported to have visited at least one CAM practitioner in 1998 [40]. In 2001, the estimate for adults (age 16+) was 10% for England, Scotland and Wales [43], and 12% for England in 2005 [42]. None of these surveys used the same measurement tool. No UK estimates for children or older adults were identified.

Canada

The National Population Health Survey (NPHS) in Canada reported rates of adult (age 15+) visits to CAM practitioners at 15% in 1995 [44] and 17% (for age 18+) in 1999 [45]. Based on data from 2001-5 the Canadian Community Health Survey (CCHS) estimated that 12% of the population age 12 or older had visited some type CAM practitioner over a 12-month period [46]. None of these three surveys estimated the 12-month prevalence of all CAM-use.

Australia

In Australia, the South Australian Health Omnibus Surveys (SAHOS) collected data on CAM use by adults (age 15+) living in Southern Australia in 1993, 2000 and 2004 [9, 29, 47]. These methodologically consistent studies report remarkably similar estimates of overall CAM-use during that period (49%, 52%, 52%). Visits to CAM practitioners were reported as 20% of the population in 1993 [9], 23% in 2000 [47] and 27% in 2004 [29]. As in the US, the SAHOS 2004 survey showed lower rates of overall CAM use in children (age <15) than adults (18% versus 52%) [29, 30].

Other countries

Data from survey reports in the remaining 11 countries were considered insufficient to indicate national trends in CAM use; surveys in Norway, Israel, Demark and Singapore used inconsistent measurement methods, targeted different populations, and/or the quality of the survey reports was assessed as poor. Of surveys with national samples, the three highest rates of CAM use were reported in East Asian countries: Japan: 76%, South Korea: 75%, and Malaysia: 56% [48-50].

Discussion

This is the most comprehensive and systematic review to date of surveys reporting the prevalence of CAM use by the general public. The two previous systematic reviews, published in 2000 [1, 2], together included 18 reports from 17 surveys conducted in nine countries. Nine reports from the two previous reviews met the criteria for the current review, a further 40 surveys were identified yielding 42 further reports; 38 were published during or post-2000. The enduring popularity of CAM surveys was also evidenced by the number of repeat surveys conducted, particularly by government agencies, in the USA, Australia and the UK and the resultant data were used to explore trends in CAM use for this review. Reports of CAM surveys from many countries are absent and this partly reflects the limitation of excluding studies not written in English.

A total of 47 publications were reviewed containing 51 reports from 49 surveys conducted in 15 (out of a possible 196) countries. The surveys indicated that CAM was frequently used and that prevalence estimates varied widely between the 15 countries; the prevalence of all types of CAM use ranged from 9.8% to 76%, the range for visits to CAM practitioners was 1.8% to 48.7%. There was consistent evidence that adults were more frequent users of CAM than children; and that national estimates of CAM use were highest in East Asian countries such as Japan [48], South Korea [50], and Malaysia [49].

Prevalence estimates were also influenced by differences in methodology which make it difficult to compare figures between countries and within countries. Examples of this include variable age ranges and sampling techniques, but by far the most important source of variability which influences the comparability of estimates comes from the way in which CAM is defined and operationalised for data collection: of the 31 reports (61%) that used lists of named therapies to elicit CAM use, the number of therapies identified ranged from four to 36. Most surveys also allowed respondents to report the use of 'other' types of CAM, but CAM prevalence estimates were inflated by the inclusion of prayer as a type of CAM [32]. Use of prayer was most frequently reported in studies from the USA and East Asia. Other factors contributing to high estimates of CAM use were the inclusion of religious practices other than prayer [51]; named therapies not commonly regarded as CAM such as 'dietary supplements' [48]; and the use of indigenous, traditional medicine [52]. This reinforces the call for a more standardised approach to collecting comparable population data [13].

There was evidence of national trends in Australia, UK and USA. In Australia during 2004, about one in two adults and one in five children had used some type of CAM and about one in four adults had visited CAM practitioners [29, 30] with no significant change in CAM use from 2000 to 2004. UK surveys also suggested that CAM use has remained fairly constant since 1998 [40] with about one in four adults using CAM and one in eight consulting a CAM practitioner during 2005 [42]. In the USA, CAM use has remained steady since 2002 with the most recent survey (2007) indicating that nearly four in ten adults and one in nine children had used some type of CAM [31]. However, in general, information on trends is limited by insufficient data from repeat surveys with consistent, high quality methods.

There is currently no consensus regarding "what is quality" in the context of prevalence surveys. Sanderson et al [19] argue for quality criteria focussed on the reduction of bias, but acknowledge that other aspects of quality are important. We aimed to produce quality criteria that relate to the likely robustness and interpretability of the estimates produced. The development of the assessment tool was based on researcher experience and authoritative sources. Our experience of applying the six identified criteria suggested they had face validity, but further work is needed to establish their reliability and validity. Reliable and valid criteria can be used to select high quality surveys for future systematic reviews and to help guide the development and reporting of prevalence surveys.

Application of the six-item quality assessment tool developed for this review suggested that the quality was variable; thirty survey reports (59%) achieved four or more of the six quality criteria. There was no evidence an association between date of publication and quality, but we did observe a trend towards higher quality in the government-sponsored surveys, according to our criteria.

The rationales cited for conducting CAM surveys in the reports reviewed were predominantly concerned with perceptions of the popularity of CAM, and its increasing use, and the implications of this for public health and health

service planning. Recent surveys have revealed that delayed medical care was associated with CAM use in the USA [53]; that most respondents in Australia were unaware that CAM use was not routinely tested for safety and efficacy by a government agency [29]; and that more than one in four UK respondents taking prescribed drugs stated they were also using CAM [42]. All of the recent reports in Australia, UK, and USA [29, 31, 42] emphasised the need to improve communication between physicians and patients about their use of CAM; openness and non-judgemental communication is needed to determine the risks of drug interactions and other potential complications [29]. Periodic surveys of general populations are required to monitor changing patterns in CAM use as well as public perceptions and awareness, and the quality of communication between healthcare providers and their users.

Finally, most studies reviewed also reported estimates for visits to specific CAM practitioners. This will be the subject of a separate publication and complete the picture of the world-wide use of CAM based on the best available evidence.

Author contributions: All authors contributed to the design of the review, extraction and compiling of the data, drafting and critical revision of the manuscript.

References

[1]   Ernst E. Prevalence of use of complementary/alternative medicine: a systematic review. Bulletin of the World Health Organization 2000;78(2):252-7.

[2]   Harris P, Rees R. The prevalence of complementary and alternative medicine use among the general population: a systematic review of the literature. Complementary Therapies in Medicine 2000;8(2):88-96.

[3]   Eisenberg DM, Davis RB, Ettner SL, et al. Trends in alternative medicine use in the United States, 1990-1997: results of a follow-up national survey. JAMA 1998;280(18):1569-75.

[4]   Chibwana AI, Mathanga DP, Chinkhumba J, et al. Socio-cultural predictors of health-seeking behaviour for febrile under-five children in Mwanza-Neno district, Malawi. Malar J 2009;8:219.

[5]   Harris P, Finlay IG, Cook A, et al. Complementary and alternative medicine use by patients with cancer in Wales: a cross sectional survey. Complementary Therapies in Medicine 2003;11(4):249-53.

[6]   Molassiotis A, Fernadez-Ortega P, Pud D, et al. Use of complementary and alternative medicine in cancer patients: a European survey. Ann Oncol 2005;16(4):655-63.

[7]   National Institute for Health and Clinical Excellence (NICE). Early management of persistent non-specific low back pain: NICE clinical guideline 88. 2009.

[8]   Thomas KJ, Carr J, Westlake L, et al. Use of non-orthodox and conventional health care in Great Britain. British Medical Journal 1991;302(6770):207-10.

[9]   MacLennan AH, Wilson DH, Taylor AW. Prevalence and cost of alternative medicine in Australia. Lancet 1996;347(9001):569-73.

[10] Astin JA. Why patients use alternative medicine: results of a national study. JAMA 1998;279(19):1548-53.

[11] Hanssen B, Grimsgaard S, Launso L, et al. Use of complementary and alternative medicine in the Scandinavian countries. Scandinavian Journal of Primary Health Care 2005;23(1):57-62.

[12] Ryan A, Wilson S, Taylor A, et al. Factors associated with self-care activities among adults in the United Kingdom: a systematic review. BMC Public Health 2009;9.

[13] Quandt SA, Verhoef MJ, Arcury TA, et al. Development of an international questionnaire to measure use of complementary and alternative medicine (I-CAM-Q). Journal of Alternative & Complementary Medicine 2009;15(4):331-9.

[14] Thomas KJ, Fall M, Nicholl J, et al. Methodological study to investigate the feasibility of conducting a population-based survey of the use of complementary health care. University of Sheffield: ScHARR; 1993.

[15] Vickers A. Use of complementary therapies. BMJ 1994;309(6962):1161.

[16] Moher D, Liberati A, Tetzlaff J, et al. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. Ann Intern Med 2009;151(4):264-9.

[17] McColl E, Jacoby A, Thomas L, et al. Design and use of questionnaires: a review of best practice applicable to surveys of health service staff and patients. Health Technol Assess 2001;5(31):1-256.

[18] Boyle MH. Guidelines for evaluating prevalence studies. Evidence-Based Mental Health 1998;1(2):37-9.

[19] Sanderson S, Tatt ID, Higgins JP. Tools for assessing quality and susceptibility to bias in observational studies in epidemiology: a systematic review and annotated bibliography. Int J Epidemiol 2007;36(3):666-76.

[20] Von Elm E, Altman DG, Egger M, et al. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. PLoS Med 2007;4(10, e296):1623-7.

[21] Firth J, Nelson EA, Hale C, et al. A review of design and reporting issues in self-reported prevalence studies of leg ulceration. J Clin Epidemiol 2010;63(8):907-13.

[22] Loney PL, Chambers LW, Bennett KJ, et al. Critical appraisal of the health research literature: prevalence or incidence of a health problem. Chronic Dis Can 1998;19(4):170-6.

[23] Bishop FL, Prescott P, Chan YK, et al. Prevalence of complementary medicine use in pediatric cancer: a systematic review. Pediatrics 2010;125(4):768-76.

[24] Druss BG, Rosenheck RA. Association between use of unconventional therapies and conventional medical services. JAMA 1999;282(7):651-6.

[25] Bland M. An Introduction to Medical Statistics. 3rd ed. Oxford University Press; 2000.

[26] Northcott HC, Bachynsky JA. Concurrent utilization of chiropractic, prescription medicines, nonprescription medicines and alternative health care. Social Science and Medicine 1993;37(3):431-5.

[27] Shmueli A, Shuval J. Use of complementary and alternative medicine in Israel: 2000 vs. 1993. Israel Medical Association Journal: Imaj 2004;6(1):3-8.

[28] Davis MP, Darden PM. Use of complementary and alternative medicine by children in the United States. Archives of Pediatrics & Adolescent Medicine 2003;157(4):393-6.

[29] MacLennan AH, Myers SP, Taylor AW. The continuing use of complementary and alternative medicine in South Australia: costs and beliefs in 2004. Medical Journal of Australia 2006;184(1):27-31.

[30] Smith C, Eckert K. Prevalence of complementary and alternative medicine and use among children in South Australia. Journal of Paediatrics & Child Health 2006;42(9):538-43.

[31] Barnes PM, Bloom B, Nahin RL. Complementary and alternative medicine use among adults and children: United States, 2007. National health statistics reports 2008;(12):1-23.

[32] Barnes PM, Powell-Griner E, McFann K, et al. Complementary and alternative medicine use among adults: United States, 2002. Advance Data 2004;(343):1-19.

[33] Ni H, Simile C, Hardy AM. Utilization of complementary and alternative medicine by United States adults: results from the 1999 national health interview survey. Medical Care 2002;40(4):353-8.

[34] Honda K, Jacobson JS. Use of complementary and alternative medicine among United States adults: the influences of personality, coping strategies, and social support. Preventive Medicine 2005;40(1):46-53.

[35] Eisenberg DM, Kessler RC, Foster C, et al. Unconventional medicine in the United States - Prevalence, costs, and patterns of use. New England Journal of Medicine 1993;328(4):246-52.

[36] Landmark Healthcare. The Landmark report on public perceptions of alternative care. Sacramento: Landmark Healthcare; 1998.

[37] Astin JA, Pelletier KR, Marie A, et al. Complementary and alternative medicine use among elderly persons: one-year analysis of a Blue Shield Medicare supplement. Journals of Gerontology Series A-Biological Sciences & Medical Sciences 2000;55(1):M4-M9.

[38] Cheung CK, Wyman JF, Halcon LL. Use of complementary and alternative therapies in community-dwelling older adults. Journal of Alternative and Complementary Medicine 2007;13(9):997-1006.

[39] Shreffler-Grant J, Weinert C, Nichols E, et al. Complementary therapy use among older rural adults. Public Health Nursing 2005;22(4):323-31.

[40] Thomas KJ, Nicholl JP, Coleman P. Use and expenditure on complementary medicine in England: a population based survey. Complementary Therapies in Medicine 2001;9(1):2-11.

[41] Ernst E, White A. The BBC survey of complementary medicine use in the UK. Complementary Therapies in Medicine 2000;8(1):32-6.

[42] Hunt KJ, Coelho HF, Wider B, et al. Complementary and alternative medicine use in England: results from a national survey. International Journal of Clinical Practice 2010;64(11):1496-502.

[43] Thomas K, Coleman P. Use of complementary or alternative medicine in a general population in Great Britain. Results from the National Omnibus survey. Journal of Public Health 2004;26(2):152-7.

[44] Millar WJ. Use of alternative health care practitioners by Canadians. Canadian Journal of Public Health 1997;88(3):154-8.

[45] Millar WJ. Patterns of use--alternative health care practitioners. Health Reports 2001;13(1):9-21.

[46] Metcalfe A, Williams J, McChesney J, et al. Use of complementary and alternative medicine by those with a chronic disease and the general population--results of a national population based survey. BMC Complementary & Alternative Medicine 2010;10:58.

[47] MacLennan AH, Wilson DH, Taylor AW. The escalating cost and prevalence of alternative medicine. Preventive Medicine 2002;35(2):166-73.

[48] Yamashita H, Tsukayama H, Sugishita C. Popularity of complementary and alternative medicine in Japan: a telephone survey. Complementary Therapies in Medicine 2002;10(2):84-93.

[49] Siti ZM, Tahir A, Farah AI, et al. Use of traditional and complementary medicine in Malaysia: a baseline study. Complementary Therapies in Medicine 2009;17(5-6):292-9.

[50] Ock SM, Choi JY, Cha YS, et al. The use of complementary and alternative medicine in a general population in South Korea: results from a national survey in 2006. Journal of Korean Medical Science 2009;24(1):1-6.

[51] Al-Faris EA, Al-Rowais N, Mohamed AG, et al. Prevalence and pattern of alternative medicine use: the results of a household survey. Annals of Saudi Medicine 2008;28(1):4-10.

[52] Lim MK, Sadarangani P, Chan HL, et al. Complementary and alternative medicine use in multiracial Singapore. Complementary Therapies in Medicine 2005;13(1):16-24.

[53] Su D, Li L. Trends in the use of complementary and alternative medicine in the United States: 2002-2007. Journal of Health Care for the Poor & Underserved 2011;22(1):296-310.

[54] Hughes SC, Wingard DL. Children's visits to providers of complementary and alternative medicine in San Diego. Ambulatory Pediatrics 2006;6(5):293-6.

[55] Arcury TA, Preisser JS, Gesler WM, et al. Complementary and Alternative Medicine Use Among Rural Residents in Western North Carolina. Complementary Health Practice Review 2004;9(2):93-102.

[56] Oldendick R, Coker AL, Wieland D, et al. Population-based survey of complementary and alternative medicine usage, patient satisfaction, and physician involvement. South Carolina Complementary Medicine Program Baseline Research Team. Southern Medical Journal 2000;93(4):375-81.

[57] Paramore LC. Use of alternative therapies: Estimates from the 1994 Robert Wood Johnson Foundation National Access to Care Survey. Journal of Pain and Symptom Management 1997;13(2):83-9.

[58] Yung B, Lewis P, Charny M, et al. Complementary medicine: Some population-based data. Complementary Medical Research 1988;3(1):23-8.

[59] Xue CC, Zhang AL, Lin V, et al. Complementary and alternative medicine use in Australia: a national population-based survey. Journal of Alternative & Complementary Medicine 2007;13(6):643-50.

[60] Fonnebo V, Launso L. High Use of Complementary and Alternative Medicine Inside and Outside of the Government-Funded Health Care System in Norway. Journal of Alternative and Complementary Medicine 2009;15(10):1061-6.

[61] Steinsbekk A, Rise MB, Aickin M. Cross-cultural comparison of visitors to CAM practitioners in the United States and Norway. Journal of Alternative & Complementary Medicine 2009;15(11):1201-7.

[62]   Steinsbekk A, Adams J, Sibbritt D, et al. The profiles of adults who consult alternative health practitioners and/or general practitioners. Scandinavian Journal of Primary Health Care 2007;25(2):86-92.

[63]   Niskar AS, Peled-Leviatan T, Garty-Sandalon N. Who uses complementary and alternative medicine in Israel? Journal of Alternative & Complementary Medicine 2007;13(9):989-95.

[64]   Rasmussen NK, Morgall JM. The use of alternative treatments in the Danish adult population. Complementary Medical Research 1990;4:16-22.

[65]   Feng L, Chiam PC, Kua EH, et al. Use of complementary and alternative medicines and mental disorders in community-living Asian older adults. Archives of Gerontology & Geriatrics 2010;50(3):243-9.

[66]   Schwarz S, Messerschmidt H, Volzke H, et al. Use of complementary medicinal therapies in West Pomerania: A population-based study. Climacteric 2008;11(2):124-34.

[67]   Dello Buono M, Urciuoli O, Marietta P, et al. Alternative medicine in a sample of 655 community-dwelling elderly. Journal of Psychosomatic Research 2001;50(3):147-54.

Appendix 1: Medline search strategy

Search terms for complementary and alternative medicine (CAM)

1	exp Complementary Therapies/
2	(complementary adj5 medicine$).tw.
3	(complementary adj5 therap$).tw.
4	(complementary adj5 health care).tw.
5	(complementary adj5 healthcare).tw.
6	(complementary adj5 treatment$).tw.
7	alternative medicine$.tw.
8	alternative therap$.tw.
9	alternative health care.tw.
10	alternative healthcare.tw.
11	alternative treatment$.tw.
12	(unconventional adj5 medicine$).tw.
13	(unconventional adj5 therap$).tw.
14	(unconventional adj5 care).tw.
15	(unconventional adj5 health care).tw.
16	(unconventional adj5 healthcare).tw.
17	(unconventional adj5 treatment$).tw.
18	(nonconventional adj5 medicine$).tw.
19	(non-conventional adj5 medicine$).tw.
20	(nonconventional adj5 health care$).tw.
21	(non-conventional adj5 health care$).tw.
22	(nonconventional adj5 healthcare$).tw.
23	(non-conventional adj5 healthcare$).tw.

Search terms for prevalence, surveys or patterns of use

24	Prevalence/
25	prevalence.tw.
26	Health Care Surveys/
27	survey$.tw.
28	"pattern$ of use".tw.
29	"pattern$ of usage".tw.
30	"level$ of use".tw.
31	"level$ of usage".tw.

Combining terms for CAM and prevalence/surveys

32	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 or 18 or 19 or 20 or 21 or 22 or 23
33	24 or 25 or 26 or 37 or 28 or 29 or 30 or 31
34	32 and 33

Terms for population-level or national-level data

35	national.tw.
36	population.tw.
37	Population/

Combining terms

38	35 or 36 or 37

39   34 and 38

Restricting to 1998 onwards

40   limit 39 to yr="1998 - current"

($ = truncation; / = medical subject heading; tw = title/abstract free text search)

Box 1: Quality assessment criteria for reports of the 12-month population prevalence of CAM use

Study design	1. Measurement method– CAM-use questions clearly described and number of therapies/questions reported.
	2. Piloting of survey reported (or assumed for government surveys).
	3. Sample size ≥1,000 and/or CAM-specific sample size calculation reported.
Data collection	4. Reported survey response rate ≥60%.
Analysis	5. Data weighted to population characteristics (where appropriate) to reduce non-response bias.
Reporting	6. 95% confidence interval or standard error reported for main prevalence estimates.

Figure 1: PRISMA flow chart of included and excluded studies
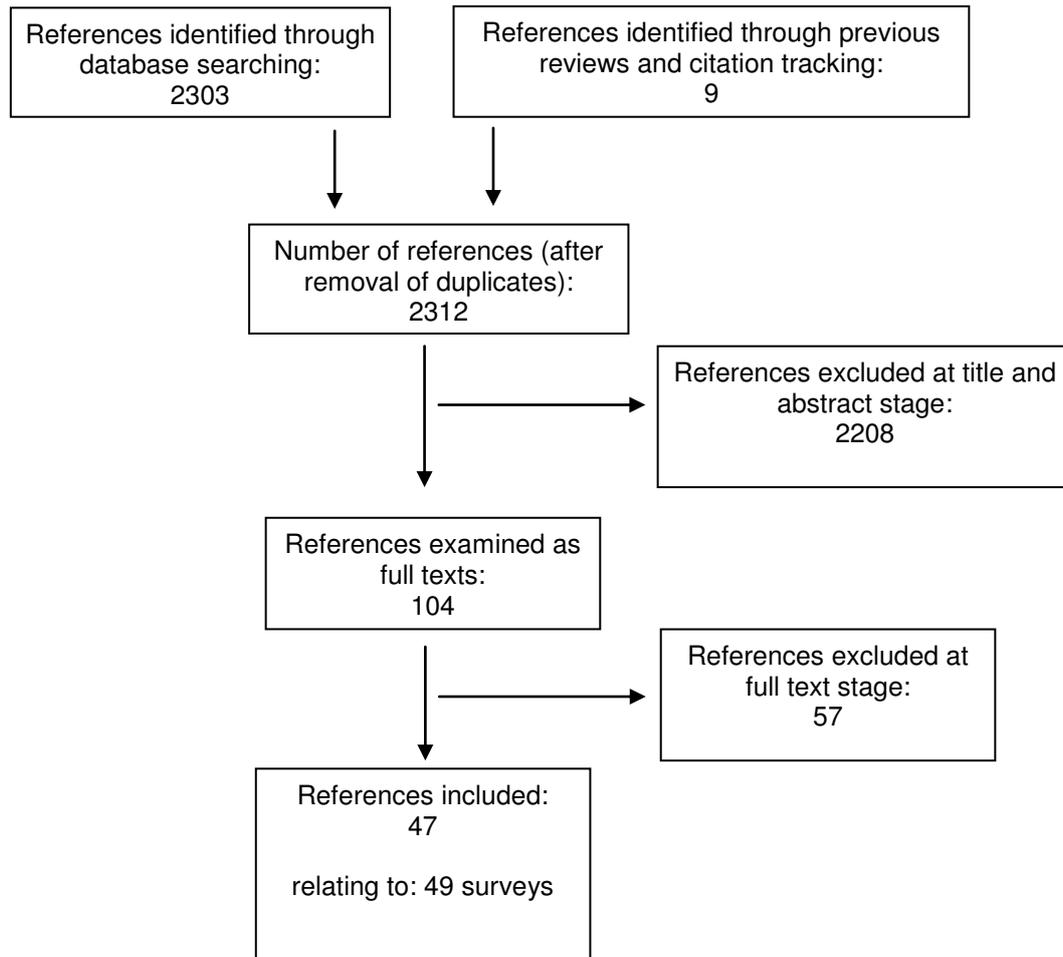
Table 1: Quality assessment of survey reports of CAM use (NR = data not reported)

Country (year of survey)	First author (year of pub.)	CAM-use measurement method (N)[1]	Piloting of survey reported[2]	Sample size ≥1000 and/or calculation reported (SSC)	Reported response rate ≥60% (adj/ unadj/NR)	Data weighted to population characteristics	95% CI or SE reported	Meets ≥4 quality criteria
USA (2007)	Barnes (2008) [31]	Named therapies (36)	Gvt. Survey	Age 18+: 23,393 Age 0-17:9,417	Age 18+: 67.8% (NR) Age 0-17: 76.5% (NR)	Yes	SE	*Yes*
USA (2002)	Barnes (2004) [32]	Named therapies (27)	Gvt. Survey	31,044	74.3% (adj)	Yes	SE	*Yes*
USA (2001)	Hughes (2006) [54]	Open questions (NR)	Piloted	1,104	65.9% (NR)	NR	NR	-
USA (1999)	Arcury (2004) [55]	Open questions (NR)	NR	1,059	83.8% (NR)	Yes	SE	*Yes*
USA (1999)	Ni (2002) [33]	Named therapies (12)	Gvt. Survey	30,801	70% (NR)	Yes	CI	*Yes*
USA (1998)	Oldendick (2000) [56]	Named therapies (NR)	NR	1,584	66.2% (NR)	Yes	CI	*Yes*
USA (1997-8)	Astin (2000) [37]	Named therapies (10)	NR	728	51% (unadj)	NR	NR	-
USA (1997)	Eisenburg (1998) [3]	Named therapies (16)	Piloted	2,055; SSC	60% (adj); 49% (unadj)	Yes	SE	*Yes*
USA (1997)	Landmark Healthcare (1998) [36]	Named therapies(11)	NR	1,500	NR	NR	CI	-
USA (1996)	Druss (1999) [24]	Named therapies (11)	Gvt. Survey	Age 18+: 16,068	77.7% (NR)	Yes	NR	*Yes*
	Davis (2003) [28]	Named therapies (11)	Gvt. Survey	Age <18: 6262	Children interviewed by proxy	Yes	CI	*Yes*
USA (1995-6)	Honda (2005) [34]	Named therapies (14)	Gvt. Survey	4,242	60.8% (NR)	Yes	NR	*Yes*
USA (1994)	Paramore (1997) [57]	Named therapies (4)	NR	3,450	75% (NR)	Yes	NR	*Yes*
USA (1990)	Eisenberg (1993) [35]	Named therapies (16)	Piloted	1,539; SSC	67% (unadj)	Yes	CI	*Yes*
USA (NR)	Cheung (2007) [38]	Named therapies (16)	Piloted	445; SSC	37% (unadj)	NR	NR	-
USA (NR)	Shreffler-Grant (2005) [39]	Open questions(NR)	Piloted	325	69.3% (unadj)	NR	NR	-
USA (NR)	Astin (1998) [10]	Named therapies (17)	NR	1,035	69% (unadj)	NR	NR	-
UK (2005)	Hunt (2010) [42]	Named therapies (23)	Gvt. Survey	7,630	71% (unadj)	NR	NR	*Yes*
UK (2001)	Thomas (2004) [43]	Named therapies (23)	Gvt. Survey	1,794	65% (unadj)	NR	CI	*Yes*
UK (1999)	Ernst (2000) [41]	Open questions (5)	NR	1,204	NR	Yes	NR	-
UK (1998)	Thomas (2001) [40]	Named therapies (10)	Piloted	2,669; SSC	59% (adj)	Yes	CI	*Yes*
UK (1993)	Thomas (1993) [14]	Named therapies (6)	Piloted	676	78% (adj)	Yes	CI	*Yes*
UK (1986)	Yung (1988) [58]	Named therapies (6)	Gvt. Survey	4,268	70% (adj)	NR	CI	*Yes*
Canada (2001-5)	Metcalfe (2010) [46]	Named therapies (14)	Gvt. Survey	400,055	NR	Yes	CI	*Yes*
Canada (1998-9)	Millar (2001) [45]	Open questions (2)	Gvt. Survey	14,150	NR	Yes	NR	*Yes*
Canada (1994-5)	Millar (1997) [44]	Open questions (2)	Gvt. Survey	17,626	NR	Yes	NR	*Yes*
Canada (1988)	Northcott (1993a) [26]	Named therapies (NR)	Gvt. Survey	464	80% (NR)	NR	NR	-
Canada (1979)	Northcott (1993b) [26]	Named therapies (NR)	Gvt. Survey	439	75% (NR)	NR	NR	-
Australia (2005)	Xue (2007) [59]	Named therapies (17)	Piloted	1,067; SSC	NR	Yes	CI	*Yes*
Australia (2004)	MacLennan (2006) [29]	Named therapies (16)	Gvt. Survey	Age 15+: 3,015	71.7% (unadj)	Yes	CI	*Yes*

Country (year of survey)	First author (year of pub.)	CAM-use measurement method (N)[1]	Piloting of survey reported[2]	Sample size ≥1000 and/or calculation reported (SSC)	Reported response rate ≥60% (adj/ unadj/NR)	Data weighted to population characteristics	95% CI or SE reported	Meets ≥4 quality criteria
	Smith (2006) [30]	*Named therapies (12)*	*Gvt. Survey*	*Age <15: 911*	*Children interviewed by proxy*	*Yes*	*CI*	***Yes***
Australia (2000)	MacLennan (2002) [47]	*Named therapies (NR)*	*Gvt. Survey*	*3,027*	*70.4% (NR)*	*Yes*	*CI*	***Yes***
Australia (1993)	MacLennan (1996) [9]	*Named therapies (19)*	*Gvt. Survey*	*3,004*	*73.6% (NR)*	*Yes*	*NR*	***Yes***
Norway (2007)	Fonnebo (2009) [60]	*Named therapies (8)*	*NR*	*1,007*	*NR*	*NR*	*NR*	*-*
Norway (2002)	Steinsbekk (2009) [61]	*Open question(1)*	*Gvt. Survey*	*6,612*	*70.4% (NR)*	*Yes*	*NR*	***Yes***
Norway (1997)	Hanssen (2005a) [11]	*Open questions (5)*	*NR*	*1,000*	*51% (unadj)*	*NR*	*NR*	*-*
Norway (1995-7)	Steinsbekk (2007) [62]	*Open question(1)*	*NR*	*54,448*	*59% (unadj)*	*NR*	*NR*	*-*
Israel (2003-4)	Niskar (2007) [63]	*NR*	*Gvt. Survey*	*2,365*	*58.6% (unadj)*	*NR*	*NR*	*-*
Israel (2000)	Schmueli (2004a) [27]	*NR*	*NR*	*2,505*	*NR*	*NR*	*NR*	*-*
Israel (1993)	Schmueli (2004b) [27]	*NR*	*NR*	*2,003*	*NR*	*NR*	*NR*	*-*
Denmark (2000)	Hanssen (2005b) [11]	*Open questions (4)*	*Gvt. Survey*	*16,690*	*74% (unadj)*	*NR*	*NR*	***Yes***
Denmark (1987)	Rasmussen (1990) [64]	*NR*	*Gvt. Survey*	*4,753*	*NR*	*NR*	*NR*	*-*
Singapore (2003-4)	Feng (2010) [65]	*Named therapies (NR)*	*Gvt. Survey*	*1,092*	*72.4% (NR)*	*Yes*	*NR*	***Yes***
Singapore (2002)	Lim (2005) [52]	*Open questions(NR)*	*Piloted*	*468*	*72.2% (unadj)*	*NR*	*CI*	*-*
Germany (1997-2001)	Schwarz (2008) [66]	*Named therapies (14)*	*NR*	*4,291*	*68.8% (unadj)*	*NR*	*NR*	*-*
Italy (1996-7)	Dello Buono (2001) [67]	*Open questions(NR)*	*NR*	*655*	*65 % (adj); 58% (unadj)*	*NR*	*NR*	*-*
Japan (2001)	Yamashita (2002) [48]	*Named therapies (10)*	*Piloted*	*1,000*	*NR*	*Yes*	*CI*	***Yes***
Malaysia (2004)	Siti (2009) [49]	*Open questions (4)*	*Gvt. Survey*	*6,947*	*81% (adj)*	*Yes*	*CI*	***Yes***
Saudi Arabia (2003)	Al-Faris (2008) [51]	*NR*	*Piloted*	*1,408; SSC*	*95% (unadj)*	*NR*	*CI*	***Yes***
South Korea (2006)	Ock (2009) [50]	*Named therapies (27)*	*NR*	*3,000*	*49.8% (unadj)*	*Yes*	*NR*	*-*
Sweden (2000)	Hanssen (2005c) [11]	*Open questions (4)*	*NR*	*1,001*	*63% (unadj)*	*NR*	*NR*	*-*

[1] Parenthesis following 'Named therapies' includes number of therapists, therapies and over-the -counter products named in the survey (excludes 'other' category); following 'Open questions, parenthesis includes number of interview questions.
[2] Piloting was assumed for government surveys.

Table 2: Summary of the quality of survey reports

Quality criterion	All survey reports N = 51		Gvt. sponsored survey reports N = 24		Other CAM survey reports N = 27	
	n	%	n	%	n	%
1. CAM-use measurement method clearly described	36	71	18	75	18	67
2. Piloting of survey reported (or assumed for government surveys)	35	69	24	100 (assumed)	11	41
3. Sample size ≥1,000 and/or sample size calculation reported	43	84	21	88	22	82
4. Reported survey response rate ≥60%	31	61	17	71	14	52
5. Data weighted to population characteristics	27	53	16	67	11*	41
6. 95% confidence interval or standard error reported for main prevalence estimates	22	43	11	46	11	41
Four or more criteria met	**30**	**59**	**20**	**83****	**10**	**37**

*Inc. one survey (Al-Faris et al 2008) with 95% response reported where this was deemed unnecessary.

**This includes the assumption that the pilot criterion is 100% for this group.

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Table 3: Summary of CAM use in 15 countries: all-CAM use and all CAM-visits to practitioners

Country	Age group	Survey type	Sample size (range)	All-CAM use % (year of survey)	All CAM –visits % (year of survey)	Refs, name of survey[1]	Meets ≥4 quality criteria
Adult or all ages							
USA	Adult or all ages	Government national	4,242 – 31,044	2007: 38.3 2002: 36.0 1999: 28.9 1995-6: 54.0	2007: 16.2 2002: 12.5 1996: 8.3	[31] NHIS [32] NHIS [33] NHIS [24] MEPS [34] MIDUS	Yes Yes Yes Yes Yes
USA	Adult or all ages	Other national	1,035 – 3,450	1997: 42.1, 42.0 1990: 33.8 NR: 40.0	1997: 19.5 1994: 9.4 1990: 12.3	[3, 36] [57] [35] [10]	Yes, No Yes Yes -
USA	Adult or all ages	Sub-national	1,059 - 1,584	1999: 45.7 1998: 43.7	1999: 8.6	[55] [56]	Yes Yes
UK	Adult or all ages	Government national	1,794 - 7,630	2005: 26.3	2005: 12.1 2001: 10.0	[42] HSE [43] NOS	Yes Yes
UK	Adult or all ages	Other national	676 - 2,669	1999: 20.3 1998: 28.3	1998: 13.6 1993: 8.5	[41] [40] [14]	No Yes Yes
UK	Adult or all ages	Government sub-national	4,268		1986: 2.6	[58] CHS	Yes
Canada	Adult or all ages	Government national	14,150 - 400,055		2001-5: 12.4 1998-9: 17.0 1994-5: 15.0	[46] CCHS [45] NPHS [44] NPHS	Yes Yes Yes
Canada	Adult or all ages	Government sub-national	439 - 464	1988: 14.4 1979: 9.8		[26] AEAS [26] AEAS	No No
Australia	Adult or all ages	Other national	1,067	2005: 68.9	2005: 44.1	[59]	Yes
Australia	Adult or all ages	Government sub-national	3,004 – 3,027	2004: 52.2 2000: 52.1 1993: 48.5	2004: 26.5 2000: 23.3 1993: 20.3	[29] SAHOS [47] SAHOS [9] SAHOS	Yes Yes Yes
Norway	Adult or all ages	Government national	6,612		2002: 8.7	[61] LLS	Yes
Norway	Adult or all ages	Other national	1,000 - 1,007		2007: 48.7 1997: 12.0	[60] [11]	No No
Norway	Adult or all ages	Sub-national	54,448		1995-7: 9.9	[62]	No
Israel	Adult or all ages	Government national	2,365		2003-4: 5.8	[63] INHIS	No
Israel	Adult or all ages	Sub-national	2,003 - 2,505		2000: 9.8 1993: 6.1	[27] [27]	No No
Denmark	Adult or all ages	Government national	4,753 - 16,690		2000: 21.0 1987: 10.0	[11] SUSY [64] DICE	Yes No
Singapore	Adult or all ages	Sub-national	468	2002: 76.0		[52]	No
Germany	Adult or all ages	Sub-national	4,291		1997-2001: 6.0	[66]	No
Japan	Adult or all ages	Other national	1,000	2001: 76.0		[48]	Yes
Malaysia	Adult or all ages	Government national	6,947	2004: 55.6		[49]	Yes
Saudi Arabia	Adult or all ages	Sub-national	1,408	2003: 67.8	2003: 23.9	[51]	Yes
South Korea	Adult or all ages	Other national	3,000	2006: 74.8		[50]	No
Sweden	Adult or all ages	Sub-national	1,001	2000: 20.0		[11]	No
Children							
USA	Children	Government national	6,262 - 9,417	2007: 11.8	1996: 1.8	[31] NHIS [28] MEPS	Yes Yes
USA	Children	Sub-national	1,104		2001: 22.6	[54]	No

Country	Age group	Survey type	Sample size (range)	All-CAM use % (year of survey)	All CAM –visits % (year of survey)	Refs, name of survey[1]	Meets ≥4 quality criteria
Australia	Children	Government sub-national	911	2004: 18.4		[30] SAHOS	Yes
Older adults							
USA	Older adults	Sub-national	325 - 728	1997-8: 41.0 NR: 45.2, 62.9	NR: 17.5	[37] [38, 39]	No No, No
Singapore	Older adults	Government national	1,092	2003-4: 44.6		[65] NMHSE	Yes
Italy	Older adults	Sub-national	655	1996-7: 29.5		[67]	No

[1]Survey names are provided where reported for government surveys: AEAS = Annual Edmonton Area Survey; CCHS = Canadian Community Health Survey; CHS = Cardiff Health Survey; DICE = Danish Institute for Clinical Epidemiology; HSE = Health Survey for England; INHIS = Israeli National Heath Interview Survey; LLS = Level of Living Survey; MEPS = Medical Expenditure Panel Survey; MIDUS = Midlife Development in the US; NHIS = National Health Interview Survey; NOS = National Omnibus Survey; NMHSE = National Mental Health Survey of the Elderly; NPHS = National Population Health Survey; SAHOS = South Australian Health Omnibus Survey; (SUSY = abbreviation not reported).

Table 4: Detail of CAM use in 15 countries: all-CAM use and all CAM-visits to practitioners

Country (year of survey)	First author (year of pub.)	Population (name of Gvt. Survey)	Sampling method	Data collection method	Includes prayer	N	Sample ages (% males)	All CAM use %	All-CAM use 95% CI	All CAM visits %	All CAM-visits 95% CI	Meets >= 4 quality criteria
Adult or all ages												
USA (2007)	Barnes (2008) [31]	National (National Health Interview Survey, NHIS)	Random sample of households	Interview	No[1]	23,393 (18+)	18+ (NR)	38.3	37.7-38.9*	16.2	15.7-16.7*	*Yes*
USA (2002)	Barnes (2004) [32]	National (National Health Interview Survey, NHIS)	Random sample of households	Interview	Yes No	31,044	18+ (NR)	62 36.0	61.6-62.6* 35.5-36.5*	12.5	12.1-12.9*	*Yes*
USA (1999)	Arcury (2004) [55]	Sub-national (NA)	Stratified cluster sample	Interview	No	1,059	18+ (NR)	45.7	42.7-48.7*	8.6	6.9-10.3*	-
USA (1999)	Ni (2002) [33]	National (National Health Interview Survey, NHIS)	Nationally representative sample	Interview	Yes	30,801	18+ (NR)	28.9	28.1-29.7	-	-	*Yes*
USA (1998)	Oldendick (2000) [56]	Sub-national (NA)	Random digit dialling	Telephone interview	No	1,584	18+ (38)	43.7	41.2-46.2	-	-	*Yes*
USA (1997)	Eisenburg (1998) [3]	National (NA)	Random sample of household telephones	Telephone interview	No	2,055	18+ (48)	42.1	40.0-44.2*	19.5	17.8-21.2*	*Yes*
USA (1997)	Landmark Healthcare (1998) [36]	National (NA)	Random sample of households	Telephone interview	No	1,500	18+ (NR)	42.0	39.5-44.5	-	-	-
USA (1996)	Druss (1999) [24]	National (Medical Expenditure Panel Survey, MEPS)	Random sample of population	Interview	No	16,068	18+ (47)	-	-	8.3	7.9-8.7*	*Yes*
USA (1995-6)	Honda (2005) [34]	National (Midlife Development in the US, MIDUS)	Nationally representative sample	Telephone interview + postal questionnaire	Yes	4,242	25-74 (43)	54.0	52.5-55.5*	-	-	*Yes*
USA (1994)	Paramore (1997) [57]	National (NA)	Nationally representative sample	Interview	No	3,450	All ages incl. children (NR)	-	-	9.4	8.4-10.4*	*Yes*
USA (1990)	Eisenberg (1993) [35]	National (NA)	Random sample of household telephones	Telephone interview	No	1,539	18+ (52)	33.8	31.0-37.0	12.3	10.7-13.9*	*Yes*
USA (NR)	Astin (1998) [10]	National (NA)	Random sample of self-selecting group	Postal questionnaire	No	1,035	18+ (49)	40.0	37.0-43.0*	-	-	-
UK (2005)	Hunt (2010) [42]	National (Health Survey for England, HSE)	Random sample of households	Interview	No	7,630	16+ (45)	26.3	25.3-27.3*	12.1	11.4-12.8*	*Yes*
UK (2001)	Thomas (2004) [43]	National (National Omnibus Survey, NOS)	Random sample within postal sectors	Interview	No	1,794	16+ (47)	-	-	10.0	8.7-11.5	*Yes*
UK (1999)	Ernst (2000) [41]	National (NA)	Random-digit dialling	Telephone interview	No	1,204	18+ (45)	20.3	18.0-22.6*	-	-	-
UK (1998)	Thomas (2001) [40]	National (NA)	Random sample of 12 health authorities	Postal questionnaire	No	2,669	18+ (43)	28.3	26.6-30-0	13.6	12.3-14.9	*Yes*
UK (1993)	Thomas (1993) [14]	National (NA)	Random sample from electoral register	Postal questionnaire	No	676	18+ (47)	-	-	8.5	6.7-10.9	*Yes*

Country (year of survey)	First author (year of pub.)	Population (name of Gvt. Survey)	Sampling method	Data collection method	Includes prayer	N	Sample ages (% males)	All CAM use %	All-CAM use 95% CI	All CAM visits %	All CAM-visits 95% CI	Meets >= 4 quality criteria
UK (1986)	Yung (1988) [58]	Sub-national (Cardiff Health Survey, CHS)	Random sample from electoral register	Postal questionnaire	No	4,268	18+ (NR)	-	-	2.6	2.2-3.0	*Yes*
Canada (2001-5)	Metcalfe (2010) [46]	National (Canadian Community Health Survey, CCHS)	Random cluster sample of households	Interview	No	400,055	12+ (49)	-	-	12.4	12.2-12.5	*Yes*
Canada (1998-9)	Millar (2001) [45]	National (National Population Health Survey, NPHS)	Longitudinal sample from randomly selected participants in 1994-5 survey	Telephone interview	No	14,150	18+ (46)	-	-	17.0	16.4-17.6*	*Yes*
Canada (1994-5)	Millar (1997) [44]	National (National Population Health Survey, NPHS)	Random sample of households	Interview	No	17,626	15+ (NR)	-	-	15.0	14.5-15.5*	*Yes*
Canada (1988)	Northcott (1993a) [26]	Sub-national (Annual Edmonton Area Survey, AEAS)	Representative sample derived from census data.	Interview	No	464	18+ (49)	14.4	11.2-17.6*	-	-	-
Canada (1979)	Northcott (1993b) [26]	Sub-national (Annual Edmonton Area Survey, AEAS)	Representative sample derived from census data.	Interview	No	439	18+ (47)	9.8	7.0-12.6*	-	-	-
Australia (2005)	Xue (2007) [59]	National (NA)	Random-digit dialling with quota for age and sex	Telephone interview	No	1,067	18+ (49)	68.9	66.1-71.7	44.1	41.1-47.1	*Yes*
Australia (2004)	MacLennan (2006) [29]	Sub-national (South Australian Health Omnibus Survey, SAHOS)	Random cluster sample of households	Interview	No	3,015	15+ (49)	52.2	50.3-54.1	26.5	24.9-28.1*	*Yes*
Australia (2000)	MacLennan (2002) [47]	Sub-national (South Australian Health Omnibus Survey, SAHOS)	Random cluster sample of households	Interview	No	3,027	15+ (49)	52.1	50.3-53.9	23.3	22.1-24.5	*Yes*
Australia (1993)	MacLennan (1996) [9]	Sub-national (South Australian Health Omnibus Survey, SAHOS)	Random cluster sample of households	Interview	No	3,004	15+ (49)	48.5	46.7-50.3*	20.3	18.9-21.7*	*Yes*
Norway (2007)	Fonnebo (2009) [60]	National (NA)	Random sample of telephone users (landlines stratified by location)	Telephone interview	No	1,007	15+ (46)	-	-	48.7	45.6-51.8*	-
Norway (2002)	Steinsbekk (2009) [61]	National (Level of Living Survey, LLS)	Nationally representative sample of households	NR	No	6,612	18+ (44)	-	-	8.7	8.0-9.4*	*Yes*
Norway (1997)	Hanssen (2005a) [11]	National (NA)	Nationally representative sample	Telephone interview	No	1,000	NR (44)	-	-	12.0	10.0-14.0*	-
Norway (1995-7)	Steinsbekk (2007) [62]	Sub-national (NA)	NR	Postal questionnaire	No	54,448	20+ (45)	-	-	9.9	9.6-10.2*	-
Israel (2003-4)	Niskar (2007) [63]	National (Israeli National Heath Interview Survey, INHIS)	Random sample of general population	Telephone interview	No	2,365	21+ (44)	-	-	5.8	4.9-6.7*	-
Israel (2000)	Schmueli (2004a) [27]	Sub-national (NA)	NR	Interview	No	2,505	45-75 (47.4)	-	-	9.8	8.6-11.0*	-

Country (year of survey)	First author (year of pub.)	Population (name of Gvt. Survey)	Sampling method	Data collection method	Includes prayer	N	Sample ages (% males)	All CAM use %	All-CAM use 95% CI	All CAM visits %	All CAM-visits 95% CI	Meets >= 4 quality criteria
Israel (1993)	Schmueli (2004b) [27]	Sub-national (NA)	NR	Interview	No	2,003	45-75 (47.5)	-	-	6.1	5.1-7.1*	-
Denmark (2000)	Hanssen (2005b) [11]	National (SUSY-2000)	Nationally representative sample	Interview	No	16,690	16+ (49)	-	-	21.0	20.4-21.6*	*Yes*
Denmark (1987)	Rasmussen (1990) [64]	National (Danish Institute for Clinical Epidemiology, DICE)	NR	Interview	No	4,753	16+ (NR)	-	-	10.0	9.1-10.9*	-
Germany (1997-2001)	Schwarz (2008) [66]	Sub-national (NA)	A two-stage cluster sample	Interview	No	4,291	20-79 (49)	-	-	6.0	5.3-6.7*	-
Japan (2001)	Yamashita (2002) [48]	National (NA)	Random-digit dialling with stratified sample	Telephone interview	No	1,000	20-79 (49)	76.0	73.4-78.6	-	-	*Yes*
Malaysia (2004)	Siti (2009) [49]	National (by Ministry of Health, Malaysia)	Stratified random sampling (by age, gender, and ethnicity)	Interview	Yes	6,947	0-80+ (NR)	55.6	53.8-57.4	-	-	*Yes*
Saudi Arabia (2003)	Al-Faris (2008) [51]	Sub-national (NA)	Random cluster sample of households	Interview	Yes	1,408	M 35.5; SD 13.9 (39)	67.8	66-70	23.9	21.7-26.1*	*Yes*
Singapore (2002)	Lim (2005) [52]	Sub-national (NA)	Random sample of housing estate (demographically matching Singapore)	Interview	No	468	18+ (46)	76.0	73.9-77.9	-	-	-
South Korea (2006)	Ock (2009) [50]	National (NA)	Proportionate quote sampling (by area, age, and gender)	Interview	Yes	3,000	30-69 (50)	74.8	73.2-76.4*	-	-	-
Sweden (2000)	Hanssen (2005c) [11]	Sub-national (NA)	NR	Telephone interview	No	1,001	16-84 (47)	20.0	17.5-22.5*	-	-	-
Children												
USA (2007)	Barnes (2008) [31]	National (National Health Interview Survey, NHIS)	Random sample of households	Interview by proxy	No	9,417 (0-17)	0-17 (NR)	11.8	11.1-12.5*	-	-	*Yes*
USA (2001)	Hughes (2006) [54]	Sub-national (NA)	Representative sample of households	Telephone interview by proxy	No	1,104	0-18 (52)	-	-	22.6	20.1-25.1*	-
USA (1996)	Davis (2003) [28]	National (Medical Expenditure Panel Survey, MEPS)	Random sample of population	Interview by proxy	Yes	6262	<18 (52)	-	-	1.8	1.3-2.3	*Yes*
Australia (2004)	Smith (2006) [30]	Sub-national (South Australian Health Omnibus Survey, SAHOS)	Random cluster sample of households	Interview by proxy	No	911	≤ 15 (46)	18.4	15.9-21.0	-	-	*Yes*
Older adults												
USA (1997-8)	Astin (2000) [37]	Sub-national (NA)	NR	Postal questionnaire	No	728	65+ (45)	41.0	37.4-44.6*	-	-	-

Country (year of survey)	First author (year of pub.)	Population (name of Gvt. Survey)	Sampling method	Data collection method	Includes prayer	N	Sample ages (% males)	All CAM use %	All-CAM use 95% CI	All CAM visits %	All CAM-visits 95% CI	Meets >= 4 quality criteria
USA (NR)	Cheung (2007) [38]	Sub-national (NA)	Randomly selected from drivers license & ID database of over 65s	Postal questionnaire	Yes	445	65-94 (45)	62.9	58.4-67.4*	-	-	-
USA (NR)	Shreffler-Grant (2005) [39]	Sub-national (NA)	Random sample rural communities	Telephone interview	No	325	60+ (51)	45.2	39.8-50.6*	17.5	13.4-21.6*	-
Italy (1996-7)	Dello Buono (2001) [67]	Sub-national (NA)	Random sample from electoral register	Interview	No	655	65+ (37)	29.5	26.0-33.0*	-	-	
Singapore (2003-4)	Feng (2010) [65]	National (National Mental Health Survey of the Elderly, NMHSE)	Random sample of households	Interview	No	1,092	60+ (44)	44.6	41.7-47.5*	-	-	

*95% CI calculated by review authors using the formula: 95% CI = proportion (p) +/- 1.96 √ [(p (1-p) / N].
1. Su & Li 2011 [53] cited all-CAM use for 18+: with prayer 60.1%; without prayer 29.4% (slightly different Ns).