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Predictive factors of complementary and alternative medicine use in the general population in Europe: A systematic review

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ABSTRACT

Aim: To identify predictive factors of CAM use in the general population in Europe.
Methods: We performed a systematic review to summarize and analyse the published data on factors predictive of CAM use by the general population in Europe. The Cumulative Index to Nursing and Allied Health Literature, Google Scholar, PsycInfo, PubMed and the Web of Science databases were systematically searched up to August 2, 2018. We selected observational studies (case-control, cohort and cross-sectional) of adults conducted in Europe. Risk of bias was determined using the ROBINS-I tool recommended by the Cochrane Group.
Results: Over six thousand articles were identified of which 49 met our inclusion criteria. Twenty three studies investigated the consultation of CAM practitioners, five looked at the use of CAM products, one concerned CAM practices and twenty studied combinations of these. Female gender and self-reported chronic disease are predictive factors of CAM practitioner use. In contrast, marital status is not a predictive factor for consulting a CAM practitioner. Female gender is also a predictive factor of CAM product use. For all other factors investigated, no clear conclusions could be drawn.
Conclusion: We found no clear specificity of the use of CAM practitioners versus conventional health practitioners. Other directions of public health research should be explored, rather than assuming that there is specificity.

1. Introduction

The term “complementary and alternative medicine” (CAM) is usually applied to a heterogeneous set of scientifically controversial products, therapies and practices. This set typically include homeopathic products,[1] some services provided by various health practitioners such as chiropractors,[2] medical traditions (e.g., ayurveda[3]), some diets (e.g., alkaline diet[4]), or even certain religious practices (e.g., prayer[5]).

Thus, any attempt to assess a general prevalence of CAM use is dependent on researchers' classification criteria.[6] In Europe, prevalence studies of CAM use by the general population provide results ranging from 0.3% to 86% for use of any type of CAM at any time.[7] Outside the European Union, studies on the prevalence of CAM use over the past 12 months in the general population have also shown a wide range in results from 9.8% to 76%.[8]

It is essential that healthcare professional provide their patients with reliable information about CAM therapies.[9] In addition, raising and discussing the issue of CAMs with patients might increase visit satisfaction for both, patient and professional.[10] However, almost 77% of patients do not spontaneously disclose their use of CAM to their general practitioner.[11] Among the reasons for this non-disclosure, 20% of patients think that the physician will not understand them.[12] In addition, physicians would like to be better informed about CAMs before addressing the issue with their patients.[13] In order to engage in discussion of the subject and to construct communication tools about CAMs, it is necessary to understand why patients use them.

One aspect of understanding the use of CAMs is to identify factors predicting the use of these therapies.[14] While there are several systematic reviews of studies of CAM use by specific populations (e.g., asthmatics[15] or cancer patients[16]), to date, there is no such review of predictive factors of CAM use by the general population in Europe. Thus, the aim of this systematic review was to identify predictive factors of CAM use in the general population in Europe.

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2. Method

This systematic review was registered in PROSPERO, the international prospective register of systematic reviews (CRD42018086474) and the report follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines.

2.1. Search strategy

The following databases were systematically searched up to August 2, 2018: Cumulative Index to Nursing and Allied Health Literature (CINAHL), Google Scholar, PsycInfo, PubMed and the Web of Science. See Supplementary File S1 for the search strategies used for each database. In addition, the bibliographic sections of the included articles were searched.

2.2. Eligibility criteria

The inclusion criteria were:

- Study design: observational study (case-control study, cohort study and cross-sectional study).
- Participants: participants resident in Europe in one of the countries listed in the CAMbrella Work Package 2[17] (Supplementary File S2). Participants are 15 years of age or older.
- Exposures: any type of exposure.
- Outcomes: the "use of CAM" without restriction on how one defines this variable. The use of one or more specific CAMs (according to the CAMbrella Work Package 4[7]).
- Languages: English or French.

For exclusion criteria, see Supplementary File S3.

2.3. Study selection

Firstly, one researcher (AG) selected publications based on the title. At this level, duplicates and clearly off-topic articles were excluded. In case of doubt, the articles were retained for the next step. Secondly, the abstracts of each article were analysed. Articles that did not meet the eligibility criteria on the basis of the content of their abstracts were excluded. Then the full-texts of the selected articles were obtained for a final check of their eligibility criteria.

For references obtained via the bibliographies of included articles, the study abstracts and, if required, full-text versions were analysed to determine whether the studies met our eligibility criteria. At each stage, uncertainty was resolved by consulting a second researcher (NP).

2.4. Data extraction

One researcher (AG) extracted the data: study design, date of publication, country, initial and final sample size, sampling method, age of participants, dependent and independent variables, results. The authors were contacted when data were missing.

2.5. Assessment of risk of bias

The tool recommended by the Cochrane Bias Method Group was used: Risk of Bias in Non-randomized Studies – of Interventions (ROBINS-I).[18] One researcher (AG) completely assessed risk of bias for each selected study. If necessary, any uncertainty was resolved by independently consulting two other researchers (NP & ND). The overall risk of bias of a study was: high risk if one or more domains was assessed to have high risk; uncertain if only one domain was associated with uncertainty AND no domain assessed with high risk; moderate risk if only one domain assessed with moderate risk AND no domain assessed with high risk and/or associated with uncertainty; low risk if all domains assessed with low risk.

2.6. Data synthesis

Two types of data synthesis were used: narrative synthesis and table. Due to the number of variables studied (N > 100 variables), criteria were chosen to select the results to be highlighted.

For a factor to be considered *predictive*, it had to meet the following criteria: 1) the factor had been studied in at least 3 countries AND 2) the factor emerged as predictive in at least 2/3 of the statistical models for all countries (in which the factor had been studied) AND 3) the factor emerged as predictive in at least 2/3 of the statistical models in 3 countries independently.

For a factor to be considered *non-predictive*, the chosen criteria were: 1) the factor had been studied in at least 3 countries AND 2) the factor emerged as predictive in less than 1/3 of the statistical models for all countries (in which the factor had been studied) AND 3) the factor emerged as predictive in less than 1/3 of the statistical models in 3 countries independently.

The rationale for choice of these criteria is:

- Number of countries: the larger this number is, the more likely it is that the emerging predictive factors will be intercultural.
- Ratio: the larger this ratio is (or the lower for non-predictive factors), the higher the probability that a factor emerging as predictive, or not, is actually predictive (or non-predictive).
- Number of conditions (condition 1 AND condition 2 AND, etc.): the higher this number is, the higher the probability that a factor emerging as predictive, or not, is actually predictive (or non-predictive).

The quantitative aspects of these criteria were arbitrarily set (3 countries; ratios of 2/3 and 1/3; 3 conditions). Indeed, to our knowledge, there is no reference on this subject.

3. Results

3.1. Selection of studies

Of the 6006 article titles identified by our main and complementary search procedures, 49 articles meet the inclusion criteria. A list of the excluded studies along with reasons for exclusion is provided in Supplementary File S4. The flow diagram of the study selection process is shown in Fig. 1.

3.2. Characteristics of included studies

Table 1 and Supplementary File S5 shows the characteristics of the 49 included studies. The design for all studies was cross-sectional. Most studies were conducted in Israel (n = 9)[19–27] and Norway (n = 9),[28–36] while others were conducted in Switzerland (n = 6),[37–42] United Kingdom (n = 6),[43–48] Sweden (n = 4),[49–52] Germany (n = 3),[53–55] Turkey (n = 3),[56–58] Czech Republic (n = 1),[59] Denmark (n = 1),[60] Europe (n = 1; 21 countries),[61] France (n = 1),[62] Ireland (n = 1),[63] Italy (n = 1),[64] the Netherlands (n = 1),[65] Northern Europe (n = 1; 3 countries)[66] or Poland (n = 1).[67] The types of dependent variables assessed were the consultation of various types of CAM practitioners such as homeopaths, acupuncturists, or chiropractors (n = 23), use of heterogeneous treatments, therapies and practices such as religious prayer, color therapy or bio-resonance (n = 20), use of CAM products such as homeopathic or herbal products (n = 5) and use of CAM practices: yoga practice (n = 1). The exposures assessed in the selected articles are wide-ranging. In studies of CAM practitioners, products and practices (n = 29), the five most frequent exposures are age (n = 28), gender (n = 26), education (n = 25), self-rated health (n = 17) and marital status (n = 15). The details concerning the exposures are given in

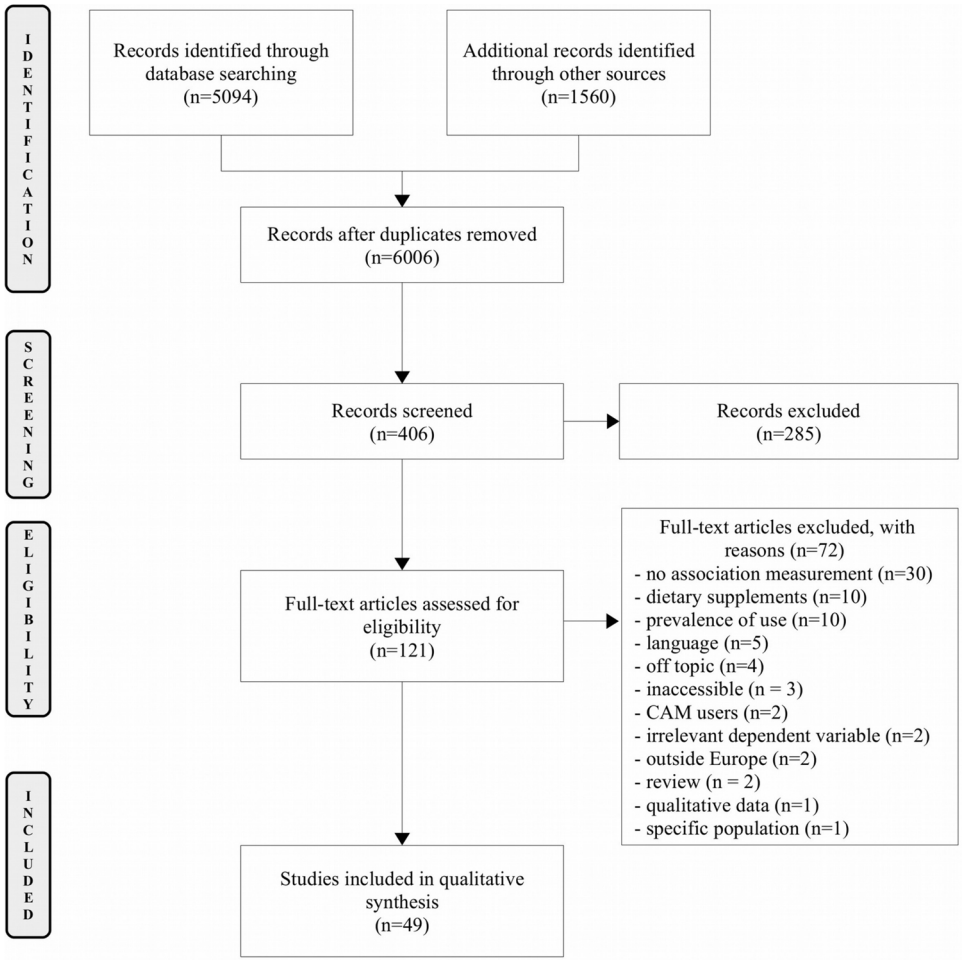

Fig. 1. Flow diagram.

Supplementary File S6.

3.3. Risk of bias analysis

For studies on consultation of CAM practitioners, in 13 out of 23 studies, the overall risk of bias is high due to confounding factors (Supplementary Files S7 & S8). In the 10 other studies it is impossible to assess the overall risk of bias due to a lack of information available in the publication and even after contact with the authors (Supplementary Files S7 & S8). The main areas of bias are the evaluation of the risk of bias regarding the classification of behaviours of interest and exposures, as well as the evaluation of the risk of bias concerning the treatment of missing data (Supplementary Files S7, S8 & S9). It is impossible to assess the overall risk of bias of studies on CAM products and practices for similar reasons (Supplementary Files S7, S8 & S9).

3.4. Summary of findings

The results of studies with combinations of CAM usages as a combined dependent variable (see Supplementary File S5) were not extracted and are not presented (n = 20). Only the results of studies on CAM practitioners, products and practices were extracted and presented (n = 29). The results for each study are summarized in Supplementary File S6. Table 2 summarizes the results for each independent variable by consultation or product category. The only CAM practice study found, on the practice of yoga, does not appear in this table because of its uniqueness.

3.4.1. Visits to CAM practitioners

3.4.1.1. Predictive factors. Patient gender (woman vs. man) was investigated in 7 countries and is a positive predictive factor (risk factor) in 75% of models for all countries as a whole and in more than 2/3 of models for 4 out of 7 countries.

The self-report of a chronic disease (presence vs. absence) was investigated in 5 European countries and is a positive predictive factor for consulting a CAM practitioner in 80% of the models for all countries and in more than 2/3 of the models for 4 out of 5 countries.

3.4.1.2. Non-predictive factors. Marital status (divorced, separated, widow vs. married/cohabiting or single vs. married/cohabiting) was investigated in 5 European countries and is predictive in less than a third of the models for all countries as a whole and in none of the models for 4 out of 5 countries.

3.4.2. Use of CAM products

Gender (woman vs. man) was investigated in 3 countries and is a positive predictive factor in 100% of models for all countries as a whole and in 100% of models for each country.

4. Discussion

4.1. Foreword

4.1.1. Summary of findings

In Europe most of the published studies concerned the consultation of a CAM practitioner. Female gender and self-reported chronic disease

Table 1
Characteristics of the studies included.

First author (yr.)	Country	Initial sample size (sampling)	Final sample size (RR)	Age range or mean	Dependent variable: use of CAM practitioners (recall period)
Verheij (1999)	Netherlands	16100 (RS)	8843 (55%)	≥15	Homeopath, acupuncturist, natural healer, magnetizer/paranormal healer, anthroposophic doctor, chiropractor, faith healer, other (12 mos)
Friedman (2001)	Israel	220 (?)	152 (69%)	15–70	"Alternative medicine practitioner" (12 mos)
Ong (2002)	United Kingdom	14868 (RS)	8889 (64%)	18–64	Osteopath, chiropractor, homeopath, herbalist, acupuncturist, religious or spiritual healer, other 'alternative therapist' (3 mos)
Al-Windi (2004)	Sweden	1775 (RS)	1433 (81%)	16–65+	"Provider of any alternative medicine" such as: massage, acupuncturist, chiropractor, naprapathy, or other therapies (12 mos)
Shmueli (2004)	Israel	?	1993: 2003 (?) 2000: 2505 (?)	45–75	Homeopath, acupuncturist, chiropractor, reflexologist, naturopath, other healers such as rabbis or osteopaths (12 mos)
Busato (2005)	Switzerland	13915 (RS)	11932 (86%)	≥16	Physicians who have additional training outside of medical school in homeopathy, anthroposophical medicine, neural therapy, herbal medicine, or traditional Chinese herbal medicine.
Hanssen (2005)	Denmark, Norway, Sweden	Norway, 1997: 2000 (RS) Denmark, 2000: 22594 (RS) Sweden, 2000: 1588 (RS)	Norway, 1997: 1000 (51%) Denmark, 2000: 16690 (74%) Sweden, 2000: 1001 (63%)	≥16	Alternative practitioner (12 mos)
Shmueli (2005) Shmueli (2006a) Shmueli (2006b)	Israel	?	1993: 2003 (?) 2000: 2505 (?)	45–75	Homeopath, acupuncturist, chiropractor, reflexologist, naturopath, other healers such as rabbis or osteopaths (12 mos)
Niskar (2007)	Israel	4036 (RS)	2365 (59%)	21–65+	Homeopath, acupuncturist, chiropractor/osteopath, naturopath, other CAM provider (12 mos)
Steinsbekk (2007) Steinsbekk (2008a) Steinsbekk (2008b)	Norway	92936 (RS)	54448 (59%) 40027 (43%) 42277 (46%)	20–80+ 20–80+ 20–80+	Chiropractor, homeopath, naturopath, reflexologist, laying on of hands, healer, psychic, etc. (12 mos)
Steinsbekk (2009)	Norway	9392 (RS)	6612 (70%)	18–80+	"CAM practitioner" (12 mos)
Büssing (2010)	Germany	20000 (RS)	5830 (29%)	64.7	Acupuncturist or homeopath (5 yrs)
Fox (2010)	Ireland	1998: 12245 (RS) 2002: 11212 (RS)	1998: 6539 (53%) 2002: 5592 (53%)	18–60+	"Alternative/complementary practitioner" (e.g., acupuncturist, homeopath, reflexologist) (Lifetime)
Shmueli (2011)	Israel	752 (RS)	325 (50%)	45–75	Homeopath, acupuncturist, chiropractor, reflexologist, naturopath, other healers such as rabbis or osteopaths (12 mos)
Steinsbekk (2011)	Norway	1995-1997: 92936 (RS) 2006-2008: 94194 (RS)	42277 (45%) 50713 (55%)	20–80+	Chiropractor, homeopath, naturopath, reflexologist, laying on of hands, healer, psychic, etc. (12 mos)
Løhre (2012)	Norway	94194 (RS)	50713 (54%)	20–80+	A person who practices homeopathy (12 mos)
Løhre (2013)	Norway		50827 (54%)	20–80+	Practitioner of acupuncture (12 mos)
Lert (2014)	France	11701 (RS)	8559 (73%)		"Strictly prescriber of conventional medicine (GP-CM) who never declared or rarely using homeopathy or CAM, regular prescribers of homeopathy and CAM in a mixed practice (GP-Mx), and certified homeopathic Gps (GP-Ho)"
Hansen (2014)	Norway	19762 (RS)	9743 (49%)	30–87	Homeopath, acupuncturist, foot zone therapist, herbal medicine practitioner, laying on hand practitioner, healer, clairvoyant, etc. (12 mos)

First author (Yr.)	Country	Initial sample size (sampling)	Sample size	Age range or mean	Dependent variable: use of CAM products (recall period)
Al-Windi (2000)	Sweden	1312 (RS)	827 (63%)	16–65+	Herbal medicine (12 mos)
Stjernberg (2006)	Sweden	2312 (RS)	1380 (61%)	60–90+	Herbal medicine, dietary supplements
Nur (2010)	Turkey	4025 (RS)	3876 (98%)	18–48+	Herbal remedies
Djuv (2013)	Norway	402 (?)	381 (95%)	18–70+	Herbal use
Marques-Vidal (2008)	Switzerland	19830 (RS)	6188 (31%)	35–74	Homeopathic treatments

First author (Yr.)	Country	Initial sample size (sampling)	Sample size	Age range or mean	Dependent variable: use of CAM practices (recall period)

(*continued on next page*)

Table 1 (*continued*)

First author (Yr.)	Country	Initial sample size (sampling)	Sample size	Age range or mean	Dependent variable: use of CAM practices (recall period)
Ding (2014)	United Kingdom	1997-1999:? (RS) 2003-2004:? (RS) 2006/2008:? (RS)	1997–1999: 38409 (?) 2003–2004: 27580 (?) 2006/2008: 15101 (?)	≥16	Yoga practice (4 wks)

Legend. GP: general practitioner; CS: convenient sample; RS: randomized sample; RR: response rate.

are consistently the two characteristics predictive of such consultations. Being a woman is also a positive predictive factor for resorting to other forms of CAM behaviours. There is also strong evidence against marital status as a predictive factor for consulting a CAM practitioner. For all other factors, no clear conclusion can be drawn.

4.1.2. The problem with the "use of CAM" category

Some studies have used as a combined dependent variable the use of a fuzzy and heterogeneous group of health behaviours (n = 20; see Supplementary File S5). These studies were not presented in detail or analysed in this review because that heterogeneity is scientifically problematic.[7,68] Indeed, inclusion in the same category behaviours as different as, for example, "consulting an acupuncturist" and "praying" should be justified. The justification for the interest of grouping such behaviours is never provided in the articles, raising doubt as to validity and relevance of such studies.[68]

4.2. Internal validity of the studies included

For the majority of studies selected, information is insufficient to assess the risk of classification bias for behaviours used as dependent variables (such as "use of a naturopath in the past 12 months"), the risk of classification bias for exposures (such as self-reported chronic disease), and the risk of bias concerning the processing of missing data. Therefore, for the majority of studies, it is not possible to assess the overall risk of bias.

4.3. Comparison with other studies

4.3.1. Europe compared to the rest of the world

There is no systematic review of publications from outside Europe on predictive factors for consulting a CAM practitioner. However, we found 5 studies conducted in North America that focused on this. Female gender was a positive predictive factor in 4 out of 5 of these studies.[69–72] Self-reporting of a chronic disease was examined in one study but was not found to be a predictive factor,[70] in contradiction with our results. Marital status was investigated in 1 out of 5 studies and, as in our study, did not emerge as a predictive factor.[69]

An analysis of the International Social Survey Program dataset from 2011 to 2012 (32 European and non-European countries) provides confirmation that female gender is a positive predictive factor for consulting CAM practitioners.[73]

4.3.2. General population compared to specific populations

To our knowledge, there is no systematic review addressing predictive factors of the use of CAM practitioners, CAM products or CAM practices in specific populations. "People with cancer" seem to be most studied specific population, but all studies of so-called CAM behaviours group them together as "use of CAM" without distinguishing different behaviours[74]. This blanket lumping together of different behaviours was already been noted in 2009 in a review on the use of herbal medicines.[75]

4.3.3. Classification of different types of behaviour compared to "use of CAM" in general

When we consider included studies using heterogeneous health behaviours as a combined dependent variable (see table A), female gender emerged as a positive predictive factor in almost all studies in which it had been studied, likewise for the self-reporting of chronic conditions. Marital status was not predictive of CAM use in any study.

4.3.4. Use of CAM practitioners, products and practices compared to conventional health services

Female gender and self-declaration of the presence of a chronic disease are positive predictive factors of both self-medication[76] and health service use in general.[77,78] Thus, these two factors are neither

Table 2
Results for each independent variable by behavior category.

Use of CAM practitioners		
Independent variable	Number of times the variable emerges as a predictive factor / Number of statistical models (%)	Detail by country (P = protective factor; R = risk factor)
Age	16/36 (44%)	Germany 1/3; Ireland 1/2; Israel 1/11; Netherlands 2/3; Norway 11/15; Sweden 0/1; United Kingdom 0/1 (R&P*)
Sex	20/27 (75%)	Germany 3/3; Ireland 0/2; Israel 10/12; Netherlands 1/3; Norway 5/5; Sweden 0/1; United Kingdom 1/1 (R: woman vs. man)
Education	19/35 (54%)	Germany 1/3; Ireland 2/2; Israel 10/11; Netherlands 0/3; Norway 6/15; Sweden 0/1 (R: high vs. low)
Marital status	7/26 (27%)	Germany 0/3; Ireland 0/2; Israel 0/5; Norway 7/15; Sweden 0/1 (R: divorced, separated, widow vs. married/cohabiting; P: single vs. married/cohabiting)
Chronic disease	16/20 (80%)	Israel 0/2; Netherlands 3/3; Norway 11/13; Sweden 1/1; United Kingdom 1/1 (R: yes vs. no)
Self-rated health	18/28 (64%)	Norway 14/14; Israel 1/10; Netherlands 2/3; Sweden 1/1 (R: bad vs. good)
Smoker	11/19 (58%)	Germany 0/3; Israel 0/1; Norway 11/14 (P: y/n); Sweden 0/1
Religion	3/13 (23%)	Ireland 1/2 (P: y/n); Israel 0/8; Netherlands 2/3 (R&P: roman catholic vs. rest)
Employment	4/12 (33%)	Ireland 2/2; Norway 2/9; Sweden 0/1 (R: currently working vs. not; self-employed vs. unemployed)
Cancer	0/13 (0%)	Israel 0/1; Norway 0/12
Physical activity	5/10 (50%)	Norway 4/9; Sweden 1/1 (R: substantial vs. not)
Income	2/4 (50%)	Ireland 0/2; Israel 1/1; Norway 1/1 (R: high vs. low)
Asthma	1/12 (1%)	Israel 0/1; Norway 1/11 (P: y/n)
Diabetes	1/13 (1%)	Israel 0/1; Norway 1/12 (P: y/n)
Urbanicity	1/5 (20%)	Ireland 0/2; Netherlands 1/3 (R: urban vs. not urban)
Insurance	1/4 (25%)	Ireland 1/1; Netherlands 0/3 (R: y/n)
Pain	3/3 (100%)	Ireland 2/2; Israel 1/1 (R: y/n)
GP frequency	2/2 (100%)	Norway (P: high vs. low); United Kingdom (R: high vs. low)
Alcohol	0/2 (0%)	Norway; Sweden
Arthritis	0/2 (0%)	Israel; Norway
Use of CAM products		
Gender	3/3 (100%)	Norway 1/1; Turkey 1/1; Switzerland 1/1 (R: woman vs. man)
Education	2/3 (67%)	Norway 0/1; Turkey 1/1; Switzerland 1/1 (R: high vs. low)
Alcohol	0/2 (0%)	Turkey; Switzerland
Smoker	0/2 (0%)	Turkey; Switzerland

For the sake of brevity, variables evaluated in a single study (out of 29) are not presented in this table.
* Varies according to the age categories studied.

specific to seeking a consultation with a CAM practitioners nor to the use of CAM in general. Female gender is also not a specific predictive factor of the use of CAM products.

Several studies have shown that marital status is correlated with the consultation of a general practitioner.[79] People who are married, separated or widowed having more recourse to a physician than others.[79] According to Aday, this result is explained by the fact that marital status "primarily reflects age, sex and morbidity patterns".[79] People who are married, separated or widowed tend to be older than others, and therefore more likely to develop chronic diseases.[79] As for gender, it is linked to marital status by the fact that married women use obstetric services more than others.[79] However, in most of these studies, the actual or self-reported disease status is not controlled.[79] Therefore, it is plausible that the correlation between marital status and the use of a physician's services is an artefact of this lack of control. If this hypothesis is true, it would be expected not to find marital status as a predictive factor of the use of CAM practitioners in the studies of our corpus in which the confirmed or self-reported morbid state is effectively controlled (see Supplementary File S6).

4.4. Interpretation & explanation

We have focused on the consultation of CAM practitioners because for the use of CAM practices we only found one study. The use of CAM products gave essentially similar results to the consultation of CAM practitioners (female gender as a positive predictive factor). Ideally, the interpretation of the different variables found to be predictive factors, or not, would require the use of theoretical models of health behaviours (such as the socio-behavioural model of Anderson and Newman,[80] the health self-management model of Grzuwacz et al.[81] or the consumer decision-making model of Sirois et Purc-Stephenson[82]). We estimate this type of theoretical interpretation to be beyond the scope of this article. Especially since there does not appear to be any obvious specificity in the consultation of CAM practitioners compared to other health services.

How can this absence of specificity be explained? First, some CAM practitioners are health professionals who are integrated into their country's health system (for example, homeopathic physicians in France,[62] or chiropractors in Norway[83]). Secondly, the consultation of a CAM practitioner is often complementary to consultation of conventional health professionals.[36] Finally, many conventional health professionals, particularly general practitioners, refer their patients to CAM practitioners.[84] Consequently, it is not certain that patients really perceive the 'CAM' character of this or that practitioner. Thus, when consulting a CAM practitioner, patients would simply consider they are using 'conventional' health services among others at their disposal. Therefore, predictive factors of CAM practitioner use may simply reflect the factors predicting the use of health services in general versus no use. In other words, predictive factors of CAM practitioner use are similar to predictive factors of health service use in general.

4.5. Implications for research

The studies of predictive factors of CAM practitioner are often based on the assumption that these factors would be different from those predicting the consultation of conventional health practitioners. However, this assumption is not supported by our results. This bring into question the interest of pursuing research in this direction. Other possible directions for research in this field would be to investigate the predictive factors of consulting simultaneously a CAM practitioner and

conventional health practitioner versus use of a conventional health practitioner alone.[26,36] Another approach would be to study the issue of predictive factors of CAM practitioner use by distinguishing health practitioners inside or outside health care systems.[83] Questions relevant to public health should be prioritized.

With regard to use of CAM products and CAM practices, the few available studies (n = 5 and n = 1 respectively) indicate that these areas of research need to be developed.

5. Conclusions

Within the category "use of CAM", in practice many researchers distinguish among use of CAM products, CAM practices or consultation of a CAM practitioner. The latter is currently the most studied category of behaviour. Female gender and self-reported chronic disease are the two factors that are significantly predictive of CAM practitioner use and for which the evidence is consistent. There is also strong evidence against any particular marital status being a predictive factor of CAM practitioner use. For these above-mentioned predictive and non-predictive factors, there does not appear to be a clear specificity of the use of CAM practitioners compared to the use of conventional health practitioners. Other directions of research should be explored, rather than assuming that there is specificity. It is essential to determine which direction of research is most relevant and potentially fruitful from a public health perspective.

Conflict of interest

All authors declare no competing interests.

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Ethical approval

Not applicable.

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Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:https://doi.org/10.1016/j.ctim.2018.12.014.

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