

# Use of and satisfaction with complementary and alternative medicine in four chronic diseases: A cross-sectional study from India

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## ABSTRACT

**Background.** We assessed the extent of use of complementary and alternative medicine (CAM) by patients with four chronic diseases—epilepsy, HIV, rheumatoid arthritis (RA) and diabetes mellitus (DM)—at a tertiary care, teaching hospital of allopathic medicine in India. We also assessed patients' satisfaction with CAM.

**Methods.** Adults attending the outpatient clinics for epilepsy, HIV, RA and DM who took CAM were recruited over a period of 16 weeks. After obtaining written informed consent, they were administered the 'Treatment Satisfaction Questionnaire for Medication' (TSQM)<sup>TM</sup> to assess satisfaction in domains such as effectiveness, no side-effect, convenience and global satisfaction.

**Results.** Of the 4664 patients screened, 1619 (34.7%) were using CAM and 650 (40%) of them consented to participate. The extent of use of CAM was 63% in patients with DM, 42.7% in RA, 26.2% in HIV and 7.7% in epilepsy. Ayurveda 57.1% (95% CI 53.27–60.89) was the most frequently used CAM. Satisfaction in terms of effectiveness and global satisfaction was highest among patients with HIV (69.4% and 69.2%, respectively) and least among those who had RA (56.6% and 54.1%, respectively). High scores were reported to 'no side-effect' domain in all the four diseases. The proportion of physicians who were aware about their patients' using CAM was 100% in patients with RA, 95% in HIV, 74% in epilepsy and 29% in DM.

**Conclusion.** A large proportion of patients with four chronic diseases reporting to a hospital of allopathic medicine in India were also using CAM and were satisfied with its use. Given the potential interaction of CAM with allopathic medicines, a history of use of CAM should be elicited in clinical practice.

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## INTRODUCTION

It has been estimated that two-thirds of the world's population seeks healthcare from sources other than those providing treatment with the allopathic system of medicine. While some patients self-medicate, most seek care from learned practitioners of traditional, indigenous systems of medicine, viz. Ayurveda,<sup>1</sup> which is a popular traditional system of healthcare in India. Complementary and alternative medicine (CAM) is a broad domain of healing resources that encompasses all healthcare systems, modalities, and practices and their accompanying theories and beliefs, other than those intrinsic to the politically dominant healthcare system of a particular society or culture in a given historical period. CAM includes all such practices and ideas self-defined by their users as preventing or treating illness or promoting health and well-being.<sup>2</sup> The use of CAM for prevention and treatment of diseases is prevalent in patients with some diseases particularly those considered to be chronic and incurable such as breast cancer,<sup>3</sup> arthritis,<sup>4</sup> asthma,<sup>5</sup> diabetes,<sup>5</sup> migraine,<sup>5</sup> epilepsy<sup>5</sup> and HIV infection.<sup>6–9</sup>

It has been reported that patients opt for CAM because they are dissatisfied with allopathic healthcare as it is perceived to be ineffective, have side-effects, is impersonal or too expensive.<sup>10,11</sup> However, it has been suggested that disenchantment with allopathic medicine is not necessarily the only reason why patients turn to CAM.<sup>12</sup> This observation is supported by an American study that reported 'users of alternative healthcare are no more dissatisfied with or distrustful of conventional western care than non-users'.<sup>9</sup> Patients may also find CAM attractive because it is in consonance with their personal values as well as religious and health philosophies.<sup>9–13</sup> It has been suggested that CAM offers such patients a consultation model that is more appropriate and egalitarian for their illness.<sup>14,15</sup> The general attributes of CAM do not always lead to increased patient satisfaction. Complementary medicines have some features that can cause problems or have deleterious effects.<sup>16</sup>

The safe and appropriate use of CAM is also a source of concern, especially when used concomitantly with other medicines. Treating physicians are often unaware of the use of CAM by their patients. One study reported that only 38.5% of patients discussed alternative therapies with their physician.<sup>17</sup> These treatments sometimes have a negative impact including side-effects, unchecked progression of an underlying illness and unnecessary expense.<sup>18</sup> These side-effects and interactions affect patients with regard to their adherence to treatment and quality of life, thus impacting the effectiveness of allopathic medicines. While research has been done examining the use of CAM in patients with specific

diseases and for those with one or more chronic conditions, little attention has been paid to how use of CAM differs by the type of chronic disease. Very few studies have compared the use of CAM among individuals with different types of chronic disease. We assessed the extent of use of CAM and satisfaction with its use in four chronic diseases—epilepsy, HIV, rheumatoid arthritis (RA) and diabetes mellitus (DM).

## METHODS

A cross-sectional, observational study approved by our institutional review board was conducted at our tertiary care, teaching (allopathic medicine) hospital in Mumbai, Maharashtra, India, over a period of 16 weeks from March 2010 to June 2010. It was calculated that a minimum of 800 patients (estimating a 15% drop-out rate with an allowable error of 20%) would be required to estimate an approximate 12% use of CAM in four chronic diseases. During the period of 16 weeks, we could enrol 650 patients for the assessment of satisfaction of use of CAM.

Patients of either gender, over 18 years of age and attending the outpatient clinic of the disease under study (epilepsy, HIV, RA and DM) were asked if they took CAM. If the reply was in the affirmative, they were invited to take part in an interview where they were required to answer a structured questionnaire. Demographic data, details of use of CAM and allopathic medicines with a short medical history were recorded. All patients who attended the outpatient constituted the denominator. Physician awareness was calculated by the number of patients who had been recommended CAM by the physician and/or patient disclosure to the physician regarding the use of CAM.

After obtaining consent, the participants were administered the 'Treatment Satisfaction Questionnaire for Medication' (TSQM)<sup>TM</sup> version 1.4 (details available at [www.quintiles.com/clinical-services/tsqm/](http://www.quintiles.com/clinical-services/tsqm/); last accessed 14 March 2012) to assess the patients' satisfaction through four domains, such as effectiveness, no side-effect, convenience and global satisfaction. Although the original questionnaire was in English, it was available as a translated and validated version in Hindi and Marathi languages. Participants were interviewed in the language they were most familiar with (Hindi, Marathi or English). Patients with a psychological disorder were excluded.

The TSQM version 1.4 is a 14-item/questions validated<sup>19,20</sup> instrument consisting of four domains as effectiveness (questions 1–3), no side-effects (questions 4–8), convenience (questions 9–11) and global satisfaction (questions 12–14). These questions are scaled on a seven-point bipolar scale from 'extremely satisfied' to 'extremely dissatisfied' except question 4 which has a dichotomous response. The domain score was computed by adding the score of questions representing the specific domain called as composite score. The lowest possible score was subtracted from this composite score and divided by the greatest possible score minus the lowest possible score. This provided a transformed score between 0 and 1 that was multiplied by 100, for example

$$\frac{[\text{Sum of score (Question 1+Question 2+Question 3)} - \text{Lowest possible score}] \times 100}{(\text{Highest possible score} - \text{Lowest possible score})}$$

The domain scores range from 0 to 100 with higher scores representing higher satisfaction on that domain. 95% confidence intervals (mean $\pm$ 1.96 SEM) were determined and a p value <0.05 was considered statistically significant. The difference in the satisfaction of four chronic diseases was assessed for normality using the Kruskal–Wallis test and the analysis of variance was used. The outcome measures included patient's satisfaction, extent of use of CAM and physician's awareness about the use of CAM by their patient.

## RESULTS

A total of 4664 patients were screened from the epilepsy, HIV, RA and DM outpatient clinics (Table I). Of these, 1619 (34.7%, 95% CI 33.34–36.06) reported the use of CAM. However, 969 of them (59.9%) declined consent to participate and thus we were able to recruit a total of 650 patients for the study. The highest proportion of consent refusals were from the DM outpatient (965/1844; 52.3%) followed by the HIV outpatient (4/397; 1%). More women used CAM in the RA (4.5 women to 1 man) and HIV groups (1.7 women to 1 man).

### Use of CAM

The overall use of CAM in the four chronic diseases was 34.7% (1619/4664, 95% CI 33.34–36.06). The use among patients with DM was 63.2% (95% CI 60.99–65.37), while in patients with RA it was 42.7% (95% CI 38.25–47.21), in HIV it was 26.2% (95% CI 17.74–34.65) and in epilepsy it was 7.7% (95% CI 6.5–8.84). We found that Ayurveda was used by more than half the patients (57.1% [95% CI 53.27–60.89]) and was the most frequently used CAM (Table II) irrespective of whether the patient had HIV 97% (97/100), RA 72% (144/200) or epilepsy 46% (82/150). Patients with DM, however, used home remedies most frequently (44% [88/200]). The use of two or more CAMs was reported in RA (27%), DM (9%), epilepsy (8%) and HIV (2%).

### Patients' satisfaction with the use of CAM

Patients with HIV reported the highest satisfaction in domains of effectiveness, global satisfaction and convenience while those with RA had the least satisfaction in these domains. High scores were reported for the 'no side-effect' domain in all the four diseases indicating satisfaction with CAM. The difference in effectiveness and convenience domains for RA was significantly (p<0.001) different when compared to HIV, epilepsy and DM (Table III).

### Physicians' awareness of CAM treatment by patients

The proportion of physicians aware about their patients using CAM was 100% among patients with RA, 95% among those with

TABLE I. Demographic data

Characteristic	Disease			
	Epilepsy (n=150)	HIV (n=100)	Rheumatoid arthritis (n=200)	Diabetes mellitus (n=200)
Mean (SD) age (years)	29.6 (10.99)	37.9 (9.06)	42.0 (13.14)	46.4 (13.26)
Men (%)	60.7	37.0	18.0	62.0
Men:Women ratio	1.5:1	1:1.7	1:4.5	1.6:1
Median (range) duration of disease (years)	4 (0.1–45)	2.5 (0.5–11)	4 (0.2–30)	5 (0.2–30)

HIV, 74% among those with epilepsy and 29% among those with DM.

**DISCUSSION**

We assessed the extent of use of CAM and patients' satisfaction with CAM among patients with four chronic diseases—epilepsy, HIV, RA and DM in a tertiary care teaching (modern medicine) hospital in India. We found that women were using CAM more than men for RA (82%) and HIV (63%), which is consistent with other studies.<sup>5</sup> The rates of use of CAM reported previously vary widely (6%–84%).<sup>21–28</sup> We found 34.7% of patients attending various outpatient clinics in our hospital were using CAM. This is higher than the 12.4% reported in the Canadian Community Health Survey (CCHS)<sup>5</sup> of four chronic diseases—Asthma, DM, migraine and epilepsy. We found the highest use of CAM in patients with DM (63%) which is similar to that reported previously (67.7%).<sup>29</sup> Among patients reporting to the epilepsy clinic, 7.6% reported that they used CAM, which is lower than the 32% reported in an Indian study.<sup>30</sup> Our patients with HIV reported a higher use of CAM (26%) compared to the previous report from the HIV Cost and Services Utilization Study (HCSUS) which suggested that CAM was used by 16% of HIV-infected patients.<sup>31</sup> Among patients with RA, 42.7% reported using CAM, which lies within the wide range (28%–90%)<sup>32</sup> reported by previous studies in a variety of conditions including breast cancer.

Of the 650 patients who gave a history of using CAM and who consented to participate in the study, Ayurveda was found to be the most commonly used CAM (57.1%), especially among patients with HIV (97%). However, among patients with DM, home remedies were used more commonly (44%). The CCHS reported

massage therapy (62.9%), acupuncture (18.3%), homoeopathy (18.2%), chiropractic care (11.3%), herbalists (5.2%), reflexology (2.4%) and spiritual healing (1.0%) as the commonly used CAM therapies.<sup>5</sup> The difference in the types of CAM used may be related to availability, dominance and classification of CAM in various regions.<sup>2</sup>

We evaluated patients' satisfaction with CAM in four domains—effectiveness, no side-effects, convenience and global satisfaction. The domain scores ranged from 0 to 100 with higher scores representing greater satisfaction. We found that patients reported highest satisfaction in the domains of effectiveness, global satisfaction and convenience in the HIV group and least satisfaction in the RA group and this was significantly different compared with HIV, epilepsy and DM ( $p < 0.001$ ). High scores were reported in the 'no side-effect' domain in all the four diseases indicating satisfaction with CAM. The least satisfaction in RA may be due to factors such as severity, persistence of disabling symptoms such as pain<sup>33</sup> and swelling after the use of CAM. There are no reports on the extent of satisfaction using this scale although some studies have shown that a majority of CAM users found their CAM treatment to be effective.<sup>34</sup> Our findings indicate that patients suffering from HIV, DM and epilepsy reported CAM as effective, convenient and safe to use.

Interestingly, a large proportion (59.9%) of patients who used CAM declined consent to participate in our study. One of the reasons they cited was they did not wish the treating physician to become aware of the fact that they used CAM. This is disturbing as drug interactions between CAM therapies and allopathic medicines can have serious adverse effects, and physicians who are treating a patient should be aware of the use of CAM. It was reassuring that

TABLE II. Proportion (%) of use of different types of complementary and alternative systems of medicine (CAM)\*

CAM	Epilepsy (n=150)	HIV (n=100)	Rheumatoid arthritis (n=200)	Diabetes mellitus (n=200)
Overall use (95% CI)	7.7 (6.5–8.84)	26.2 (17.74–34.65)	42.7(38.25–47.21)	63.2(60.99–65.37)
Ayurveda	46	97	72	14
Homeopathy	22	1	25	1.5
Unani	1	1	1	0
Yoga	22	1	9	35
Home remedies	0	0	2	44
Diet	0	0	0	13
Acupuncture	0	0	0.5	0
Sidhha	0	0	0.5	0
Massage	0	0	17	0
Herbals	0	1	0.5	0
Panchakarma	12	0	0	0

\* Types of CAM add up to more than 100% due to use of more than one CAM by some patients

TABLE III. Patients' satisfaction with the use of CAM (mean scores and 95% confidence intervals)

Domain (mean score)	Epilepsy (n=150)	HIV (n=100)	Rheumatoid arthritis (n=200)	Diabetes mellitus (n=200)	Statistical significance*
Effectiveness	69.43 (66.22–72.65)	63.59 (61.29–65.87)	56.61 (54.05–59.17)	66.11 (64.54–59.17)	RA v. HIV, DM and epilepsy: $p < 0.001$ ; HIV v. epilepsy v. DM: ns
No side-effect	98.96 (97.66–100.26)	99.75 (99.26–100.24)	97.68 (96.11–99.26)	99.12 (98.26–99.98)	ns
Convenience	70.43 (68.02–72.86)	66.55 (65.08–68.10)	65.27 (63.88–66.66)	69.08 (67.62–70.54)	RA vs. HIV, DM and epilepsy: $p < 0.001$ ; HIV v. epilepsy v. DM: ns
Global satisfaction	69.24 (65.73–72.74)	63.19 (60.68–65.66)	54.13 (51.33–56.94)	67.53 (65.48–69.59)	RA v. HIV, DM and epilepsy: $p < 0.001$ ; Epilepsy v. DM: $p < 0.01$ ; HIV v. epilepsy: $p < 0.05$ ; HIV v. DM: ns

\*Kruskal–Wallis test or analysis of variance Values in parentheses are 95% confidence intervals ns not significant RA rheumatoid arthritis DM diabetes mellitus

among the patients who consented to participate in the study, a large proportion (100% in RA, 95% in HIV and 74% in epilepsy) did inform their physician about using CAM. Interestingly, only 29% of patients with DM informed their physician about their use of CAM. This may be because a larger proportion of them used home remedies and may not have considered these as CAM. Our study suggests that physicians treating chronic diseases must elicit a history of use of CAM as patients may not always inform their physicians. This could lead to drug interactions.<sup>18</sup> Other studies have reported that only 38.5%<sup>17</sup> of patients discussed their CAM therapies with their treating physicians and 70%<sup>5,31</sup> to 84%<sup>35</sup> physicians did not ask patients about their use of CAM. This may be because physicians are uncomfortable discussing CAM therapies with their patients as they usually have little formal knowledge or personal experience about these therapies.

A potential limitation of our study is its cross-sectional nature, which limits causal inferences. In addition, we were dependent on patient reports and were unable to validate the use of CAM.

In conclusion, we found a high prevalence of use of CAM among patients with chronic diseases. Patients are more likely to disclose the use of CAM if they are specifically asked. Patients with DM, HIV and epilepsy who used CAM believed it was safe, effective and convenient with a high satisfaction score. Given the potential interaction of CAM with allopathic medicines, a history of use of CAM must be elicited at least among patients with chronic ailments. Studies on the actual effectiveness of CAM interventions may help both the physicians and patients in choosing an appropriate therapy for management of these chronic diseases.

*Conflict of interest.* None declared

*Contributions.* UMT and NJG made substantial contributions to conception and design, acquisition, analysis and interpretation of data; were involved in drafting the manuscript and revising it critically for important intellectual content; and gave approval to the final version to be published. MSB, PMB and BDS made substantial contributions to conception and design, acquisition, analysis and interpretation of data; were involved in drafting the manuscript and revising it critically for important intellectual content. TAB, VRK, MJT, SDB, MPW and UBS made substantial contributions to acquisition of data, or analysis and interpretation of data.

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