

Ayurveda education & research in India—present scenario, challenges & solutions

Abstract

Purpose & introduction: Ayurveda, a pioneer system of healthcare, having history of more than 5000 years is believed as one of the scientific ways of preserving and promoting a healthy life. But now a day the medical education and health care systems including Ayurveda in India are facing serious challenges in regards to its merits and proficiency. The present survey was conducted to estimate the current educational and research status of Ayurveda across the country, based on the responses of Ayurvedic students, faculty members and research scholars from various states of India.

Methods: An online survey was conducted after preparing a questionnaire considering various educational, research and awareness related issues on Ayurveda. Total 36 questions were uploaded on the website <https://www.surveypplanet.com> and facebook group Ayurveda_Admissions_Jobs_Events where number of group members are 16,517 till 10.12.2014. The web link of survey was also sent by email to the students and faculties of Ayurveda. Analysis of the responses was conducted thereafter.

Results: Total 1855 participants expressed their opinion through the survey which evaluated the views of scholars of Ayurveda regarding present status and scope in the field. About 47% Participants were not appreciating the quality of education provided by Ayurveda institutes and researches conducted therein over their respective states. Approximately 49% participants were satisfied with the field chosen as a career. A significant proportion of participants agreed about the lack of pertinent initiation by Government and research institutes for the reinforcement of Ayurveda.

Conclusion: Ayurveda education & research in India can be further strengthened with innovative & creative motivations. Strategies and futuristic plans are essential to be implemented with active initiation by concerned Government bodies for creating awareness among the faculties, students and upcoming scholars of Ayurveda.

Keywords: ayurveda, education, survey, research, Ayurveda,admissions jobs events, surveyplanet

Research Article

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Introduction

Ayurveda is one of the world's oldest medical systems pioneering the ways of healthcare; originated in ancient India and evolved over more than 5000 years. A health system with strong philosophical foundations and eternal practical knowledge is the basis of its survival from the time immemorial. The aim of Ayurveda is to integrate and balance the body, mind, and spirit. It is a health system with strong philosophical foundations. Ayurveda is believed to help in preventing illness as well as promote wellness. Being holistic in nature, people from all over the world are now attracted towards this ancient system of medicine. The 2007 National Health Interview Survey (NHIS) conducted in the United States reveal that approximately 38% of American adults are following complementary and Alternative Medicine (CAM) and Ayurveda is one among it.¹

In India near about 246 Ayurveda institutes are recognized by Central council of Indian Medicine (CCIM) offering graduate level education and more than 100 institutes are having facility of post graduation.² But now a day the medical education and health care systems including Ayurveda in India are facing serious challenges in

regards to its merits and proficiency.³ Ayurveda education is passing through a crucial stage. Qualities of education and research among the Ayurveda institute all over India have become the matter of debate. Even though Ayurveda is being observed as a foundation of new drug development, questions on safety and efficacy of Ayurvedic products are also being raised from time to time.⁴⁻⁶ Hence the present survey was conducted to estimate the current educational and research status of Ayurveda across the country; Survey was based on the online responses of Ayurvedic students, faculty members and research scholars from various states of India.

Material and methods

An online survey was conducted after preparing a questionnaire considering various educational, research and awareness related issues on Ayurveda. The questionnaire contained multiple choice answers as a response by the participants. Total 36 questions were uploaded on the professional survey website <https://www.surveypplanet.com>. The link of the survey⁷ was shared on a face book group Ayurveda_Admissions_Jobs_Events involving 16,517 number of group members till 10.12.2014.^{8,9} The web link of survey was also sent by email to

the students and faculties of Ayurveda. Analysis of the responses was conducted thereafter. The overall response to each question as well as comparative opinion between the students/scholars and teachers/faculties were taken into considerations. Online Survey link was open during June 2014 to Dec 2014.

Observation and analysis

Total 1855 participants expressed their opinion through the survey by responding the questionnaire which evaluated the views of scholars of Ayurveda regarding present status and scope in the field. Among the total participants, number of students/scholars were 1015 where as 840 were teachers/faculty members of Ayurveda (Figure 1). Combined response to each question was considered to calculate the overall percentage as well as significance by Chi-square test.

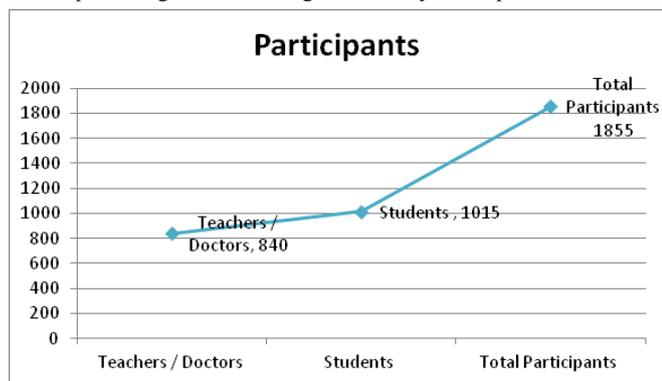


Figure 1 Total Number of Participants.

Question 1 Geographical distribution of the participants from India shows that 29.11 % were from Southern India, 18.33% were from North, 27.76 % were from west, 6.19 % were from east and 18.6 % were from Central states of the India (Figure 2).

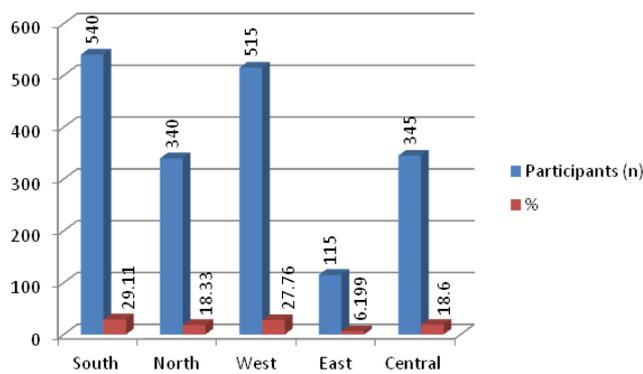


Figure 2 Region wise Distribution of Participants.

Question 2 It has been observed from the educational qualification of the survey participants that 38.54 % were graduate (BAMS), 49.06 % were post graduate (MD), 7.54 % were PhD and 4.85 % were holding other qualifications (Figure 3). Which shows that majority of the participants were post graduate in Ayurveda.

Responses of the participants for other questions are summarized in the Table 1 with actual number of reply and percentage. These responses were compared by Chi-square test for the relevant questions and the significant was calculated.

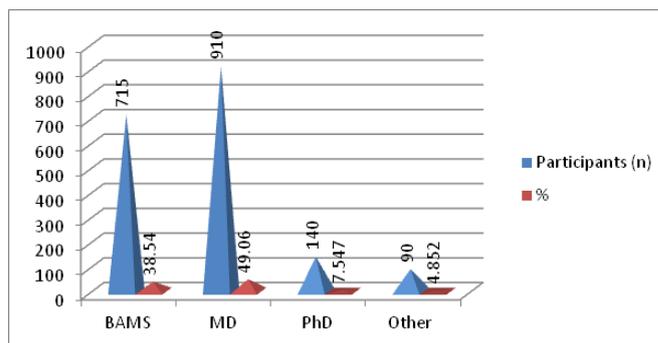


Figure 3 Educational qualifications of participants.

Discussion

The intention of present survey was to appraise the present scenario of Ayurveda education, research and inclination of Ayurveda teachers, scholars and students towards its status. Even though there is huge source of knowledge available in old literatures of Ayurveda, the implementation seems lacking behind. The questionnaire was designed in such a way that it should comprise the issues related to Ayurveda education, essentiality of inclusion of various standards and parameters in Ayurveda research, role of Ayurveda in day to day life, knowledge about publications, authentic database related to Ayurveda available online and eminence of Ayurveda physicians an scholars in the society as a healthcare official (Table 1). Responses of participants to the imperative questions are assessed and discussed in present article.

Questions 3-7 were related about the safety and quality issues as well as proclivity of Ayurvedic medicines among the physicians and students. In reply to Q-3: Among 1855 participants of the present survey 72.24 % opined that Ayurvedic treatments are safe and effective where as 0.53 % were of opinion that it is not safe. 26.95 % participants were un-certain about the efficacy and safety of these drugs whereas 0.27 % were unable to comment. Even though the safety and efficacy of Ayurveda medicines both are different issues, it has been tried to understand the over view of the respondents related to the same. In response to Q 4 to 6 Majority of the volunteers replied that they prefer Ayurvedic Medicine even in common diseases (69.81 %) as well as major systemic ailments (46.09 %). 72.51 % participants use to purchase Ayurvedic Medicines over the counter. At the same time 23.45 % partaker believes that Ayurvedic medicines do have adverse effects when consumed without proper guidelines and dosage (Q-7). Chi-square value shows that that difference is statistically significant ($P < 0.00001$) for these questions.

Even though 18.33 % survey participants was having view that Ayurvedic medicines do have slow efficacy (Q-8), still 36.66 % volunteers were of opinion that it can also be administered in emergency conditions (Q-9). 84.37% volunteers were in favour of integrative approach while prescribing medicines every now and then which suggests the combination of Ayurvedic drugs either with conventional systems of medicines or other alternative systems of medicines (Q- 10); whereas 13.48 % never opt such integrative treatment protocols. Approximately equal distribution was observed for the opinion about cost effectiveness of Ayurvedic medicines (Q-11)

Table 1 Percentage of response to the questionnaire

Q No	Question	Response	No. of Respondents	% of Response	Chi-square	p Value
1	Which part of India you belong to?	South	540	29.11	Not Analysed	Not Applicable
		North	340	18.33		
		West	515	27.76		
		East	115	6.199		
		Central	345	18.6		
2	What is your present qualification?	BAMS	715	38.54	Not Analysed	Not Applicable
		MD	910	49.06		
		PhD	140	7.547		
		Other	90	4.852		
3	Whether Ayurvedic treatment is safe and effective?	Yes	1340	72.24	3408.35	< 0.00001
		No	10	0.539		
		Up to Certain Extent	500	26.95		
		Cannot Comment	5	0.27		
4	How frequent you prefer Ayurvedic medicine for treatment of common diseases?	Always	1295	69.81	3113.80	< 0.00001
		Sometimes	515	27.76		
		Never	25	1.348		
		Cannot Comment	20	1.078		
5	How frequent you prefer Ayurvedic medicine for treatment of major systemic ailments?	Always	855	46.09	1853.06	< 0.00001
		Sometimes	875	47.17		
		Never	75	4.043		
		Cannot Comment	50	2.695		
6	Which medicines you prefer to purchase frequently over the counter?	Allopathy	475	25.61	3379.17	< 0.00001
		Ayurveda	1345	72.51		
		Homeopathy	5	0.27		
		Other	30	1.617		
7	Whether Ayurvedic Medicine may have adverse effect on health?	Yes	435	23.45	870.35	< 0.00001
		No	705	38.01		
		Sometimes	690	37.2		
		Don't know	25	1.348		
8	Does Ayurvedic drugs are having slow efficacy?	Yes	340	18.33	1165.48	< 0.00001
		No	895	48.25		
		Up to certain Extent	590	31.81		
		Cannot Comment	30	1.617		
9	Can Ayurvedic Medicines be prescribed in an Emergency conditioned?	Yes	680	36.66	431.17	< 0.00001
		No	515	27.76		
		Not Sure	510	27.49		
		Cannot Comment	150	8.086		
10	Do you Prefer an integrative approach by prescribing Ayurvedic Medicine with Allopathy and other medicine?	Always	430	23.18	1946.36	< 0.00001
		Sometimes	1135	61.19		
		Never	250	13.48		
		Cannot Comment	40	2.156		

Q No	Question	Response	No. of Respondents	% of Response	Chi-square	p Value
11	Whether Ayurvedic Medicines are cost effective as compared to any other medicines?	Yes	600	32.35	658.02	< 0.00001
		No	620	33.42		
		Up to certain Extent	585	31.54		
		Cannot Comment	50	2.695		
12	What is your opinion about Ayurveda students, whether they are trained to handle the patient efficiently and interpret lab investigations ?	Yes	1215	65.5	356.46	< 0.00001
		No	640	34.5		
13	Is it necessary to be a Post-Graduate in Ayurveda for better scope?	Yes	940	50.67	929.15	< 0.00001
		Not Necessary	795	42.86		
14	Are the BAMS graduates treated at par with the graduates of any other systems of Medicines?	Cannot Comment	120	6.469	763.70	< 0.00001
		Yes	740	39.89		
		No	940	50.67		
15	Whether equal laws and regulations should be implemented by the government all over the India regarding the practice of Ayurveda?	Can Not Comment	175	9.434	5091.30	< 0.00001
		Agree without doubt	1615	87.06		
		Not Necessary	75	4.043		
		Up to Certain Extent	125	6.739		
16	Do a quality education is being provided by Ayurveda institutes from your state?	Cannot Comment	40	2.156	1026.46	< 0.00001
		Yes	445	23.99		
		No	865	46.63		
17	Whether the Govt. of India is lacking in taking initiatives to uphold Ayurveda in India and Abroad?	Up to Certain Extent	520	28.03	4704.45	< 0.00001
		Can Not Comment	25	1.348		
		Yes	1570	84.64		
		No	90	4.852		
18	Are there quality researches being conducted in post graduation institutions of Ayurveda all over India?	Up to Certain Extent	145	7.817	888.03	< 0.00001
		Can Not Comment	50	2.695		
		Yes	280	15.09		
19	Do Ayurvedic academicians follow international standards for designing protocols of research projects or writing reports?	No	785	42.32	595.77	< 0.00001
		Up to Certain Extent	680	36.66		
		Cannot Comment	110	5.93		
		Yes	325	17.52		
20	Is it Necessary to follow the International standards while evaluating the efficacy of Ayurvedic Medicines?	No	780	42.05	1731.15	< 0.00001
		Sometimes	565	30.46		
		Can Not Comment	185	9.973		
		Certainly	1025	55.26		
21	Are you aware about any standard internationally indexed peer-reviewed journal in Ayurveda?	Not Necessary	625	33.69	1287.38	< 0.00001
		Not Sure	110	5.93		
		Cannot Comment	95	5.121		
22	Have you published any of your research works?	Yes	990	53.37	1171.37	< 0.00001
		No	495	26.68		
		Not Sure	270	14.56		
		Can Not Comment	100	5.391		
22	Have you published any of your research works?	Yes	695	37.47	1171.37	< 0.00001
		No	845	45.55		
		Under Consideration	260	14.02		
		Not Willing to Publish	55	2.965		

Q No	Question	Response	No. of Respondents	% of Response	Chi-square	p Value
23	How frequently you go through various research articles related to Ayurveda published in peer reviewed journals?	Daily	195	10.51	1695.07	< 0.00001
		Once in a Week	430	23.18		
		When Required	1100	59.3		
		Never	130	7.008		
24	How many authentic website do you know about Ayurveda ?	None	195	10.51	1838.11	< 0.00001
		Less Than 10	1125	60.65		
		About 20	430	23.18		
		About 50	105	5.66		
25	Does Seminars, Conferences and CMEs on Ayurveda help to update your knowledge about the subject?	Yes	1035	55.8	1865.71	< 0.00001
		No	145	7.817		
		Up to Certain Extent	645	34.77		
26	Whether Ayurveda Should be a part of syllabus for Primary and secondary education in India?	No Comment	30	1.617	2706.83	< 0.00001
		Yes	1480	79.78		
		No	220	11.86		
27	Whether Ayurveda students should also be exposed agricultural and marketing aspects related to the field?	Can Not Comment	155	8.356	2599.15	< 0.00001
		Yes	1265	68.19		
		Not Necessary	365	19.68		
		Not Sure	165	8.895		
28	Will you like to advise friends and colleagues to opt for Ayurveda as a Career?	Can not Comment	60	3.235	1278.18	< 0.00001
		Yes	1010	54.45		
		No	440	23.72		
		Not Sure	270	14.56		
29	What is response of public / Patients from your state regarding the Ayurvedic treatment?	Always Willing	390	21.02	3455.79	< 0.00001
		Sometimes they Prefer	1380	74.39		
		Negative	75	4.043		
		Can Not Comment	10	0.539		
30	What is your present job status?	Govt Job	440	23.72	Not Analysed	Not Applicable
		Private Job	580	31.27		
		Unemployed/Student	255	13.75		
		Less Than 1 Yr	360	19.41		
31	Please provide your experience as a Physician / Academician in the field of Ayurveda.	1 to 5 Yr	625	33.69	Not Analysed	Not Applicable
		5 to 10 Yr	420	22.64		
		More than 10 Yr	450	24.26		
		Fully Satisfied	895	48.25		
32	Are you satisfied by selecting Ayurveda as your career option?	Not At All	205	11.05	1349.63	< 0.00001
		Up to Certain Extent	695	37.47		
		Can Not Comment	60	3.235		
		Yes	920	49.6		
33	Do you know about any country apart from India where Ayurveda can be legally practiced?	No	515	27.76	1123.50	< 0.00001
		Not Sure	370	19.95		
		Can Not Comment	50	2.695		

Q No	Question	Response	No. of Respondents	% of Response	Chi-square	p Value
34	Will you like to shift to abroad to work in the field of Ayurveda?	Yes	1030	55.53	1524.15	< 0.00001
		No	515	27.76		
		Not Sure	245	13.21		
		Can Not Comment	65	3.504		
		Below 1 Lakh	465	25.07		
35	What is your Annual Income through Ayurveda?	1 to 5 Lakh	860	46.36	Not Analysed	Not Applicable
		5 - 10 Lakh	405	21.83		
		Above 10 Lakh	125	6.739		
		yes	1600	86.25		
36	Whether Separate Ayurveda Ministry should be formed for the development of Ayurveda?	no	110	5.93	4953.72	< 0.00001
		not sure	90	4.852		
		Cannot comment	55	2.965		

Q-12, 13, 14, 16, 25, 26, 27 and 28 were related to Ayurveda education system in India where in the responses seems to be mixed. Around 46.63 % participants replied that quality education is not provided by Ayurveda institutes from their respective states (Q-16). Survey also reflects (65.5%) that Ayurveda students are not trained properly and unable to interpret laboratory investigation reports (Q-12). Half of the volunteers (50.67 %) believe that post graduation is necessary for better scope in the field (Q-13) and same proportion opined that BAMS graduates are not treated at par with the graduates of any other systems of Medicines (Q-14).

Q-18 to 24 was primarily focusing on the researches conducted in post graduation and PhD courses in Ayurveda where in only 15.09 % contributors of the survey think that quality researches are being conducted during the studies (Q-18). Among which only 17.52 % believe that research projects are conducted after following international standards for designing protocols (Q-19). 55.26 % believed that International standards are necessary to be followed while evaluating the efficacy of Ayurvedic Medicines (Q-20). Even though 53.37 % volunteers knew about standard internationally indexed peer-reviewed journal in Ayurveda majority of them (45.55 %) had never published articles till the date of answering survey (Q-21 & 22). Most of these participants (59.3 %) were infrequent visitors/readers of research journals (Q-23, 24).

Q-25 depicts the role of seminars and CMEs on Ayurveda. 55.8 % participants suppose that it help to update their knowledge about Ayurveda / subject. Moreover 79.78 % participants recommends that Ayurveda Should be a part of syllabus for Primary and secondary education in India (Q-26) so that awareness about this system of medicine will rise in new generation. For better knowledge about cultivations and marketing of herbs 68.19 % volunteers agreed about the exposure of agricultural and marketing skill aspects to Ayurveda students (Q-27).

Answers to the Q-15, 17, 33 and 36 were representing the view of participants regarding the policy issues and stand of government towards Ayurveda. Among them 87.06 % believed that equal laws and regulations should be implemented by the government all over the India regarding the practice of Ayurveda and around 84.64 % opined that Government is lacking in taking initiatives to uphold Ayurveda

in India and Abroad. 86.25 % were in favour of establishment of separate Ayurveda Ministry for the development of Ayurveda (Q-36).

Participants also reported that only 21.02 % public / Patients from their respective states were interested to undergo only Ayurveda treatment modality (Q-29). Remaining questions from Table 1, are considered trivial to comment on, and hence avoided.

Challenges & solutions

Responses from the participants in present survey indicate certain challenges which are raised before Ayurveda fraternity and students. Major issue is about the quality and standards of Ayurveda education being pursued by undergraduate and post graduate students. It seems that students as well as faculties are not satisfied with the present education system. Even after availability of plentiful knowledge in various subjects in classical texts such as Kayachikitsa (Ayurved Medicine), Shalyatantra (Surgery), Shalakyatantra (ENT), Kaumarbhritya (Paediatrics), Agadatantra (Toxicology) etc the students are not exposed to its precise clinical application. Inadequate exposure as per treatment principles and procedures induces lack of confidence among the scholars; therefore they do not dare to establish themselves as pure Ayurveda practitioner. It can be resolved by implementation of uniform syllabus all over India and at the same time stringent inspection criteria during the inspection by regulating bodies. Focus should also be on exposure of ample clinical/practical to the students for their benefit.

Second challenge is related to the researches which are being conducted in the field of Ayurveda. It looks as if very few genuine researches are being conducted in the field by following necessary research guidelines. Further, very few among these researches are reported to the scholars and students through authentic peer reviewed research publications. This hurdle can be crossed by application appropriate standards while conducting researches. OECD, CPCSEA and Institutional Ethics committee guidelines must be followed by each and every scholar during the research work. All trials should also be registered on Clinical Trials Registry of India, formed under National Institute of Medical Statistics (Indian Council of Medical Research). Considering the multi-variant beneficial activities, holistic approach combined with diet and lifestyle of traditional remedies; all

healthcare systems of the globe can join hands together to undertake collaborative research respecting fundamental principles of each others.

Evidence based studies are the need of an hour especially in the meadow of Ayurveda so that the essence of this ancient science will reach to unrelated third party students/physicians from the other systems of medicine and will also help in its widespread acceptance. With the growing awareness of the significance of evidence based teaching and learning in the arena, it is important to re-examine the educational teaching methodology of Ayurveda. Evidence-based tradition involves best research evidence, clinical experience, and patients' inclinations. Every healthcare system desires to be evidence based and Ayurveda should be no exemption. Novel scientific evidence is genuinely essential though often about evidence for safety and efficacy of AYUSH drugs. An innovative R & D path based on reverse pharmacology as proposed by another thought leader Ashok Vaidya is receiving greater acceptances especially when now that the pharmaceutical industry is also facing innovation deficit crises.¹⁰ All these encouraging and timely improvements will progress evidence-based Ayurveda towards being the potential medicine for the globe. For the current, we need strategy, efficiency, and real action.¹¹

Lopsided laws and regulations regarding the practice of Ayurveda are next hurdles. Even policy should be set by the government and should also be imposed on all Ayurveda graduates from each and every state of India. As the fundamental principles of conventional and contemporary systems are entirely different, it becomes a complicated chore to identify a roadmap and expand methodologies of their amalgamation. It is right time for both the systems to initiate discussions to capitalize potentials of traditional medicine. Before actual integration; there is a need to develop awareness regarding Ayurveda in the modern society. Modern society should be in condition to accept Ayurveda as it is. Then only it's achievable.

Unawareness among the laymen about the adverse effects of improper/irrational use of Ayurveda medicines further lead to it's disparaged. Unethical advertisements of various Ayurvedic medicines add further defame. Common people should be educated by conducting mass campaign to avoid purchase of Ayurvedic medicines over the counter without authentic prescription by registered medical practitioner (RMP) of Ayurveda. At present No licence for sale of Ayurvec/dic /Unani / siddha medicines and cosmetics is required^{9,12} which further demean the importance of these medicines and provoke adverse effects by irrational over the counter sell of such drugs. Even though certain herbo-mineral compounds contains drugs specified under Schedule E (1) are also being sold by the vendors without prescriptions of RMP of Ayurveda. Inflexible FDA guidelines for the manufacturing of Ayurvedic medicines and inclusion of Ayurvedic drugs under the various schedules of Drugs and cosmetic rules and Act with its stringent implementation would serve the purpose.

Standardization of Ayurvedic medicines always remains a topic of debate. In present conditions quality of finished products as well as its clinical efficacy is tested by implementing modern parameters/ protocol to attest and get recognized in evidence based world. But simultaneous establishment of parameters for the appreciation of these medicines on the basis of Ayurvedic principles should not be neglected and must be mull over for its widespread acceptance.

Lack of ample opportunities' in the field after the completion of course leads to apathy about the subject among the Ayurveda

graduates, which ultimately lands in non recommendation to choose Ayurveda as a career. Equal job opportunities should be made available for Ayurveda graduates in government as well as private sector. Designing newer specialization and fellowship course will help students to pursue their education further and update their skills and knowledge for the betterment in practice.

Recently the Ministry of AYUSH was formed on 9th November 2014 to ensure the optimal development and propagation of AYUSH systems of health care.¹³ The responsibility of developing traditional system of medicine and to ensure its growth is attributed to AYUSH. The steps taken by this department after its establishment are encouraging and admirable. Initiative has been taken by this apex body by imposing conditional permissions to Ayurveda institutes for the admissions in subsequent years after 2016 only after acquiring National Assessment and Accreditation Council (NAAC) for College and recognition by National Accreditation Board for Hospitals & Healthcare Providers (NABH) for connected hospital within stipulated period.

Department of AYUSH, Ministry of Health & Family Welfare, Government of India has also devised a framework for the implementation of National AYUSH Mission¹⁴ with the objectives to provide cost effective AYUSH Services, to strengthen institutional capacities, to support cultivation of medicinal plants, quality control of Ayurveda drugs and development of infrastructure for entrepreneurs from the country by providing financial assistance. Appropriate accomplishment of this mission would certainly result in enhancement in AYUSH education, better access to AYUSH services, persistent availability of quality raw-materials and availability of superior quality Ayurveda drugs to the physicians and patients. Earlier studies have also recommended similar measures for the further development of Ayurveda.¹⁵⁻¹⁷

Conclusion

Ayurveda is an age old system of medicine crammed with enormous knowledge about principles to sustain and safeguard human health. Present survey shows that there are few drawbacks in existing Ayurveda education and research system. Thorough excavation of these procedures and methodologies with evidence based studies can lead to boost the confidence in aspiring Ayurveda physicians. Colossal support from the governing bodies will also be required in the various sectors related to this system of medicine for its further development.

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None.

Conflict of interest

Authors declare there is no conflict of interest towards publication of this manuscript.

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