

# Prevalence and predictive factors for complementary and alternative medicine use in Brunei Darussalam

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## ABSTRACT

**Introduction:** Complementary and alternative medicine (CAM) use is common among patients with chronic disorders. CAM use is also reported to be common among the general population. This cross-sectional study assessed the prevalence, types of ingested CAM use and the factors predictive of their use in Brunei Darussalam.

**Methods:** 568 visitors (male 41.4 percent, mean age 40.2 +/- 15.1 years) to the medical wards were randomly approached and invited to participate in this study. Demographical data (gender, age and racial groups), comorbidities, smoking history, use of prescribed medications and psychosomatic symptoms of depression (anxiety, backache, depression, headache and insomnia) and CAM use were collected.

**Results:** Overall, 21.1 percent had used CAM in the last 12 months, comprising traditional remedies (35.8 percent), vitamins/minerals supplements (19.2 percent), non-vitamins/non-minerals supplements (30 percent) and herbal remedies (3.3 percent). 11.7 percent were unsure of the CAM they had taken. On univariate analysis, older age (40 years and above) and presence of psychosomatic symptoms of depression particularly backaches, depression, headache and insomnia, were predictive for CAM use. On multivariate analysis, only the presence of any psychosomatic symptoms of depression remained significant for CAM use (odds ratio 1.7, 95 percent confidence interval 1.1–2.6). Among those using prescribed medications, 21.9 percent were co-using CAM. 21 percent of subjects without any comorbidities reported using CAM. There was no report of any adverse events.

**Conclusion:** CAM use is not uncommon. One-fifth of our subjects have used CAM within the past 12 months, even in those who do not have

any comorbidity. Presence of any psychosomatic symptom of depression was predictive for CAM use. Most importantly, a proportion of the users were not even sure of what they had taken.

**Keywords:** alternative medicine, complementary medicine, health supplements, herbs, traditional medicine, vitamins

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## INTRODUCTION

Use of complementary and alternative medicines (CAM) is common among patients, and often, they may not inform their doctors of their use.<sup>(1-3)</sup> Patients use CAM for many reasons, including for health maintenance, prevention or treatment of minor and even serious ailments. Some patients may not be aware that what they have taken is actually considered CAM. CAM is not only used by patients, but also by the general public who may not have any comorbidity. It is important to know of their usage because interactions with the conventional treatments may occur. It may even cause severe adverse reactions leading to significant morbidity and even death. CAM can be categorised into different subgroups: alternative medical system (traditional Chinese medicine, ayurveda and homeopathic medicine), mind-body interventions (meditation and prayers), biologically-based biotherapies (dietary supplements and herbal products), manipulative and body-based methods (massage and osteopathics), and energy therapies (bioelectromagnetics and Reiki).<sup>(4)</sup> This study assessed the types of CAM used, looking specifically at ingested CAM (alternative medical system and biologically-based therapies), and assessed the factors predictive for their use among the general public in Brunei Darussalam.

## METHODS

Brunei Darussalam is a multiethnic, developing nation with a population consisting of Malays, Chinese, indigens and others (mainly expatriates from neighbouring Southeast Asian countries). The types of CAM commonly used in our local setting are shown in Table I.<sup>(5)</sup> Visitors to the five

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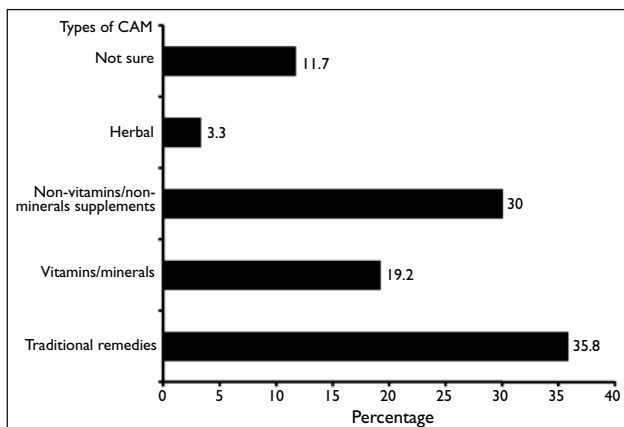
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**Table I. Complementary and alternative medicine commonly used by the various racial groups in Brunei Darussalam.**

Racial group	Commonly-used CAM
Malay	Traditional remedies, prayers, <i>bomoh</i> (traditional healers), massages, supplements (commercially-available roots, herbs, etc), <i>berbekam</i> , <i>berdiang</i>
Chinese	Traditional Chinese medicine, acupuncture, meditations, health supplements (herbal, roots or animal parts), prayers, cupping, heat treatment, massages, <i>tai chi</i> , <i>chi gong</i>
Indigens	Prayers, roots, herbs, traditional healers, massages
Others	Chiropractor, reflexology, yoga, aryuveda

*Berbekam*: a form of therapy that involves blood letting by multiple skin punctures, believed to release toxins from the circulation (similar principle to cupping)

*Berdiang*: a form of heat treatment used post-delivery to aid healing from the labour process and shedding excess weight gained.<sup>(5)</sup>



**Fig. 1** Bar chart shows the types of complementary and alternative medicine used.

medical wards of a tertiary referral hospital, Raja Isteri Pengiran Anak Saleha (RIPAS) Hospital, located in the capital city, were randomly approached and invited to participate in a cross-sectional study. This study was carried out during office hours over a 12-month period using a structured questionnaire. This study was part of a study on gastrointestinal symptoms that included enquiries into CAM use. We only made enquiries into the use of ingested CAM. All subjects were well and none had been treated for any illnesses in the previous 30 days. In total, 568 visitors of various ages agreed to participate. Explanations regarding the purpose of the survey were given and verbal consent was obtained prior to a face-to-face interview. Most questions required either a “yes” or “no” response. For certain questions, if there were “yes” responses, specific enquiries were made regarding the types of comorbid conditions, numbers and types of prescribed medications and CAM used. The interviews were conducted by one of the authors fluent in three different languages (Malay, English and Chinese). On average, each interview lasted about 10–15 minutes.

Data on gender, age, racial background, comorbidities, smoking history, medication use (prescribed or self-prescribed) and use of CAM was obtained. Health

supplements were divided into vitamins/minerals and non-vitamins/non-minerals supplements (i.e. spirulina, evening primrose oil, bird’s nest, fish oil, oxygenated water). Traditional remedies were taken as remedies prepared using traditional recipes or purchased. Herbal remedies referred to plant-based ingredients such as roots or leaves. Psychosomatic symptoms of depression (anxiety, backache, depression, headache and insomnia) were also enquired. The study was conducted in accordance with the standards set out in the Declaration of Helsinki. The data was coded and analysed using the Statistical Package for Social Sciences version 10.0 (SPSS Inc, Chicago, IL, USA). The Student’s *t*-test,  $\chi^2$  and Pearson’s  $\chi^2$  test were used, where appropriate. Psychosomatic symptoms of depression were analysed individually (anxiety, backache, depression, headache and insomnia) and as presence of any psychosomatic symptoms of depression. Factors with a *p*-value of less than 0.10 in the univariate analysis were entered into multivariate analysis to assess the predictive factors for CAM use. Measure of association was quoted as odds ratio (OR) with a 95% confidence interval (CI). A *p*-value of less than 0.05 was taken as significant.

## RESULTS

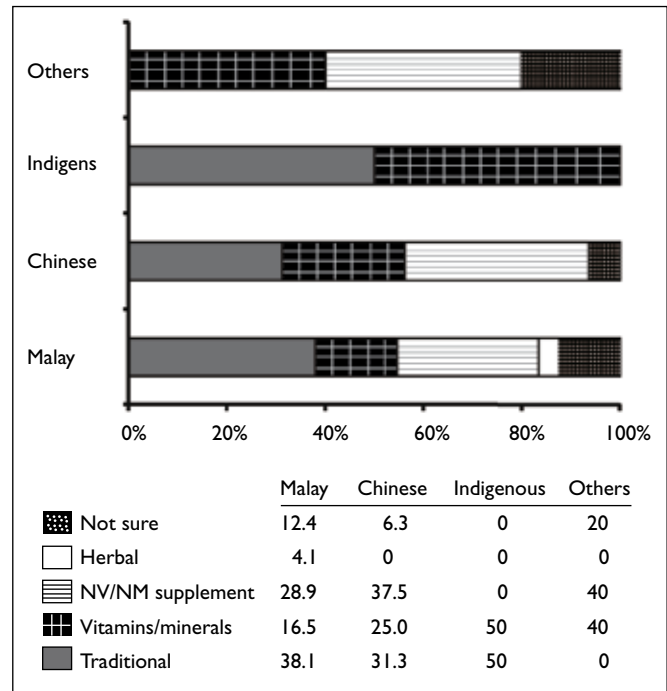
The mean age of the subjects was  $40.2 \pm 15.1$  years, with slightly more females (58.6%). The racial group distribution was similar to the national population breakdown, with the Malays predominating. Overall, 21.1% had reported using CAM in the last 12 months. 11.7% of those using CAM were not sure of what they had used; however, most were likely to be health supplements and traditional remedies. Use of CAM was highest among the 30–39 year age group (31%), followed by 60 years and older age group (29%). It was lowest in the < 20 years (6.1%) age group. The majority was using a single CAM at one time, and only seven subjects reported using two CAMs concurrently. The older age group used more of the traditional or herbal CAM, whereas the younger age groups used more of vitamins/minerals and

**Table II. Patients' demographic and clinical profiles.**

Demographics	No. (%)
Mean and SD age (years)	40.2 ± 15.1
Age groups (years)	
< 20	49 (8.6)
20–29	107 (18.8)
30–39	129 (22.7)
40–49	126 (22.2)
50–59	88 (15.5)
> 60	69 (12.1)
Gender	
Male	235 (41.4)
Female	333 (58.6)
Race	
Malays	483 (85.0)
Chinese	40 (7.0)
Indigens	7 (1.2)
Others	38 (6.7)
Comorbid conditions	206 (36.3)
Diabetes mellitus	63 (11.1)
Hypertension	112 (19.7)
Hyperlipidaemia	49 (8.6)
Cardiovascular disorders	20 (3.5)
Neurological disorders	23 (4.0)
Respiratory disorders	23 (4.0)
Others	45 (7.9)
Using prescribed medications	178 (31.3)
Mean no. of medications	2.7 ± 1.8 (range 2–12)
Smoker	96 (16.9)
CAM used	120 (21.1)

other health supplements. The older age group used CAM mainly for treating ailments, whereas the younger age groups used CAM for health maintenance. Most used CAM based on the recommendations of relatives and friends. Among those subjects with comorbid conditions and were taking prescribed medications, 21.9% (n = 39/178) were using CAM concurrently. The patients' demographical data and clinical profiles are listed in Table II. Fig. 1 shows the various types of CAM used. Fig. 2 shows the breakdown of CAM use among the various racial groups.

On univariate analysis, an older age group (40 years and above) and the presence of any psychosomatic symptom of depression, in particular backache, depression, headache and insomnia, were predictive of CAM use. There were no significant differences in the use of CAM between genders, with presence of comorbidities, use of prescribed medications or smoking history. There was a significant trend for CAM use among the different racial groups. However, there was no difference between the Malays and the other racial groups combined (Table III). When all predictive variables from the univariate analysis were entered in the multivariate analysis, only the presence of any psychosomatic symptoms of depression remained significant for CAM use (OR 1.7, 95% CI 1.1–2.6). Overall, there was no report of any significant adverse events from the use of CAM.



**Fig. 2** Bar chart shows the breakdown of CAM use among the various racial groups. NV/NM: non-vitamins/non-minerals

## DISCUSSION

Our study showed that CAM use is not uncommon among our local population, with 21.1% reported of using CAM within the last 12 months. This was the highest among the Chinese and the indigenous groups. However, the sample sizes for these two groups were small, and hence our results need to be interpreted with caution. Further studies with bigger sample sizes are required. Overall, our finding was similar to results of studies done in the primary care settings in Singapore (22.6%) and Japan (19%).<sup>(6,7)</sup> Other studies have reported a higher prevalence, most are probably due to the differences in the methodologies (duration of use, types of CAM used, the settings and locations of studies). Most studies report on either lifetime use or use within the previous 12 months. A prevalence of as high as 80% has been reported based on lifetime use.<sup>(1)</sup> Hence, the overall prevalence in our study would likely be higher, if we had enquired on lifetime use and use of all types of CAM, instead of concentrating only on ingested CAM. Results of another local study in Brunei Darussalam on the use of traditional remedies showed that up to 68.8% had used traditional remedies in their lifetime.<sup>(8)</sup> Usage was highest among the 31–45 year age group. This is similar to our results showing the highest prevalence of CAM use among the 30–39 year age group.

**Table III. Use of complementary and alternative medicine.**

Variables	Use of CAM, % (no.)		p-value
	Yes	No	
Gender			
Male	21.3 (50/235)		0.941
Female	21.0 (70/333)		
Race			0.014 (for trend)
Malay	20.1 (97/483)		
Chinese	40.0 (16/40)		
Indigens	28.6 (2/7)		
Others	13.2 (5/38)		
Age groups (years)			
< 40	17.9 (51/285)		0.058
≥ 40	24.4 (69/283)		
Comorbid conditions			
Yes	21.4 (44/206)		0.918
No	21.0 (76/362)		
Medications			
Yes	21.9 (39/178)		0.757
No	20.8 (81/390)		
No. of medications	2.3 ± 1.9	2.8 ± 1.7	0.124
Smoking			
Yes	21.9 (21/96)		0.844
No	21.0 (99/472)		
Presence of any psychosocial symptoms of depression			
Yes	25.6 (72/281)		0.009
No	16.7 (48/287)		
Anxiety			
Yes	25 (2/8)		0.787
No	21.1 (118/560)		
Backache			
Yes	29.7 (30/101)		0.020
No	19.3 (90/367)		
Depression			
Yes	32.4 (11/34)		0.098
No	20.4 (109/534)		
Headache			
Yes	25.0 (51/204)		0.090
No	19.0 (69/364)		
Insomnia			
Yes	32.4 (24/74)		0.011
No	19.4 (96/494)		

Our study showed that the most common CAM used were traditional remedies and health supplements that included vitamins/minerals and other health supplements. This was most evident among the Malays and the Chinese. There was no report on the consumption of herbal products among the Chinese in our study. This is probably because herbs used for cooking are often not considered as supplements and hence not reported as such. In agreement with other studies, the older age groups in our study had a higher prevalence of CAM use, especially the traditional remedies for treating ailments, whereas the younger group used more dietary supplements for the maintenance of health. None of the subjects in the Others group reported using any traditional remedies. This could possibly be due to the unavailability of ingredients in our local setting.

Concurrent use of CAM with prescribed conventional medications was reported by 21.9% of our CAM users.

This is important because concurrent CAM use will likely place these patients at risk for possible adverse interactions. Numerous studies have shown that CAM use interacts with conventional medications.<sup>(9-11)</sup> Fortunately, there was no report of any significant adverse effects among our CAM users. Most of our subjects used CAM based on advice and information obtained from relatives, friends or through advertisements. This is confirmed by another study conducted in our local setting.<sup>(8)</sup> Often, these kinds of advice or recommendations were unsubstantiated and subjects were not informed of the potential adverse effects. Most importantly, 70% CAM users reported that CAM is easily and widely available.<sup>(8)</sup> This is further compounded by the fact that users may not be aware of what they are taking except that it is for good health. Our finding that 11.7% of CAM users could not remember what they had taken is a further indication that they were not well informed about their CAM use.

Studies have also shown that certain patients' factors can predict CAM use.<sup>(7)</sup> Gender, age, racial groups, income, educational level and presence of chronic disorders are some of the predictive factors.<sup>(3,12-15)</sup> Our study has shown that older age and presence of psychosomatic symptoms of depression, particularly backache, depression, headache and insomnia, were predictive of CAM use. However, on multivariate analysis, only the presence of any psychosomatic symptom of depression remained significant for CAM use. There was also a trend toward significance for CAM use among the racial groups. Presence of comorbidities, history of smoking and use of prescribed medications were not predictive of CAM use in our study.

There are several limitations with our study. First, this study only enquired about ingested CAM and therefore only provided the prevalence of ingested CAM use. Second, we did not enquire on the educational level, occupations and monthly income, which are indicators of social status. These factors have been shown to affect CAM use. Finally, the sample sizes of certain racial groups were small and the results obtained may not reflect an accurate prevalence of CAM use in those racial groups. However, despite these limitations, the results of our study are still comparable to published findings.

In conclusion, CAM use is not uncommon, with a fifth of our population reported of using CAM within the previous twelve months, even in those who do not have any comorbid condition. Commonly-ingested CAMs were traditional remedies and health supplements. Uses of traditional remedies were common among the Malays and Chinese, particularly in the older age group. This was often taken for treating ailments. The younger age group used more dietary supplements for health maintenance. Only the presence of any psychosomatic symptom of depression was a significant predictive factor for CAM use. Importantly, a proportion of the subjects were not sure of what they had taken, and more than a fifth of those on conventional medications were taking CAM at the same time.

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