The use of complementary and alternative medicine in the general population: results from a longitudinal community study

WULF RÖSSLER[1]*, CHRISTOPH LAUBER[1], JULES ANGST[1], HELENE HAKER[1], ALEX GAMMA[1], DOMINIQUE EICH[1], RONALD C. KESSLER[2] AND VLADETA AJDACIC-GROSS[1]

[1] *Psychiatric University Hospital, Zurich, Switzerland*; [2] *Department of Health Care Policy, Harvard Medical School, Boston, USA*

ABSTRACT

Background. Many patients with psychological or physical problems are interested in non-medical approaches. The reasons for the growing popularity of complementary and alternative medicine (CAM) are not well understood considering that evidence of the effectiveness of conventional therapies is greater than ever before. We have examined data from the Zurich Study to determine trends and predictors of CAM use in Switzerland.

Method. The Zurich Study is a longitudinal community study that was started in 1979 with a sample of 591 participants born in 1958 and 1959. In 1999, the last of six interview waves with face-to-face interviews was conducted. CAM use was analyzed with data from interviews in 1993 and 1999. Polytomous logistic regression analysis focused on the personal, demographic and sociocultural background of CAM users.

Results. CAM use in the last 12 months was reported by 21·9% of the participants in 1993 and by 29·5% in 1999. CAM use among those exhibiting either physical or psychological problems was in the ratio of two to one. There was a trend from alternative variants of CAM (homeopathy) to complementary ones (massage, osteopathy, acupuncture). The vast majority of CAM use was in addition to conventional therapies. Predictors of CAM use were, among others, attribution of physical complaints to stress and other psychological variables, very low education level in parents, and lacking political interest.

Conclusions. Besides the sociocultural background, characteristics such as the psychological attribution style play an important role in CAM use. CAM use in Switzerland is mainly of a complementary rather than an alternative nature.

INTRODUCTION

A substantial number of patients with physical or psychological problems are interested in non-medical approaches to treatment, and hence use a wide range of complementary and alternative medicine (CAM) therapies. The fact that CAM

* Address for correspondence: Wulf Rössler, M.D., Department of General and Social Psychiatry, University of Zurich, Militärstr. 8, CH-8004 Zürich, Switzerland.
 (Email: roessler@spd.unizh.ch)

is now registered as a medical subject-heading indicates its growing importance in conventional medicine. On a given date in June 2006 the search term 'complementary and alternative medicine' produced 9897 hits in Medline.

Most studies dealing with CAM have analyzed subpopulations, such as ethnic groups (e.g. Ahn *et al.* 2006; Graham *et al.* 2005), elderly persons (e.g. Willison & Andrews, 2004; Ness *et al.* 2005) or children/adolescents (e.g. Ernst, 1999; Gardiner & Wornham, 2000), or

specific CAM approaches (e.g. McCaffrey *et al.* 2004; Saper *et al.* 2004; Lee & Ernst, 2005). A large number of studies have dealt with CAM use regarding specific diagnoses from almost all medical disciplines. Fatigue, insomnia, anxiety and depression are among the most commonly reported reasons for the use of CAM (Eisenberg *et al.* 1993, 1998; Astin, 1998; Kessler *et al.* 2001).

We identified comparatively few studies investigating CAM use in the general population (Messerer *et al.* 2001; Nilsson *et al.* 2001; Kaufman *et al.* 2002; MacLennan *et al.* 2002; Wolsko *et al.* 2004; Nielsen *et al.* 2005). A telephone survey on CAM use in the UK yielded a 1-year prevalence of 20% (Ernst & White, 2000). In Australia, the overall use of at least one non-medically prescribed alternative medicine was 52·1% (MacLennan *et al.* 2002). Several community surveys in the USA reported that more than one-third of Americans use CAM in a given year (Eisenberg *et al.* 1993; Druss & Rosenheck, 1999). Furthermore, CAM use increased significantly in the USA between 1990 and 1997 (Eisenberg *et al.* 1998). Recent data from the USA suggest that this continuous increase has possibly come to an end (Tindle *et al.* 2005).

Despite this extensive research interest in CAM, the exact reasons for the popularity of CAM are not well understood (Eisenberg, 2002). Changes in CAM use and reasons for CAM use vary from therapy to therapy and from one individual to another (Ernst, 2000). Reasons for CAM use that have been identified so far involve the therapist's failure to provide the right information and allow patients their choice among therapeutic alternatives (Eisenberg, 2002), dissatisfaction with conventional treatments, need for more personal control over health-care decisions, and congruence of CAM with personal values and beliefs about health and illness (Astin, 1998). Some studies found a higher use of CAM in better-educated people, in females, and in people with poorer health (Astin, 1998; MacLennan *et al.* 2002). Higher rates of CAM use have also been found among people with psychiatric problems (Unutzer *et al.* 2000; Kessler *et al.* 2001). However, other reasons for CAM use seem to have been discussed rarely; in particular, how political and sociocultural changes influence personal attitudes as well as consumer habits; and particular characteristics of CAM use relating to national health service systems.

All the above studies were limited in that CAM use was studied by cross-sectional data, which are inherently less suited to making causal inferences than longitudinal studies. As such, most of the characteristics identified to date represent merely 'correlates', which can have multiple interpretations.

In the present study the aims were: (i) to determine the prevalence of CAM use in a prospective community sample, (ii) to determine change in CAM use over time, (iii) to identify correlates of CAM use with self-perceived physical and/or psychological problems, in particular with anxiety and depression, and (iv) to apply multivariate techniques to delineate predictors of CAM use. We hypothesized that CAM use is based upon long-standing values and beliefs apart from the actual decision to use CAM. We further hypothesized that there is a strong relationship between actual CAM use and deteriorating health status, and further that CAM use is associated with demographic variables such as education level and gender. The analyses rely on the comprehensive data from the 1993 and 1999 interviews of the Zurich Study, thus allowing us to also look at the change in CAM use during the 1990s.

METHOD

The sample

The Zurich Study started with a representative sample of 4547 subjects (2201 men and 2346 women) born in 1958 and 1959 and living in the canton of Zurich in Switzerland. The first screening of the sample was in 1978 by means of a self-rating scale – the 90-item Symptom Checklist – Revised (SCL-90-R; Derogatis, 1977) – and a demographic questionnaire. A subsample of 591 subjects (292 males, 299 females) was selected for extensive interviewing and subsequent follow-ups. To increase the statistical power of analyses pertaining to transition to psychiatric disorders, this sample was stratified with an over-representation of high-risk cases. Thus, two-thirds of the cohort comprised high scorers [defined by the 85th percentile or above on the SCL-90-R Global Severity Index (GSI) scores] and one-third were

low scorers (GSI scores below the 85th percentile). Although the sample was stratified, weighting of the data allowed for calculation of population-based rates.

Detailed interviews were conducted with the subsample in 1979, 1981, 1986, 1988, 1993 and 1999, that is at ages 21, 23, 28, 30, 35 and 41 years. At each follow-up, interviewers with thorough clinical training – mostly psychologists – conducted face-to-face interviews in the participants' homes. Over 20 years, 62% of the original sample continued to participate in the study and the following proportions participated in specific numbers of interviews: 47% in all six interviews; 63% in five interviews; 74% in four interviews; 82% in three interviews; and 91% in at least two interviews. Those who dropped out did not differ significantly from those who stayed in follow-up interviews regarding psychiatrically relevant demographic characteristics (Eich *et al.* 2003). For the present analysis, we used data on CAM from the 1993 and 1999 interviews, that is at ages 35 and 41. These interviews were the most comprehensive ones regarding information on CAM use.

SPIKE and further instruments

The interviews were conducted by trained residents and clinical psychologists on the basis of the Structured Psychopathological Interview and Rating of the Social Consequences for Epidemiology (SPIKE; Angst & Dobler-Mikola, 1985). SPIKE is divided into more than 20 sections starting with the assessment of demographic and health service use data. Several sections deal with physical complaints followed by sections focusing on psychiatric symptoms. Each section elicits details on symptoms, their duration, recurrence, use of health services, and so on. The interviewees were also asked to indicate the causes they associated with a complaint, and to quantify their distress on a 100-point scale.

In each interview, the SPIKE was extended by particular topics. The first interview focused on sociological issues such as socio-economic background, values and political orientations. Later interviews assessed data on training, occupation and leisure behavior (1981 and 1986), and also on stresses in childhood and youth (1986 and 1988). Information on the reliability and validity of the SPIKE has

been provided elsewhere (Merikangas *et al.* 2003).

On the SCL-90-R, which was used for the preliminary sample stratification and was repeated in each interview, subjects responded on a five-point Likert scale of distress ranging from 'not at all' (0) to 'a little bit' (1), 'moderately' (2), 'quite a bit' (3) and 'extremely' (4). The time period covered by the SCL-90-R in the Zurich study was 4 weeks. The 90 items of the SCL-90-R were grouped along nine symptom dimensions (somatization, obsessive-compulsivity, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation and psychoticism), which reflected broad psychological symptom status.

Other instruments used in several interview waves were:

- the Freiburg Personality Inventory (FPI; Fahrenberg *et al.* 1970), which was used in 1988 and 1993;
- a mastery/self-esteem scale (Pearlin & Schooler, 1978; Rosenberg, 1979), used in all interviews except in 1988; and
- the Coping Questionnaire by Klauer *et al.* (1989), used 1988, 1993 and 1999.

Use of therapies

Participants' use of different therapies including medication and CAM was obtained first by two open questions relating to physical and psychological problems in the introductory section on health service use. As it was up to the interviewees to classify problems as either physical or psychological, their answers had to be assessed with caution. Second, information was obtained by open questions in each section. We then categorized CAM according to previous studies (Kessler *et al.* 2001) in four subgroups: cognitive feedback, oral medication, physical treatments and other therapies. Medical therapies such as massage were classified under CAM when they were used in a not-approved medical therapy; for instance, massage because of psychological problems.

Predictors

The predictors that we analyzed with regard to CAM use can be divided into three groups: (1) demographic variables such as gender, marital status and having a partner; (2) sociological

variables such as participants' education, their father's education, employment status and their political orientation at age 20/21 (left wing, right wing, not decided, not interested); and (3) individual and personality variables, as follows:

- initial SCL stratum (high scorer *versus* low scorer in SCL-90-R 1978);
- number of self-reported complaints (1993 and 1999);
- maximum level of distress in physical/ psychological complaints (displayed on a 100-point scale – 1993 and 1999);
- psychological attribution style in physical complaints; that is, attribution of physical complaints to stress and other psychological variables (divided by all reported physical complaints – 1993 and 1999);
- the FPI factors as proposed by Angst and Clayton (1986): aggression, extraversion, autonomic lability – the latter being defined by the dimensions nervousness and depressiveness (1993);
- the mastery and the self-esteem subscales (Pearlin & Schooler, 1978; Rosenberg, 1979) (1993 and 1999);
- the subscales socializing, avoiding/denying and rumination from the Klauer Coping Questionnaire (Klauer *et al.* 1989) (1993 and 1999).

Statistical analyses

Univariate analyses were calculated with the PROC SURVEYMEANS procedure of SAS version 8 (SAS Institute Inc., Cary, NC, USA) to account for the sample stratification. Besides common univariate and bivariate analyses, a polytomous logistic regression (Kleinbaum & Klein, 2002; Twisk, 2003) was carried out to determine the impact of sociodemographic variables, time-lagged sociological factors and psychological correlates on CAM use. In polytomous logistic regression, the dependent variable was constructed from CAM use in 1993 and 1999 (yes/ yes, yes/no, no/yes, no/no). The odds ratios (ORs) always relate to the category 'no/no'. Variables that yielded significant results in bivariate analyses were introduced in a multivariate regression model. This analysis was carried out with the NOMREG procedure in SPSS version 11 (SPSS Inc., Chicago, IL, USA).

Table 1. *Rates of CAM use versus conventional out-patient health service use with regard to psychological problems*

	1993 % (95% CI)	1999 % (95% CI)
CAM	4·7 (1·6–7·9)	9·4 (4·7–14·1)
GP	9·4 (4·8–14·0)	12·0 (7·0–16·9)
Psychiatrist	4·1 (1·3–6·9)	2·6 (0·3–4·8)
Psychotherapist	19·7 (13·5–25·9)	27·2 (20·2–34·2)

CAM, Complementary and alternative medicine; CI, confidence interval; GP, general practitioner.

RESULTS

Physical and psychological complaints

A full 96% of respondents reported at least one physical complaint in the previous 12 months in the 1999 interview. With regard to psychological complaints, 43·6% in the cohort responded affirmatively to the following general question in 1999: 'Did you have any psychological or nervous problems in the last 12 months?' When addressing psychological complaints one by one, this rate increased to 85·6%. The rates in 1993 were comparable.

CAM use in physical and psychological complaints

The proportion of subjects seeking medical help increased in all health services between 1993 and 1999 except with regard to psychiatrists. The overall use of CAM for any reason increased from 21·9% in 1993 to 29·5% in 1999 (percentages based on information from the general section on use of health services and information from all sections on specific complaints). Using information on specific complaints while applying a restricted selection, we found a rise in CAM use in psychological problems from 4·7% to 9·4% (Table 1) as well as in physical problems from 7·8% to 17·2% (results not listed). That is, CAM use increased similarly in both instances during the 1990s. CAM use due to psychological complaints ranked in third place, behind the consulting of psychotherapists and general practitioners (GPs).

CAM use was more prevalent in subjects who stated a high level of subjective suffering (values >50 on a 100-point scale) from any physical or psychological complaints, compared to subjects

Table 2. *Prevalence rates of CAM use, by sub-type, 1993 and 1999; physical and psychological problems*

	1993		1999	
	%	(95% CI)	%	(95% CI)
Cognitive feedback[a]	0·8	(0·0–2·0)	1·6	(0·0–3·5)
Oral medication[b]	11·6	(7·2–16·0)	7·2	(3·9–10·6)
Homeopathy	10·5		5·3	
Naturopathy	3·2		1·9	
Physical treatments[c]	7·9	(4·2–11·5)	22·6	(16·5–28·8)
Massage	0·5		7·6	
Chiropractics	4·2		3·3	
Osteopathy	0·2		3·9	
Acupuncture	3·1		10·2	
Other therapies[d]	3·5	(1·5–6·7)	2·6	(0·8–5·9)
Other	3·0	(0·7–5·4)	0·5	(0·0–1·2)

CAM, Complementary and alternative medicine; CI, confidence interval.

[a] Relaxation techniques, imagery, self-help group, hypnosis, biofeedback.
[b] Herbal medicine, megavitamins, homeopathy, naturopathy.
[c] Massage, chiropractics, osteopathy, acupuncture, yoga.
[d] Spiritual healing by others, dietary modifications, lifestyle diet, special diet for losing or gaining weight, energy healing, aromatherapy, laughter, other therapy to treat pain, other lifestyle intervention program, folk remedies.

with lower or no subjective suffering. The rates within the first group were 28·2% in 1993 and 32·5% in 1999.

CAM use *versus* use of conventional medicine

About a quarter of the study participants who indicated CAM use because of physical complaints used such medicines exclusively. Seeking help solely from alternative medicines because of psychological complaints was uncommon. Most of the subjects seeking alternative or complementary help due to psychological problems also sought complementary help because of physical problems (73·9% in 1993 and 82·8% in 1999).

Types of CAM

A great deal of CAM use (Table 2) was related to physical treatments (acupuncture, massage and others) or to oral medication (mainly homeopathy). Other therapies were of minor importance. The increase in CAM use between 1993 and 1999 was mainly due to an increase in physical therapies (massage, acupuncture and osteopathy).

Bivariate analyses

Demographic correlates

Bivariate analyses revealed similar demographic correlates of CAM use in the 1993 and 1999 interviews (Table 3). Notably, the prevalence of CAM use in women (38% in 1999 and 29% in 1993) was distinctly higher than in men (20% in 1999 and 14% in 1993).

Sociological correlates

There were no relevant associations between CAM use and straightforward measures of socio-economic status such as education, employment status, income and related variables. However, relevant associations were found with variables characterizing the sociocultural background of the participants. This applied to their father's educational level; in both interviews (1993 and 1999) the father's lowest educational level and the group with the highest educational level were associated with higher CAM use (~40%) than other educational levels (15–25%). This association did not rely on specific types of CAM. Moreover, political orientation yielded significant results in both interviews, thereby requiring some differentiation. Use of CAM was consistently lower (~10%) in conservative sympathizers and consistently high in politically not-interested participants (~35%). In progressive sympathizers the proportion of CAM users increased from about 25% to 45%. In politically interested but undecided study participants, the increase was from 10% to 25%.

Complaint correlates

Use of CAM is significantly associated with a number of complaints, both physical and psychological. Significant associations also emerge from the respective level of subjective suffering and, more importantly, from a psychological attribution style of physical complaints.

Psychological correlates

Inconsistent associations were found between CAM use and psychological concepts such as coping styles, self-esteem, mastery or social isolation. However, most subscales of the FPI questionnaire yielded significant t test results. When reduced to three factors according to Angst & Clayton (1986) – aggression,

Table 3. *Bivariate analyses of CAM use versus putative explanatory variables* (*1993 and 1999*)

	Frequency (1999 sample)	OR (95% CI) 1993	OR (95% CI) 1999
Demographic and sociological correlates			
Gender			
Men	162	1	1
Women	205	2·4 (1·5–3·8)	2·2 (1·4–3·5)
Sample strata			
SCL-90-R high scorer	244	0·8 (0·5–1·3)	0·7 (0·5–1·2)
SCL-90-R low scorer	123	1	1
Marital status			
Single	79	1	1
Married	229	1·0 (0·6–1·7)	0·5 (0·3–0·8)
Divorced, widowed	51	1·5 (0·7–3·4)	0·8 (0·4–1·6)
Having partner			
Yes	308	1·1 (0·6–2·2)	0·6 (0·3–1·1)
No	53	1	1
Education			
Primary school	17	1	1
Secondary school I	99	0·9 (0·3–2·6)	2·0 (0·6–6·7)
Secondary school II	136	0·6 (0·2–1·7)	1·1 (0·3–3·7)
High school (pre-university)	37	0·8 (0·2–2·5)	2·5 (0·7–9·0)
Other high school	61	1·1 (0·3–2·8)	1·6 (0·5–5·5)
Father's education			
Low	31	1	1
Medium	289	0·4 (0·2–0·7)	0·4 (0·2–0·8)
High	35	0·7 (0·3–1·8)	0·5 (0·2–1·5)
Party preference (1979)			
Undetermined	66	1	1
Right wing	89	0·8 (0·4–1·7)	0·3 (0·2–0·7)
Left wing	95	0·9 (0·4–1·9)	0·7 (0·4–1·4)
No interest	100	2·2 (1·1–4·3)	0·8 (0·4–1·4)

	t test	*p* value	*t* test	*p* value
Complaint correlates				
Number of complaints				
All	−5·28	<0·001	−5·44	<0·001
Physical	−5·65	<0·001	−5·11	<0·001
Psychological	−3·28	<0·01	−4·12	<0·001
Psychological attribution style	−3·47	<0·001	−2·86	<0·01
Subjective suffering				
Max. level (physical complaints)	−3·45	<0·001	−3·24	<0·01
Max. level (psychological complaints)	−4·39	<0·001	−3·11	<0·01
Psychological correlates				
Mastery	0·06	N.S.	−0·30	N.S.
Self-esteem	0·63	N.S.	0·54	N.S.
Coping style socializing	−2·66	<0·01	−0·71	N.S.
Coping style avoiding/denying	−1·81	N.S.	−1·69	N.S.
Coping style rumination	−1·18	N.S.	−2·12	<0·05
Feelings of isolation	−1·73	N.S.	−1·16	N.S.
Number of close friends	0·29	N.S.	1·63	N.S.
FPI aggression	−2·44	<0·05	−2·14	<0·05
FPI extraversion	1·43	N.S.	0·03	N.S.
FPI autonomic lability	−5·79	<0·001	−3·27	<0·01
SCL-90-R subscale anxiety	−2·99	<0·01	−2·99	<0·01
SCL-90-R subscale depression	−2·66	<0·01	−3·16	<0·01

CAM, Complementary and alternative medicine; OR, odds ratio; CI, confidence interval; N.S., not significant; FPI, Freiburg Personality Inventory; SCL-90-R, 90-item Symptom Checklist – Revised.

extraversion and autonomic lability – the latter yielded the most impressive positive association while extraversion lacked any impact.

Multivariate analyses

Polytomous logistic regression allows simultaneous comparison of different groups of CAM users. In our analysis these are participants having used CAM at both assessment points ($+_{1993}/+_{1999}$ 17·2 %), in either of them, that is in 1993 ($+_{1993}/-_{1999}$ 8·0 %) or in 1999 ($-_{1993}/+_{1999}$ 17·8 %), or individuals who never used CAM ($-_{1993}/-_{1999}$ 57·0 %).

Table 4 provides a list of ORs according to the different groups of CAM users. Nagelkerke's R^2 amounts to 34·2 % in this polytomous logistic regression model. Five variables from preliminary bivariate analyses remained relevant in the multivariate model: father's education, party preference, socializing coping style, autonomic lability in FPI and a psychological attribution style. However, demographic variables, in particular 'gender', which is a frequently identified significant variable in this context, gained no more attention after adjustment. The dominating issue is the comparison between continuous and no CAM use ($+/+$ *versus* $-/-$). Consistent users were more likely to come from a subgroup of 'low class origin' (defined by very low father's educational level; OR 4·3), to indicate lack of political interest (OR 7·4), to prefer a psychological attribution style to physical complaints (OR 1·6), to adapt a socializing strategy in coping (OR 1·5) and to be vulnerable to nervousness and depressiveness (factor 'autonomic lability' of the FPI) (OR 1·8). In 1999 a new group of CAM users emerged, namely those who had no political affiliation in young adulthood. Moreover, a similar trend is obvious in participants sharing a progressive political affiliation.

To better understand the outcomes of the polytomous logistic regression we inter-correlated (cross-tabulated) the explanatory variables. Among others, these analyses showed that women had more complaints, disclosed higher stress and in particular more depression and anxiety symptoms than men. They also indicated less interest in political issues and more often preferred a psychological attribution style when encountering somatic complaints. In sum, the effect of gender was absorbed by the other variables. A similar configuration of inter-related explanatory variables was apparent regarding the factor 'autonomic lability' of the FPI. 'Autonomic lability', which represents mainly depressive and anxious personality characteristics, was closely associated with the depression and anxiety subscales of the SCL-90-R ($r = 0.62$ and $r = 0.61$, $p < 0.001$), as well as with the number of somatic and also psychological complaints ($r = 0.45$ in both instances, $p < 0.001$).

DISCUSSION

The current literature proposes partly conflicting approaches to explain the use of CAM. Most of these can be subsumed under two concepts. They first explain CAM use from situational characteristics such as the communication style of doctors and patients, or from specific psychological needs of patients encountering serious health problems (Eisenberg, 2002). Alternatively, the approaches rely on underlying or background factors such as a deteriorating health status and inadequate access to health services, or persisting attitudes, beliefs, values or personality traits (Astin, 1998).

The Zurich Study provides an unusual opportunity to explore the background of CAM use within a broad spectrum of psychological and physical problems. In Zurich, both primary and secondary care (e.g. psychotherapists and psychiatrists) can be accessed directly and there are no waiting lists. In addition, drug prescribing is not centrally controlled or limited. Most alternative medicines are covered by obligatory health insurance. The Zurich Study also provides an exceptional longitudinal data base; it is a longitudinal community survey based on a representative sample drawn in the 1970s. It allows a comprehensive analysis of factors influencing the decision to use CAM, including the number of complaints and the level of subjectively felt strain, major personality characteristics and also the background of sociocultural values and beliefs. We show for the first time that attitudes expressed many years ago could be introduced as predictors of CAM use. Our results provide strong evidence that CAM use is a complex phenomenon that cannot be adequately explained by simple theoretical models.

Table 4. *Polytomous logistic regression on use of CAM 1993 and 1999: odds ratios; the baseline category of the dependent variable (CAM use 93/99) is 'never used CAM' ($-_{1993}/-_{1999}$) (n = 179); the category denoted by 0(a) is the reference category in nominal variables*

CAM 93/99 explanatory variables	Estimate	S.E.	Wald statistics	p value	OR	95% CI
$+_{1993}/+_{1999}$ (n = 54)						
Psychological attribution style 93	0·44	0·19	5·49	0·019	1·56	1·07–2·26
Subjective suffering 93 (physical complaints)	0·00	0·22	0·00	0·997	1·00	0·65–1·54
Subjective suffering 93 (psychological complaints)	0·32	0·21	2·31	0·129	1·38	0·91–2·09
FPI aggression 88/93	0·15	0·22	0·42	0·514	0·87	0·56–1·34
FPI autonomic lability 88/93	0·61	0·23	6·94	0·008	1·84	1·17–2·89
Coping style socializing 93	0·42	0·20	4·32	0·038	1·52	1·02–2·25
Party preference						
Left	0·48	0·62	0·59	0·443	1·62	0·47–5·48
Undetermined	1·07	0·64	2·79	0·095	2·92	0·83–10·28
No interest	1·99	0·59	11·57	0·001	7·36	2·33–23·21
Right	0(a)	—	—	—	—	—
Gender						
Female	0·65	0·41	2·57	0·109	1·92	0·86–4·26
Male	0(a)	—	—	—	—	—
Father's education						
High	0·65	0·54	1·44	0·230	1·92	0·66–5·55
Low	1·46	0·62	5·55	0·018	4·30	1·28–14·46
Medium	0(a)	—	—	—	—	—
$+_{1993}/-_{1999}$ (n = 25)						
Psychological attribution style 93	0·18	0·28	0·43	0·512	0·83	0·48–1·44
Subjective suffering 93 (physical complaints)	0·15	0·27	0·30	0·582	1·16	0·69–1·96
Subjective suffering 93 (psychological complaints)	0·11	0·25	0·19	0·663	1·12	0·68–1·84
FPI aggression 88/93	0·07	0·26	0·06	0·802	1·07	0·64–1·79
FPI autonomic lability 88/93	0·38	0·29	1·65	0·198	1·46	0·82–2·61
Coping style socializing 93	0·47	0·25	3·61	0·057	1·61	0·99–2·62
Party preference						
Left	0·22	0·63	0·12	0·724	0·80	0·23–2·76
Undetermined	0·77	0·88	0·77	0·379	0·46	0·08–2·57
No interest	0·50	0·59	0·72	0·396	1·65	0·52–5·21
Right	0(a)	—	—	—	—	—
Gender						
Female	0·83	0·52	2·48	0·115	2·28	0·82–6·36
Male	0(a)	—	—	—	—	—
Father's education						
High	0·52	0·71	0·53	0·467	1·68	0·42–6·72
Low	2·12	0·64	10·77	0·001	8·32	2·35–29·4
Medium	0(a)	—	—	—	—	—
$-_{1993}/+_{1999}$ (n = 56)						
Psychological attribution style 93	0·15	0·19	0·65	0·418	0·86	0·59–1·24
Subjective suffering 93 (physical complaints)	0·23	0·18	1·54	0·214	1·26	0·87–1·81
Subjective suffering 93 (psychological complaints)	0·23	0·18	1·61	0·205	0·79	0·55–1·14
FPI aggression 88/93	0·30	0·19	2·42	0·119	1·35	0·93–1·96
FPI autonomic lability 88/93	0·06	0·22	0·07	0·795	0·94	0·61–1·46
Coping style socializing 93	0·31	0·17	3·13	0·077	1·36	0·97–1·91
Party preference						
Left	0·87	0·47	3·43	0·064	2·39	0·95–5·99
Undetermined	1·30	0·51	6·48	0·011	3·67	1·35–9·97
No interest	0·13	0·54	0·06	0·804	1·14	0·39–3·30
Right	0(a)	—	—	—	—	—
Gender						
Female	0·55	0·35	2·46	0·116	1·74	0·87–3·45
Male	0(a)	—	—	—	—	—
Father's education						
High	0·33	0·53	0·38	0·538	1·39	0·49–3·91
Low	1·66	0·56	8·83	0·003	5·26	1·76–15·71
Medium	0(a)	—	—	—	—	—

CAM, Complementary and alternative medicine; OR, odds ratio; CI, confidence interval; FPI, Freiburg Personality Inventory; S.E., standard error.

The basis of CAM use in Switzerland, and presumably in most parts of Western and Central Europe, is formed by long-standing values, beliefs and attitudes ultimately deriving from the users' social background and typically shaped in youth and young adulthood. As such, these values, beliefs and attitudes are not necessarily directly related to CAM use. The interpretation of CAM use becomes even more complicated as various cultural subgroups with differing value systems turn to CAM use. In this context the significance of political orientations should also be mentioned. Affiliation to right-wing parties is a consistent predictor of low CAM use whereas lack of interest in politics is a predictor of high CAM use. The increase in CAM use in the 1990s within originally un-decided participants and the growing number of CAM users with a progressive orientation signifies that CAM use is no longer restricted to highly specific segments of society.

In contrast to most current research, we identified a small subgroup of people originating from a class with a very low educational level showing a high use of CAM. This finding persisted in all kinds of CAM users, that is in continuous as well as occasional users. An obvious explanation is that the tradition of household remedies is more ingrained in the lowest classes. Less obviously, there is a long-standing discussion on cultural barriers; for example, a general distrust of lower-class patients towards middle-class doctors and attendant communication problems.

Either psychological or physical complaints are ubiquitous in our sample. CAM use is frequent but definitely lags behind use of regular medical services. However, most users regard those therapies as complementary rather than alternative to medical services. In Switzerland, complementary use of non-medical approaches is disadvantaged by a comprehensive and effective health-care service. However, it is fostered, first, by a low threshold in access to all forms of health care and, second, by widespread acceptance of CAM among doctors (Perkin *et al.* 1994; MacLennan *et al.* 1996), the latter especially if the complementary therapies chosen are close to conventional medicine, as is the case in our study. The growing acceptance of specific CAMs among doctors is also indicated by the reduction in homeopathy and lifestyle interventions and an increase in massage, osteopathy and acupuncture in 1999. In other words, there is a trend from alternative to complementary variants of CAM.

Furthermore, there is a significant relationship between CAM use and a psychological attribution style of physical complaints, which needs further investigation. Our interview instrument assesses physical and psychological symptoms dimensionally, that is there is no symptom threshold as in conventional classification systems. As such, we assessed a much broader spectrum of (also minor) physical and psychological problems. This alleviates the psychological interpretation, especially of minor physical problems, but it also blurs the borders between psychological and physical problems. This result corresponds to the greater willingness of the general population to apply CAM in psychiatric problems that has been found in other studies.

In particular, psychologically vulnerable people with outgoing coping styles are predisposed to CAM use. On the one hand, it seems plausible that the therapist's communication style is of great importance for many patients (Eisenberg, 2002) and the CAM provider's communication style often fits their needs better than the style of conventional therapists. On the other hand, CAM use has often been regarded as a helpful coping strategy (Stoll, 1993; Downer *et al.* 1994; Moschen *et al.* 2001). It has been pointed out that these treatment methods may provide a way of avoiding passivity and coping with feelings of hopelessness, anxiety and being threatened (Sollner *et al.* 1997). In contrast to this illness-centered behavior, another aspect in this context is the desire to take an active part in the therapeutic process (Moschen *et al.* 2001). Thus, psychological interpretations of physical problems and CAM use may allow greater levels of control and empowerment over the lives of the affected.

In this analysis the type of complaints and diagnoses were not specified in favor of a more general view expressed by the number of complaints and the maximum subjective level of suffering. Both variables provide a subjective view rather than objective diagnostic information. The subjective view is important in determining the reasons for health service use as the level of distress varies depending on specific

complaints. The FPI subscale 'autonomic lability', representing mainly depressive and anxious personality characteristics, turned out to be a better predictor in this instance. 'Autonomic lability' is also highly correlated with the number of complaints, thus suggesting that a factor analytic approach using latent variables might be more promising in this instance.

Some well-known determinants of CAM use such as educational level and gender could not be confirmed by this analysis. The reasons for the former result are not immediately clear. Regarding the latter variable, gender, it is obvious that there is no natural gender effect, but gender is a proxy for other variables. This analysis helped to understand better the underlying effects beyond the association between gender and CAM use.

We have to assume that a major limitation of our study is that it is based on people answering the CAM questions consciously, freely and accurately. It is clear from other studies that the prevalence rates of CAM use may vary by a factor of 2–3 depending on the survey methodology. For example, Unutzer *et al.* (2000) found a prevalence rate of 16 % in a representative sample in the USA, while Wolsko *et al.* (2002) found a rate of 44 % in an other representative US sample. The reasons for such a discrepancy are found not only in the definition of CAM but also in the interviewing methodology. The former study used a general question format including two CAM examples, while the latter specified a list of various CAM issues. In our study, a third variant was applied by repeating a general question format over a series of complaints. Therefore, it was not surprising to us to assess rates of CAM use that were intermediate with respect to the extremes and at the same time were higher than the rates assessed in Switzerland's Health Surveys in 1992/3 and 1997 [12·8 % and 18·0 % (in persons aged 25–74) *v.* 21·9 % and 29·5 % in our study]. However, it is clear that we also missed a certain number of CAM users with inadequate recall.

The Zurich sample is also restricted to the birth cohort 1958/9, thus excluding information about the use of CAM in the elderly and in young adults. It is therefore not conclusive whether the increase in CAM use in our sample is due to the people in the Zurich Study ageing (i.e. the growing number of complaints) or to the *Zeitgeist* (i.e. the fashions and trends in the use of health services as described above). However, we know from the data of the Swiss Health Surveys that the variation in prevalence rates in CAM use is much larger between the surveys than between the age groups in each survey (Bisig & Gutzwiller, 2004). Thus, the increase in CAM use is better explained by the change in consumer habits than by age differences.

The use of data from a small country such as Switzerland might appear to be a limitation. However, Switzerland may be considered as being representative of Central Europe, that is of countries with comprehensive social security and health care services. Even if the prevalence rates of CAM use vary to some extent from country to country, the sociocultural background (political und subcultural affiliations as well as the personality characteristic predicting CAM use) may be assumed to be similar all over Central Europe.

There are some more putative limitations to our study. As in other studies addressing complex human behavior, a significant proportion of CAM use is not explained by our regression analysis. Finally, our study instruments do not assess immediate triggers of CAM use. Although the Zurich epidemiological data are able to provide insights into the background of help-seeking behavior, including CAM use, they deliver no information on immediate behavioral triggers or practical consequences in medical practice.

CAM challenges traditional medicine. To bridge the gap between patients and doctors, we need to be more aware of our patients' use of these medicines and their expectations. As such, the results provide useful information about who uses complementary and alternative medicines, and for what reasons. It is clear from our study that CAM users belong mostly to a subgroup of people reserved against conventional rational thinking in politics, in health issues and presumably also in other domains of life. Correspondingly, a part of CAM use has to do with social fashions, and new subgroups may become involved spontaneously. It should be clear that there is not just one ideal type of user but a multitude of users and a multitude of methods.

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DECLARATION OF INTEREST

None.

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