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Differences Between Visitors of CAM Practitioners With and Without a Conventional Medical Background in a Total Population in Central Norway (HUNT Studies).

Graduate thesis in Medicine
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Abstract:

Aim:

To do a cross sectional study investigating the characteristics of persons who consult a Complementary and Alternative Medicine (CAM) practitioner with a conventional medical background compared to those who consult a CAM practitioner without a conventional medical background with regards to demographics, lifestyle, health care use, motives for visiting a CAM practitioner and type of CAM modality used.

Methods:

A cross sectional study that included the population in The Nord Trøndelag health study 3 that received the questionnaires Q1, Q2 and Q3:CAM. The dependent variables included participants that have visited a CAM practitioner with a conventional medical background and participants that have visited a CAM practitioner without a conventional medical background. The independent variables included groups of demographic variables, lifestyle variables, health status variables, modality of choice and a number of reasons for using CAM. Multivariable logistic regression was used to calculate adjusted odds ratio for having visited a CAM practitioners with a conventional medical background.

Results:

A number of 4182 participants were included in this study. The variables that were significantly associated with higher odds of visiting a CAM practitioner with a conventional medical background were being male (Adj OR 1.4), daily smoker (Adj OR 1.5), choosing acupuncture (Adj OR 1.4) or magnet therapy (Adj OR 1.8) and stating that the recommendation from a health professional is why they are using CAM (Adj OR 3.7). Middle level education (Adj OR 0.7), university level education (Adj OR 0.8), age 50-59 (Adj OR 0.6), stating that their reason for using CAM is lacking effect in the conventional health care system (Adj OR 0.7), to avoid side effects of medical treatment (Adj OR 0.7), having faith in CAM (Adj OR 0.7), previous experience with CAM (Adj OR 0.8) and because of recommendation by others (Adj OR 0.6), and using homeopathy (Adj OR 0.5), reflexology (Adj OR 0.2), healing (Adj OR 0.1), naturopathy (Adj OR 0.2) and other CAM therapy (Adj OR 0.6) were associated with lower odds of visiting a CAM practitioner with a conventional medical background. A sub analysis of acupuncture visitors showed that being male, daily smoker and to state that the recommendation from health professionals is why they are using CAM was associated with

higher odds of visiting an acupuncturist with a conventional medical background. The acupuncture visitors that had stated that lacking effect of treatment in the conventional health care system, to avoid side effects of medical treatment, faith in alternative therapies and recommended by others were associated with lower odds of visiting a CAM practitioner with a conventional medical background.

Conclusion:

The visitors own reasons for visiting a CAM practitioner and which modality the visitor had received were most strongly associated with visiting a CAM practitioners with a conventional medical background.

Introduction:

When our health is not optimal, we have the opportunity try to find a way to relieve ourselves through adopting different methods to alleviate our ailments. There is a variety of health care offers extending inside and outside the public care system[1]. Therapists with or without a conventional medical background offer both evidence based health care and complementary and alternative methods of therapy [2]. Complementary and Alternative Medicine(CAM) is defined in the Norwegian Act relating to the alternative treatment of disease, illness, etc. as "*health related treatment performed outside of the health service and is not practiced by authorized health personnel"* [3].

Internationally, the use of CAM has increased over the past decades. In recent years, the use remains stable, and a significant proportion of the population indicates using CAM [4, 5]. In a review with data from 15 countries, the 12-month prevalence of use of any CAM ranged from 9.8-76 % and the 12-month prevalence of visits of a CAM practitioner ranged from 1.8-48.7 % [6].

In Norway, according to the Norwegian National Research Center in Complementary and Alternative Treatment (NAFKAM), the proportion of the population who visits CAM practitioners has been stable the last 7 years up to 2014 [7]. In 2014, nearly one out of three adult Norwegians reported to have visited a CAM practitioner during the last 12 months, with more visits among females and the age group 15-24. The most popular CAM modalities were massage and acupuncture.

The use of CAM is widespread among patients with cancer, chronic headache, multiple sclerosis, inflammatory bowel disease, women during pregnancy and childbearing years, Parkinson disease and more [8-13]. A study from 2016 suggests that patients' motives for using CAM are their belief of CAM being effective, but also because of dissatisfaction and mistrust of conventional care[14]. Other examples of motives for using CAM are increased hope, empowerment, control and a more holistic approach [11, 14, 15].

Several studies have been conducted through the years, attempting to characterize CAM users. One of the commonalities in several major studies is that women visit CAM practitioners more often than men [16-18]. In a large population study conducted in 2014, the researchers compared the male and female visitors of CAM and found that poor health, young and middle age were associated with CAM use at all CAM levels among women, while among men only

poor health was associated with CAM use at all CAM levels [16] (CAM levels defined by NAFKAM[19]). A study on characteristics of visitors to acupuncturists found a higher frequency of reported somatic complaints the preceding year[20]. Female visitors had higher income and education, and a healthier lifestyle than those that did not see an acupuncturist. A Norwegian study conducted in 2012 indicated that female visitors of homeopaths were characterized by higher education, non-smoking, having chronic complaints and having visited a physician or a chiropractor during the last 12 months[21]. Male visitors were found to be seeking help for psychiatric complaints and consulting a chiropractor.

Researchers have explored nurses, doctors and other health care worker's attitudes and views on CAM [22-25]. The attitudes range from mildly averse to mostly positive. For example, a review conducted in 2015 indicated that 66.4% of nurses had a positive attitude towards CAM, but that 77.4% did not have the full understanding of what benefits and risks that are associated with CAM use[22]. Another review also indicate a lack of knowledge about CAM among nurses[25] and researchers point out that the knowledge level should be improved [23, 25].

CAM can be provided by practitioners outside of the government-funded health care system as well as licensed health personnel within the government-funded system. Several studies have found that CAM treatment are being offered in hospitals and the established healthcare [2, 26, 27]. In a study conducted in Switzerland, the results showed that 19 out of 37 responding hospitals offered CAM[26]. According to a study completed in 2011, 1 out of 3 Danish hospitals offer CAM, and in Norway approximately 50% offer CAM with a substantial increase from 2001 when 25% of Norwegian hospitals offered CAM[2]. A more recent study published in 2015 showed that in 2013, the proportion of hospitals offering CAM were at 64.4%[27]. The study also showed that between 2008 and 2013 there were a significant increase regarding use of CAM in psychiatric hospitals, from 28.9% to 76.5%. In a study conducted in Norway and Denmark in 2011[2], the person responsible for clinical activity in each hospital were asked to report reasons of offering CAM at the hospital. The interest of a hospital employee was the most reported reason, except for acupuncture which is more often introduced by the management and based on scientific evidence of effect. The same study also indicated that all persons responsible for the alternative treatment (except one) had a medical or allied health professional background.

Multiple search performed in PubMed, Google Scholar, AMED and Oria, revealed only one study investigating the characteristics of CAM users that visit a CAM practitioner with a conventional medical background was found[28]. The study was a telephone based survey from

Norway published in The Journal of Alternative and Complementary Medicine in 2009. It was found that gender, age and modality of treatment was associated with use of CAM given by licensed health personnel within the government-funded health care system. The modality of highest use was massage and acupuncture regardless of the provider [28].

Thus, there is little knowledge about visitors of CAM practitioners with and without a health professional background. The aim of this study is therefore to investigate the characteristics of persons who consult a CAM practitioner with a conventional medical background compared to those who consult a CAM practitioner without a conventional medical background with regards to demographics, lifestyle, health care use, motives for visiting a CAM practitioner and type of CAM modality used.

Methods

Design

This study was a cross sectional study conducted in 2006 to 2008 (The Nord-Trøndelag health study 3).

Setting

The Nord-Trøndelag Health Study (HUNT) is a uniquely large population based health study. The study consists of three parts, HUNT 1 which was conducted from 1984 to 1986, HUNT 2 conducted from 1995 to 1997 and HUNT 3 as the third carried out from 2006 to 2008. The Regional committee for Medical and Health Research Ethics, Central Norway have given an official approval of the HUNT surveys.

The HUNT study is considered to be fairly representative of the Norwegian population in concern of geographical, demographical and occupational factors [29]. One exception is that there are no large cities and the income- and educational level is lower than the rest of the country.

As the Act No. 64 relating to the alternative treatment of disease [3] states, complementary and alternative medicine is defined as treatment that is practiced outside the established health service and by practitioners who are not authorized health personnel. Authorized health personnel who practice alternative treatments as part of the established health are regulated by the act regulating all authorized health personnel. However, authorized health personnel practicing alternative treatment privately are defined as practitioners of CAM therapy. In

Norway, all people, including both conventional medical doctors, nurses, physiotherapists and people without a conventional medical background are allowed to practice CAM therapy. Thus, the definition of a CAM practitioner is anyone who practice what is defined as CAM. As CAM is defined as outside of the public health care system, such treatment is not covered by the state health funding and patients thus have to pay out of pocket.

Participants

All inhabitants in the county of North Trøndelag aged 20 or over were invited by mail to participate in HUNT3. The first and main questionnaire (Q1) was attached to each invitation which was to be returned at a screening station where a health check was performed. As the participants left the screening station, a second questionnaire (Q2) was distributed. Also, based on the responses received in Q1, the organizers handed out a maximum of three additional questionnaires (Q3s). While Q1 focused on diseases and visits to different health practitioners, Q2 concerned other aspects of health such as perception of various ailments. The questions in the Q3s went more in depth regarding certain illnesses and treatments.

One of the Q3 questionnaires concerned different aspects of CAM use (Q3:CAM). Those who answered in Q1 that they had visited a CAM practitioner during the previous 12 months were qualified to receive the Q3:CAM questionnaire. If the participant reported cardiovascular disease, cancer or diabetes, he or she got a Q3 regarding the current disorder. If all three of the diseases were reported, only those three Q3s where prioritized. If not, the participant could also receive other Q3s.

CAM visitor – dependent variable

The second question in Q3:CAM sounded like the following: What type of alternative medicine did you get and who did you receive it from? The participants then checked a box for one or more of the following modalities; Homeopathy, Acupuncture, Reflexology, Healing, Prayer, Herbs/Naturopathy/Dietary supplements, Magnet therapy or Other CAM. At the same time, they checked in the box of who they had received it from; Doctor, Nurse/Physiotherapist, CAM therapist or Other. If the participant answered this question, they were in this study defined as a CAM visitor.

Based on these answers, the participants were divided in two groups;

- The first group included participants who have received CAM by a doctor, nurse or physiotherapist because as the title implies, it is little doubt that these are practitioners

with a conventional medical background. This is also stated with greater detail in Health Personnel Act, under § 48 and 48 a, about authorization and education of doctors, nurses and physiotherapists[30]. Simplified, practitioners of these professions are called “CAM practitioners with a conventional medical background”.

- The second group includes all other participants; those who had answered that they had received CAM treatment from "CAM therapist" or "Other". It is less clear what the exact background of these the practitioners were, and that is why they are classified as visitors to CAM practitioners who are not a doctor, nurse or physiotherapist. Simplified, these practitioners are called "CAM practitioners without conventional medical background”.

Some participants responded that they had visited both a CAM practitioner with conventional medical background such as a doctor, nurse or physiotherapist, and a complementary practitioner or ‘Other’. These participants are not included in this study.

Independent variables

The independent variables were grouped as demographics, lifestyle, health care use, motives for visiting a CAM practitioner and type of CAM modality used.

Demographics

Information about gender, age, marital status and education level were taken from public registers. Level of education were reclassified in three groups; compulsory school, middle level education (including vocational education below university level) and university degree. Participants who answered yes to the question of current employment were classified as currently working.

Lifestyle

Concerning the lifestyle of the participants, a daily smoker included those who responded that they smoke cigarettes, cigars and/or pipe every day. Physical activity indicates if the participants execute 3 or more hours of hard activity weekly during the past 12 months.

Health status

Several measures of self-reported health status were used. Below is also the answering categories and where they have been recoded, this is indicated:

1) Global health: How is your health at the moment? (Poor, Fair, Good, Very good)

2) Recent somatic complaint (yes to one or more of these questions):

    - Have you suffered from Nausea / Heartburn/ Diarrhea/ Constipation/ Breathlessness in the last 12 months? (Never= No / Sometimes=Yes / Often=Yes)

    - Have you experienced any stiffness or pain in your muscles or joints that has lasted for more than three consecutive months during the last year? (Yes/ No)

    - Have you suffered from headaches in the last 12 months? (Yes/ No)

3) Psychiatric complaint: Do you have or have you had psychiatric complaints that you have sought help for? (Yes/ No)

4) Chronic complaint: Do you suffer from any long standing (for at least one year) limiting somatic or psychiatric illness, disease or disability? (Yes/ No)

5) Asthma, Diabetes, or Cancer: Do you have or have you had asthma/ diabetes/ cancer? (Yes/ No)

6) Hay fever, Psoriasis or Hand Eczema: Do you have or have you had hay fever/ psoriasis/ hand eczema? (Yes/ No)

7) Hyperthyroidism or Hypothyroidism: Have you been diagnosed with hyperthyroidism/hypothyroidism? (Yes/ No)

8) Cardiovascular disease (yes to one or more of these questions): Do you have or have you had Acute myocardial infarction/Angina pectoris/Stroke? (Yes/ No)

9) Musculoskeletal disease (yes to one or more of these questions): Have you been diagnosed with Osteoporosis/ Fibromyalgia/ Arthritis/ Artroses/ Bechterew/ Other longstanding musculoskeletal disease? (Yes/No)

CAM modality

Which CAM modality the participant had used were determined by the same question as the one used for the dependent variable: What type of CAM therapy did you receive and who did you receive it from? The participants were able to choose from homeopathy, acupuncture, reflexology, healing/laying of hands, prayer, herbs/naturopathy/high-dose supplements, magnet

therapy and other CAM. Participants were categorized according to the modality they had chosen regardless of who they had received it from. (Yes/No)

Reason for using CAM

The participants were asked to choose between 11 different reasons for using CAM therapy. They crossed out one or more of the following the response alternatives as a reply to this question (answering categories and how they were coded in brackets): Why did you use, or why do you use CAM therapy?

- Lacking effect of treatment in the conventional health care system. (Crossed out=Yes/Missing=No)
- To avoid side effects of medical treatment. (Crossed out=Yes/Missing=No)
- To supplement medical treatment. (Crossed out=Yes/Missing=No)
- To ensure that all opportunities should be sought. (Crossed out=Yes/Missing=No)
- Did not receive medical treatment. (Crossed out=Yes/Missing=No)
- To prevent illness. (Crossed out=Yes/Missing=No)
- Have faith in alternative therapies. (Crossed out=Yes/Missing=No)
- Previous experience with complementary and alternative treatment. (Crossed out=Yes/Missing=No)
- As recommended by health professionals. (Crossed out=Yes/Missing=No)
- As recommended by others. (family, friends etc.) (Crossed out=Yes/Missing=No)
- Other reason. (Crossed out=Yes/Missing=No)

Analysis

Pearson Chi Square tests were used for bivariable analysis to compare those who had visited CAM practitioners with a conventional medical background with those who had visited CAM practitioners without a conventional medical background, due to all variables being categorical. The adjusted odds ratio (AdjOR) was calculated in a multivariable logistic regression model where all the variables that had a p-value <0.2 in the bivariable analysis were included to

identify unique contributions of each variable on visits to a practitioner who are a medical doctor, nurse or physiotherapist (the dependent variable). The 95% confidence intervals (95% CI) of the adjusted odds ratio is reported. Statistical significance was accepted at the 5% level ($p<0.05$). All the data were analyzed using SPSS version 24 for windows (SPSS Inc., Chicago, IL, USA).

In the main analysis it was found that there were strong associations between visits to a CAM practitioner with medical background and the different CAM modalities. This could indicate that whether a person visited a CAM practitioner with a conventional medical background were influenced by the type of CAM practiced by persons with a medical background. E.g. that persons with a medical background more often practice the more "accepted" CAM modalities. Thus, to further investigate this, a sub analysis was conducted which only included only those who had answered that they had visited an acupuncturist. The same type of analysis was conducted, with a comparison between those who had visited a CAM practitioner with a conventional medical background and those who had visited a CAM practitioner without the aforementioned background. The variables that had a p-value <0.2 in the bivariable analysis were included in the multivariable logistic regression. Only the numbers from the multivariable logistic regression are addressed in the results of this report.

Results

Out of the 93 860 inhabitants that were invited to participate in HUNT 3, 50 827 participated (Fig 1). A total of 50 713 persons answered the sixth question in the first questionnaire asking if they have visited a CAM practitioner or not. Among those that answered that they have consulted a CAM practitioner, 6133 persons was invited to fill out a third questionnaire (Q3) with more questions on CAM use, and 5027 responded.

The second question in Q3 concerned which type of CAM practitioner they had visited and the type of background the CAM practitioner had, 4616 individuals answered this question. Among these, 1019 participants had visited a CAM practitioner with a conventional medical background and 3163 had visited a CAM practitioner with a background as a "CAM therapist" or "Other". Out of those that have visited a CAM practitioner with a conventional medical background, 165 (16.2%) had visited a CAM practitioner being a doctor and 854 (83.8%) had visited a CAM practitioner being a nurse or physiotherapist. In addition, 434 had visited a CAM practitioner with both types of backgrounds (not included in the analysis below). Among the 4182 persons having visited a CAM practitioner, 3037 (72.6%) were women and 1145 (27.4%) were men. The largest age group was 50-59 year (1056 participants, 25.3%) and the largest part of participants have middle level education (2285 participants, 54.6%).

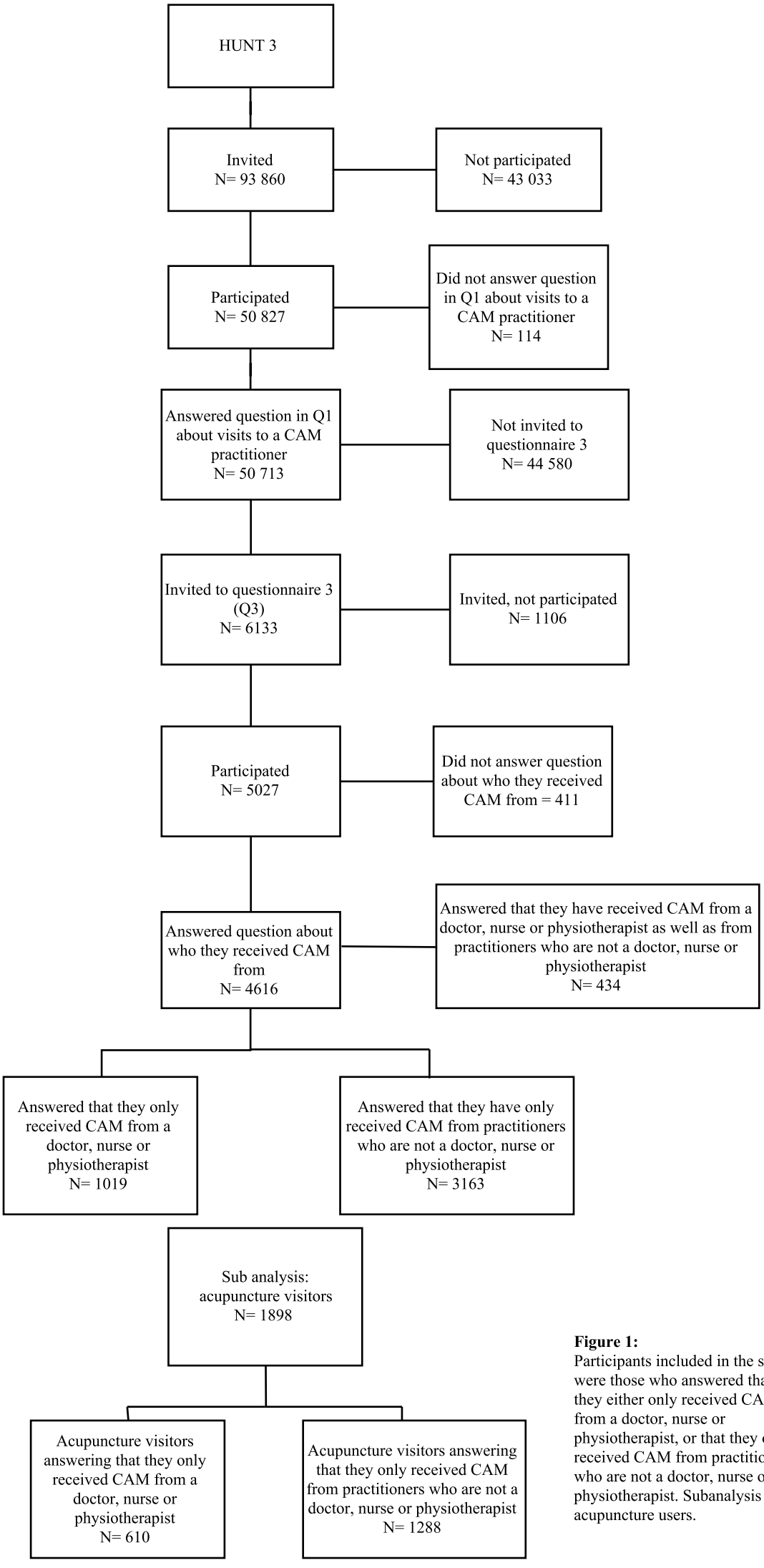

Figure 1:
Participants included in the study were those who answered that they either only received CAM from a doctor, nurse or physiotherapist, or that they only received CAM from practitioners who are not a doctor, nurse or physiotherapist. Subanalysis of acupuncture users.

Bivariable analysis

CAM modalities used

One of four (24.4%) of the participants in this survey answered that they have received some sort of CAM treatment from a CAM practitioner with a conventional medical background (Table 1). The remaining 75.6% had visited a CAM practitioner which do not have the aforementioned background. While participants chose the CAM practitioner they had used, they were given the opportunity to choose from 7 defined CAM therapies such as homeopathy, acupuncture, reflexology, healing, prayer, herbs/naturopathy/dietary supplements and magnet therapy. They could also report that they had used "other CAM". When comparing the two groups of users, the groups were significantly different from each other regarding all variables ($p<0.05$) except for magnet therapy. Of the eight alternatives, acupuncture was the most reported form of CAM (45.4%). The majority of those who chose to consult a CAM practitioner with a conventional medical background were those who received acupuncture (610 participants, 32.1%).

Table 1. Frequency of participants visiting different types of CAM modalities, with comparison between those who had visited a CAM practitioner with a conventional medical background and a CAM practitioner without a conventional medical background.

Modality	All visitors	Visitors of CAM practitioners with a conventional medical background	Visitors of CAM practitioners without a conventional medical background	p Value
	N	N (%)	N (%)	
All participants	4182	1019 (24.4)	3163 (75.6)	
Homeopathy				<0.001*
Yes	742	104 (14.0)	638 (86.0)	
No	3440	915 (26.6)	2525 (73.4)	
Acupuncture				<0.001*
Yes	1898	610 (32.1)	1288 (67.9)	
No	2284	409 (17.9)	1875 (82.1)	
Reflexology				<0.001*
Yes	927	74 (8.0)	853 (92.0)	
No	3255	945 (29.0)	2310 (71.0)	
Healing/etc				<0.001*
Yes	756	22 (2.9)	734 (97.1)	
No	3426	997 (29.1)	2429 (70.9)	
Prayer				<0.001*
Yes	169	11 (6.5)	158 (93.5)	
No	4013	1008 (25.1)	3005 (74.9)	
Herbs, naturopathy, dietary supplements				<0.001*
Yes	581	23 (4.0)	558 (96.0)	
No	3601	996 (27.7)	2605 (72.3)	

Modality	All visitors	Visitors of CAM practitioners with a conventional medical background	Visitors of CAM practitioners without a conventional medical background	p Value
Magnet therapy				0.056
Yes	205	38 (18.5)	167 (81.5)	
No	3977	981 (24.7)	2996 (75.3)	
Other CAM				0.003*
Yes	1504	326 (21.7)	1178 (78.3)	
No	2678	693 (25.9)	1985 (74.1)	

Number of CAM practitioners visited

The participants had the opportunity to choose from 8 modalities. Most of the participants (65.4 percent) had only consulted one modality ($p<0.001$) (Table 2). Compared to the total distribution of participants who have visited a CAM practitioner with a conventional medical background (24.4%), a larger percent has used only one CAM modality (32 %). A significantly minor portion of participants who have visited a CAM practitioner with a conventional background have chosen two or more modalities compared to the total distribution.

Table 2. Frequency of participants visiting one or more CAM practitioners, with comparison between those who had visited a CAM practitioner with a conventional medical background and without a conventional medical background.

Number of modalities used	All visitors	Visitors of CAM practitioners with a conventional medical background	Visitors of CAM practitioners without a conventional medical background	p Value
	N	N (%)	N (%)	
One modality	2735	882 (32.2)	1853 (67.8)	<0.001*
Two modalities	930	108 (11.6)	822 (88.4)	
Three modalities	284	18 (6.3)	266 (93.7)	
Four modalities	110	5 (4.5)	104 (95.5)	
Five modalities	24	4 (16.7)	20 (83.3)	
Six modalities	6	0 (0)	6 (100.0)	
Seven modalities	5	0 (0)	5 (100.0)	
Eight modalities	88	2 (2.3)	86 (97.7)	

Socio-demographic characteristics

There were significantly fewer women who had visited a CAM practitioner with a conventional medical background (22.8%) than men (28.6%, p<0.001) (Table 3). The characteristics of participants most frequently visiting a CAM practitioner with a conventional medical background were 80- year old's and older (47.1%, p<0.001), those with compulsory education (31.2%, p<0.001) and widows and widowers (31.3%, p<0.001). Significantly fewer people currently working had visited CAM practitioners with the aforementioned background (22.7%) than people not currently working (28.0%, p<0.001).

Table 3. Socio-demographic variables with comparison between those who had visited a CAM practitioner with a conventional medical background and without a conventional medical background.

Socio-demographic variables	All Visitors	Visitors of CAM practitioners with a conventional medical background	Visitors of CAM practitioners without a conventional medical background	p Value
	N	N (%)	N (%)	
Gender				<0.001*
Female	3037	691 (22.8)	2346 (77.2)	
Male	1145	328 (28.6)	817 (71.4)	
Age group				<0.001*
Under 30	309	64 (20.7)	245 (79.3)	
-30-39	638	149 (23.4)	489 (76.6)	
-40-49	977	207 (21.2)	770 (78.8)	
-50-59	1056	233 (22.1)	823 (77.9)	
-60-69	738	193 (26.2)	545 (73.8)	
-70-79	362	125 (34.5)	237 (65.5)	
-Over 80	102	48 (47.1)	54 (52.9)	
Education				<0.001*
Compulsory	737	230 (31.2)	507 (68.8)	
Middle level	2285	530 (23.2)	1755 (76.8)	
University	1122	246 (21.9)	876 (78.1)	
Marital status				0.006*
Married/cohabiting	3403	839 (24.7)	2564 (75.3)	
Single	356	70 (19.7)	286 (80.3)	
Divorced/separated	200	39 (19.5)	161 (80.5)	
Widow(wer)	214	67 (31.3)	147 (68.7)	
Currently working				<0.001*

Socio-demographic variables	All Visitors	Visitors of CAM practitioners with a conventional medical background	Visitors of CAM practitioners without a conventional medical background	p Value
Yes	2877	654 (22.7)	2223 (77.3)	
No	1305	365 (28.0)	940 (72.0)	

Lifestyle and Perceived health variables

Daily smokers more often choose to visit a CAM practitioner with a conventional medical background (29.0%) than those who are not smoking daily (23.4%) (Table 4). Also, people who perceive their health as fair visited CAM practitioners with a conventional background more frequent (27.6%) compared to individuals with perceived health being very good (19.6%), good (23.0%) or poor (22.5%). Significantly fewer of those having a psychiatric complaint the last 12 months went to conventional health care workers (21.1%) than those without complaint (25.2%). People having chronic complaint the last year more often went to CAM practitioners with a conventional medical background (26.5%) than those without chronic complaint (22.8%).

Table 4. Lifestyle and perceived health variables with comparison between those who had visited a CAM practitioner with a conventional medical background and without a conventional medical background.

	All Visitors	**Visitors of CAM practitioners with a conventional medical background**	**Visitors of CAM practitioners without a conventional medical background**	***p* Value**
Independent variables	N	N (%)	N (%)	
All participants	4182	1019 (24.4)	3163 (75.6)	
Current lifestyle				
Daily smoker				0.001*
Yes	737	214 (29.0)	523 (71.0)	
No	3445	805 (23.4)	2640 (76.6)	
Physical activity				0.687
Yes	659	156 (23.7)	503 (76.3)	
No	3523	863 (24.5)	2660 (75.5)	
Perceived health				
Global health				0.002*
Very good	428	84 (19.6)	344 (80.4)	
Good	2208	507 (23.0)	1701 (77.0)	
Fair	1329	367 (27.6)	962 (72.4)	
Poor	71	16 (22.5)	55 (77.5)	
Recent somatic complaint				0.741
Yes	4023	978 (24.3)	3045 (75.7)	
No	159	41 (25.8)	118 (74.2)	
Psychiatric complaint				0.018*

	All Visitors	Visitors of CAM practitioners with a conventional medical background	Visitors of CAM practitioners without a conventional medical background	*p* Value
Yes	819	173 (21.1)	646 (78.9)	
No	3363	846 (25.2)	2517 (74.8)	
Chronic complaint				0.007*
Yes	1730	459 (26.5)	1271 (73.5)	
No	2452	560 (22.8)	1892 (77.2)	

Diseases

Participants with cardiovascular disease more often went to CAM-practitioners with a conventional medical background (35.6%) than participants without cardiovascular disease (23.4%) (Table 5). A greater proportion of those having musculoskeletal disease consulted the same group of therapists when they used CAM (28.2%) compared to those with no musculoskeletal disease (23.0%).

Table 5. Variables of disease with comparison between those who had visited a CAM practitioner with a conventional medical background and without a conventional medical background.

	All Visitors	Visitors of CAM practitioners with a conventional medical background	Visitors of CAM practitioners without a conventional medical background	*p* Value
Independent variables	**N**	**N (%)**	**N (%)**	
All participants	4182	1019 (24.4)	3163 (75.6)	
Diseases				
Asthma				0.217
Yes	443	119 (26.9)	324 (73.1)	
No	3739	900 (24.1)	2839 (75.9)	
Psoriasis				0.759
Yes	240	56 (23.3)	184 (76.7)	
No	3942	963 (24.4)	2979 (75.6)	
Hand eczema				0.943
Yes	582	143 (24.6)	439 (75.4)	
No	3600	876 (24.3)	2724 (75.7)	
Hay fever				0.254
Yes	1260	292 (23.2)	968 (76.8)	
No	2922	727 (24.9)	2195 (75.1)	
Hypothyroidism				0.946

	All Visitors	Visitors of CAM practitioners with a conventional medical background	Visitors of CAM practitioners without a conventional medical background	*p* Value
Yes	316	76 (24.1)	240 (75.9)	
No	3866	943 (24.4)	2923 (75.6)	
Hyperthyroidism				0.189
Yes	94	17 (18.1)	77 (81.9)	
No	4088	1002 (24.5)	3086 (75.5)	
Diabetes				0.348
Yes	135	38 (28.1)	97 (71.9)	
No	4047	981 (24.2)	3066 (75.8)	
Cancer				0.525
Yes	198	44 (22.2)	154 (77.8)	
No	3984	975 (24.5)	3009 (75.5)	
Cardiovascular disease				<0.001*
Yes	331	118 (35.6)	213 (64.4)	
No	3851	901 (23.4)	2950 (76.6)	
Musculoskeletal disease				0.001*
Yes	1093	308 (28.2)	785 (71.8)	
No	3089	711 (23.0)	2378 (77.0)	

Reasons for using CAM

The largest number of responses indicate that 'Faith in alternative therapies' is the number one reason why this group turn to CAM (48.9%) (Table 6). Participants who stated that the reason for using CAM was because of "Recommendation from health professionals" (57.0%), did significantly more often visit CAM practitioners with a conventional medical background compared to those that did not state the same reason (20.3%). For seven of the eleven reasons, the participants less often visited a CAM practitioner with a conventional medical background than those that did not have the same reason for using CAM.

Table 6. Reasons for using CAM. Why did you use, or why do you use complementary and alternative treatment? Comparison between those who had visited a CAM practitioner with a conventional medical background and without a conventional medical background.

	All Visitors	Visitors of CAM practitioners with a conventional medical background	Visitors of CAM practitioners without a conventional medical background	p Value
Independent variables	**N**	**N (%)**	**N (%)**	
All participants	4182	1019 (24.4)	3163 (75.6)	
Lacking effect of treatment in the conventional health care system.				<0.001*
Yes	1382	235 (17.0)	1147 (83.0)	
No	2800	784 (28.0)	2016 (72.0)	
To avoid side effects of medical treatment.				<0.001*
Yes	921	129 (14.0)	792 (86.0)	
No	3261	890 (27.3)	2371 (72.7)	

	All Visitors	Visitors of CAM practitioners with a conventional medical background	Visitors of CAM practitioners without a conventional medical background	p Value
To supplement medical care.				0.776
Yes	972	233 (24.0)	739 (76.0)	
No	3210	786 (24.5)	2424 (75.5)	
To ensure that all opportunities should be sought.				0.001*
Yes	1240	260 (21.0)	980 (79.0)	
No	2942	759 (25.8)	2183 (74.2)	
Did not receive medical treatment.				0.850
Yes	241	57 (23.7)	184 (76.3)	
No	3941	962 (24.4)	2979 (75.6)	
To prevent illness.				<0.001*
Yes	742	101 (13.6)	641 (86.4)	
No	3440	918 (26.7)	2522 (73.3)	
Have faith in alternative therapies.				<0.001*
Yes	2044	319 (15.6)	1725 (84.4)	
No	2138	700 (32.7)	1438 (67.3)	
Previous experience with complementary and alternative treatment				<0.001*
Yes	1276	193 (15.1)	1083 (84.9)	
No	2906	826 (28.4)	2080 (71.6)	

	All Visitors	Visitors of CAM practitioners with a conventional medical background	Visitors of CAM practitioners without a conventional medical background	p Value
As recommended by health professionals.				<0.001*
Yes	467	266 (57.0)	201 (43.0)	
No	3715	753 (20.3)	2962 (79.7)	
As recommended by others. (family, friends etc..)				<0.001*
Yes	1527	251 (16.4)	1276 (83.6)	
No	2655	768 (28.9)	1887 (71.1)	
Other reason.				0.153
Yes	294	61 (20.7)	233 (79.3)	
No	3888	958 (24.6)	2930 (75.4)	

Multivariable analyses

To identify the variables associated with visiting a CAM practitioner with a conventional medical background, a multivariable logistic regression was performed with the variables that had a p-value <0.2 in the bivariable analysis (Table 7). A total of 30 variables met this criteria, and out of those variables, 17 were significantly associated with visiting a CAM practitioner with a conventional medical background.

Being male (Adj OR, 1.4, 95% 1.1 to 1.7), a daily smoker (Adj OR 1.5, 95% CI 1.2 to 1.8), visiting an acupuncturist (Adj OR, 1.4, 95% 1.1 to 1.7), using magnet therapy (Adj OR, 1.8, 95% CI 1.1 to 3.1) and to state that the recommendation from health professionals is why they are using CAM (Adj OR, 3.7, 95% CI 3.0 to 4.7) were associated with higher odds of visiting the CAM practitioners mentioned.

Having middle level education (Adj OR, 0.7 95% CI 0.6 to 0.9), university level education (Adj OR, 0.8, 95% CI 0.6 to 1.0) and being in the age group 50-59 (Adj OR, 0.6,95% CI 0.4 to 0.9), were associated with lower odds of visiting a CAM practitioner with a conventional medical background. Using modalities such as homeopathy (Adj OR, 0.5, 95% CI 0.4 to 0.7), reflexology (Adj OR, 0.2, 95% CI 0.2 to 0.3), healing (Adj OR, 0.1, 95% CI 0.1 to 0.1), naturopathy (Adj OR, 0.2, 95% CI 0.1 to 0.4) and other CAM therapy (Adj OR, 0.6, 95% CI 0.5 to 0.8) were also associated with lower odds. Further, five reasons for using CAM had lower odds for having chosen a CAM practitioner of the aforementioned background; lacking effect of treatment in the conventional health care system(Adj OR, 0.7, 95% CI 0.6 to 0.8), to avoid side effects of medical treatment(Adj OR, 0.7 95% CI 0.6 to 0.9), have faith in alternative therapies (Adj OR, 0.7 95% CI 0.5 to 0.8), previous experience with complementary and alternative treatment(Adj OR, 0.8 95% CI 0.6 to 1.0) and because of recommendation by others (family, friends etc.) (Adj OR, 0.6, 95% CI 0.5 to 0.7)

Table 7. Bivariable (Crude OR) and multivariable logistic regression (Adjusted OR) analyses (N=3995) on comparison between those who had visited a CAM practitioner with a conventional medical background and without a conventional medical background, and the association with socio-demographic variables, current lifestyle, perceived health and diseases, choice of CAM modality and reason for using CAM. Only variables with a p-value <0.2 in the bivariable analysis (table 3-6) was included in the table and in the multivariable analysis.

Independent variables	**Bivariable Analyses** **Crude OR**	**Multivariabel Analysis** **Adjusted OR** **(95% CI)**	**p-value**
Male	1.4	1.4 (1.1-1.7)	0.001*
Age group			
Under 30	Ref		
30-39	1.2	0.9 (0.6-1.3)	0.580
40-49	1.0	0.7 (0.5-1.0)	0.062

Independent variables	**Bivariable Analyses** **Crude OR**	**Multivariabel Analysis** **Adjusted OR** **(95% CI)**	**p-value**
50-59	1.1	0.6 (0.4-0.9)	0.022*
60-69	1.4	0.7 (0.4-1.0)	0.059
70-79	2.0	0.9 (0.6-1.6)	0.826
Over 80	3.4	1.7 (0.9-3.4)	0.121
Education			
Compulsory	Ref		
Middle level	0.7	0.7 (0.6-0.9)	0.004*
University	0.6	0.8 (0.6-1.0)	0.050*
Marital status			
Married/cohabiting	Ref		
Single	0.7	0.9 (0.6-1.2)	0.396
Divorced/separated	0.7	1.1 (0.7-1.7)	0.729
Widow(wer)	1.4	1.0 (0.6-1.5)	0.883
Currently working	0.8	1.1 (0.8-1.4)	0.642
Current lifestyle			
Daily smoker	1.3	1.5 (1.2-1.8)	0.001*
Perceived health			
Global health			
Very good	Ref		

Independent variables	**Bivariable Analyses** **Crude OR**	**Multivariabel Analysis** **Adjusted OR** **(95% CI)**	**p-value**
Good	1.2	1.1 (0.8-1.5)	0.389
Fair	1.6	1.4 (1.0-1.9)	0.093
Poor	1.2	0.8 (0.4-1.7)	0.560
Psychiatric complaint	0.8	0.9 (0.7-1.2)	0.593
Chronic complaint	1.2	1.1 (0.9-1.3)	0.523
Diseases			
Asthma	1.2	1.3 (1.0-1.7)	0.087
Hyperthyroidism	0.7	0.7 (0.4-1.4)	0.324
Cardiovascular disease	1.8	1.2 (0.9-1.6)	0.262
Musculoskeletal disease	1.3	1.2 (1.0-1.5)	0.115
Choice of CAM modality			
Homeopathy	0.5	0.5 (0.4-0.7)	0.000*
Acupuncture	2.2	1.4 (1.1-1.7)	0.013*
Reflexology	0.2	0.2 (0.2-0.3)	0.000*
Healing/etc	0.1	0.1 (0.1-0.1)	0.000*
Prayer	0.2	0.9 (0.4-2.0)	0.789
Herbs, naturopathy, dietary supplements	0.1	0.2 (0.1-0.4)	0.000*
Magnet therapy	0.7	1.8 (1.1-3.1)	0.020*
Other CAM	0.8	0.6 (0.5-0.8)	0.000*

Independent variables	**Bivariable Analyses** **Crude OR**	**Multivariabel Analysis** **Adjusted OR** **(95% CI)**	**p-value**
Reason for using CAM			
Lacking effect of treatment in the conventional health care system.	0.5	0.7 (0.6-0.8)	0.000*
To avoid side effects of medical treatment.	0.4	0.7 (0.6-0.9)	0.009*
To ensure that all opportunities should be sought.	0.8	0.9 (0.7-1.1)	0.182
To prevent illness.	0.4	0.8 (0.6-1.1)	0.125
Have faith in alternative therapies.	0.4	0.7 (0.5-0.8)	0.000*
Previous experience with complementary and alternative treatment	0.5	0.8 (0.6-1.0)	0.024*
As recommended by health professionals.	5.2	3.7 (3.0-4.7)	0.000*
As recommended by others. (family, friends etc..)	0.5	0.6 (0.5-0.7)	0.000*
Other reason.	0.8	0.9 (0.7-1.3)	0.669

*P-value <0.05

Sub analysis - users of acupuncture

Virtually all of the modalities (7 out of 8) were significant in the multivariable analyses. This indicated that an analysis of the background of CAM practitioner was heavily associated with the CAM modalities performed by conventional health care workers. This means that the analyses in table 7 could portray which treatments doctors, nurses or physiotherapists exerts the most.

Based on that assumption, another logistic regression was performed, including only those who had reported to visit an acupuncturist (Table 8). The results show that 7 of the same variables was significantly associated with visiting a CAM practitioner with a conventional medical background for both the main analysis and when only analyzing acupuncture users. The variables that were not significant when analyzing visitors of acupuncture were education level, age and having stated that previous experience with complementary and alternative treatment was a reason for visiting a CAM practitioner.

Among those visiting an acupuncturist, being male (Adj OR, 1.5, 95% CI 1.2-2.0), a daily smoker (Adj OR, 1.7, 95% CI 1.2 to 2.3) and to state that the recommendation from health professionals is why they are using CAM (Adj OR, 3.9, 95% CI 2.8 to 5.5) was associated with higher odds of visiting an acupuncturist with a conventional medical background.

When analyzing participants who visits an acupuncturist, 4 of the reasons for using CAM were associated with lower odds for consulting a CAM practitioner with a conventional medical background; lacking effect of treatment in the conventional health care system (Adj OR, 0.7, 95% CI 0.5 to 0.9), to avoid side effects of medical treatment (Adj OR, 0.7, 95% CI 0.5 to 0.9), faith in alternative therapies (Adj OR, 0.7, 95% CI 0.5 to 0.9), and recommended by others (family, friends etc.) (Adj OR, 0.6, 95% CI 0.4 to 0.7). The reason for using CAM is a strong factor when analyzing acupuncture users, as 5 of the variables were associated with higher or lower odds of visiting a CAM practitioner with a conventional medical background.

Table 8. Bivariable and Multivariable logistic regression Analyses (N=1813) on Socio-Demographic Variables, Current lifestyle, Perceived Health and Diseases and reason for using CAM. Comparison between those who had visited a CAM practitioner with a conventional medical background. Only variables with a p-value <0.2 in bivariable analysis (data not shown) was included in the table and in the multivariable analysis.

Independent variables	Bivariable Analyses Crude OR	Multivariabel Analysis Adjusted OR (95% CI)	p value
Male	1.5	1.5 (1.2-2.0)	0.003*
Age group			
Under 30	Ref		
- 30-39	1.7	1.1 (0.6-2.1)	0.709
- 40-49	1.5	1.0 (0.5-1.7)	0.881
- 50-59	1.4	0.7 (0.4-1.3)	0.323
- 60-69	1.9	0.9 (0.5-1.6)	0.624
- 70-79	2.8	1.1 (0.5-2.3)	0.807
- Over 80	4.6	1.3 (0.5-3.4)	0.630
Education			
- Compulsory	Ref		
- Middle level	0.6	0.7 (0.5-1.0)	0.057
- University	0.7	0.9 (0.6-1.4)	0.753
Marital status			
- Married/cohabiting	Ref		
- Single	0.6	0.7 (0.4-1.2)	0.159
- Divorced/separated	0.7	1.0 (0.6-1.9)	0.900
- Widow(wer)	1.8	1.4 (0.8-2.4)	0.251
Currently working	0.8	1.0 (0.7-1.5)	0.839
Current lifestyle			
Daily smoking	1.6	1.7 (1.2-2.3)	0.002*
Perceived health			
Global health			

Independent variables	Bivariable Analyses Crude OR	Multivariabel Analysis Adjusted OR (95% CI)	p value
- Very good	Ref		
- Good	1.4	1.3 (0.8-1.9)	0.286
- Fair	1.6	1.3 (0.8-2.1)	0.274
-			
- Poor	2.1	1.2 (0.5-3.4)	0.667
Psychiatric complaint	0.8	1.0 (0.7-1.4)	1.000
Chronic complaint	1.1	1.1 (0.8-1.4)	0.606
Somatic complaint	0.7	1.0 (0.5-2.0)	0.901
Diseases			
Hayfever	0.8	0.9 (0.7-1.2)	0.396
Cardiovascular disease	1.8	1.3 (0.8-2.0)	0.266
Musculoskeletal disease	1.3	1.1 (0.8-1.5)	0.461
Reason for using CAM			
Lacking effect of treatment in the conventional health care system.	0.5	0.7 (0.5-0.9)	0.005*
To avoid side effects of medical treatment.	0.4	0.7 (0.5-0.9)	0.012*
To ensure that all opportunities should be sought.	0.9	1.0 (0.7-1.3)	0.8
To prevent illness.	0.4	0.8 (0.5-1.1)	0.146
Have faith in alternative therapies.	0.4	0.7 (0.5-0.9)	0.003*
Previous experience with complementary and alternative treatment	0.4	0.8 (0.6-1.1)	0.203
As recommended by health professionals.	4.6	3.9 (2.8-5.5)	0.000*
As recommended by others. (family, friends etc..)	0.5	0.6 (0.4-0.7)	0.000*
Other reason.	0.6	0.9 (0.5-1.5)	0.657

*P-value <0.05

Discussion

One in four of the CAM visitors had visited a CAM practitioner with a conventional medical background. The participants that chose homeopathy, reflexology, healing and naturopathy had the lowest odds of with visiting a CAM practitioner with a conventional background. The participants that stated that the recommendation from health personnel is why they are using CAM had the highest odds of visiting of CAM practitioners with conventional medical background. Otherwise, being male, daily smoker, choosing acupuncture or magnet therapy, were associated with higher odds of visits to a CAM practitioner with a conventional medical background. The visitors that had middle level education, university level education, age 50-59, stating that their reason for using CAM is lacking effect in the conventional health care system, to avoid side effects of medical treatment, having faith in CAM, previous experience with CAM and because of recommendation by others were associated with lower odds of visits to a CAM practitioner with a conventional medical background. Lower odds of visiting a CAM practitioner with a conventional medical background was also applicable for the visitors that used Other CAM therapy. The participants own justifications for seeking CAM and which modality they chose are strong factors when we look at the differences between visitors of CAM practitioners with a conventional medical background and without. Only 3 sociodemographic variables and 1 lifestyle variable were associated, while 6 of the modalities and 6 of the reasons for using CAM were associated.

Regarding the sub analysis of visitors of acupuncture, being male, a daily smoker and to state that the recommendation from health professionals is why they are using CAM were associated with higher odds of visiting an acupuncturist with a conventional medical background. To state that the reasons for using CAM was lacking effect of treatment in the conventional health care system, to avoid side effects of medical treatment, faith in alternative therapies, and recommended by others (family, friends etc.) were associated with lower odds of visiting a CAM practitioner with a conventional medical background.

Strengths and limitations

The main strength of this study is the high number of participants. The large number of participants made it possible to include a larger number of independent variables in the analysis. Also, the population is not limited to a particular patient population such as patients with a certain type of cancer.

Selection bias cannot be ruled out in the present study. If the participant reported that they had cancer, cardiovascular disease and diabetes, they received three questionnaires concerning these diseases and not a questionnaire regarding CAM. If these participants were users of CAM and had different characteristics than the population included in the analysis is not known. Also, a number of 6133 participants were invited to fill out the Q3:CAM questionnaire and as many as 1106 out of the invited did not respond. We do not know if these participants possibly could change the results of our analysis.

Another limitation is that there are no larger cities in the Nord Trøndelag County. Studies has shown that there are differences in rural and non-rural CAM visitors in terms of which modality they use, their general health and the prevalence of CAM use [31-33]. However, a review of CAM use in Scandinavia published in 2016, revealed similar results in prevalence of CAM use within rural and urban populations [14].

One of the major limitations is that information bias cannot be ruled out. Only the people that had answered "Yes" to the question on visits to a CAM practitioner in the first questionnaire (Q1) was invited to complete the questionnaire (Q3) concerning CAM use. The question in Q1 was; "Have you in the last 12 months been to a homeopath, acupuncturist, reflexologist, layer of hands or other CAM practitioner?". The question could be construed as not to include the concept of CAM practitioner with conventional medical background as there is no mention of the practitioner's background. Also, the question only mentioned some modalities and did not include e.g. the three other specified modalities as in Q3. It is possible that more people would have answered "Yes" to the question if more CAM modalities had been mentioned because the personal classification of what to include in the general term CAM might vary. A total of 12.6% of the participants responded "Yes" in the HUNT Q1 questionnaire. Another study from Norway in 2014 asked the participants directly about 8 modalities in addition to dietary supplements, naturopathy, self-help techniques and "Other CAM therapy" [7]. In the report, a total number of 40.1% responded "Yes" to having used any of the mentioned therapies. 29.6% responded "Yes" to having used one or more of the 8 defined modalities, a much higher number than in our study.

Information bias may possibly also be revealed in the Questionnaire 3: CAM, where participants must choose between 4 possible CAM practitioners; 1) doctor, 2) nurse / physiotherapist, 3) CAM practitioner, 4) Other. Alternative 1) and 2) is accurate and it is less likely that participants will interpret the options in many ways. Alternative 3) and 4) provide greater space for self-interpretation as a "CAM practitioner" is not a title that is associated with

a specific background and “Other” might entail the participant itself, or anyone else. It is also a possibility that the participant does not know which background their practitioner holds. There is no guarantee that the CAM practitioners background becomes enlightened to the visitor or that the visitor notices it. The possible outcome is that people that have visited a CAM practitioner with a conventional medical background is not aware of this. The consequence of this would be that the reported proportion of persons visiting a CAM practitioner with a conventional medical background is too low.

Prevalence of visits to CAM practitioners with a conventional medical background

Out of the 4182 participants in our main analysis, 24.4% were visitors of practitioners with a conventional medical background. In a study conducted in Norway 2009 by Fønnebø et al., the results showed that 7.3% of the participants had visited a CAM practitioner within the government funded health system[28]. Why the number of visitors of CAM practitioners with a conventional medical background is so much higher in our study, might be explained by the way the questions are worded in the questionnaire. In the study done in 2009 by Fønnebø et al., the participants were asked : “Have you over the previous 12 months used any of the following alternative treatment modalities provided by health care providers within the health care system?(Yes=No for each modality)”. It was not asked about which specific background the CAM practitioner had. This may limit the number of visitors to only apply to those who have visited CAM practitioners which practice within the health care system in Norway, such as public hospitals, and exclude CAM practitioners with a conventional medical background practicing CAM therapy outside of the health care system.

In our study, out of those who had visited a CAM practitioner with a conventional medical background 16.2% had visited a CAM practitioner being a doctor and 83.8% had visited a CAM practitioner being a nurse or physiotherapist. One reason for this distribution might be differences in health care workers attitude regarding CAM. In a review published in the US in 2012, the researchers pointed out that compared to other students such as nursing students, medical students were the most critical toward CAM, and that the explanation might be that medical students also reported the least amount of education about CAM[34]. A study conducted in 2015 showed that 66.4% of nurses had a positive attitude towards CAM, but 77.4% did not have sufficient knowledge on CAM use in terms of benefits and risks [22].

Type of CAM Modality

Seven out of eight modalities were significantly associated with higher or lower odds of visiting a CAM practitioner with a conventional background, which makes it likely to claim that there is a strong association between CAM modality and the background the CAM practitioner holds.

The results showed that one of the strongest associations were between using acupuncture and visiting a CAM practitioner with a conventional medical background. In the study conducted in Norway in 2009 by Fønnebø et al., acupuncture was the modality used by the second highest number of respondents, whether they received their treatment from a CAM practitioner outside of or within the government funded health care system[28]. These results might be explained by conventional health care workers view on acupuncture and the availability of acupuncture in hospitals [27, 35]. Findings in a study conducted in Spain recently showed that health professionals conceived acupuncture as being an supplement of Western medicine and that they encourage acupuncture to be an integrated part of the conventional medicine[35]. A study conducted in 2013, Switzerland, showed that one of the most frequent available CAM in hospitals were acupuncture[26]. Acupuncture were the most frequent offered CAM in Norwegian hospitals according to a study conducted in 2015[27]. In the report conducted by NAFKAM 2014, massage were most frequently received by conventional health workers, acupuncture the second most frequent[7].

Based on the result that modality play an important role, as well as acupuncture being associated with a higher odds of visiting a CAM practitioner with a conventional medical background, a sub analysis of differences between acupuncture users visiting CAM practitioners with and without a conventional medical background were performed. Since the participants in the sub analysis were acupuncture visitors, choice of CAM modality was not included variables. Seven of the variables in the sub analysis proved significant. The sub analysis can be interpreted to strengthen the credibility of our main analysis when the results of the variables are similar or equal to the main analysis, and weaken the results of the main analysis when the results are not similar.

In our study, magnet therapy was significantly associated with a higher odds of visiting a CAM practitioner with a conventional medical background. While there is in some studies described an increased use of magnet therapy[36, 37], there is a paucity of recent research of the prevalence of magnet therapy. None of the relevant studies conducted in Norway regarding CAM use mention magnet therapy as prevalent or magnet therapy whatsoever[2, 7, 16, 27, 28].

Homeopathy, reflexology, healing, naturopathy and other CAM therapy were associated with lower odds of visiting a CAM practitioner with a conventional medical background. The study conducted in Norway 2009 by Fønnebø et. al. [28] showed that the proportion of respondents which had received homeopathy, reflexology, healing and naturopathy by CAM practitioners within the government funded health care system were low. However, the proportion of respondents which had received 'Other CAM therapy' were higher than all other modalities, also acupuncture. It is not defined which particular CAM modality that is included in the term 'other CAM' and is it not possible to say whether the participants in this study is comparable to other participants in other studies.

Socio-demographic

In our study, the results in the main analysis and the sub-analysis showed that being male were associated with greater odds of being a visitor of a CAM practitioner with a conventional medical background. In the study conducted in Norway 2009 by Fønnebø et al. the gender distribution proved to be a predominance of women in all levels of use and all ages, except older men receiving CAM by a practitioner being licensed health personnel within the government-funded health care system[28]. It is described in several international and Norwegian studies that in general, females are more frequent visitors of CAM practitioners [7, 14, 16, 38, 39]. A study that was published in Sweden 2016 suggested that the high prevalence of women using CAM therapy could be reflected by women having a greater tendency to seek healthcare generally and to suffer from chronic illnesses more often than men[14]. Reflecting upon our study compared to others, one explanation of the gender distribution in the present study might be that women choose what is regarded as most alternative and men choose a more conventional option.

Based on several studies, the use of CAM is believed to be partly associated with a higher level of education [6, 9, 16, 34, 40-42]. For example, a study conducted in Tromsø, Norway in 2014, the researchers investigated 'Gender differences in prevalence and association for CAM use in a large population study'[16]. The study revealed that university education was significantly associated with CAM use both in females and males. The results in the main analysis in the present study showed that middle level and university level of education were associated with lower odds of visiting a CAM practitioner with a conventional medical background. This may indicate that visitors with higher education are more inclined to choose what is regarded as most

alternative and not necessarily CAM provided by practitioners with a conventional medical background. When analyzing acupuncture users, education level was not significant.

Earlier findings in a study of CAM visitors pointed out that it is middle aged participants that have the highest level of use [34]. In our main study, being in the age group 50-59 were associated with lower odds of visiting a CAM practitioner with a conventional medical background. Age did not prove significant in our sub analysis. In the Norwegian study conducted in 2009 by Fønnebø et al, the age distribution showed that the largest proportion of women visiting a CAM practitioner within the health care system were in the age group 15-24[28]. The largest proportion of men visiting a CAM practitioner within the health care system were in the age group 60+.

Lifestyle

In the present study, the only lifestyle variable which was significant in the analysis was being a daily smoker. Being a daily smoker were associated with higher odds for visiting a CAM practitioner with a conventional medical background both in the main analysis and the analysis of acupuncture visitors. A study conducted in Norway in 2012 showed that current smokers are more likely to use CAM than non-smokers. [9] The study compared CAM users with non-CAM users in a population of patients with inflammatory bowel disease which may not be comparable with a total population. When looking at studies conducted on a total population of CAM visitors, the general picture is that they are non-smokers and this indicates that they take care of their health. For example, a Norwegian study with data provided from HUNT 3, the results show that acupuncture visitors of both genders were less likely daily smokers[20]. This is also indicated in a study conducted in 2011 comparing CAM users with non-users[38]. Other studies have further described the association between CAM use and healthy lifestyle choices such as decreased or no smoking[39, 43]. One explanation for the association between smoking and visiting a CAM practitioner being a doctor, nurse or physiotherapist could be that the visitors that smoke daily might be disposed of having poorer health [44] and therefore more often visit a conventional health worker that might refer, recommend or practice CAM therapy on the patient. Another explanation might be that patients with poorer health prefers to visit a CAM practitioner with a conventional medical background because of the severity of their own condition.

Reasons for using CAM

Recommendation from health professionals as a reason for using CAM were in our study associated with a nearly 4 times greater odds of visiting a CAM practitioner with a conventional medical background. The results showed the same in our sub analysis of acupuncture users. That means that our study clearly points towards that recommendation from health personnel plays an important role in regards to whether a visitor have visited a CAM practitioner with a conventional medical background or without. A reason for this might be that a health professional is more likely to recommend patients to visit a CAM practitioner who are a health professional, such as doctors, nurses and physiotherapists. In a review conducted in 2015, studying patients with backpain and their use of CAM, the results showed that recommendation by doctors influenced the patient's decision making on CAM use[45]. Based on our findings, it is an interesting aim for future research to investigate which role health personnel play when the patients choose CAM practitioner.

Lacking effect of treatment in the conventional health care system and to avoid side effects of medical treatment were reasons associated with lower odds of visiting a CAM practitioner with the aforementioned background both in our main analysis and sub analysis. This might be explained by interpreting these reasons as being negative to conventional medicine, conventional medical treatment or generally practitioners with a conventional medical background.

Recommendation by others (family, friends etc.) were associated with lower odds of visiting a CAM practitioner with a conventional medical background in both of our analysis. As mentioned, a review conducted in 2015 indicates a connection between the recommendation of CAM and CAM use [45]. The study pointed out that family, friends, and recommendation by doctors appear to influence decision making on CAM use for back pain.

Having faith in alternative therapies were also associated with lower odds visiting a CAM practitioner with a conventional medical background in our main analysis and sub analysis. The result could indicate that patients that visit CAM practitioners who don't have a conventional medical background might have a different view of CAM. The visitors who have faith in CAM therapy may be interested to seek out a CAM practitioner who is as alternative as possible and least equal to the conventional health care.

Conclusion

A high proportion of those visiting a CAM practitioner choose to visit a practitioner with a conventional medical background. This means that there are a substantial proportion of CAM practitioners who have a conventional medical background. There is a lack of studies examining CAM visitors of CAM practitioners with different backgrounds. Further research on visitors of practitioners with and without a conventional medical background is therefore of interest.

Being recommended by health personnel to use CAM is the factor most strongly associated with visits to a CAM practitioner with a medical background. This indicates that health professionals have a role in CAM users' choice of CAM practitioners. Thus, further research on the role of recommendations from health professionals in CAM use is warranted.

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