

Original Article

Are Users of Complementary and Alternative Medicine Sicker than Non-Users?

Amir Shmueli¹ and Judith Shuval²¹The Hebrew University and the Gertner Institute and ²The Hebrew University, Jerusalem, Israel

Higher utilization of complementary and alternative medicine (CAM), both in cross-sections and over time, is commonly related to better socioeconomic status and to increased dissatisfaction with conventional medicine and its values. Little is known about health differences between users and non-users of CAM. The objective of the paper is to explore the difference in health measured by the SF-36 instrument between users and non-users of CAM, and to estimate the relative importance of the SF-36 health domains scales to the likelihood of consulting CAM providers. Interviews were used to collect information from a sample of 2000 persons in 1993 and 2500 persons in 2000, representing the Israeli Jewish urban population aged 45–75 in those years. Bivariate and logistic regression analyses were used to explore the above associations. The results show that while users of CAM enjoy higher socioeconomic status and younger age, they tend to report worse health than non-users on the eight SF-36 health domains scales in both years. However, controlling for personal characteristics, lower scores on the bodily pain, role-emotional and vitality scales are related to greater likelihood of CAM use in 2000. In 1993, no scale had a significant adjusted association with the use of CAM. The conclusions are that CAM users tend to report worse health. With CAM becoming a mainstream, though somewhat luxurious, medical practice, pain and affective-emotional distress are the main drivers of CAM use.

Keywords: CAM – Israel – logistic regression – SF-36

Introduction

There is growing evidence in many Western societies for increased use of complementary and alternative medicine (CAM) by consumers. A combination of factors have been discussed in the literature to account for these processes: growing disillusionment with the technology and bureaucracy of biomedicine and increased questioning of its excessive invasiveness; heightened consumer awareness of iatrogenic effects of modern medicine and growth in expectations for quality service including structural changes in the physician–patient relationship (1–5). In a period of hyperdifferentiation in biomedicine, when medicine is practiced in large bureaucratic structures where there is minimal attention to the individual and to her/his social and psychological needs, CAM provides a

non-invasive, holistic alternative that is increasingly attractive to many, in particular to the better educated, richer and residents of urban centers. These factors have combined with demographic changes, which have been accompanied by increased prevalence of chronic health problems that are less responsive to the methods of biomedicine (6–8).

The relationship between utilization of CAM and (pre-treatment) health is less known. A popular argument claims that since CAM use is more widespread among persons with higher education and higher incomes, who are generally healthier, the health of users might be even better than of non-users. This view corresponds to the hypothesis that a significant number of users of CAM may be somatizers (1), and to the biomedical doubts regarding the health benefits of several CAM practices. A contrary argument says that users of CAM tend to use more conventional medicine as well, since their health is poorer. Two recent studies concluded that American, Canadian and English users of CAM have poorer physical health than non-users (9,10).

For reprints and all correspondence: Amir Shmueli, Department of Health Management, The Hebrew University, PO Box 12272, Jerusalem, Israel. Tel: +972-2-6758514; Fax: +972-2-6435083; E-mail: ashmueli@md2.huji.ac.il

© 2006 The Author(s).

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/2.0/uk/>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

This paper provides a secondary analysis of two general health surveys—the first, carried out in 1993, and the second—in 2000—of samples representing the urban Jewish Israeli population aged 45–75, aimed to explore the health (measured by the SF-36 instrument) differences between users and non-users of CAM, and to estimate the importance of the eight SF-36 health domains in seeking non-conventional medical care.

Methods

The Data

Both in 1993 and in 2000, face-to-face interviews were conducted. The 1993 survey included 1999 individuals, while the 2000 survey included 2505 individuals. [For further details on the surveys and the data see (11,12).] While the population studied—the urban Jewish population aged 45–75—does not represent the Israeli population, it certainly constitutes the important segment of it, in particular with respect to health problems and the use of medical care.

The Measurement of CAM Use, Health and Personal Characteristics

CAM use

The two surveys included an identical set of questions on the use of CAM. In particular, use of CAM refers to consultations with any alternative or complementary medicine provider during the year previous to the interview.

The SF-36 instrument

The Hebrew translation of the MOS SF-36 instrument was used in both surveys (13). The Hebrew version was validated using the 1993 data (14). The instrument provides eight scales measuring different health domains: physical functioning (limitations in performing daily activities such as climbing stairs, carrying groceries, walking moderate distance, etc.); role-physical (physical limitations in performing one's roles such as work); bodily pain (frequency of pain and the extent of interference with normal activities because of pain); general health perception; vitality (energy level and fatigue); social functioning (health-related effects on social activities such as visiting friends, etc.); role-emotional (emotional limitations such as anxiety or depression in performing daily roles); and mental health (loss of behavioral or emotional control and psychological well-being). Each domain is measured on a 0–100 scale, where 100 signify perfect health.

Other variables

The surveys collected information on a variety of issues related to health and on personal characteristics. For the present analysis we considered the following characteristics: age, gender, education (primary school, high school and

university), subjective economic status ('good', 'fair' and 'poor'), ethnic origin (second generation Israelis, Asia-Africa, Europe-America and post-1990 immigrants from the former USSR), size of residential community (200 000+ inhabitants versus smaller localities), marital status (married versus divorced, separated, single and widowed), religiosity (secular, traditional, religious and orthodox) and sick fund (health plan) membership (both in 1993 and 2000, four sick funds were operating in Israel). Sick fund membership might be important in the 2000 analysis in particular, since supplemental insurance, covering partially CAM, has been offered by the sick funds to their members since 1998.

The statistical strategy

First, users and non-users in both years were compared (using *t*-tests) on their mean scores on the eight SF-36 scores, as well as on selected personal characteristics. The association of the SF-36 scales with the probability to use CAM adjusted for personal characteristics was estimated using Logistic regressions.

As is common in such multivariate analyses, multicollinearity among the eight SF-36 scales might be a potential source of bias. In both years, the correlations among the scales range from 0.4 to 0.6. We examined the coefficients and their standard errors in repeated runs, including various random subsamples and selected subsets of the scales. The results indicated that the estimates are stable and the main conclusions reported below are robust with respect to the sample and set of scales used.

LIMDEP 8.0 was used for the statistical analysis.

Results

General

In 1993, 6.1% of the population ($n = 121$) reported a contact with CAM provider during the previous year. In 2000, 9.8% ($n = 246$) had such a contact, a 61% increase. [For further details on types of providers used, types of problems for which care was needed and additional general findings see (11).]

The SF-36 Scales and Personal Characteristics for Users and Non-Users

Table 1 presents the means and standard deviations of the SF-36 scales and personal characteristics for users and non-users in both years. In both years, users of CAM report generally lower scores on all health domains. In 1993, significant (at 0.05 level) differences were found in all scales. The highest differences were found in role physical, bodily pain, social functioning and role-emotional. In 2000, while the SF-36 profile of non-users remained about the same, that of the users changed. In particular, the mean score of users on general health increased, and the difference between users and non-users disappeared. The difference in physical functioning was insignificant as well. The highest differences between

Table 1. Personal characteristics and the SF-36 profile of users and non-users of CAM in 1993 and 2000

N	1993				2000			
	Users		Non-users		Users		Non-users	
	121		1878		246		2259	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Religiosity								
Traditional	0.254	0.437	0.298	0.458	0.222	0.416	0.289	0.453
Religious	0.123	0.330	0.095	0.293	0.109	0.312	0.109	0.312
Orthodox	0.026	0.161	0.018	0.132	0.039	0.194	0.023	0.149
Sex								
Men	0.380	0.487	0.480	0.500	0.309	0.463	0.494	0.500
Age	58.479	9.273	58.102	9.555	55.943	8.226	57.803	9.104
Education								
High school	0.605	0.491	0.520	0.500	0.509	0.501	0.520	0.500
University	0.211	0.409	0.220	0.415	0.409	0.493	0.293	0.455
Economic status								
Good	0.583	0.693	0.604	0.718	0.637	0.592	0.558	0.651
Ethnic origin								
Europe-America	0.482	0.502	0.449	0.497	0.413	0.493	0.327	0.469
USSR	0.033	0.180	0.071	0.257	0.126	0.333	0.143	0.350
Asia-Africa	0.368	0.485	0.385	0.487	0.304	0.461	0.395	0.489
Location size								
200K+ inhabitants	0.479	0.754	0.425	0.751	0.467	0.791	0.398	0.779
Marital status								
Married	0.842	0.485	0.859	0.560	0.765	0.552	0.806	0.515
Sick fund								
Maccabi	0.061	0.241	0.116	0.321	0.193	0.396	0.200	0.400
Meuhedet	0.018	0.132	0.053	0.224	0.118	0.324	0.061	0.240
Leumit	0.079	0.271	0.065	0.247	0.075	0.263	0.077	0.267
Physical functioning (PF)*	71.696	27.55	77.609	26.48	75.415	25.53	78.425	25.57
Role-physical (RP)*.#	58.264	43.83	72.001	40.53	60.451	43.68	69.229	40.93
Bodily pain (BP)*.#	60.694	32.15	72.294	29.58	60.069	28.87	70.444	28.25
General health (GH)*	56.309	25.66	63.271	23.58	62.295	24.62	63.544	22.40
Vitality (VT)*.#	51.584	22.46	57.186	22.72	51.714	24.13	57.223	22.52
Social functioning (SF)*.#	73.450	31.19	82.399	26.42	76.778	27.03	80.316	26.24
Role-emotional (RE)*.#	72.176	39.99	81.613	35.41	67.769	44.20	78.093	38.44
Mental health (MH)*.#	62.826	23.13	67.331	21.56	63.884	23.23	67.531	21.24

*The difference between users and non-users in 1993 is significant at 0.05 (two-side *t*-test).

#The difference between users and non-users in 2000 is significant at 0.05 (two-side *t*-test).

users and non-users in 2000 were found on role physical, bodily pain and role-emotional.

The Adjusted Odds Ratio of the SF-36 Scales in the Probability to Use CAM

Table 2 presents the multivariate analysis exploring the importance of the eight scales in explaining the use of CAM in both years, controlling for personal characteristics.

The results show that in 1993 none of the SF-36 scales exercise a significant association with CAM use. As was mentioned above, this finding cannot be accounted for by

multicollinearity among the scales, but is a result of adjusting for other personal characteristics.

In 2000, the health domains of bodily pain, vitality and role-emotional all have significant negative effects—or odds ratio (OR) smaller than 1—on the tendency to use CAM (i.e. lower score—worse health—is related to higher tendency). The health domain with the largest association with that tendency is bodily pain, with an OR of 0.982. The second largest association is with role-emotional, and the OR of vitality is 0.992. The other SF-36's scales, including physical and social functioning, are not related to the tendency to use CAM.

Table 2. Adjusted odds ratios (OR) and 95% confidence intervals (CI) for the likelihood to use CAM according to SF-36 scales and other important covariates

Variable category	1993				2000			
	Users <i>N</i>	Non-users <i>N</i>	OR	95% CI	Users <i>N</i>	Non-users <i>N</i>	OR	95% CI
SF-36 scales								
Physical functioning			1.004	0.991–1.016			1.000	0.996–1.003
Role-physical			0.997	0.990–1.005			1.000	1.000–1.001
Bodily pain			0.993	0.984–1.002			0.982	0.973–0.990
General health			0.994	0.982–1.005			1.008	0.988–1.028
Vitality			0.998	0.984–1.012			0.992	0.983–1.001
Social functioning			0.995	0.985–1.005			1.003	0.996–1.011
Role-emotional			0.999	0.992–1.006			0.995	0.991–0.999
Mental health			1.004	0.988–1.019			1.000	0.991–1.010
Religious practice								
Secular	72	1106	1.000	—	155	1308	1.000	—
Traditional	31	560	0.730	0.445–1.198	55	653	0.899	0.617–1.310
Religious	15	178	1.219	0.639–2.326	27	247	1.125	0.687–1.843
Orthodox	3	33	1.499	0.416–5.399	10	51	1.475	0.643–3.385
Gender								
Women	75	977	1.000	—	170	1143	1.000	—
Men	46	901	0.665	0.436–1.015	76	1116	0.499	0.363–0.686
Age			1.003	0.979–1.027			0.979	0.961–0.998
Education								
Primary school	22	487	1.000	—	20	424	1.000	—
High school	73	977	2.079	1.192–3.624	125	1174	2.373	1.374–4.099
University	25	414	1.785	0.908–3.507	101	661	3.226	1.800–5.780
Economic status								
Poor	50	744	1.000	—	89	999	1.000	—
Good	71	1134	1.076	0.697–1.660	157	1260	1.591	1.142–2.217
Ethnic origin								
Israeli born	14	180	1.000	—	101	306	1.000	—
Europe–America	58	842	0.869	0.441–1.715	39	738	1.046	0.666–1.645
USSR	4	133	0.405	0.121–1.356	31	322	0.721	0.406–1.280
Asia–Africa	45	722	0.804	0.403–1.604	75	893	0.742	0.466–1.181
Population size								
<200kK	63	1079	1.000	—	131	1360	1.000	—
200kK+	58	799	1.436	0.942–2.189	115	899	1.168	0.847–1.612
Marital status								
Not Not-married	19	264	1.000	—	58	438	1.000	—
Married	102	1614	1.302	0.772–2.195	188	1821	0.825	0.583–1.168
Sickness fund								
Clalit	102	1437	1.000	—	151	1494	1.000	—
Maccabi	7	219	0.528	0.236–1.182	47	452	0.825	0.559–1.217
Meuhedet	2	100	0.364	0.087–1.521	29	139	1.835	1.131–2.977
Leumit	10	122	1.213	0.585–2.515	18	174	1.111	0.637–1.935
Pseudo R^2			0.059				0.086	

The Effects of the Other Personal Characteristics

The association of the socioeconomic characteristics with the 2000 use of CAM was found to be similar to that found in the

studies mentioned above; namely, higher education, better economic status, being a woman and younger age are all associated with increased use (11).

Discussion

Pain is clearly the principal driving force for consulting CAM in Israel. In that respect, Israelis are not an exception. Hankey (15) provides a theoretical discussion of CAM and the phenomenology of pain. Ong *et al.* (9) found that English users reported poorer health, particularly in the dimension of pain. An American study (1) found that persons with back problems or chronic pain were twice as likely to use alternative medicine. The 30% market share of back pain complainers found among the users in 2000 clearly confirms these findings.

Lower vitality level and higher emotional limitations in performing daily roles, such as work (salaried or at home) and other activities, play a particular role in encouraging people to apply to CAM. In fact, the three scales—pain, vitality and role-emotional—which were found to be associated with CAM use, all indicate affective-emotional distress. The relatively high prevalence of digestion and respiratory problems leading to a CAM provider consultation, which are often related to stress and poor emotional state, might confirm that finding as well. While earlier research indicated that CAM users reported general poorer health, the present results show that physical abilities measured by the role-physical and physical functioning scales are not important, and the affective-emotional health domains play a major role in relation to that use. Goldstein *et al.* (16) arrived at somewhat similar conclusions comparing CAM use among California adults with and without cancer. However, no differences between users and non-users were found on the mental health and general health scales.

While in 1993 the use of CAM in the Israeli urban Jewish population aged 45–75 was in its early stages, by the year 2000 it was entering the mainstream of health care [see also (6)]. This might be the reason that in 1993, no clear differences were found between users and non-users, neither on personal characteristics nor on the health domains scales. As a distinctive mainstream medical care, CAM users seek holistic, non-evasive and low-medication care for their pains and affective-emotional difficulties.

Two possible sources of bias should be mentioned. The SF-36 instrument measures health state during the *month* previous to the interview, while the use of CAM refers to any use during the *year* before the interview. As in many cross-sectional surveys, causality is, therefore, unclear (17). However, since CAM users report *worse* health than non-users, assuming that CAM does not harm patients, if that reporting refers to post-treatment health, the difference in pre-treatment health is likely to be even greater.

Second, we have no direct indication on supplementary insurance ownership. Some of the insurance effect, which is expected to operate mainly in 2000, is captured by sickness fund membership. Since it is expected that ownership encourage use, the crucial relationship for the bias is between health (and in particular, the SF-36 scales) and ownership, controlling for economic status and education. No empirical evidence on that relationship is available in Israel. If sicker individuals buy supplementary insurance more than healthier

ones, as expected by the adverse selection process, the true association of health with use of CAM will be even smaller (and negative) than that estimated above.

Unfortunately, the 2000 survey did not collect data on the use of conventional medical care. The 1993 data indicated that, as expected, CAM users visited family physicians and specialists more frequently than non-users. However, relating CAM use to health status rather than to conventional health care use, which is a function of availability, accessibility, full price, etc., seems more justified.

Finally, we cannot exclude the possibility that the reason for the insignificance of some parameters, mainly in 1993, is the small sample and lack of statistical power.

Acknowledgments

The study was partially funded by a grant from the National Institute for Health Policy Research in Israel. Three reviewers provided very useful comments on an earlier version.

References

- Astin JA. Why patients use alternative medicine? *JAMA* 1998;279:1548–53.
- Bernstein JH, Shuval JT. Nonconventional medicine in Israel: consultation patterns of the Israeli population and attitudes of primary care physicians. *Soc Sci Med* 1997;44:1341–8.
- Blais R, Maiga A, Abubackar A. How different are users and non-users of alternative medicine? *Can J Public Health* 1997;88:159–62.
- Eisenberg DM, Davis RB, Ettner SL, Appel S, Wilkey S, van Rompay M, et al. Trends in alternative medicine use in the US, 1990–1997: results of a follow-up national survey. *JAMA* 1998;280:1569–75.
- Fisher P, Ward A. Complementary medicine in Europe. *Br Med J* 1994;309:107–11.
- Kitai E, Vinker S, Sandiuk A, Hornik O, Zeltcer C, Gaver A. Use of complementary and alternative medicine among primary care patients. *Fam Pract* 1998;15:411–4.
- Kristoffersen SS, Atkin PA, Shenfield GM, Ernst E, Kaptchuk TJ. Uptake of alternative medicine. *Lancet* 1996;347:972–6.
- MacLennan AH, Wilson DH, Taylor AW. Prevalence and cost of alternative medicine in Australia. *Lancet* 1996;347:569–73.
- Ong CK, Peterson S, Bodeker GC, Stewart-Brown S. Health status of people using complementary and alternative medical practitioner services in 4 English counties. *Am J Public Health* 2002;92:1653–6.
- McFarland B, Bigelow D, Zani B, Newsom J, Kaplan M. Complementary and alternative medicine use in Canada and the US. *Am J Public Health* 2002;92:1616–8.
- Shmueli A, Shuval J. Use of complementary and alternative medicine in Israel: 2000 vs. 1993. *Isr Med Assoc J* 2004;6:3–8.
- Shmueli A, Shuval J. Satisfaction with family physicians and specialists and the use of CAM in Israel. *Evid Based Complement Alternat Med* 2006;3:273–8.
- Ware JE, Sherbourne A. The MOS SF-36 health survey. *Med Care* 1992;30:473–83.
- Lewin-Epstein N, Sagiv-Shifter T, Shabtai E, Shmueli A. Validation of the SF-36 (Hebrew version) in the adult population of Israel. *Med Care* 1998;36:1361–70.
- Hankey A. CAM and the phenomenology of pain. *Evid Based Complement Alternat Med* 2006;3:139–41.
- Goldstein MS, Brown ER, Ballard-Barbash R, Morgenstern H, Bastani R, Lee J, et al. The use of CAM among California adults with and without cancer. *Evid Based Complement Alternat Med* 2005;2:557–65.
- Manning WG, Newhouse JP, Ware JE. The status of health in demand estimation: or, beyond excellent, good, fair and poor. In: Fuchs VR (ed). *Economic Aspects of Health*, Chicago: The University of Chicago Press, 1982.



Hindawi
Submit your manuscripts at
<http://www.hindawi.com>

