National Journal of Physiology, Pharmacy and Pharmacology

RESEARCH ARTICLE

Use of complementary and alternative medicines in Indian elderly patients

Ekaansh Sharma, Ashok Kumar Dubey, Shivam Malhotra, Sachin Manocha, Shailendra Handu

Department of Pharmacology, School of Medical Sciences and Research, Sharda University, Greater Noida, Uttar Pradesh, India

Correspondence to: Ashok Kumar Dubey, E-mail: ak.dubey@sharda.ac.in

Received: April 12, 2017; **Accepted:** May 01, 2017

ABSTRACT

Background: Use of complementary and alternative medicine (CAM) is more common in elderly patients due to the prevalence of various age-related chronic medical conditions. The pharmacokinetics and pharmacodynamics change with age and are different in the elderly as compared to a young adult. Non-disclosure of CAM usage voluntarily by the patients, along with the practice of poly-pharmacy for various comorbidities and concurrent use of modern medicine with CAM, makes this age group particularly prone to adverse effects of drugs and the drug–drug interactions. Use of CAM assumes further importance in the context of Indian elderly, due to the widespread belief in traditional medicines and easy over-the-counter availability of many prescription drugs in India. **Aims and Objective:** The study was conducted to understand and analyze the knowledge, attitude, and perception of CAM usage specifically in elderly Indian patients, which to the best of our knowledge has yet not been assessed previously. **Materials and Methods:** It was a descriptive cross-sectional study assessing a representative sample of 325 elderly patients over the age of 60 years. Data collection was done after face-to-face interview-based survey administered on a semi-structured questionnaire. **Results:** The number of CAM users (65.5%) was significantly more than the non-users ($P \leq 0.05$). In the age group between 60 and 69 years, 59% had used CAM, as compared to a significantly more number of 76% patients ($P \leq 0.05$), in the age group above 70 years. The CAM practice in the elderly was not influenced significantly by gender, education, rural or urban background, and distance from the health-care facility of modern medicine system. CAM was the initial choice of therapy for 65.7% of the users. Ayurveda was the most popular practice (64.8%), followed by homeopathy (62.4%) with many patients using both the practices together. Use of CAM practices concomitantly with modern medicine was not considered unsafe by 56.8% of patients. The physicians of modern medicine did not ask 91.5% of elderly patients about CAM usage and 85.5% of patients did not volunteer any information on CAM usage unless asked for. **Conclusions:** The study suggests the need to acknowledge and explore the high prevalence of CAM usage with increasing age in the Indian elderly, both to identify the irrational usage of CAM alone or in combination with the modern medicine system and to facilitate the integration of rational CAM practices in the mainstream medicine.

KEY WORDS: Alternative Medicine; Complementary Medicine; Elderly; Complementary and Alternative Medicine

Access this article online	
Website: www.njppp.com	Quick Response code
DOI: 10.5455/njppp.2017.7.0411401052017	

INTRODUCTION

Complementary and alternative medicine (CAM) is defined as a group of diverse medical and health-care systems, practices, and products that are not generally considered part of conventional modern medicine or Western medicine.[1] Usage of dietary supplements, yoga, homeopathy, Ayurveda,

Unani, Siddha, chiropractic, acupuncture, aromatherapy, herbal medicine, naturopathy, and similar examples of other CAM practices, alone or concomitantly with the modern medicine, is a common practice all over the world. Studies in the Western countries suggest that 35-60% of adults use some form of CAM and the usage is on the rise.[2]

The elderly population is becoming larger all over the world due to improved health-care facilities and a decline in mortality rates. In India, the population over the age of 60 years has tripled in the past 50 years and is projected to increase to more than 130 million by the 2021 census.[3] Use of CAM is more common in the elderly patients due to the prevalence of various age-related chronic medical conditions.[4] The pharmacokinetics and pharmacodynamics change with age and are different in the elderly as compared to a young adult. Non-disclosure of CAM usage voluntarily by the patients, along with the practice of poly-pharmacy for various comorbidities and concurrent use of modern medicine with CAM, makes this age group particularly prone to adverse effects of drugs and the drug–drug interactions.[5] Use of CAM assumes further importance in the context of Indian elderly, due to the widespread belief in traditional medicines and easy over-the-counter availability of many prescription drugs in India.

CAM use particularly in the elderly population has been evaluated in a few studies conducted in Western countries and the prevalence ranges from 29.5% to 58%, with higher usage reported among more educated and urban elderly.[5,6] There have been related studies in the past on the Indian population to understand the usage of CAM, but these studies have been either in patients suffering from some particular disorders or in different age groups of population.[7,8] To the best of our knowledge, this practice has not yet been evaluated specifically in the elderly Indian, so the study was conducted to explore the prevalence, knowledge, attitude, and perception of CAM usage in this age group.

MATERIALS AND METHODS

It was a descriptive cross-sectional study assessing a representative sample of 325 elderly patients over the age of 60 years visiting the outpatient department of a tertiary hospital in North India. Prior approval for the study was obtained from the Institutional Ethical Committee (Ref No. IEC/2015-16/76/2 dated 11/01/2016). The participation in the study was voluntary, and informed consent was obtained from all the participants before participation in the study. The study was conducted between April and September 2016.

Study Design

Elderly patients over the age of 60 years visiting the outpatient department voluntarily willing to participate in the study were included in the study. Patients with any severe acute medical condition or any memory-related dysfunction were not included in the study. Data collection was done after face-to-face-interview-based survey administered on a semi-structured questionnaire. Questionnaire was developed by the researchers after reviewing similar studies in the past and was validated. The same investigator interviewed all the patients to minimize any variation in the data collection.

For this study, the working definition of CAM was taken as any health-care practice or product that is not generally considered part of conventional Western medicine curriculum. "Elderly persons" were defined as those who were of 60 years of age and above.[9] The first part of the questionnaire assessed the sociodemographic profile of the participants including age, sex, education, marital status, employment status, and presence or absence of any chronic disease. The next part of the questionnaire evaluated whether the patients had used CAM after the age of 60 years. In those respondents who had used CAM, the next set of questions tried to explore further on the following points: Type of CAM used, frequency of usage, reason of use, motives that led to the use of CAM, main source of advice about the CAM use, perception of expense on CAM, satisfaction with CAM use, the attitude toward CAM use, and disclosure of CAM use to an individual's physician.

Statistical Analysis

Sample size calculations, based on the prevalence of CAM usage in previous studies, showed that 322 patients were needed to provide 95% confidence interval, with ±5% variation. Hence, 325 elderly patients were included in the study. Evaluation and interpretation of the data collected was done with the help of the latest version of Statistical Package for the Social Sciences (SPSS). Associations were assessed using Chi-square test. Statistical significance was assumed at $P < 0.05$ with a confidence interval of 95%.

RESULTS

The demographic characteristics of the study population are shown in Table 1. The number of elderly CAM users was significantly more than the non-users ($P \leq 0.05$). The CAM usage in patients aged 70 years and above was significantly more than the usage in 60-69 years of age group ($P \leq 0.05$). There was no significant difference in the prevalence of CAM usage in different sexes. Use of CAM was slightly more common in patients from urban background, but the difference was not statistically significant. The percentage of CAM users was similarly distributed across the educated and uneducated groups with slightly more usage seen in educated population, but the difference was not statistically significant. The distance from the hospital also did not seem

Table 1: Demographic details of the participants

Variable	Used CAM *n*=213 (%)*	Did not use CAM *n*=112 (%)	Grand total *n*=325 (%)	*P* value
Age (years)				
60-69	115 (58.7)	81 (41.3)	196	
70-79	73 (76)	23 (24)	96	0.005*
80-90	25 (75.8)	8 (24.2)	33	
Gender				
Male	143 (66.8)	71 (33.2)	214	0.498
Female	70 (63.1)	41 (36.9)	111	
Residence				
Rural	178 (64.5)	98 (35.5)	276	0.346
Urban	35 (71.4)	14 (28.6)	49	
Education				
Uneducated	110 (64)	62 (36)	172	0.492
Primary	69 (67)	34 (33)	103	
Higher secondary	23 (63.9)	13 (36.1)	36	
Graduate	9 (90)	1 (10)	10	
Post Graduate	2 (50)	2 (50)	4	
Distance from hospital (km)				
0-20	103 (64.4)	57 (35.6)	160	0.944
20-40	48 (69.6)	21 (30.4)	69	
40-60	31 (63.3)	18 (36.7)	49	
60-80	6 (66.7)	3 (33.3)	9	
80-100	23 (67.6)	11 (32.4)	34	
>100	2 (50)	2 (50)	4	

*$P<0.05$ as compared to control group. CAM: Complementary and alternative medicine

to influence the usage of CAM significantly, though there was a little increase in usage with increase in the distance from the health-care facility.

Table 2 depicts the data assessing the knowledge, attitude, and perception of CAM in its users. Efficacy was the most commonly perceived attribute in favor of CAM usage followed by safety, cost-effectiveness, and easy availability. Most of the participants had used CAM of their own will. The attitude of patients was reflected by the largest number using CAM immediately on feeling unwell, followed by those using it along with medicines of modern system, and those trying it after unsatisfactory response to conventional modern medicine treatment. Nearly half of the number of patients either thought that CAM could be used with modern medicines or had no opinion on concomitant usage. Table 3 depicts the data related to communication between the patients and the doctors about CAM usage. Figure 1 shows the preference for the type of CAM usage by the elderly patients.

Table 2: Knowledge, attitude, and perception of CAM usage in elderly patients

Variable	CAM patients *n*=213 (%)
Reason for CAM usage	
More effective than modern medicine system	150 (70.4)
Lesser side effects	120 (56.3)
Cheaper	73 (34.2)
Easily available	50 (23.4)
CAM advised by	
Own will	82 (38.5)
Family	76 (35.7)
Friends	40 (18.8)
Doctor	18 (8.5)
Timing of CAM usage	
Immediately on feeling unwell	140 (65.7)
With modern medicine system	39 (18.3)
When not relieved by modern medicine system	34 (15.9)
Whether CAM should be used with modern medicines	
Yes	55 (25.8)
No	92 (43.2)
Not sure	66 (31.0)

CAM: Complementary and alternative medicine

DISCUSSION

The term CAM is used for numerous diagnostic and therapeutic methods that lie outside the modern or allopathic medicine practice.[10] General public thinks of CAM practices to be of good value for money, with benefits outweighing their costs. These therapies are thought of possessing the quality of promoting body's natural ability to heal itself at a lower cost, as their availability does not involve high technology manufacturing process, with added appeal of being non-synthetic harmless therapies. This perception is not limited just to the developing countries, as is evident by the United States' consumers spending over $34 billion out-of-pocket expenditure per year, on CAM therapies, other than the standard health-care financing system.[11]

The use of CAM among elderly persons is widely prevalent, ranging from 35% to 60% of the population in various studies, and is higher than in the other age groups.[12] According to a 2013 United Nations report, the elderly (60 years and older) population all over the world has increased in number over the past few years to a total of about 841 million, contributing to more than 60% of the total population. By 2050, most of these elderly (nearly 8 in 10) are expected to be living in the less developed countries around the globe.[13]

There are various factors which are to be considered when any kind of drug usage is studied in the elderly age group.

Table 3: Doctor–patient communication related to CAM in elderly patients

Variable	CAM patients *n*=213 (%)
Do doctors ask you about CAM usage?	
Yes	18 (8.5)
No	195 (91.5)
Do you tell about CAM usage, if not asked?	
Yes	31 (14.5)
No	182 (85.5)

CAM: Complementary and alternative medicine

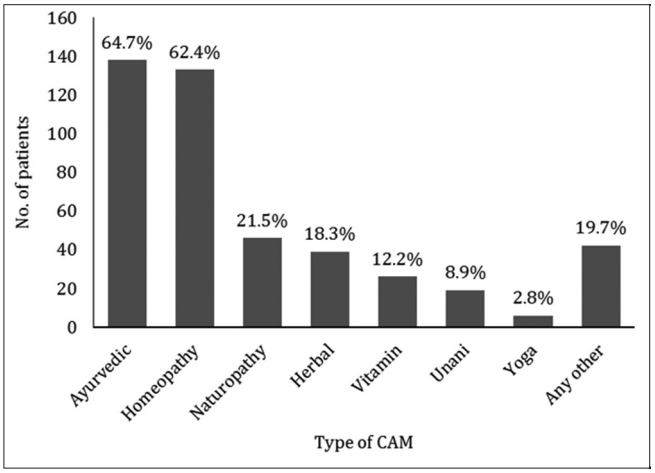

Figure 1: Usage of different types of complementary and alternative medicine among elderly patients

One important consideration is of multi-morbidity, which is defined as the coexistence of two or more diseases.[14] It has been found in previous studies that nearly 65% of adults older than 65 years have multiple chronic diseases. This percentage increases with age and is about 83% for those 75 years or older.[15] The increase in life expectancy has increased the susceptibility to various diseases for which medical advice is sought. Another important point for this age group is the use of disproportionately high number of drugs as compared to the younger adults and the associated risk of increased vulnerability to adverse reactions of drugs.[16] A study has estimated that elderly people have 4 times greater odds of being hospitalized for a medication-related problem than those <65 years of age (16.6% vs. 4.1%, respectively).[17]

The results from the present study show that the prevalence of CAM use in the elderly patients of the age range of 60-90 years is 65.5%. Earlier studies which were not targeted to participants of any particular age group have shown the CAM usage in patients in general to be in the range of 30-40%.[1,18] But, those studies which have focused on elderly age group or have analyzed the CAM usage in patients of diseases such as osteoarthritis and diabetes, where the chances of a patient being elderly is more, have reported the prevalence in the range of 41% to 67%.[12,19] The higher use of CAM in the elderly age group can be understood to be due to the increase in the number of chronic diseases, most of which can only be controlled and not cured in the current therapeutic scenario. It has been found in previous studies that nearly 65% of adults older than 65 years have multiple chronic diseases. This percentage increases with age and is about 83% for those 75 years or older.[15] Patients, not being completely satisfied with the level of relief from the modern system of medicines, are on the lookout for any other kind of therapy which claims to offer better control or complete cure of such age-related ailments. This may lead to trying out the various modalities of CAM, more in comparison to other age groups.

There is no significant effect of gender on CAM usage in most of the studies, though some studies have found higher usage of CAM in females of all age groups, especially in the educated females.[5,20] The urban population may be keener on trying out alternative therapies, which could be due to more availability of information and the services of alternative practices.[5] We tried to see whether there was an increase in the usage of CAM if the hospital is too far from the patient's residence, as this has not been studied earlier as a factor. The results show that the use of CAM is not influenced significantly by the availability of modern medicine system facility and there appears an overall increased acceptability for the alternative medical practices.

In this study, Ayurveda and homeopathy were the most commonly used practices in the elderly with Ayurveda being the most preferred practice followed closely by homeopathy. Ayurveda has been shown to be the most popular alternative system practiced by Indians in previous studies also, though homeopathy is also very popular in the Indian subcontinent.[18,21,22] Chiropractic, massage, and acupuncture have been more frequently cited in the European studies.[12] In the present study, the total number of CAM options availed exceeded the number of CAM patients as many had used more than one type of CAM and were allowed to select more than one option in the questionnaire. People seem to try using as many options as available somehow get relief from the symptoms. This further highlights the futility and frustration in treating many of the common age-related diseases by any system including the conventional modern medicine practice.

Most of the people using CAM had more than one reasons to justify the practice. The most common belief, in more than 70% respondents, was the superior efficacy of the option being practiced as compared to the modern medicine system. This strong belief speaks volumes about the faith of elderly people in alternative systems of medicine. This was followed by the belief of such systems having less adverse effects. It has been observed in previous studies that the popularity of CAM is not actually the result of being dissatisfied with conventional modern medicine but mainly because of

patients' own values, beliefs, and philosophical perspectives toward health and life.[12]

The advice from someone other than the doctor was the most important influence for initiating the use of alternative medicine practice. This is similar to findings in other studies related to CAM usage where family members and neighbors constituted the major source of recommendation for CAM therapy.[21] For about two-third of the elderly CAM users, a CAM practice was the preferred initial choice exercised before visiting any doctor of modern medicine system. The trust in CAM was either more than or equal to the modern medicine system in more than 80% of the elderly CAM users, with only a small subset using CAM as the secondary choice. This percentage is higher than that seen in other studies where a particular age group has not been exclusively in focus.[23]

More than half of the elderly CAM users (56.8%) were either of the opinion that CAM could be used with modern medicine system therapy or were not sure about any importance of this context. These findings highlight the lack of adequate general awareness related to dangers of poly-pharmacy, especially in this age group which is the most heterogeneous of any age groups as far as physical, psychological, social, and functional characteristics are considered and is especially at increased risk to various types of adverse effects and drug–drug interactions because of changes in the pharmacokinetic and pharmacodynamic profile of the body.[22-24]

The present study shows that, in more than 90% of cases, modern medicine practitioners do not ask about the history or current usage of any other system of medicine. Most of the patients also did not consider sharing the information on alternative therapy with their doctors unless specifically asked for. This percentage is lower in studies on elderly population from Western countries, which may be due to more informed status of the general population in developed countries.[3,12] In the Indian studies on other age groups, it has been found that the communication about CAM usage ranges from, as low as about 3%, which is even less than that in our study, to 29%.[21,25] This large communication gap highlights a lack of proactive discussion on previous or current usage of CAM between the doctors and patients.

The study represents only a section of North Indian elderly patients and the results may not be extrapolated to all elderly patients in India, which is a vast country with diverse CAM practices in different regions. The other limitation of the study is that the study sample does not account for the elderly CAM users who are not visiting the hospitals.

CONCLUSION

The study suggests the need to acknowledge the high prevalence of CAM usage in the elderly. There should be active exploration of the patient by doctors, both to identify the irrational usage of CAM alone or in combination with the modern medicine system and to facilitate the integration of rational CAM practices in the mainstream medicine.

ACKNOWLEDGMENT

It was an Indian Council of Medical Research STS project.

REFERENCES

1. Mishra SK, Trikamji B, Togneri E. Complementary and alternative medicine in chronic neurological pain. Indian J Pain. 2015;29:73-81.
2. Kim HJ, Jeon B, Chung SJ. Professional ethics in complementary and alternative medicines in management of Parkinson's disease. J Parkinsons Dis. 2016;6(4):675-83.
3. Verma R, Khanna P. National program of health-care for the elderly in India: A hope for healthy ageing. Int J Prev Med. 2013;4:1103-7.
4. Cherniack EP, Senzel RS, Pan CX. Correlates of use of alternative medicine by the elderly in an urban population. J Altern Complement Med. 2001;7(3):277-80.
5. Zhang AL, Xue CC, Lin V, Story DF. Complementary and alternative medicine use by older Australians. Ann N Y Acad Sci. 2007;1114:204-15.
6. Dello Buono M, Urciuoli O, Marietta P, Padoani W, De Leo D. Alternative medicine in a sample of 655 community-dwelling elderly. J Psychosom Res. 2001;50(3):147-54.
7. Tandon M, Prabhakar S, Pandhi P. Pattern of use of complementary/alternative medicine (CAM) in epileptic patients in a tertiary care hospital in India. Pharmacoepidemiol Drug Saf. 2002;11(6):457-63.
8. Roy V, Gupta M, Ghosh RK. Perception, attitude and usage of complementary and alternative medicine among doctors and patients in a tertiary care hospital in India. Indian J Pharmacol. 2015;47(2):137-42.
9. Dongre AR, Deshmukh PR. Social determinants of quality of elderly life in a rural setting of India. Indian J Palliat Care. 2012;18(3):181-9.
10. Ernst E, Cohen MH, Stone J. Ethical problems arising in evidence based complementary and alternative medicine. J Med Ethics. 2004;30(2):156-9.
11. Herman PM, Craig BM, Caspi O. Is complementary and alternative medicine (CAM) cost-effective? A systematic review. BMC Complement Altern Med. 2005;5:11.
12. Astin JA. Why patients use alternative medicine: Results of a national study. JAMA. 1998;279(19):1548-53.
13. Crimmins EM. Trends in the health of the elderly. Annu Rev Public Health. 2004;25:79-98.
14. Britt HC, Harrison CM, Miller GC, Knox SA. Prevalence and patterns of multimorbidity in Australia. Med J Aust. 2008;189(2):72-7.
15. Ahmed B, Nanji K, Mujeeb R, Patel MJ. Effects of polypharmacy on adverse drug reactions among geriatric outpatients at a tertiary care hospital in Karachi: A prospective cohort study. PLoS One. 2014;9(11):e112133.
16. Caughey GE, Roughead EE, Shakib S, McDermott RA, Vitry AI, Gilbert AL. Comorbidity of chronic disease and

potential treatment conflicts in older people dispensed antidepressants. Age Ageing. 2010;39(4):488-94.
17. Malik IA, Gopalan S. Use of CAM results in delay in seeking medical advice for breast cancer. Eur J Epidemiol. 2003;18:817-22.
18. Kumar D, Bajaj S, Mehrotra R. Knowledge, attitude and practice of complementary and alternative medicines for diabetes. Public Health. 2006;120(8):705-11.
19. Patwardhan B. Bridging Ayurveda with evidence-based scientific approaches in medicine. EPMA J. 2014;5(1):19.
20. Zaman T, Agarwal S, Handa R. Complementary and alternative medicine use in rheumatoid arthritis: An audit of patients visiting a tertiary care centre. Natl Med J India. 2007;20(5):236-9.
21. Gupta M, Shafiq N, Kumari S, Pandhi P. Patterns and perceptions of complementary and alternative medicine (CAM) among leukaemia patients visiting haematology clinic of a north Indian tertiary care hospital. Pharmacoepidemiol Drug Saf. 2002;11(1):671-6.
22. Nelson EA, Dannefer D. Aged heterogeneity: Fact or fiction? The fate of diversity in gerontological research. Gerontologist. 1992;32:17-23.
23. Cusack BJ. Pharmacokinetics in older persons. Am J Geriatr Pharmacother. 2004;2(4):274-302.
24. Bowie MW, Slattum PW. Pharmacodynamics in older adults: A review. Am J Geriatr Pharmacother. 2007;5(3):263-303.
25. Jadhav MP, Jadhav PM, Shelke P, Sharma Y, Nadkar M. Assessment of use of complementary alternative medicine and its impact on quality of life in the patients attending rheumatology clinic, in a tertiary care centre in India. Indian J Med Sci. 2011;65(2):50-7.

How to cite this article: Sharma E, Dubey AK, Malhotra S, Manocha S, Handu S. Use of complementary and alternative medicines in Indian elderly patients. Natl J Physiol Pharm Pharmacol 2017;7(9):929-934.

Source of Support: Nil, **Conflict of Interest:** None declared.