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Complementary and alternative medicine use in England: Results from a national survey

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Abstract

Objectives: In many countries recent data on the use of complementary and alternative medicine (CAM) are available. However, in England there is a paucity of such data. We sought to determine the prevalence and predictors of CAM use in England.

Design: Data were obtained from the Health Survey for England 2005, a national household survey which included questions on CAM use. We used binary logistic regression modelling to explore whether demographic, health and lifestyle factors predict CAM use.

Results: Data were available for 7630 respondents (household response rate 71%). Lifetime and 12-month prevalence of CAM use were 44.0% and 26.3%; 12.1% had consulted a practitioner in the last 12 months. Massage, aromatherapy and acupuncture were the most commonly used therapies. Twenty-nine percent of respondents taking prescription drugs had used CAM in the last 12 months. Women (OR 0.491, 95% CI: 0.419, 0.577), university educated respondents (OR 1.296, 95% CI: 1.088, 1.544), those suffering from anxiety or depression (OR 1.341, 95% CI: 1.074, 1.674), people with poorer mental health (on GHQ: OR 1.062, 95% CI 1.026, 1.100) and lower levels of perceived social support (1.047, 95% CI: 1.008, 1.088), people consuming ≥5 portions of fruit and vegetables a day (OR 1.327, 95% CI: 1.124, 1.567) were significantly more likely to use CAM.

Conclusion: CAM use in England remains substantial, even amongst those taking prescription drugs. These data serve as a valuable reminder to medical practitioners to ask patients about CAM use and should be routinely collected to facilitate prioritisation of the research agenda in CAM.

Keywords: Complementary and alternative medicine, prevalence, survey

What is already known on this topic?

- In the UK, 12-month prevalence of CAM use has been estimated between 20-28% but these data are outdated.

- In previous surveys, CAM use has been shown to be more common in females, younger people and people with a higher income and level of education.

What does this article add?

- These nationally representative data come from the largest survey of CAM use in England to date and indicate that the lifetime and 12-month prevalence of CAM use in England is 44% and 26% respectively.

- Our report provides the first predictors of CAM use showing that the presence of anxiety or depression, low levels of perceived social support, eating a healthy diet, being female, and having an income above the national average are independent predictors of 12-month CAM use.

- CAM use is common among those taking prescription drugs thus emphasising the importance of asking patients about their use of CAM and routinely collecting CAM prevalence data in future.

Background

Complementary and alternative medicine (CAM) has become an important feature of healthcare. In many countries, CAM use is reported to be substantial and increasing.[1,2] In the UK, survey data have identified substantial use of practitioner-provided CAM and over-the-counter CAM remedies. Indeed, in a 1999 random telephone survey of 1204 adults representative of the UK population, 12 month prevalence of CAM use was 20%.[3] A survey of 2669 respondents in England in 1998 reported a higher 12 month prevalence of use (28.3%), and found lifetime prevalence of CAM use to be 46.6.[4] In 2001, the 12 month prevalence of seeing a CAM practitioner in the UK was 10.0%[5] and 13.6% in England.[4] All of these data are now outdated.

Reliable, nationally representative and up-to-date CAM usage data are of great importance to policy makers. Some CAM treatments are available through the NHS,[6,7] primarily due to patient demand.[8] Prevalence data can also assist in prioritising research into the safety and efficacy of CAM. To address this need we present an analysis of data relevant to CAM which was obtained as part of the 2005 Health Survey for England (HSE).[9] Our primary aim was to provide lifetime and 12 month prevalence data for CAM use and CAM practitioner consultations in England. Our secondary aim was to identify predictors of 12 month CAM use in England.

Methods

The HSE 2005 was carried out by the Joint Health Surveys Unit of the National Centre for Social Research and is based on a representative sample of the civilian non-institutionalised household population in England. Ethical approval for the survey was obtained from the London multi-centre Research Ethics Committee. Data were collected between January and December 2005. Full information on the HSE 2005 methods can be found elsewhere.[10] The UK Data Archive granted permission to use these data.

Sample
Sampling was conducted using a multi-stage stratified probability sampling method, resulting in 7200 randomly selected addresses from 720 postcode sectors representing the population living in private households in England. This report is based on adults aged at least 16 years from these households.

Data collection

Trained interviewers administered a Household Questionnaire to a representative of the household who provided information on all household members. Additional individual questionnaires were administered to all eligible participants; these included questions related to general health, lifestyle habits and CAM use. Anthropometric measurements and vital statistics were also recorded. Nurses conducted follow-up visits to collect data on prescribed medication, vitamin supplements, nicotine replacements and eating habits. Built in quality control measures included recalls on 10% of households to check data consistency and monthly interviewer-nurse discussions to check for anomalies.

Variables

CAM variables were derived from the following three questions about each CAM modality: 1) 'Have you used this CAM?' 2) 'Have you used this CAM in the last 12 months?' 3) 'Have you consulted a practitioner of this CAM in the last 12 months?' There is a lack of consensus regarding what constitutes CAM, so a broad range of therapies were covered (included CAM modalities are detailed in Figure 1). Most of these are categories of therapies rather than distinct therapies, of which there would be thousands: for example, specific types of massage therapy were not differentiated. Herbal medicine includes both single and combination preparations but does not include Chinese Herbal Medicine (CHM) which is listed as Traditional Chinese Medicine (TCM). Indeed, in the HSE, the term TCM was used to describe CHM only, with acupuncture being separately rated.

Demographic variables included age, sex, ethnicity, education, income, employment status, socio-economic group and Indices of Deprivation (ID2007)[11] quintile, a national measure of ecological deprivation based on Lower Layer Super Output Areas (SOAs) with a mean population of 1500 households, determined by postcode. Lower Layer SOAs are ranked nationally from 1 to 32,482 and are divided into quintiles, each representing 20% of all SOAs in England (1=most deprived SOA). ID2007 comprises seven 'Domains of deprivation' which are: Income deprivation; Employment deprivation; Health deprivation and disability; Education; Skills and training deprivation; Barriers to Housing and Services; Living environment deprivation (includes distance to GP surgery, primary school and supermarket); and Crime.

Health variables included medication use; obesity (BMI≥30kg/m²); the European Quality of Life Scale 5-D[12] which covers five dimensions associated with health (mobility, leisure, self-care, main role, family and leisure activities, and pain and mood - although scores can be summed to create a mean score, we analysed these separately) has good reliability[13] and reasonable validity;[14] the General Health Questionnaire (GHQ-12),[15] a self-administered screening instrument with good reliability and validity,[16,17] widely used to detect current psychiatric disorders (a cut off of 2/3 is

used to detect psychiatric conditions such as depression or anxiety); and perceived social support which was based on seven questions regarding perceptions of contact with people who offer happiness, love, care, acceptance, importance, support and encouragement. A low score demonstrated greater levels of perceived social support.

Lifestyle variables included smoking history; consumption of five portions of fruit and vegetables a day; membership of a religious organisation; use of vitamins or supplements.

Statistical analysis

Descriptive statistics are used to present the demographic characteristics of the whole sample. For the purpose of the present analyses, it was assumed that those who did not answer the three CAM questions had not used CAM in their lifetime. Lifetime and 12-month prevalence data are presented as frequencies and percentages

To assess whether 12 month CAM use differed according to each demographic, health, and lifestyle variable, the following categorical variables were converted to binary: ethnicity, educational attainment, social group, housing tenure, household income, economic status, and fruit and vegetable consumption. Bivariate analyses were performed using chi square tests for categorical data and t-tests for continuous data. In order to determine predictors of 12 month CAM use, variables that met significance were entered into binary logistic regression models. Four logistic regression models are presented. The first three models include demographic factors, health-based factors, and lifestyle factors respectively. The final model (table 2) was constructed from variables which met significance in the first three models. These data are presented as odds ratios with 95% confidence intervals.

Results

Interviews were carried out at 71% of the 7200 approached households, and 89% of those aged 16 and over in those households were interviewed (N = 7,630). The socio-demographic characteristics of the sample are presented in table 1.

Prevalence of CAM use

The lifetime prevalence of CAM use was 44.0% (n=3355) 12 month prevalence was 26.3% (n=2005), and 12.1% (n=922) had consulted a practitioner in the last 12 months.

Of all CAM modalities, massage had the highest lifetime prevalence of use (13.1%), followed by aromatherapy (11.2%) and acupuncture/acupressure (11.2%), relaxation (10.0%), and osteopathy (9.9%). Twelve-month prevalence follows a similar pattern (Figure 1). Massage therapists were the

most frequently visited CAM practitioners (Figure 1). Dowsing had the highest proportion of female users (85%) whilst chiropractic had the highest proportion of male users (44.8%) (Figure 1). Users of osteopathy were older and users of Unani younger than users of any other CAM.

Bivariate analyses

Demographic characteristics of CAM users

Females (19.6% male, 31.8% female, χ^2 =144.31, p<.001), white respondents (26.8% white, 21.8% non-white, χ^2 = 6.98, p<.01), those with a university qualification (35.3% university education, 22.9% no university education, χ^2 = 14.25, p<.001), those who work in a professional/managerial role (32.9% managerial, 21.7% non-managerial, χ^2 = 119.38, p<.001), own their own property (26.7% own, 22.3% do not own, χ^2 = 29.05, p<.001), have above average income (33.7% ≥£24,711, 22.8% <£24,711, χ^2 = 90.84, p<.001), and in active employment (30.9% in active employment, 20.8% not active, χ^2 = 98.02, p<.001) were more likely to use CAM. CAM-users were also younger (CAM users: 46.8 +/- 15.5 years, non-users: 49.1 +/- 19.3 years, t = 5.37, p<.001) than non-CAM-users.

Health characteristics of CAM users

Respondents who are obese (28.7% BMI ≥30 kg/m², 25.7% BMI <30 kg/m², χ^2 = 5.90, p<.05), have no mobility problems (27.7% no problems, 24.1% mobility problems, χ^2 = 6.89, p<.01), have pain (29.7% pain, 25.7% no pain, χ^2 = 12.44, p<.001), anxiety or depression (35.0% with anxiety/depression, 25.3% no anxiety/depression, χ^2 = 50.47, p<.001), or a longstanding illness, disability or infirmity (28.5% with longstanding illness, 24.4% no illness, χ^2 = 15.79, p<.001) were more likely to use CAM. CAM users perceived themselves as having reduced levels of perceived social support (CAM users: 19.9 +/- 2.2, non-users: 19.6 +/- 2.3, t = -4.83, p<.001) and poorer psychiatric health as per the GHQ (CAM users: 1.6 +/- 2.8, non-users: 1.1 +/- 2.4, t = -6.87, p<.001) compared to those who had not used CAM. No significant differences between CAM users and non-users were noted in medication use (28.9% taking medications, 27.8% not taking, χ^2 = 0.815, p=.867) , in the proportion with problems with self-care (27.0% no problems, 26.9% problems, χ^2 = 0.001, p=.978), problems with usual activities (29.2% problems 27.5% no problems, χ^2 = 1.236, p=.266) or difficulty walking quarter of a mile (17.3% no problems, 15.5% problems, χ^2 = 0.687, p=.407).

Lifestyle characteristics of CAM users

Respondents who are a member of a religious group or organisation (29.2% members, 39.7% non-members, χ^2 = 27.35, p<.001), do not smoke (29.4% non-smokers, 24.9% smokers, χ^2 = 9.61, p<.01), consume five or more portions of fruit and vegetables every day (33.2% ≥5 portions, 23.6% <5 portions, χ^2 = 73.69, p<.001), and take vitamins/supplements (39.7% taking supplements, 23.1% not taking, χ^2 = 159.90, p<.001) were significantly more likely to use CAM.

Predictors of 12 month CAM use

A first regression model (R Square 0.082) was used to investigate whether sociodemographic factors predict CAM use. It showed that CAM-users were more likely to be female (OR 2.107, 95% CI: 1.870,2.376), white (OR 1.331, 95% CI: 1.039, 1.704), have a university education (OR 1.441, 95% CI:1.257, 1.651), work in a professional/managerial role (OR 1.336, 95% CI: 1.169, 1.527), have a household income above the 2005 national average (OR 1.162, 95% CI: 1.010, 1.336), and be in active employment (OR 1.449, 95% CI: 1.263, 1.662). In addition, using CAM was associated with decreasing deprivation (OR 0.748, 95% CI: 0.884, 0.970). Age was not a significant independent predictor of 12 month CAM use OR 0.997, 95% CI:0.993, 1.001).

A second regression model (R Square 0.035) was used to investigate whether health factors predict CAM use. It indicated that the presence of mobility problems was associated with a decrease in the odds of using CAM (OR 0.543, 95% CI: 0.453, 0.651) whilst the presence of pain (OR 1.287, 95% CI: 1.117, 1.483), anxiety or depression (OR 1.384, 95% CI: 1.177, 1.627) and longstanding disease or illness (OR 1.230, 95% CI: 1.089, 1.390) was associated with an increase in the odds of using CAM. Users of CAM were more likely have lower levels of perceived social support (OR 1.091, 95% CI: 1.062, 1.120) and poorer mental health as per the GHQ (OR 1.072, 95% CI: 1.046, 1.099).

The next model was performed to assess whether lifestyle factors predict CAM use (R Square 0.063). Members of a religious group were more likely to use CAM (OR 1.490, 95% CI: 1.210, 1.835), as were participants taking vitamins or supplements (OR 2.230, 95% CI: 1.929, 2.577) and individuals who eat five or more portions of fruit and vegetables a day (OR 1.396, 95% CI: 1.202, 1.621). Smoking was not a significant predictor of CAM use (OR 0.877, 95% CI: 0.745, 1.031).

A final model (Table 2) was created to investigate which of the significant socio-demographic, health and lifestyle factors from previous models independently predicted CAM use (R square = 0.133). Variables which were not significant predictors in the first three models were therefore not included in the final model. In this model, women were more likely to use CAM (OR 0.491, 95% CI: 0.419, 0.577), as were participants with a university qualification (OR 1.296, 95% CI: 1.088, 1.544), those in active employment (OR 1.421 95% CI: 1.177, 1.714), suffering from anxiety or depression (OR 1.341, 95% CI: 1.074, 1.674), with lower levels of perceived social support (OR 1.047, 95% CI: 1.008, 1.088), poorer mental health as indicated by the GHQ (OR 1.062, 95% CI 1.026, 1.100), consuming a diet of five or more portions of fruit and vegetables a day (OR 1.327, 95% CI: 1.124, 1.567) and vitamins or supplements (OR 1.327, 95% CI 1.124, 1.567). All other variables were not significant independent predictors of CAM use.

Discussion

The 12 month prevalence of CAM use in England was 26.3%.   This is similar to the last 12 month prevalence estimate in England of 28.3%. It is also far lower than CAM use in the US[1], Germany[18], Australia[2] or Japan[19] where 12 month prevalence was reported to be 40%, 62%, 69% and 76% respectively. Massage therapy was the most frequently used CAM, followed by aromatherapy and acupuncture. Of the 24 CAM therapies assessed, we found herbal medicine to have the sixth highest lifetime prevalence and fourth highest 12 month prevalence of use. Chiropractic had the ninth highest lifetime prevalence and tenth highest 12 month prevalence of use. This is clearly at odds with policy documentation which suggests that acupuncture, herbal medicine, and chiropractic are the most commonly used CAMs.[20,21]

Our regression models suggest that individuals experiencing anxiety, depression or other long standing illnesses, with poorer mental health and with lower levels of perceived social support are more likely than those in good health to use CAM. We also found that CAM is used more by females than males, those with a university education, those in active employment, and those who appear to pursue healthy lifestyles (consuming more than five portions of fruit/vegetables per day and using vitamin supplements) compared to those who do not. This confirms previous research suggesting that individuals who are more likely to select healthy lifestyle choices may also be likely to proactively engage in other self-care behaviours including CAM use, and that less risky health behaviours may be associated with CAM use.[22]

The HSE[9] data show that different CAMs are not used uniformly. For example, osteopathy, chiropractic and acupuncture have the most even gender spread and the mean age of these users is slightly older than the users of other CAM, whilst dowsing, iridology, kinesiology, crystal therapy and reflexology were used predominantly by younger women. This may in part be due to the referral patterns of health professionals. For example, NHS referrals to osteopathy and chiropractic for back pain treatment may be common while more exotic forms of CAM may be less likely to be endorsed by allopathic health providers and prohibitively costly for many consumers.

Prudence is necessary when comparing our findings with previous surveys. First, any differences may be due to sampling methods rather than apparent trends over time or apparent differences between countries. Second, there is no universally accepted definition of CAM. Therefore different surveys include different CAM modalities. For example several surveys have included nutritional supplements, yoga and prayer as CAM[1,3,23] which probably greatly increased their prevalence estimates. Further research, of a cross-national nature, would be needed to confirm whether true differences between countries exist, and if so, the reasons for this.

These analyses have important limitations. First, all data used were based on self-reports and are thus subject to recall bias although this may be somewhat mitigated by the use of face-to-face interviews rather than questionnaires. Second, although we account for several variables in our

regression models, it is possible that other factors that were not measured may better account for CAM use. However, care was taken to include those variables most likely to predict CAM use based on previous evidence.[1,4,5,23] In addition, deprivation was based on geographical area which may not reflect all inhabitants in any given area, and may therefore result in false assumptions. We recommend that future data collection programmes on the use of CAM draw upon the limitations of the HSE 2005 dataset. For example, repeating data collection on similar samples (i.e. nationally representative), including children, and using an identical definition of CAM on each occasion.

The prevalence of CAM use is inextricably linked with issues of efficacy and safety: the more CAM is used the more important it is to consider whether the treatments are safe and efficacious. The fact that only a small proportion of CAMs are supported by robust evidence has been widely discussed,[24] although it is important to remember that a lack of evidence does not necessarily mean that there is a lack of effect. It should also be noted that CAM treatments are not necessarily safe and, like all treatments, have the potential to bring about direct and indirect adverse effects. Currently, because CAM practitioners are not required to report adverse effects,[34] estimates on the frequency of adverse effects of CAM are probably inaccurate.[35] In addition, herb-drug interactions have not been extensively investigated, a situation which is concerning given that the HSE 2005 data suggest that more than a quarter of those taking medications in England were using CAM in the same 12-month period. To ensure patient safety, healthcare practitioners should routinely ask patients about their use of CAM and policymakers should ensure that CAM prevalence data is regularly collected, as is the case in other countries.

Acknowledgements

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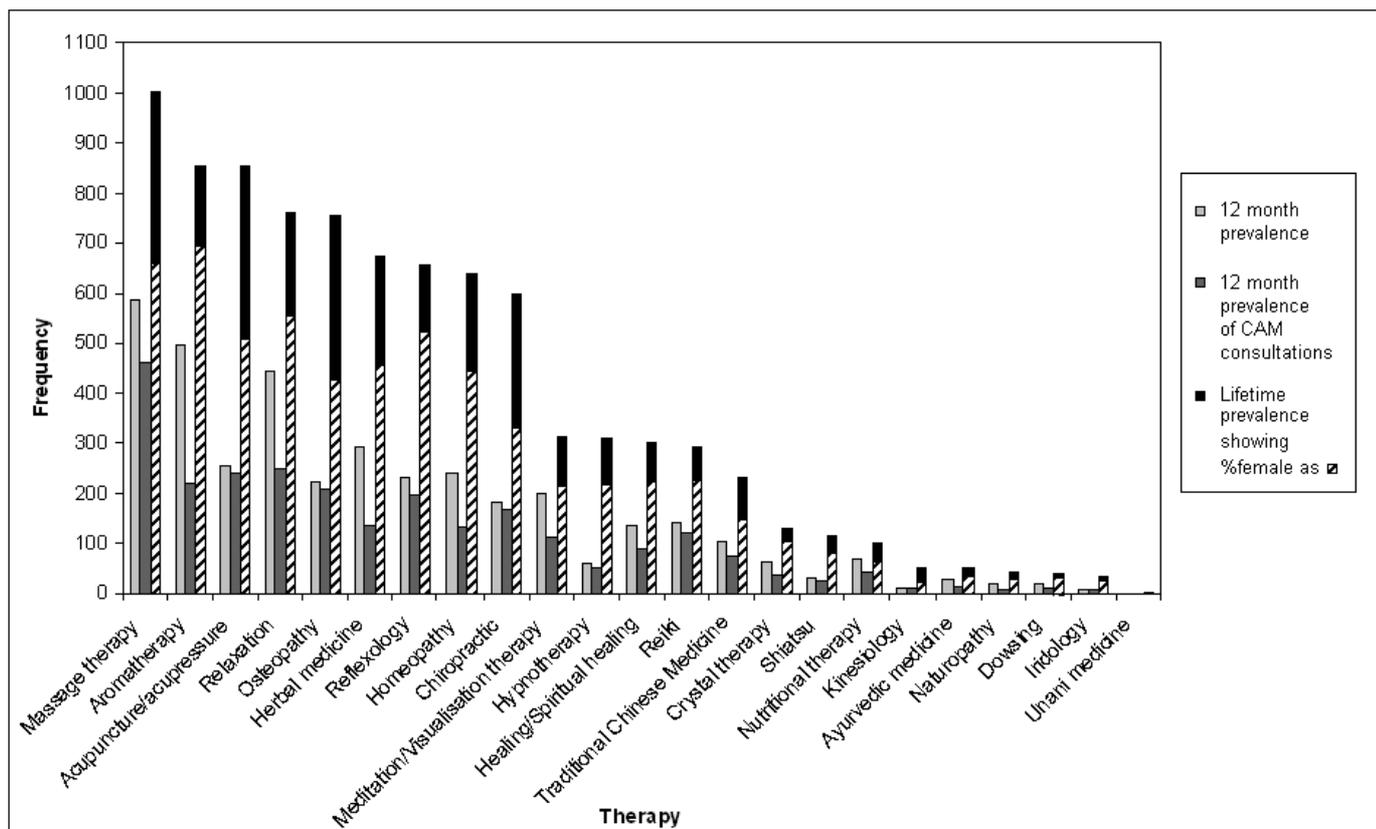
Table 1: Characteristics of the sample

	Whole sample *n=7630*	Used CAM in last 12 months *n=2005*	Not used CAM in last 12 months *n=5625*
Age	48.5 +/- 18.4	46.8 +/- 15.5	49.1 +/- 19.3
Female	4175 (54.7)	1327 (66.2)	2848 (50.6)
Ethnicity	*N=7590*	*N=2001*	*N=5589*
White	6981 (92.0)	1868 (93.4)	5113 (91.5)
Mixed	73 (1.0)	23 (1.1)	50 (0.9)
Asian or Asian British	347 (4.6)	63 (3.1)	284 (5.1)
Black or Black British	133 (1.8)	28 (1.4)	105 (1.9)
Chinese or other ethnic group	56 (0.7)	19 (0.9)	37 (0.7)
University qualification	*N=7585*	*N=2002*	*N=5583*
Degree or higher education	2118 (24.5)	748 (37.4)	1370 (28.0)
A levels equiv/O level equiv.	2395 (31.6)	722 (36.0)	1673 (25.6)
Other/no qualification	2499 (37.6)	397 (19.7)	2102 (37.6)
FT student	573 (7.6)	135 (6.7)	438 (7.8)
Social group	*N=7617*	*N=2002*	*N=5615*
Professional/managerial	3122 (41.0)	1027 (51.3)	2095 (37.3)
Skilled non-manual	1129 (14.8)	297 (14.8)	832 (14.8)
Manual (skilled or unskilled)	3130 (41.1)	634 (31.7)	2496 (44.5)
Other (incl. student and never worked)	236 (3.1)	44 (2.2)	192 (3.4)
Housing tenure	*N=7604*	*N=1995*	*N=5609*
Owned/mortgage	5633 (74.1)	1575 (77.9)	4078 (72.7)
Shared ownership	24 (0.3)	11 (0.6)	13 (0.2)
Rent	1873 (24.6)	411 (20.6)	1462 (26.1)
Live rent-free	74 (1.0)	18 (0.9)	56 (1.0)
Index of multiple deprivation (quintile: 1=least deprived, 5=least deprived)	*N=7630*	*N=2005*	*N=5625*
1	1587 (20.8)	502 (25.0)	1085 (19.3)
2	1648 (21.6)	473 (23.6)	1175 (20.9)
3	1468 (19.2)	397 (19.8)	1071 (19.0)
4	1607 (21.1)	375 (18.7)	1232 (21.9)
5	1320 (17.3)	258 (12.9)	1062 (18.9)
Household income	*N=6257*	*N=1706*	*N=4551*
<£16,852	2424 (38.7)	502 (29.5)	1922 (42.2)
£16,853-£24,711	1252 (20.0)	335 (19.6)	917 (20.1)
c£24,712-£39,436	1234 (19.7)	370 (21.7)	864 (19.0)
>£39,437	1347 (21.5)	499 (29.2)	848 (18.6)
Employment status	*N=7598*	*N=2002*	*N=5596*
In employment	4178 (55.0)	1290 (64.4)	2888 (51.6)
Unemployed	324 (4.3)	75 (3.7)	249 (4.4)
Retired	1723 (22.7)	286 (14.3)	1437 (25.7)
Other economically inactive	1373 (18.1)	351 (17.5)	1022 (18.3)

Table 2: Best predictors of 12 month CAM use

Variables	Odds ratio (95% CI) for using CAM in last 12 months relative to not using CAM	*p* value
Male	*0.491 (0.419, 0.577)*	*<0.0001*
White	1.141 (0.802, 1.622)	>.05
Professional/managerial	1.186 (0.999, 1.408)	>.05
University education	*1.296 (1.088, 1.544)*	*<0.01*
Indices of deprivation	0.961 (0.905, 1.019)	>.05
Household income > £24,711	1.180 (0.988, 1.408)	>.05
In employment	*1.421 (1.177, 1.714)*	*<0.0001*
Mobility problems	0.987 (0.744, 1.308)	>.05
Pain	1.193 (0.979, 1.455)	>.05
Anxiety and/or depression	*1.341 (1.074, 1.674)*	*<0.01*
Longstanding illness	*1.405 (1.190, 1.659)*	*<0.0001*
Perceived social support	*1.047 (1.008, 1.088)*	*<0.05*
General Health Questionnaire	*1.062 (1.026, 1.100)*	*<0.001*
Use vitamins/supplements	*1.940 (1.651, 2.280)*	*<.0001*
Eat five a day (fruit and vegetables)	*1.327 (1.124, 1.567)*	*<0.001*
Member of religious organisation	1.181 (0.937, 1.489)	>.05

Figure 1: Prevalence of individual CAM use