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Complementary and alternative medicine use in multiracial Singapore

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KEYWORDS

Traditional medicine;
Chinese medicine;
Alternative therapies

Summary

Objective: To determine the prevalence of complementary and alternative medicine (CAM) use in Singapore, the factors influencing CAM use, and the attitudes, beliefs and perceptions of the general population towards CAM.

Design: An interviewer-administered questionnaire survey in a housing estate with demographic and socioeconomic characteristics closely matching that of Singapore.

Results: 76% (95% C.I. 73.9–77.9%) used CAM over a 12-month period. Females were 2.1 times (95% C.I. 1.3–3.4) more likely than males to use CAM. Chinese (84%) were the most frequent users, followed by Malays (69%) and Indians (69%), with adjusted odds ratios of 0.4 (95% C.I. 0.2–0.7) for Malays and 0.4 (95% C.I. 0.2–0.8) for Indians. Traditional Chinese Medicine (88%) was the most widely used form of CAM, followed by Traditional Malay (Jamu) Medicine (8%) and Traditional Indian (Ayurvedic) Medicine (3%). Similar to western studies, CAM was more likely to be used for maintenance of health than for treatment of illness. Different from western studies, CAM use was not independently associated with household income, marital status, age and education. Seventy-four percent did not discuss their use of CAM with their western-trained doctors.

Conclusions: The high prevalence of CAM use in multi-racial Singapore suggests the same may be true in other Asian countries. Western-trained doctors need to understand CAM better and communicate more with their patients regarding CAM use. The lack of a scientific evidence base for most forms of CAM notwithstanding, its ubiquitous use worldwide is something that governments and the medical profession cannot afford to ignore.

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Introduction

The use of complementary and alternative medicine (CAM) appears to be a worldwide

phenomenon, although no one knows its true prevalence.^{1–3} The World Health Organization (WHO) estimates that 80% of the world's populations depend on "indigenous therapies".^{4,5} Western studies have shown that 42% of Americans and between 20 and 65% of Europeans use some form of CAM.^{6–11}

Despite some 1500 CAM articles appearing in indexed journals annually,¹² our literature search us-

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ing Pubmed/Medline, Cochrane Library, and CIS-COM databases (from inception to December 2001) drew a near-blank regarding estimates of the prevalence of CAM use in Asian countries. Yet it is probably in Asia that CAM use is most widespread, since it is here that the two oldest systems of medicine, namely Chinese and Ayurvedic, originated and continue to have a strong hold.^{13,14}

Logistical difficulties may explain the dearth of information based on nationally representative, population-based surveys in teeming Asia. The few published Asian studies have tended to focus on the use of specific forms of CAM,^{15–18} in selected clinical populations.^{19,20} A number of recent surveys based on various patient populations in Korea show CAM usage rates to vary from 29 to 53% in that country.²¹ A relatively well-designed, nationwide, random-sampled and population-weighted telephone survey of 1000 respondents found a prevalence of 76% CAM use in Japan.²²

Seen in this light, Singapore—a tiny city-state of 660 km² situated in the southern-most tip of the Asian continent—offers a unique opportunity for the study of CAM use. Its culturally diverse, four million inhabitants (Chinese 77%, Malay 14%, Indian 8% and other minority groups 1%) originated mainly from China, India and the Malay Archipelago, each subpopulation bringing its own brand of traditional medicine. Although these eventually became “alternative” to conventional western medicine (CWM), they nevertheless retain their popularity to this day.

The Ministry of Health estimates that 12% daily outpatient attendances are with TCM practitioners.²³ This fact alone, coupled with concern for patient safety,^{24–26} caused the Singapore government to recently enact a system of registration and licensing for TCM practitioners.²⁷ In doing so, Singapore was merely following the trend in the region. The WHO has estimated that there are now 14 countries and special administrative regions (e.g., Hong Kong and Macau) in the Asia-Pacific region that have officially recognized traditional medicine practice, in contrast to the situation a few years ago, when only four countries (China, Japan, the Republic of Korea and Viet Nam) officially recognized its role in the formal health care system.²⁸

We report here, the results of a household questionnaire survey—a first in Singapore—aimed at determining the prevalence of CAM use, the factors influencing CAM use, and the attitudes, beliefs and perceptions of different segments of the population towards CAM.

Methods

Sample

We carried out an interviewer-administered questionnaire survey in Clementi Housing Estate, a high-rise housing estate with racial distribution characteristics matching closely that of Singapore. Eighty-six percent of Singaporeans live in such high-rise apartments built by the government which, as a matter of public policy, uses a system of quotas to ensure that ethnic minorities are evenly spread out among the housing estates.

All Singapore citizens and permanent residents living in each household, aged 18 and above and were able to communicate were eligible for the study.

Participants were selected by a two-stage random sampling process. In the first sampling stage, 36 out of a total of 187 numbered blocks of flats in Clementi estate were randomly selected (by random number generation). In the second sampling stage, 452 households were randomly selected from among the 36 blocks of flats. Of these, 59 households fell into our exclusion criteria (i.e., vacant possession, or occupied by non-citizens or non-permanent residents). Hence, only 393 households were considered eligible. Four hundred and sixty-eight individuals from 255 households completed the questionnaire, giving an overall response rate of 72.2% (Fig 1). Non-responders comprised eligible households or individuals who declined participation or who could not be contacted after three separate house visits on three separate days.

Questionnaire

A questionnaire appropriate to local context was designed, with sections that capture information on the period prevalence of CAM use within the past 12 months; the forms of CAM used (from a list of the more common forms, including an “others, please specify”) and reasons for their use (e.g., treatment of illness, maintenance of health, or both?). We also asked whether they consulted a CAM practitioner or self medicated, and whether they discussed their CAM use with their CWM practitioner.

A separate section using a 5-point Likert-type response scale (1 = strongly disagree, 5 = strongly agree) was used to measure attitudes, beliefs and perceptions (degree of agreement with single item, globally addressed statements). The total responder population, i.e., both CAM users and non-users

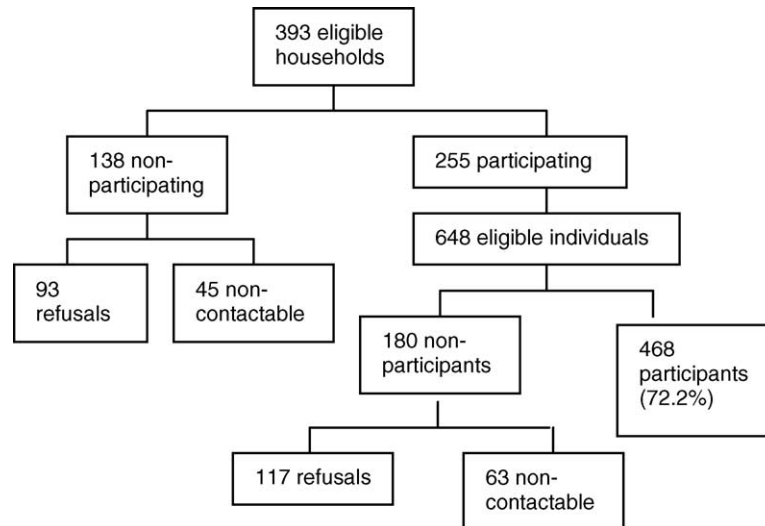


Figure 1 Household and individual response rate.

as well as those who did not fall ill or did not seek any form of treatment over the past 12 months, was polled for their views. Demographic information essential for further data stratification during analysis was obtained.

A pilot survey involving 64 randomly selected households enabled pre-testing of the questionnaire and gauging of the likely response rate. The main survey was carried out during the second week of January 2002 by 40 medical students working in pairs. They informed participants that they were medical students from the National University of Singapore conducting a survey on health seeking behavior, without specific mention of alternative medicine or unconventional therapies.

Definition of CAM

In our study, we used Eisenberg's (1993) definition of CAM as "medical interventions and therapies not taught widely in medical schools or generally available in hospitals".¹This definition has the advantage of being simple and easily understood by ordinary folk. We provided interviewers with a list of examples of alternative medicines in use in Singapore (e.g., traditional Chinese medicine, acupuncture, moxibustion, etc.) in case the respondents are unclear about the definition. Teas, daily beverages, and vitamins, for example, were excluded from the list. In formulating the questions, we also drew a distinction between consulting a CAM practitioner and self-medication with over the counter products.

Analysis

Data analysis was carried out using SPSS for Windows version 10.0. The significant and independent predictors of CAM use were identified by multivariate analyses using stepwise logistic regression modeling.

Results

Demographic and socioeconomic characteristics

Four hundred and sixty-eight individuals completed the questionnaire, giving a response rate of 72.2%. The survey respondents were found to closely match the Singapore population in age, sex, gender, ethnicity and marital status (Table 1), suggesting the sample population was reasonably representative of the Singapore population.

Prevalence of CAM use

The period prevalence of CAM use in the 12-month period was 76% (95% C.I. 73.9–77.9%). Had we factored in an additional 27 individuals who did not have any reason to seek medical treatment or self-medicate in the past 12 months, the proportion of CAM users *among those who had reason to seek medical care in the past 12 months* would have been even higher, at 81% (95% C.I. 76.8–84.2%).

Table 1 Comparing the characteristics of the survey respondents and the Singapore population.

| Characteristics | Singapore population (%) ^a | Survey population (%) |
|---------------------------------|---------------------------------------|-----------------------|
| Gender | | |
| Male | 49.9 | 45.9 |
| Female | 50.1 | 54.1 |
| Age | | |
| Young (18–40) | 46.6 | 43.8 |
| Middle aged (41–60) | 38.6 | 41.6 |
| Old (above 61) | 14.8 | 14.6 |
| Marital status | | |
| Single | 32.9 | 25.4 |
| Married | 60.0 | 65.6 |
| Widowed | 4.1 | 6.0 |
| Divorced | 2.4 | 3.0 |
| Ethnic group | | |
| Chinese | 76.8 | 73.9 |
| Malay | 13.9 | 14.3 |
| Indian | 7.9 | 9.6 |
| Others | 1.4 | 2.1 |
| Religion | | |
| Buddhism | 42.5 | 30.6 |
| Christianity | 14.6 | 16.7 |
| Hinduism | 4.0 | 6.8 |
| Islam | 14.9 | 15.6 |
| Taoism | 8.5 | 10.9 |
| Free thinker | 14.8 | 19.0 |
| Others | 0.6 | 0.4 |
| Highest education level | | |
| Nil | | |
| Primary | 19.6 | 12.2 |
| Secondary | 23.1 | 26.5 |
| GCE 'O' level | 24.6 | 30.3 |
| GCE 'A' level | 14.9 | 5.1 |
| Tertiary | 17.9 | 25.9 |
| Monthly household income | | |
| Low income (<\$4000) | 54.4 | 69.1 |
| Middle income (\$4000–\$7999) | 29.3 | 20.9 |
| High income (>\$8000) | 16.3 | 10.0 |

^a Figures from the Singapore National Census 2000.

Characteristics of CAM users

Gender (female) and ethnicity (Chinese > Malays > Indians) proved to be the only factors independently influencing CAM use. Females were 2.1 times (95% C.I. 1.3–3.4) more likely than males to use CAM and Chinese (84%) were the most frequent

users, followed by Malays (69%) and Indians (69%), with adjusted odds ratios of 0.4 (95% C.I. 0.2–0.7) for Malays and 0.4 (95% C.I. 0.2–0.8) for Indians.

Forms of CAM used

TCM (88%) was the most widely used, followed by Traditional Malay (Jamu) Medicine (8%) and Traditional Indian (Ayurvedic) Medicine (3%). Only 1.7% had used other forms of CAM like aromatherapy, yoga, or chiropractic medicine, etc.

Although 99% of Chinese adhered to TCM, the use of TCM was not confined to the Chinese. In fact, among the Indians, TCM (66%) was more popular than even Ayurvedic Medicine (24%). Malays (42%) also used TCM. In other words, there was significant cross-over usage of TCM by Indians and Malays (Fig. 2).

Different forms of CAM varied in popularity. Chinese topical oils/ointment (25%) were the most popular, followed by Chinese herbs (24%) (Fig. 3).

Purpose of CAM use

CAM was more likely to be used for the maintenance of health (72%) than for the treatment of illness (28%). Those who used CAM for treatment of illness tended to have lower educational level. Elderly respondents (41%) were also more likely to use CAM for the treatment of illness compared to the middle aged (29%) and the young (23%).

Patterns of use: CAM versus CWM

Among CAM users, the vast majority (95%) were also CWM users, indicating the “complementary” rather than “alternative” utility of CAM. Only 5% said they used CAM exclusively for all their health needs. Forty-eight percent said they used CWM predominantly, while 29% used both equally, and 23% used CAM predominantly. The majority (74%) did not discuss their use of CAM with their CWM doctors.

Most CAM users (66%) self-medicated rather than consulted a CAM practitioner. Among those who had consulted a CAM practitioner in the past 12 months, the majority (96%) additionally practised CAM self-medication. Significantly more Malays (89%) and Indians (83%) than Chinese (60%) ($P < 0.001$) self-medicated with CAM.

The top five conditions cited for preferred CAM use over CWM were all minor conditions, viz. ankle sprains, back or joint aches, diarrhoea, stomach ache and chronic pain (Fig. 4). Some 24% of respondents, however, indicated that they would prefer

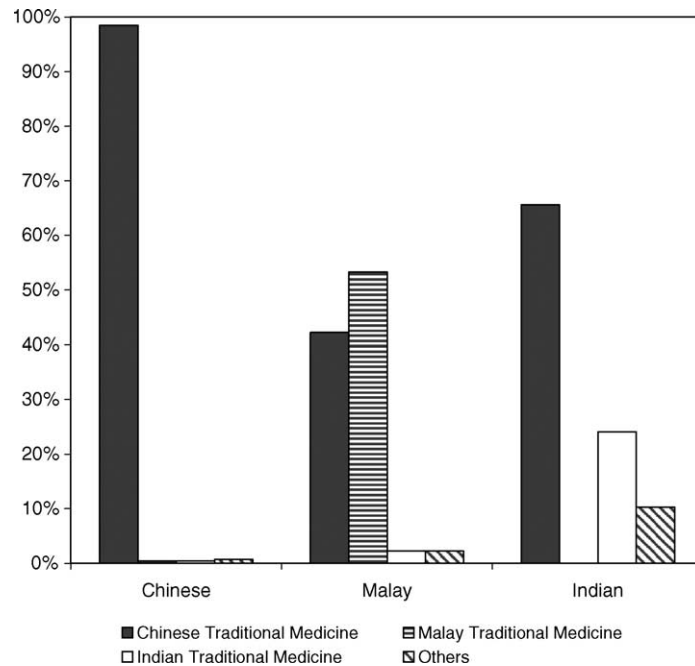


Figure 2 Use of CAM by ethnic group.

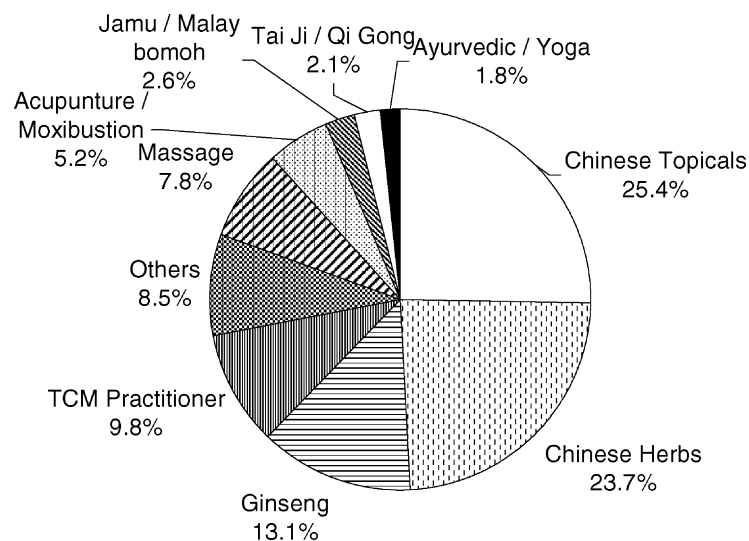


Figure 3 Popularity of different forms of CAM.

to use CAM over CWM for a serious condition like cancer.

Attitudes, beliefs and perceptions towards CAM

Not surprisingly, more CAM users (49%) than non-CAM users (25%) felt that CAM complemented CWM. CAM users also felt that compared to CWM, CAM had fewer side effects, was more effective in health maintenance, was superior, was better in terms of

quality of health care and services, was cheaper, and offered better value for money (Fig. 5). They were also more likely to recommend it to their friends or family members and more enthusiastic about promoting CAM use in Singapore.

The majority of CAM users (86%) believed that both CWM and CAM each had their own set of benefits. Family tradition was cited as an important reason (63%) for CAM use, while dissatisfaction with western doctors (8%) and a lack of trust for western medicine (9%) were only minor reasons. However, even among CAM users, CAM was not perceived by

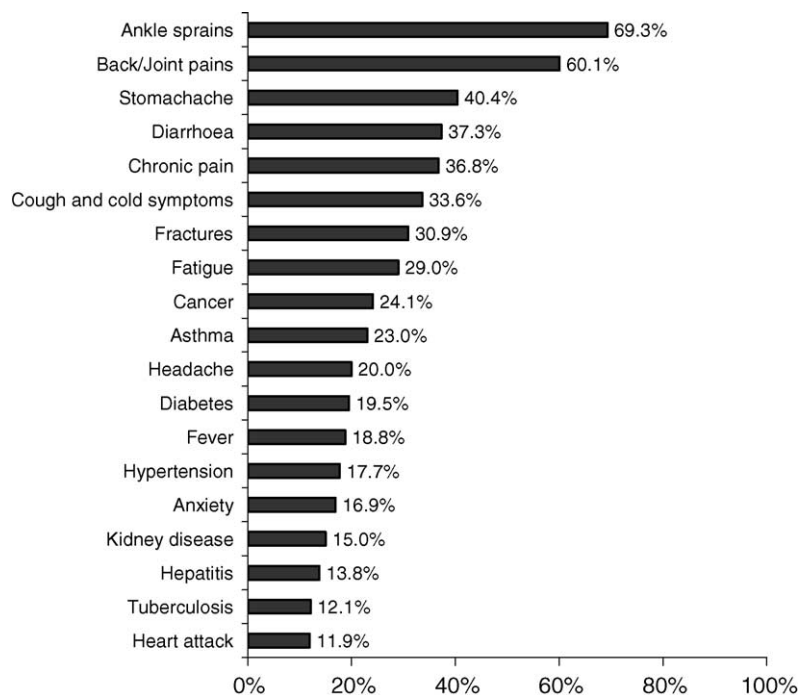


Figure 4 Hypothetical conditions for which CAM is the preferred form of treatment to conventional western medicine.

the majority to be superior or more effective than CWM in general

Discussion

“CAM” is a very broad term encompassing what has variously been described as “indigenous”, “natural”, “traditional”, “oriental” “holistic”, “unconventional”—essentially what is not “allopathic”, “mainstream”, “orthodox” or “western”. As such, it is only to be expected that the modalities of CAM will vary from culture to culture, and country to country.

In the absence of a standardized definition of CAM, problems might arise when making international comparisons. Our adoption of Eisenberg’s definition, apart from its ease of comprehension has the advantage of simplicity, since it is based on a common exclusion criterion (“not taught widely in medical schools or generally available in hospitals”). In fact, most studies have found it obligatory to refer to Eisenberg et al’s definition ever since its publication in the *New England Journal of Medicine* in 1993.

Our study shows that the prevalence of CAM use in Singapore (76%) is much higher than in western countries (from 20 to 65%).^{6–9} Considering that Singapore is modern and considerably “westernized” by Asian standards (with literacy rate of 93% and English as the official language, thanks to 140 years

of British colonial rule) it is unlikely that the prevalence of CAM use in other parts of Asia would be any lower. One suspects that the oft-quoted (but hitherto substantiated) WHO estimate of 80% of the world’s populations depending on indigenous therapies is not far wrong.

Western studies have characterized CAM users as likely to be female, affluent, single, middle-aged, well-educated, and white.^{6,29} We found that females and ethnicity were indeed independent and significant variables influencing CAM use; however, we failed to find significant association with household income, marital status, age group, and education. One explanation could be the forms of CAM used in Singapore tend to be the more traditional variety (predominantly TCM), whereas those that are popular in the west (Yoga, Acupuncture, Aromatherapy) tend to be the more novel variety, being introduced from other cultures. Hence, the relative strengths of the influence of demographic factors may differ.

Eisenberg et al. reported that the four most popular forms of CAM in the United States were: relaxation therapy (13%), herbal medicine (12%), massage therapy (11%) and chiropractic (11%), while MacLennan reported that among Australians, the most popular forms were non-prescribed vitamins (38%), chiropractic (15%), herbal medicines (10%) and mineral supplements (9%). The fact that a large proportion (60%) of a small fraction (1.7%) of CAM users in Singapore who use the more novel forms of

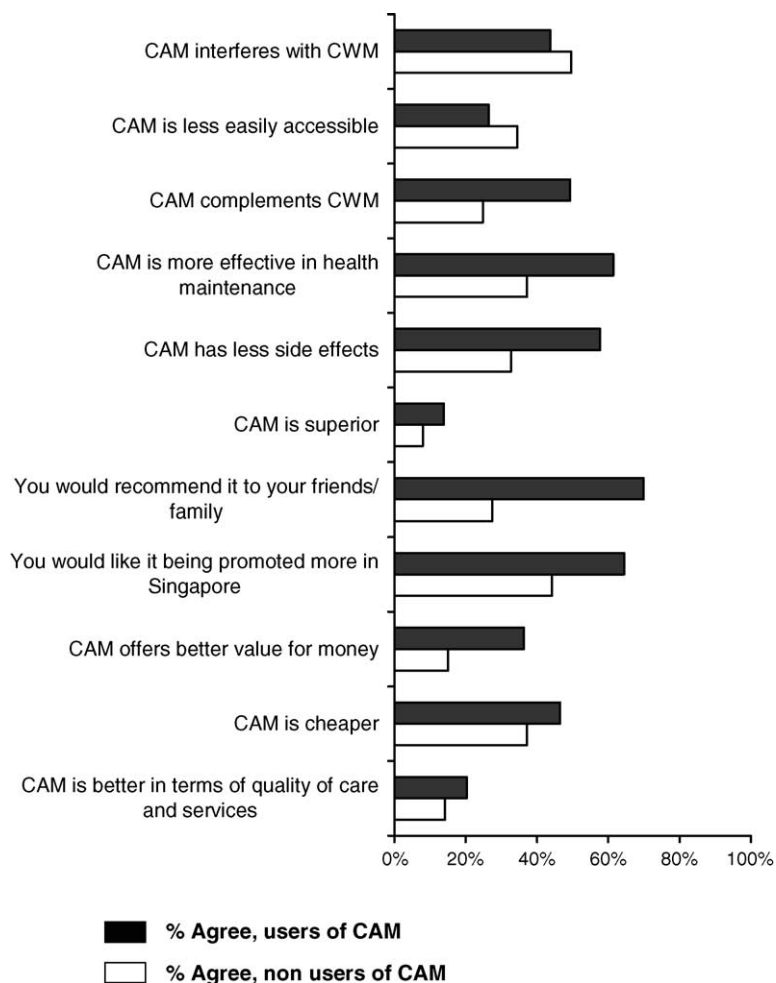


Figure 5 Attitudes, beliefs and perceptions of CAM among users and non-users.

CAM like Aromatherapy belong to the younger age group could well indicate an emerging trend among the younger set towards western patterns of use.

That TCM is the dominant form of CAM in Singapore can easily be explained by the predominantly Chinese population (75%). The fact that Chinese topical oils (80%) is the most commonly used item, even among the non-Chinese, could be due to the fact that it is widely available and relatively cheap.

The proportion of Singaporeans who actually consult a CAM practitioner (34%) is higher than in the west (between 5 and 24%).⁷ But this should not detract from the fact that CWM is still more popular, by far. Like their western counterparts,^{8,31} Singaporeans prefer CAM over CWM only for those conditions that they think are not life-threatening (e.g., minor musculoskeletal disorders and digestive tract illnesses). In fact, similar to western studies,^{6,30–32} Singaporeans tend to use CAM more for the maintenance of health than for the treatment of illness.

Dissatisfaction with CWM is sometimes cited in the literature as an important reason for turning to

CAM,⁶ but this was not the case in our study. Our findings support the competing explanation that patients may actually be attracted to alternative medicine because they find many of these therapies more congruent with their values, beliefs, and philosophical orientations toward health and life.^{33,34}

It is noteworthy that a high proportion (74%) of CAM users did not report or discuss their CAM use with their western-trained doctors. This is in agreement with another western study (70%)³⁵ and reflects an unsatisfactory state of affairs. Apart from the potential of adverse drug–drug interaction due to poor doctor–patient communication, CWM practitioners need to at least appreciate the broad menu of alternative therapeutic options their patients can, and often do choose from. Presently, many medical schools in the world, including Singapore, do not include CAM in the medical undergraduate curriculum. Bridging the gap between “east” and “west” and between “modern” and “traditional” early at medical school might render CWM

practitioners less prejudiced and more holistic in their approach to patient care.³⁶

Limitations of study

Our sample size was adequate for analysis of pooled data, but insufficient for detailed subgroup analysis of the minority ethnic groups. For that, a stratified nation-wide survey is recommended. Another limitation is that intra-cluster influences within the same household could not be ruled out.

Conclusion

Our study confirms the high prevalence of CAM use in Singapore, a cosmopolitan Asian society where CWM has long been established as mainstream medicine. It also reveals useful information about the patterns of use, as well as the attitudes, beliefs and perceptions of the local population towards CAM, emphasizing the integral part that belief systems and personal world views play in health seeking behavior. The popular and ubiquitous use of CAM is a reality that governments around the world cannot afford to ignore; it prompts a re-visitation of the issue of optimal integration of CAM with the western-dominated health care systems of the world,^{37–39} a goal set 27 years ago by the 30th World Health Assembly in 1977^{40,41} but which remains elusive.

Acknowledgements

The survey was carried out by third year medical students of the National University of Singapore.

We thank Professor David Koh, Head of the Department of Community, Family and Occupational Medicine for his support and encouragement and Associate Professor Kenneth Hughes from the same department for his technical advice.

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