

The Escalating Cost and Prevalence of Alternative Medicine

Alastair H. MacLennan, M.D.,*¹ David H. Wilson, Ph.D.,† and Anne W. Taylor, M.P.H.†

*Department of Obstetrics and Gynaecology, Adelaide University, North Adelaide, South Australia 5000, Australia; and The Centre for Population Studies in Epidemiology, South Australian Department of Human Services, Adelaide, South Australia, Australia

Background. The purpose of this study was to measure trends in the prevalence and cost of alternative medicines and alternative practitioner use in an Australian population and to obtain a profile of users and their beliefs.

Methods. In 2000, we repeated a 1993 representative population survey of persons ages 15 years or older living in South Australia, which provided 3,027 personal interviews. We assessed the rates of use, types of alternative medicine and therapists, costs, and beliefs of users and nonusers. Comparisons in usage patterns with the 1993 survey were also made.

Findings. In 2000, the overall use of at least one nonmedically prescribed alternative medicine (excluding calcium, iron, and prescribed vitamins) was 52.1% (CI +/- 1.8). Users were more likely to be female, be better educated, have a higher income, and be employed. Since 1993, females were using significantly more herbal medicines, ginseng, Chinese medicines, and aromatherapy oils. Many were self-prescribed. Among users, 57.2% (CI +/- 1.2) did not tell their doctor. In 2000, 23.3% of respondents had visited at least one alternative practitioner with increasing use of acupuncturists, reflexologists, aromatherapists, and herbal therapists. Most thought alternative medicines were safe but thought they were, or should be, subject to the same standards as prescribed medicines. Among respondents, 92.9% wished product information to be of standard and content similar to those supplied with pharmaceuticals.

Interpretation. Extrapolation of the costs to the Australian population gives an expenditure on alternative therapies in 2000 of \$AUD2.3 billion and for the U.S. population an annual expenditure of \$US34 billion. In Australia this represents a 120 and 62% increase in the cost of alternative medicines and therapists, respectively, since 1993. In 2000 expenditure on alternative therapies was nearly four times the public contribu-

tion to all pharmaceuticals. The public appears to have ambivalent standards for alternative therapies but wishes to be empowered with accurate information to facilitate self-prescription. The public health ramifications of an expanding alternative medicine industry are great. © 2002 American Health Foundation and Elsevier Science (USA)

Key Words: alternative medicine; alternative therapy; population survey; prevalence; cost.

INTRODUCTION

The public is becoming increasingly aware of alternative medical therapies through all forms of media and large proportions of the public self-prescribe alternative medicines and visit alternative practitioners in Europe, the United States, and Australia [1–3]. Courses in alternative medicine, also known as complementary medicine, are now offered at many universities and medical schools [4]. Private medical insurance agencies increasingly include alternative medicine options among their coverage [5]. In the United States, national telephone surveys estimated that the cost for alternative medicine services increased 45.2% between 1990 and 1997 and in that year was conservatively estimated at \$US27.0 billion, which was comparable to the estimated out-of-pocket expenditures by the public for all U.S. physician services [6]. Similar population-adjusted costs for alternative medicine per head of population were reported in a representative Australian survey of over 3,000 people interviewed in 1993. In a further comparison that year Australians spent nearly twice as much on alternative medicines as patient contributions to all classes of pharmaceutical drugs [3].

In many countries alternative medicines and therapies are minimally regulated with almost no requirements to prove efficacy or long-term safety. In Australia, listed medicines are regulated more leniently than registered pharmaceuticals and a new Office of Complementary Medicines has been established within the Australian Therapeutic Goods Administration to over-

¹ To whom correspondence and reprint requests should be addressed at Adelaide University Department of Obstetrics and Gynaecology, Women's and Children's Hospital, 72 King William Road, North Adelaide, South Australia 5006, Australia. Fax: 618 8161 7652. E-mail: alastair.maclennan@adelaide.edu.au.

see complementary health care products [7]. Around the world the impression is that the alternative medicine industry is booming [2] and many companies selling alternative medicines appear to have escalating share prices on the world stock markets. In contrast, alternative practitioners often operate small practices or businesses and their influence on health and the cost of health is hard to gauge.

In 2000 we repeated the 1993 alternative therapies survey to assess any changes in usage patterns and expenditure. This 2000 survey provides prevalence changes since 1993, a current profile of users of alternative medicines, and a description of their beliefs and expectations of the therapies used.

METHODS

The data were collected in the 2000 South Australian Health Omnibus Survey (SAHOS), which is an annual representative population survey that occurs each October. The sample is drawn from metropolitan Adelaide and country towns of South Australia with a population equal to or greater than 1,000 people [8]. The South Australian population is approximately 1.5 million.

The methodology in each of the surveys is consistent, as were the questions in the modules, allowing comparison of data between the present and the 1993 surveys. SAHOS uses a clustered, self-weighting, multi-stage, systematic area sample of people ages 15 years or older. The person in each household whose birthday occurred next was selected to be interviewed. In 2000, 3,027 persons were interviewed (response rate = 70.4%) and in 1993, 3,004 interviews were conducted (response rate = 73.6%). The interviews were conducted in the respondent's home. Hotels, hospitals, and other institutions were not included in the sample. The data collected were weighted by sex, 5-year age group, and geographical area to the 1999 Australian Bureau of Statistics (ABS) estimated residential population [9]. The methodology of SAHOS is more fully explained in other papers [10,11].

Questions relating to alternative medicines and practitioners were asked in the 2000 SAHOS as were a number of demographic, disease, and risk factor questions. In both the 1993 and 2000 SAHOS, respondents were shown prompt cards and asked if they had used any of the alternative medicines or visited any of the alternative practitioners in the past year. Prescribed vitamins and iron and calcium mineral supplements were excluded from the data in both surveys. The monthly/yearly combined cost of the products/services used was also asked. In the 2000 survey additional questions were asked. Respondents who used alternative medicines were asked how long they had used the medicines on a regular basis, whether the products "makes a person better" or "prevents a person from

getting sick," and on whose advice they took the alternative medicines (e.g., media, doctor, chemist, alternative therapists). Respondents were also asked if their doctor knew about them taking the products and whether they used conventional medicines along with alternative medicines to treat the same condition.

In 2000, all respondents were asked if they thought natural over-the-counter medicines and alternative therapies were safe to use, whether "alternative medicines should be shown to work and be safe to the same level as prescribed medicines (drugs)," whether the packaging of alternative medicines "should contain product and user information of similar standard and content to the information given with prescription drugs," and whether alternative medicines "are safe to be given to pregnant women."

The demographic questions asked were age, sex, marital status, country of birth, area of residence, education, work status, and income group. Respondents were asked if a doctor had ever told them they had diabetes, or if they had current, medically confirmed asthma. Blood pressure and cholesterol questions asked whether a doctor had ever told the respondent their blood pressure or cholesterol was high.

Analyses were performed using Epi Info Version 5.01 and SPSS for Windows Version 10.0. χ^2 analyses were used to determine the relationships between the dependent and independent variables. The conventional *P* value of 0.05 was used for all tests of significance. To determine the inclusion of variables in logistic regression modeling a *P* value of 0.25 was chosen as the critical value for statistical significance at the univariate level [12]. Two multivariate analyses were fitted, one with alternative practitioners use as the dependent variable and one with alternative medicine use as the dependent variable. All independent variables that were statistically significant at the 0.25 level in each of the univariate analyses were entered into a logistic regression analysis to determine, first, the best joint predictors of alternative medicines users and, second, the best joint predictors of people who use alternative practitioners. Once a satisfactory model was obtained, tests for interaction were performed on likely combinations of variables. Interaction terms were entered into the final models to determine if a statistically significant improvement in the model was obtained. The presence of confounders was also assessed during the modeling process.

RESULTS

Among the 3,027 respondents in the year 2000 representative population survey, the overall use of at least one non-physician-prescribed alternative medicine was 52.1% (CI +/- 1.8). Two or more alternative medicines were used by 26.7% of respondents. Females (60.0%) used significantly more vitamins, aroma-

TABLE 1

Use of Alternative Medicines in 2000, by Gender

	Males		Females		<i>P</i>
	%	<i>n</i>	%	<i>n</i>	
Vitamins (not prescribed)	31.5	468	41.2	635	<0.01
Aromatherapy oils	8.2	121	22.2	342	<0.01
Herbal medicines	10.3	153	16.6	251	<0.01
Mineral supplements ^a	9.6	143	11.5	178	0.09
Evening primrose oil	2.2	33	13.5	209	<0.01
Ginseng	5.1	76	4.8	74	0.68
Homeopathic medicines	3.2	48	5.2	81	<0.01
Chinese medicines	2.6	38	3.7	57	0.07
Other	4.2	62	8.5	131	<0.01
None	56.1	832	40.0	618	<0.01
At least one	43.9	652	60.0	926	<0.01

^a Excludes iron and calcium supplements.

therapy oils, herbal medicines, evening primrose oil, homeopathic medicines, and menopausal products than men. (See Table 1).

Compared to our 1993 survey, in 2000 there had been a significant increase in the use of alternative medicines by women [54.8% in 1993 versus 60.0% in 2000 ($\chi^2 = 8.3$, $P < 0.01$)] particularly in the use of herbal medicines, aromatherapy oils, ginseng, and Chinese medicines. (See Table 2).

Our univariate analyses explored the association between the use of alternative medicine and descriptive variables. As in the 1993 survey, alternative medicines were most used by respondents between the ages of 15 and 34 years. However, in this age group, unprescribed vitamin use was highest. In older age groups, products such as evening primrose, menopausal products, and homeopathic medicines became more common. Alternative medicine users were also more likely to be female, Australian born, of higher socioeconomic status, better educated, single, and employed, as well as to

TABLE 2

Use of Alternative Medicines—1993 and 2000

	1993		2000		<i>P</i>
	%	<i>n</i>	%	<i>n</i>	
Vitamins (not prescribed)	37.6	1,128	36.4	1,103	0.37
Aromatherapy oils	3.5	106	15.3	463	<0.01
Herbal medicines	9.9	296	13.4	405	<0.01
Mineral supplements ^a	9.2	278	10.6	321	0.08
Evening primrose oil	7.8	234	8.0	242	0.77
Ginseng	3.0	90	5.0	150	<0.01
Homeopathic medicines	4.4	132	4.3	129	0.80
Chinese medicines	1.8	55	3.2	95	<0.01
Menopause products	1.4	43	1.6	47	0.70
Other	3.6	108	4.9	150	<0.01
None	51.5	1,546	47.9	1,450	<0.01
At least one	48.5	1,458	52.1	1,577	<0.01

^a Excludes iron and calcium supplements.

TABLE 3

Multivariate Associations between the Use of Alternative Medicines and Variables of Interest

	<i>n</i>	Odds ratio (95% CI)	<i>P</i>
Age (years)			
55+	340/890	1.0	
35–54	608/1,091	1.4 (1.2–1.8)	<0.001
15–34	629/1,046	2.0 (1.6–2.4)	<0.001
Sex			
Male	652/1,484	1.0	
Female	926/1,544	2.4 (2.1–2.8)	<0.001
Postsecondary school education			
No	767/1,634	1.0	
Yes	810/1,393	1.6 (1.3–1.8)	<0.001
Household income (SAUD)			
<\$20,000	261/698	1.0	
\$20,001–40,000	311/614	1.4 (1.1–1.8)	<0.001
\$40,001–60,000	348/575	1.8 (1.4–2.3)	<0.001
>\$60,001	415/667	1.8 (1.4–2.4)	<0.001
Not stated	242/472	1.4 (1.1–1.8)	<0.001
Work status			
Not employed	624/1,416	1.0	
Employed	953/1,609	1.3 (1.0–1.6)	0.018

have an increasingly higher household income than nonusers. In the 2000 survey, users were more likely to be nondiabetic and have normal cholesterol and blood pressure. Variables that were statistically significant at the univariate level for the use of alternative medicines were entered into a multivariate logistic regression model to explain the joint effects of associated variables (see Table 3). The set of variables that best fitted the data were younger age, female, better educated, higher household income, and employed (model $\chi^2 = 296.1$, $df = 9$, $P < 0.01$).

In the year 2000, 23.3% (CI +/- 1.2) of respondents (20.1% men, 26.4% women) had visited at least one alternative practitioner in the past year. A significant increase in the use of alternative practitioners was seen only in women [20.9% in 1993 versus 26.4% in 2000 ($\chi^2 = 12.9$, $P < 0.01$)]. Women were more likely to visit naturopaths, homeopaths, iridologists, aromatherapists, and herbal therapists than men (Table 4). Since 1993, there had been a significant increase overall in the use of acupuncturists, reflexologists, aromatherapists, and herbal therapists with women significantly more likely to now use naturopaths, aromatherapists, and herbal therapists. In no category of named therapies did use decrease (Table 5). Univariate analyses in 2000 showed that alternative practitioners were used significantly more by middle-aged (35–54 years), nonimmigrant, higher educated, higher income, employed, married women. These variables were entered into a multivariate logistic regression model to explain the joint effects of associated variables (Table 6). The set of variables that best fitted

TABLE 4

Use of Alternative Therapists in 2000, by Gender

	Males		Females		<i>P</i>
	%	<i>n</i>	%	<i>n</i>	
Chiropractors	16.0	238	17.4	268	0.34
Naturopath/natural therapists	3.3	49	8.7	134	<0.01
Acupuncturist	2.5	37	3.1	48	0.30
Homeopath	0.6	9	1.7	27	<0.01
Iridologist	0.5	8	1.7	27	<0.01
Reflexologist	0.9	13	1.6	24	0.09
Aromatherapist	0.4	6	2.2	34	<0.01
Herbal therapist	0.5	7	1.4	21	0.01
Osteopath	0.3	5	0.5	8	0.45
Other	0.5	8	1.8	28	<0.01
None	79.9	1,186	73.6	1,136	<0.01
At least one	20.1	298	26.4	407	<0.01

users of alternative practitioners were Australian born, higher educated, employed, married women.

Respondents estimated the monthly cost of their alternative medicines and the yearly cost of their alternative practitioners (Table 7). The median monthly cost of alternative medicines was \$AU19. The median annual cost of alternative medicines rose from \$AU120 in 1993 to \$AU228 in 2000. Similarly, the median annual cost of alternative practitioners rose from \$AU120 to \$AU175 in 2000.

The age-sex standardized expenditure for the Australian population in 1993 was \$AU621 million per year for alternative medicines and \$AU309 million for alternative practitioners. By the year 2000, this national expenditure was \$AU1671 million for alternative medicines and \$AU616 million for alternative practitioners. After accounting for inflation since 1993 [13] this represents a 120% increase in expenditure on alternative medicines and a 62% increase in expenditure on alternative practitioners, over 7 years during which period inflation increased by an average of 3.2%

TABLE 5

Use of Alternative Therapists—1993 and 2000

	1993		2000		<i>P</i>
	%	<i>n</i>	%	<i>n</i>	
Chiropractors	15.0	450	16.7	506	0.06
Naturopath/natural therapists	5.0	150	6.0	183	0.07
Acupuncturist	2.0	60	2.8	85	0.04
Homeopath	1.2	36	1.2	37	0.93
Iridologist	0.8	24	1.2	35	0.16
Reflexologist	0.7	20	1.2	37	0.03
Aromatherapist	0.6	18	1.3	40	<0.01
Herbal therapist	0.4	12	0.9	28	0.01
Osteopath	0.2	7	0.4	13	0.18
Other	1.8	53	1.2	36	0.06
None	79.7	2,395	76.7	2,322	<0.01
At least one	20.3	609	23.3	705	<0.01

TABLE 6

Multivariate Associations between the Use of Alternative Therapists and Variables of Interest

	<i>n</i>	Odds ratio (95% CI)	<i>P</i>
Sex			
Male	298/1,484	1.0	
Female	407/1,543	1.6 (1.3–1.9)	<0.001
Country of birth			
Overseas	140/705	1.0	
Australia	564/2,322	1.3 (1.1–1.7)	0.007
Postsecondary school education			
No	340/1,634	1.0	
Yes	365/1,394	1.3 (1.1–1.5)	0.009
Marital status			
Married/de facto/separated/divorced/widowed	567/2,291	1.0	
Never married	138/735	0.7 (0.6–0.9)	0.004
Work status			
Not employed	264/1,416	1.0	
Employed	440/1,609	1.6 (1.4–2.0)	<0.001

per annum [13] (Fig. 1). Further analyses showed a higher monthly expenditure on alternative medicines in rural Australia (\$AU21.73) compared to the metropolitan areas (\$AU20.50). Widowed respondents (\$AU14.30) and school users (\$AU12.52) were low spenders on alternative medicines and also spent less on alternative practitioners.

In response to the question “How long have you been using (or did you use) the alternative medicines on a regular basis?” based on a sample size of 1,569 users the median length of use was 3.00 years with a mean of 6.57 years. Duration of use increased with the age category of the respondents.

The perception of the purpose of alternative medicines was sought from those who used these medicines. The overall responses are shown in Fig. 2 with the majority reporting that the main use of alternative medicines was to prevent sickness.

The source of influence (multiple response allowed) for those using alternative medicines and therapies had come from family and friends or were self-prescribed (Fig. 3).

TABLE 7

Mean, Median, and Description of Yearly Cost (AUD\$) of Alternative Medicines

	Alternative medicines	Alternative therapists
Mean (SE)	315 (17)	252 (14)
95% CI	280–350	225–280
5% Trimmed mean	266	213
Median	228	175
Range	12–3,000	5–2,500
Skewness (SE)	2.89 (0.12)	3.802 (0.12)
Kurtosis (SE)	11.46 (0.23)	21.03 (0.23)

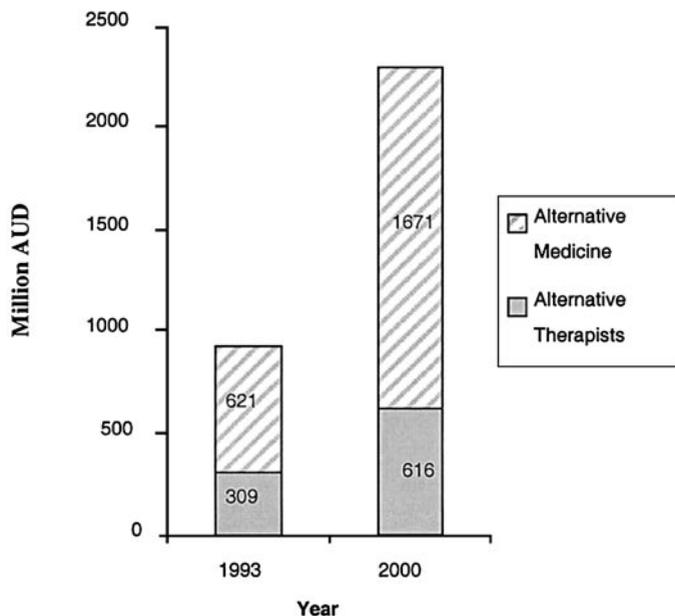


FIG. 1. Cost (AUDs) of alternative medicines and therapies in Australia 1993–2000.

Among the 1,240 respondents who used alternative medicines in the preceding year, but not on their doctor's advice, 57.2% indicated that they were taking these medications without their general practitioner's knowledge. This group constitutes 45.0% of all users of alternative medicines and 23.4% of all respondents in this population survey. Among those using alternative medicines, 30.4% used them along with conventional prescribed medicines to treat the same condition.

Figure 4 shows responses to the question "do you think that natural over-the-counter medicines and alternative therapies are safe to use?" The proportion responding positively to the question that alternative medicines are safe increased with age but decreased with increasing income. There were significant differences between users and nonusers in their perception of safety of alternative medicines with 90.1% of users and 64.9% of nonusers more likely to think the products are safe ($\chi^2 = 281.03$, $P < 0.01$).

However, when the respondents were asked "do you think that alternative medicines are or should be shown to work and be safe to the same level as prescribed medicines?", the most common response (58.6%) was that all should do so. A further 20.5% replied "some," 13.3% replied "no," and 7.6% did not know. The responses were similar for both sexes but the middle-aged and metropolitan respondents expected higher standards. Again there were significantly different responses for users and nonusers with users more likely to expect all or at least some of the medicines to be as safe as prescribed medicines ($\chi^2 = 9.74$, $P < 0.01$).

The vast majority of respondents (92.9%) agreed that

the packaging of alternative medicines should contain product and user information "of a similar standard and content to the information given with prescription drugs." Only 2.9% said "No" and 4.1% did not know. Users of alternative medicines were significantly more likely than nonusers to say they thought the packaging should contain comparable information ($\chi^2 = 19.5$, $P < 0.01$).

The final question asked all respondents to consider the safety of alternative medicines for women who are pregnant. Figure 5 highlights the responses with 36.2% thinking they were not safe. The negative (unsafe) response was lowest in those under 25 years of age (29.3%) and rose to 46.8% among those over 65 years of age. Users were significantly more likely to respond "yes" or "depends" than did nonusers ($\chi^2 = 132.9$, $P < 0.01$).

DISCUSSION

The year 2000 population survey shows a continuing high use of both alternative medicines and practitioners in Australia. Since 1993 there has been a significant increase in the use of both medicines and practitioners by women. However, the overall cost of alternative medicine in Australia has more than doubled to SAUD2.3 billion dollars in 7 years, even allowing for inflation. This compares with \$ AUD3.45 billion of government expenditure for the year ending December 31, 2001, for the Australian Pharmaceutical Benefits Scheme. Of this, SAUD688 million was paid in patient contributions for pharmaceuticals [14]. Although the patient contribution to the cost of prescribed pharmaceuticals has almost doubled since 1992–1993 when previous estimates were obtained, in 2000 the public paid nearly four times as much for alternative therapies as its contribution to all pharmaceuticals. This reflects an increase in the cost of the alternative products and services as well as an increase in the numbers using alternative medicine and a modest increase in the Australian population. The data reflect in particular a greater use by women of vitamins, herbal medicines, evening primrose oil, homeopathic medicines, and aromatherapy oils together with increased visits to herbal therapists, naturopaths,

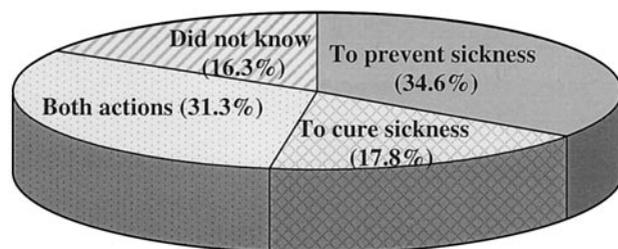


FIG. 2. Reasons for alternative medicine use.

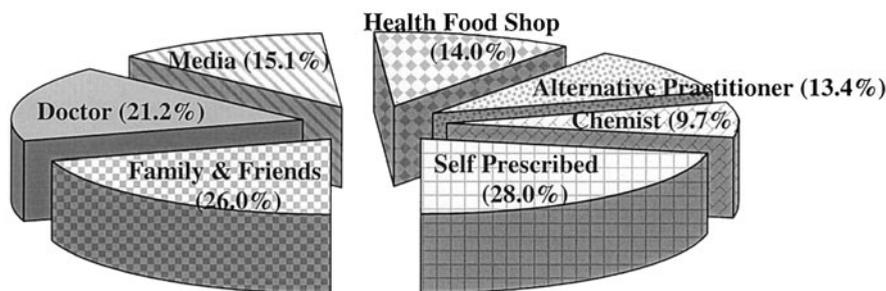


FIG. 3. Main source of advice about alternative medicines.

aromatherapists, and acupuncturists. An unvalidated impression of the media in recent years is that the alternative medicine industry and the promotional literature had successfully targeted women in these areas. Given, however, the escalating prevalence of use and expenditure, future studies should more carefully explore the reasons for uptake and continued use. Such studies should also investigate perceptions and evidence of efficacy in more detail.

Most alternative medicines on sale are relatively expensive compared to subsidized pharmaceuticals and thus it may not be surprising that those who have higher incomes have greater opportunity to buy and self-prescribe these medicines. However, it is interesting that users tend to be better educated than nonusers despite the general lack of established efficacy and long-term safety associated with most of these products [15]. Implied efficacy and safety in the advertising of alternative therapies may be an effective persuader even to the higher educated.

The cost of alternative medicine in Australia has been similarly reflected in figures and estimates from other countries. In 1993, the per head of population cost for alternative medicine in Australia equated closely to the U.S. estimate of Eisenberg *et al* [2], who conducted a U.S. national telephone survey in 1990. Using similar methodology, Eisenberg *et al.* [6] reported that a follow-up survey in 1997 conservatively estimated all out-of-pocket expenditures on alternative therapies at \$US27.1 billion. The 7-year trend in the United States from 1990 to 1997 was very similar to the 7-year trend in Australia from 1993 to 2000. Our fig-

ures would conservatively extrapolate the U.S. costs on alternative medicine in year 2000 to \$US34 billion (Fig. 1) if the trends continue to be parallel.

Alternative medicine use, particularly herbal products and phytoestrogens, was particularly common among women of a perimenopausal age. Similar high use (68.5%) has been noted among women attending a London menopause clinic [16]. Many young and presumably healthy people use vitamins. Most users of alternative medicines appear to believe that these prevent sickness but some use alternative medicines to try to cure their medical problems. They are influenced to buy these products by a variety of agencies, many with a vested interest in the sale of the product, but many users also self-prescribe.

It is of concern that, given the potential for interactions, more than half of those who used alternative medicines did not tell their doctor and many assumed that alternative medicines were harmless. These data are similar to the U.S. data of Eisenberg *et al.* [6]. The lay beliefs are in contrast to increasing medical reports of drug interactions with alternative medicines [17], side effects from herbal medicines [18], and other problems such as contamination, adulteration, substitution, variable dosage, dubious quality control, and inappropriate labeling of alternative medicines [19,20].

Moves to impose better regulation of complementary and alternative medicines have recently been made in Australia but the regulations still fall short of seeking high-level evidence of efficacy or long-term safety of the products being marketed [7]. Claims for the efficacy and safety of alternative medicines by those appar-

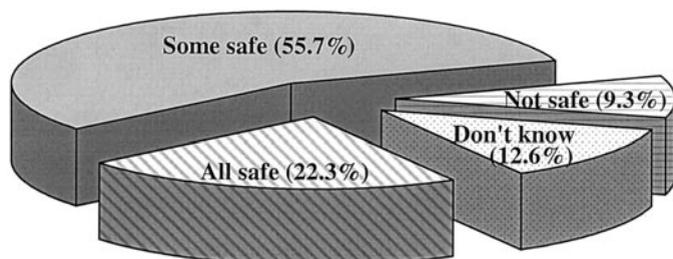


FIG. 4. Perception of safety of "natural alternative medicines available over-the-counter."

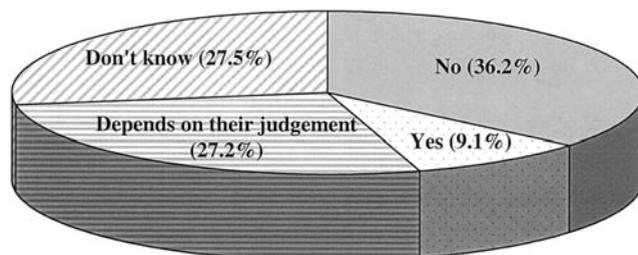


FIG. 5. Responses to "Are alternative medicines safe in pregnancy?"

ently unassociated with the product can be made without apparent responsibility for any untoward consequences of so-called natural or "harmless" therapies. There are wider harms to harmless therapies such as waste of health resources, poorly identified side effects or drug interactions, delay in effective treatment with increasing morbidity and disillusionment, and disappointment and depression after a lack of effect is apparent and raised hopes are dashed [21]. Claims or testimonies for the efficacy of alternative medicines often seem to be made by third parties who are apparently unassociated with the manufacturer, thus avoiding false advertising laws. Alternatively claims for efficacy and safety may cite short-term uncontrolled and unblinded studies. This does not equate with the efficacy usually established for prescription medicines through double-blind randomized placebo-controlled trials. The public sometimes appears unaware of these vastly different levels of evidence, and public education in this area would help empower those who wish to self-prescribe. Perhaps medicines should not be classified as alternative and conventional but as unproven and proven. Such evidence can now be accessed by the public for a gradually increasing number of therapies throughout the newly created consumer branch of the Cochrane Collaboration [22].

This survey clearly shows that the majority of the population (78%) believes that some or all of alternative medicines are safe. Perhaps the 12.6% who answered that they did not know gave the best overall answer based on the current scientific data! Moves to independently and scientifically assess the data on safety and efficacy of alternative and complementary medicines have begun through the formation of a Complementary Medicine Field as part of the Cochrane Library [23]. Several systematic reviews of specific therapies are now complete. The majority of the public in our survey believed that alternative medicines should be shown to be effective and safe to the same level as prescribed medicines. They also wanted to be able to assess for themselves information about each product as 93% wanted product information in the alternative medicine to the same standard as that mandated for prescription drugs. Clearly there is a desire among the public to make their own decisions about their health and the therapies they use and, appropriately, they want improved information to help them make this decision. Alternative medicines should include written validated data in language suitable for consumers that includes the product's constituents, dosages, level of evidence for efficacy for specific uses, extent of safety testing, drug interactions, known side effects, precautions, contraindications, etc. Where such data are not available this should be clearly stated. These published details should be certified as appropriate and accurate by a credible agency such as the

Therapeutic Goods Administration (TGA). Although TGA "listing" rather than "registration" of a product requires lower levels of evidence of efficacy and safety, there should be a clear statement in the product information of the level of evidence provided. In particular, safety in pregnancy should be a major issue as there are evidential concerns of fetal harm from some products [24, 25]. Similarly, there are a large number of alternative medicines on the market aimed at babies and children. Another recent South Australian survey showed that 87% of children admitted to Adelaide's Women's and Children's Hospital had received at least one complementary therapy in the past 12 months [26]. Seventeen percent of the children had been exposed to six or more different alternative therapies. The lack of known safety of most of those products, the untoward side effects and drug interactions now documented for many alternative medicines with active ingredients, the problem of dosage in infants, and the extra vulnerability of developing tissues in children support the need for regulation. As there is now increasing concern in society for the rights of the individual and especially children, some might reasonably debate that this is a form of child abuse albeit with loving intent. Children brought up in families administering alternative medicines may without question continue the tradition with their own children.

The increasing use of alternative practitioners is another complex issue. The medical profession should reflect why the public seeks unorthodox opinions. It is possible that alternative practitioners offer longer appointments than an average consultation with a general practitioner, they may offer continuity of personal care, they may show greater empathy or counseling skills, and/or they may offer more promises of cure for chronic or medically incurable conditions and simple answers for complicated medical disorders. They may also put greater emphasis on health rather than disease. There may also be occasions when information from alternative therapists may undermine the public's confidence in conventional medicine and competition for the management of the patient occurs. Finally the public may not be adequately informed about evidence-based medicine and lack the ability to discriminate between anecdote, vested interest, and therapies that have and have not been tested in adequate randomized placebo-controlled trials.

In conclusion, our survey confirms trends seen in other Western countries that there is a dramatic and costly increase in the use of alternative medicines and practitioners. There is a need for the alternative medicine industry and its health professionals to improve its self-regulation and standards. Governments may be reluctant to legislate for tighter control of alternative medicine given the popularity of its use. However, they should also understand that while the public wants the

freedom to self-prescribe and make its own decisions about its health management, they would like evidence-based information to make informed decisions. The public wants accurate information about medicines and therapies for sale and it will need legislation to insist that alternative therapies are fairly advertised and that adequate safety and efficacy information is clearly presented with the product.

REFERENCES

1. Goldbeck-Wood S, Dorozynski A, Lie Lg, *et al*. Complementary medicine is booming worldwide BMJ 1996;313:131-3.
2. Eisenberg DM, Kessler RC, Foster C, Horlock FE, Calkins DR, Delbanco TL. Unconventional medicine in the United States. prevalence, costs and patterns of use. N Engl J Med 1993;328(4): 246-52.
3. MacLennan AH, Wilson DH, Taylor AW. Prevalence and cost of alternative medicine in Australia. Lancet 1996;347:569-73.
4. Wetzel MS, Eisenberg DM, Kaptchuk TJ. Courses involving complementary and alternative medicine at US medical schools. JAMA 1998;280:784-7.
5. Pelletier KR, Marie A, Krasner M, *et al*. Current trends in the integration and reimbursement of complementary and alternative medicine by managed care, insurance carriers and hospital providers. Am J Health Promot 1997;12:112-22.
6. Eisenberg DM, Davis RB, Ettner SL, Appel S, Wilkey S, Van Rompay M, *et al*. Trends in alternative medicine use in the United States, 1990-1997. JAMA 1998;280:1569-75.
7. Cumming F, Hall J. Regulation of complementary and alternative medicines. Australasian J Integr Med 2001;1:67-9.
8. Wilson D, Wakefield MA, Taylor A. The South Australian Health Omnibus Survey. Health Promotion J Aust 1992;2:47-9.
9. Australian Bureau of Statistics, Estimated resident population by sex and age: states and territories of Australia.2000:Catalogue No 3201.1.
10. Wilson DH, Walsh PG, Sanchez L, *et al*. The epidemiology of hearing impairment in an adult Australian population. Int J Epidemiol 1999;28:247-52.
11. Taylor AW, Wilson DH, Wakefield M. Differences in health estimates using telephone and door-to-door survey methods: a hypothetical exercise. Aust N Z J Public Health 1998;22:223-6.
12. Hosmer DW, Lemeshaw S. Applied logistic regression. Chichester: Wiley, 1989.
13. Australian Bureau of Statistics Consumer Price Index. AusStats: 6401.0. Available at <http://www.abs.gov.au/ausstats/ABS>.
14. Summary of PBS Processing 2000. Available at www.health.gov.au/haf/docs/pbbexp/pbdec/bookp00.htm Accessed September 3, 2001.
15. Davis SR. Phytoestrogen therapy for menopausal symptoms? BMJ 2001;323:354-5.
16. Vashisht A, Domoney CL, Cronje W, Studd JWW. Prevalence of and satisfaction with complementary therapies and hormone replacement therapy. Climacteric 2001;4:20-7.
17. D'arcy PF. Adverse reactions and interactions with herbal medicines. Part 2: drug interactions. Adverse Drug React Toxicol Rev 1993;12:147-62.
18. Ernst E. Harmless herbs? Am J Med 1998;104:170-8.
19. Drew AK, Myers SP. Safety issues in herbal medicine: implications for the health professions. Med J Aust 1997;166:538-41.
20. Cui J, Garle M, Eneroth P, Bjorkhem I. What do commercial ginseng preparations contain? Lancet 1994;344:134.
21. MacLennan AH. The four harms of harmless therapies. Climacteric 1999;2:73-4.
22. Cochrane Library Consumer Network. <http://www.cochraneconsumer.com>
23. Berman B. Cochrane Complementary Medicine Field Update Software Ltd, The Cochrane Library, 2001 Issue 2.
24. Gibson PS, Powrie R, Star J. Herbal and alternative medicine use during pregnancy: a cross-sectional survey. Obstet Gynecol 2001;97:S44-5.
25. Pradeepkumar VK, Tan KW, Ivy NG. Is "herbal health tonic" safe in pregnancy: fetal alcohol syndrome revisited. Aust NZ J Obstet Gynaecol 1996;36:420-3.
26. Couper R. Complementary medicine in hospitalised South Australian children. Proceedings of the Royal Australian College of Physicians Annual Scientific Meeting, 2001, Abstract 28;50. [J Paed Child Health, in press]