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**Abstract**

# Knowledge, attitude, and practices toward ayurvedic medicine use among allopathic resident doctors: A cross-sectional study at a tertiary care hospital in India

**Context:** Ayurveda is most commonly practiced form of complementary and alternative medicine (CAM) in India. There are very few studies showing the knowledge, attitude, and practices (KAP) of allopathic doctors about Ayurvedic drugs and its use. **Aims:** The study was initiated to assess KAP toward Ayurvedic medicine use among allopathic resident doctors. **Settings and Design:** Cross-sectional and prospective study. **Materials and Methods:** After obtaining permission from the Institutional Ethics Committee, allopathic resident doctors from clinical departments were approached personally. They were given pre-formed validated questionnaire to assess KAP toward Ayurvedic medicine use. **Statistical Analysis Used:** Descriptive statistics. **Results:** Allopathic residents had little knowledge about basic concepts of Ayurveda, that is, 'panchakarma' and 'tridosha'. Majority residents (99%) had no opportunity to learn basics of Ayurveda, but 67% residents prescribed Ayurvedic medicines to patients. However, many residents (76%) mentioned that cross practice should not be allowed due to lack of knowledge. One resident knew that cross-practice was not allowed by law. The commonly prescribed proprietary Ayurvedic medicines were Liv-52 (39%), Shatavari (13%), Cystone (12%) and common ailments for which these medicines prescribed were liver disorders (34%), arthritis (18%), cough and cold (13%), kidney stones (11%), and piles (10%). Nearly 76% residents felt incorporation of Ayurveda with modern medicine would attract more patients and at the same time most residents (92%) agreed that Ayurvedic medicines need scientific testing before use. Though 50% of the residents agreed for voluntary training in Ayurveda, 80% denied compulsory training. Nearly 63% residents recommended Ayurveda among all CAMs. Most of residents heard of Ayurveda from their colleagues. **Conclusions:** This study reveals that allopathic resident doctors had little knowledge about Ayurveda and Ayurvedic medicine use but engaged in prescription of Ayurvedic medicines. So some interventions should be taken to increase the knowledge and awareness of allopathic resident doctors about Ayurvedic medicine use.

**Key words:** Allopathy, Ayurveda, cross-practice, knowledge, attitude, and practices study, residents

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**Website:**

www.picronline.org

**DOI:**

10.4103/2229-3485.115380

## INTRODUCTION

Ayurveda is most commonly practiced form of complementary and alternative medicine (CAM) in India. About 80% of Indian patients use Ayurvedic therapy.<sup>[1]</sup> It aims to integrate and balance the body, mind, and spirit to help prevent diseases and promote wellness. Recently

Ayurvedic therapy is becoming more and more noticeable from the point of view of dissatisfaction with modern medicine. Although the therapeutic value of several Ayurvedic medicines has been established; for many others, this is not the case, often because the research has not been done. Their efficacy can be tested in clinical trials much like synthetic drugs, yet numerous methodological and logistical problems exist.<sup>[2]</sup> Many consumers believe that Ayurvedic medicines are natural and therefore safe, but this is a dangerous oversimplification. According to a study, one-fifth of both US-manufactured and Indian-manufactured Ayurvedic medicines purchased via the Internet contain detectable lead, mercury, or arsenic.<sup>[3]</sup> Ayurvedic medicines are associated with adverse effects, which include interactions with prescribed drugs. A recent survey found that 15% of patients receiving conventional pharmacotherapy also take herbal products or Ayurvedic products and, among these, potential adverse herb–drug interactions were observed in 40% of patients.<sup>[4]</sup>

Recently integrative medicine approach recently came forward with the optimism of providing an affordable and practical solution to the global healthcare crisis, especially in developing countries like India. Department of AYUSH, under the Ministry of Health and Family Welfare proposed a new approach by integrating of Ayurveda, Siddha, Unani, and homoeopathy with Allopathic system to ensure health for all citizens across the country.<sup>[5]</sup>

The success of the new, ‘integrative’, approach will lie in its capability to identify the respective values, beliefs, fundamentals, practices, strengths, and weaknesses of all the systems. China has effectively incorporated practices from both traditional and modern medicine through a bottoms-up approach. Medical students in China take compulsory courses in both modern and traditional medicine, and apply their knowledge in practice. Therefore, Chinese physicians are aware with the pros and cons of both medical systems and can opt for the right combination to make best use of the both systems. However, the role of integrative medicine is still at infancy level in India.<sup>[6]</sup>

The scope of integration between Ayurveda and allopathic medicine in the future will be greatly influenced by the attitudes of allopathic physicians, especially postgraduate residents. Their attitudes and beliefs may have a strong impact on the way they ultimately practice medicine. In previous studies done in developed countries, medical students have consistently expressed interest in gaining more exposure to CAM<sup>[7,8]</sup> and medical colleges are becoming aware of the need to provide CAM-related education and training.<sup>[9]</sup> However, there is no study done to evaluate knowledge, attitude, and practice (KAP) of allopathic doctors toward Ayurvedic drugs and its use.

Hence the present study was undertaken to ascertain the beliefs of a sample of Allopathic resident doctors about Ayurveda and their knowledge base, attitude and practice regarding common Ayurveda therapy and integrative medicine.

## MATERIALS AND METHODS

### Study design

It was a cross-sectional, questionnaire-based study conducted by the Department of Pharmacology and Therapeutics of Seth GS Medical College and King Edward Memorial VII Hospital, Mumbai (India) between November 2010 and February 2012.

### Ethics committee approval

The Institutional Ethics Committee permission was taken prior to initiation of the study (EC No: EC/OA-79/2010 dated October 14, 2010). As the research has minimal risk involved so the ethics committee allowed us to take verbal consent. The script of the verbal consent was used to take consent of the residents. The resident doctor involved was identified with a code number and privacy and confidentiality was maintained regarding the data throughout the study and also during the publication.

### Sample size

Allopathic resident doctors from clinical branches of this institute were identified and included in the study. Other resident doctors from nonclinical branches were excluded. A total of 100 resident doctors (minimum 10% of total 750 residents required) were randomly selected by using computer generated charts.

### Data collection tool

We developed a pretested, structured questionnaire based on our study objectives, taking guidance from the previous literature.<sup>[10,11]</sup> It was subjected to a thorough peer review by three senior teachers from the college. It was subsequently modified as per suggestions of the teachers and the final questionnaire consisted of 19 multiple choice questions and open ended questions.

The questionnaire was prepared to assess KAP toward Ayurvedic medicine use. Each participant was allotted 20 minutes to answer the questions in the form of options which he/she feels is appropriate to answer.

The questionnaire consisted of several parts. The first part pertained to a collection of demographic information of the residents: Age, gender, academic year, and faculty. The questions in the second part of the questionnaire assessed the residents’ knowledge about Ayurvedic drugs and therapy, and their attitude toward

Ayurveda practice. The third part of the questionnaire addressed questions related to their clinical practices related to Ayurveda.

**Statistical analysis**

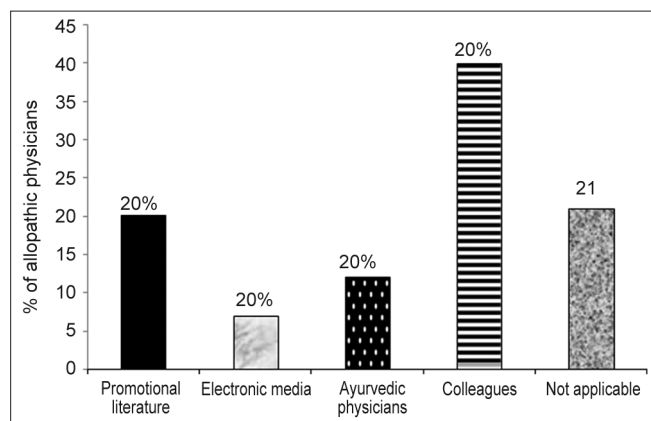
Statistical analysis was done by using descriptive statistics. Data were collected in a predesigned Microsoft® Excel 2007. Continuous variables were presented as mean values ± standard deviation (SD), and categorical variables were presented as percentages.

**RESULTS**

A total of 112 residents were approached, out of which 100 agreed to fill the questionnaire form, resulting in response rate of 89%. Total 73% of residents were male. Out of 100 residents, 57 residents were working in medicine and allied departments, for example, pediatrics, skin, psychiatry, etc., and remaining 43 were from surgical departments, for example, orthopedics, ear, nose, and throat (ENT), ophthalmology, etc., Average age of residents is 26.47 ± 1.65 years. Out of the 100 resident doctors interviewed, 48% had knowledge and could answer about Doshas, 52% had no knowledge. When asked about Panchkarma in Ayurveda, 81% did not have knowledge about it. The major source of information of Ayurvedic medicines for the residents was as shown in Figure 1. The common proprietary Ayurvedic preparations known to allopathic residents are mentioned in Figure 2. When asked for the common ailments for which Ayurvedic medicines are prescribed along with modern medicines, the responses given was as mentioned in Table 1.

The questions and the respective responses for testing attitude of the resident doctors are given in the Table 2.

Majority residents (49%) felt that >20-40% of the population uses Ayurvedic medicine in routine practice.



**Figure 1:** Sources of information about Ayurvedic medicines for Allopathic residents

Almost all (99%) residents did not have any opportunity to learn basics about Ayurveda. The residents felt that if there is any condition for which opinion or referral to Ayurvedic doctor is necessary, 46% agreed to this referral, but 35% disagreed to this fact. Majority (92%) of the residents felt that Ayurvedic medicines need more scientific testing before being used. Total 60% of the residents agreed that incorporation of Ayurveda therapies into the practice would result in increased patient satisfaction and attract more patients. Around 60% agreed to the fact that Physician’s knowledge of Ayurveda practices leads to better patient outcome. On the contrary there was no consensus reached on voluntary course of 6 months in training in Ayurveda after completion of Medical graduation.

On questioning about compulsory training in Ayurvedic medicine use during post graduation, 80% of them

**Table 1: Common ailments for which Ayurvedic medicines used along with modern medicines by allopathic doctors**

Ailments for which Ayurvedic medicines are commonly prescribed	Response in %
Liver disorders	34
Arthritis	18
Cough/cold	13
Kidney stones	11
Piles	10
Skin diseases	9
Dyspepsia	6
Constipation	5
Menstrual disorders	4
Chronic pain (backache, headache)	4
Others (anorexia, dementia, anemia, diabetes, asthma, inflammatory bowel disease, urinary tract infection)	<4

**Table 2: Response of allopathic doctors towards attitude questions**

Questions for finding attitude of allopathy residents toward Ayurvedic drug use	Affirmative % (agree/strongly agree)	Negative % (disagree/strongly disagree)
You would refer a patient to an Ayurveda practitioner if available at a tertiary care hospital for treatment of an ailment	55	45
Ayurvedic medicines need more scientific testing before being used	92	8
Incorporation of Ayurveda therapies into the practice would result in increased patient satisfaction and attract more patient	78	22
Physician’s knowledge of Ayurveda practices leads to better patient outcome	75	25
Doctors should have knowledge about the most common Ayurveda therapies	86	14
Ayurveda and modern medicine should be integrated	68	32

disagreed. Nearly 68% felt that Ayurveda and modern medicine should be integrated, but again 32% disagreed to this integration.

In regards to ever referring a patient to an Ayurvedic outpatient department (OPD) running in our hospital, 93% disagreed, but 94% agreed that they came across patients approaching Ayurvedic doctors and taking Ayurvedic drugs before attending to allopathic doctors. Nearly 71% did not felt of consulting an Ayurvedic physician but 29% felt like consulting them. Allopathic doctors (69%) have prescribed branded Ayurvedic preparations but 31% said no to this practice. The most recommended CAM treatment as per resident doctors is mentioned in Figure 3.

Seventy-six (76%) allopathic residents felt that they should not be allowed cross-practices of Ayurveda. The common reasons given against cross practice were as shown in Table 3.

Twenty-four (24%) allopathic doctors said that it should be allowed. The common reasons given for allowing cross practice were as shown in Table 4.

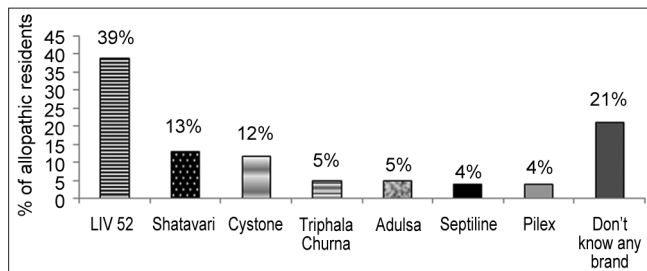
## DISCUSSION

This study investigated the level of KAP of allopathic resident doctors regarding Ayurvedic medicine use. Among the resident doctors, only (48%) had knowledge about Doshas. When asked about Panchkarma in Ayurveda, 81% did not have knowledge about it. This shows how allopathic residents are unaware about the facts of Ayurveda. This

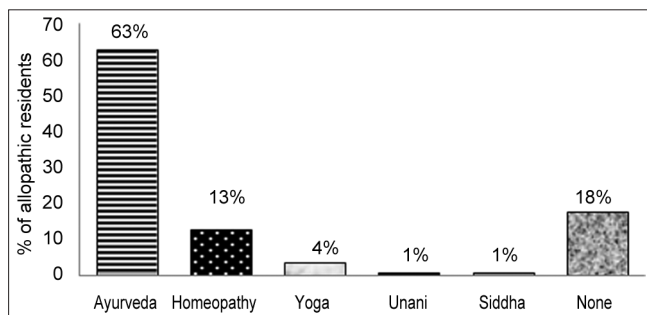
is further justified by the fact that the major source of information of Ayurvedic medicines for the residents was colleagues (67%) and promotional literature. This shows the peer pressure and strong belief on the reliability of information of colleagues. The allopathic resident doctors in their busy schedule rely for information on promotional literature, which can be fabricated without study background and industry oriented.<sup>[12]</sup>

The residents knew the names of the Ayurvedic preparations. LIV 52 was found to be frequently used medicine by the resident. LIV 52 use can be attributed to common liver disorders, drug-induced hepatitis among the population.<sup>[13]</sup> Higher incidence with no definitive treatment available in modern medicine can make the doctors think of Ayurvedic drug use. Liver disorders (hepatitis, cirrhosis) form the major chunk of Ayurvedic medicine use by the allopathic residents followed by arthritis (rheumatoid arthritis, osteoarthritis), cough/cold, kidney stones, piles, skin disorders, and others (dyspepsia, constipation, menstrual disorders, chronic pain, anorexia, dementia, anemia, diabetes mellitus, asthma, inflammatory bowel disease, and urinary tract infection). The disorders are varied for the Ayurvedic drug use, but there are few like liver disorders. Arthritis, skin disorders, chronic pain, diabetes mellitus, asthma, inflammatory bowel disease, which have no curative treatment in allopathy.

The resident felt that 20-40% of the population uses Ayurvedic medicine in routine practice, which is also



**Figure 2:** Common proprietary Ayurvedic preparations known to allopathic residents



**Figure 3:** Commonly recommended CAM by allopathic doctors

**Table 3: Common reasons given by allopathic doctors for not allowing cross practice**

Reasons given by allopathic doctors for not allowing cross practice	Response in %
No response	34
Lack of knowledge about drug interactions, side effects and proper training	36
Ayurvedic drugs do not undergo scientific testing	2
There are better options than Ayurveda	1
Cannot be used in emergency	1
Cross practice not allowed by law	1
This can lead to malpractice	1

**Table 4: Common reasons given by allopathic doctors for allowing cross practice**

Reasons given by allopathic doctors for allowing cross practice	Response in %
Only in few conditions	6
No response	5
For patient satisfaction and compliance	4
Only after training	3
Integrated management is better	3
Only after proving efficacy	1
In rural area where scarcity of doctors	1
Ayurveda is ancient medicine, practiced for many years	1

shown by Frank *et al.*<sup>[14]</sup> This shows the popularity of Ayurvedic medicines in the community as shown by Shankar *et al.*<sup>[15]</sup> Majority of the residents felt that among the CAM treatment, the most recommended treatment was Ayurveda (63%) followed by Homeopathy (13%), Yoga (4%), Unani (1%), and Siddha (1%).

Majority of the residents (68%) felt that Ayurveda and modern medicine should be integrated. Total 60% of the residents agreed incorporation of Ayurveda therapies into the practice and better physician knowledge about Ayurveda would result in increased patient satisfaction and attract more patients. This again emphasizes the growing popularity and belief in Ayurvedic medicines. The rapidly spreading public enthusiasm for CAM, coupled with the increasing acceptance of a consumerist and market-driven approach to health care, may push some doctors to respond to the patients' requests without having appropriate training.<sup>[16]</sup>

Our study revealed that total 99% of the residents did not have any opportunity to learn basics about Ayurveda, as in present curriculum of MBBS and MD, Ayurveda is not included. The resident felt that if there is any condition for which opinion or referral to Ayurvedic doctor is necessary, 46% agreed to this referral, but 35% disagreed to this fact. This shows that even if the students are not knowledgeable, they feel referring a patient to Ayurvedic physician can bring out some positive results. But again 93% of the resident doctors never referred a patient to an Ayurvedic OPD running in the hospital. Nearly 71% resident doctors did not feel of consulting an Ayurvedic physician but 29% felt like consulting them. This finding is in the line with that of Wahner-Roedler *et al.*<sup>[10]</sup> Majority of residents (94%) agreed that they came across patients approaching Ayurvedic doctors and taking Ayurvedic drugs before attending to allopathic residents.

In our study there was no consensus reached on voluntary course of 6 months training in Ayurveda after completion of Medical graduation. Most of the doctors (80%) disagreed to compulsory training in Ayurvedic medicine use during post graduation. As doctors are overburdened with their routine hectic schedule and studies, they do not want another addition in it. However, 86% felt that doctors should have knowledge about the most common Ayurveda therapies.

Majority of the residents felt that Ayurvedic medicines need more scientific testing before being used as there are very few randomized controlled trials done and published about Ayurvedic drugs. This finding is confirmed by Thatte *et al.*<sup>[17]</sup> The residents themselves are very confused about accepting Ayurveda as a science and reap its benefits. This

was shown by Janamian *et al.*,<sup>[18]</sup> in her study. GPs are open to integrating CAMs into their clinical practice. They are not comfortable in referring patient to any other specialty.

Total 69% of Allopathic residents have prescribed branded Ayurvedic preparations. This finding is in agreement with previous studies done in India. In a study by Verma *et al.*, in North India, it has been observed that, the prescriptions of Allopathic doctors contained 88% allopathic and 12% Ayurvedic drugs.<sup>[1]</sup> Another study by Kumar reported that Ayurvedic drugs were prescribed by 5.26% of allopathic-practitioners.<sup>[19]</sup> Hence, even without knowledge, training, allopathic physicians do not want to refer patients to Ayurvedic doctors but want to prescribe Ayurvedic drugs on their own to the patients. This behavior of allopathic doctors can be life threatening for the patients, as all Ayurvedic medicines are not free of side-effects.

This study also investigated: should allopathic doctors be allowed to cross-practice Ayurveda? Nearly 76% felt that the allopathic doctors should not be allowed cross-practices. This is right as per the law; allopathic doctors are not allowed to practice Ayurveda.<sup>[20]</sup> However, 24% felt that they should be allowed to cross-practice. Positive experiences in this field have been reported from Italy.<sup>[21]</sup>

## CONCLUSION

First, while the study suggests a high popularity of Ayurvedic medicines among the allopathic resident doctors, they considered Ayurveda therapy not being evidence-based system. From a government point of view, it suggests that for implementation of integrative medicine more research is required, particularly high quality clinical trials that evaluates the mechanisms, safety and cost-effectiveness of Ayurvedic therapies. Lack of studies assessing the efficacy of Ayurvedic therapy may be the major obstacle for integration.

Second as cross-pathway practice was found to be common; there should be stringent laws by the government at health care centers for the allopathic residents to not prescribe Ayurvedic drugs. The study also indicates that there is an urgent need to undertake educational and reorientation programs for residents regarding various Medical council of India (MCI) rules and regulations to avoid unnecessary exposure of population to their harmful effects.

As pharmacology subject has been included in the curriculum of BAMS (Bachelor of Ayurvedic Medicine and Surgery) as they anyways practice Allopathy,<sup>[22]</sup> the same can be included in the 2<sup>nd</sup> year MBBS syllabus to Allopathy

doctors who in nutshell practice Ayurveda (Ayurvedic therapy). In internship there can be orientation program giving practical guidelines for Ayurveda Therapy to Allopathy doctors. In addition, regular CMEs (Continuing Medical Education) should be arranged, where in the disease specific platforms experts in Ayurveda should be called to speak on the same domain.

Moreover, large scale epidemiological studies should be conducted both in the urban and rural parts of the country, comparing the trend of cross-pathway practices among qualified physicians of both the systems of medicine. The benefit of the patient lies in the optimal balance and evidence-based use of both the systems and this need to be encouraged especially in developing countries like India with inadequate doctor patient ratio.

### Limitations of study

The sample was representative of a single tertiary care hospital of Mumbai, and thus the results may not be generalizable to other medical colleges in India. Although the response rate was relatively good for a survey instrument, it was sufficiently small that there is undoubtedly a self-selection bias, which possibly skews the findings. Since the study is cross sectional rather than longitudinal, we do not have information on the actual change in knowledge and attitudes of any specific cohort of residents over time.

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**How to cite this article:** Gawde SR, Shetty YC, Pawar DB. Knowledge, attitude, and practices toward ayurvedic medicine use among allopathic resident doctors: A cross-sectional study at a tertiary care hospital in India. *Perspect Clin Res* 2013;4:175-80.

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