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Empowering AYUSH health professionals on oral health promotion in a tertiary care dental hospital in India: An interventional study

O.P. Kharbanda^a, Harsh Priya^{b,*}, Upendra Singh Bhadauria^c, Charu Khurana^c, Diptajit Das^c, Monica Dev^c, Priyanka Ravi^b, Anupama Ivaturi^b^a Centre for Dental Education and Research, AIIMS, New Delhi, India^b Division of Public Health Dentistry, Centre for Dental Education and Research, AIIMS, New Delhi, India^c National Oral Health Program, India

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ABSTRACT

Background: The extensive reach of AYUSH health professionals allows them to provide profound quality care to the unreachable. These professionals from the traditional system of medicine form fundamental part of the health care system. If adequately trained on oral health they can play a remarkable role in oral health promotion and prevention of oral diseases.

Objective: A training strategy was thus chalked out and this study was conducted to assess the knowledge of AYUSH health professionals on oral health and the impact of this training intervention in improving their knowledge.

Materials and methods: An interventional study via self structured pre and post questionnaire on 49 participants assessed the knowledge of participants on oral health promotion. The needs assessment revealed that all the AYUSH health practitioners felt the need to participate in oral health promotion training.

Results: A significant increase in mean knowledge scores from 12.56 ± 2.26 to 15.26 ± 1.40 of AYUSH professionals was seen after a one day training programme.

Conclusion: The study concluded that the utilization of AYUSH health professionals for oral health promotion and education can aid as a valuable tool for population based oral health promotion approaches.

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1. Introduction

The most common Non Communicable Diseases are oral diseases which affect people causing pain, discomfort and even death. Estimations from the Global Burden of Disease Study 2016 revealed that oral diseases affected half of the world's population (3.58 billion people) with dental caries in permanent teeth being the most prevalent one [1]. In a country like India, with population of 1.23 billion and a huge disease burden including dental caries and periodontal disease, oral health care delivery cannot be limited to dentists alone [2].

The National Health Policy (NHP) 2017 strongly advocated mainstreaming the potential of AYUSH (Ayurveda, Yoga and

Naturopathy, Unani, Siddha and Homeopathy) within a pluralistic system of integrative healthcare [3]. It is imperative that oral health promotion should be supported at all levels of health professionals including AYUSH.

The Government of India supports & encourages the development of Education and Research among AYUSH [4]. Knowledge and awareness pertaining to oral health in this regard is no different and the curriculum of AYUSH health professionals also lays emphasis on oral health promotion and prevention of oral diseases.

The extensive reach of AYUSH health professionals allows them to provide profound quality care to the unreachable. These professionals from the traditional system of medicine form fundamental part of the health care system. Due to unequal distribution of dentists in rural and urban areas and the increased cost for dental treatment [5] involved a number of individuals seek dental advice from AYUSH professionals. The statistical data on manpower available at the Ministry of AYUSH (2017) reports approximately 7.7

* Corresponding author.

E-mail: drharshpriya@gmail.com

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lakhs registered AYUSH health professionals [6] in contrast to the dental health professionals which are only approx. 2.7 lakhs in number [7]. If adequately trained on oral health the AYUSH health professionals can play a remarkable role in oral health promotion and prevention of oral diseases considering the fact that with simple and cost effective measures prevention of oral diseases at primary level can be achieved.

In order to enhance the oral health status of the population of India via promotion of oral health and prevention of diseases, the National Oral Health Programme (NOHP) in its current form was envisaged. The objectives of the program include enhancement of oral health care delivery system, improvement of access to services to oral health care, and reduction in disparities in the oral health status of people across different geographic locations, age groups, gender and socioeconomic status. The programme also envision integration of oral health promotion and preventive services with general health care system and other sectors that influence oral health [8]. The attainment of this vision under the National programme is sought through the training of AYUSH and other health professionals. Various programmes like Rashtriya Bal Swasthya Karyakram (RBSK), National Program for Prevention and Control of Cancer, Diabetes, Cardiovascular diseases and Stroke (NPCDCS), National Program for Prevention and Control of Fluorosis (NPPCF) have explored and judiciously utilized the services of dentists for oral health. Similar integration with AYUSH will open gateways for bilateral hand holding.

Previous scientific literature has reported AYUSH health professional's role in oral health promotion but provided little emphasis on the need for a national level training programme on oral health promotion. A training strategy was thus chalked out and this study was aimed to assess the knowledge of AYUSH health professionals on oral health and the impact of this training intervention in improving their knowledge. This study was the first part of a yearlong follow-up study which will assess the long term impact of training on enhancement of the skill set of these professionals at 6 months and 1 year.

2. Materials and Methods

2.1. Study participants and design

An interventional study was conducted at the Centre for Dental Education and Research (CDER), All India Institute of Medical Sciences, New Delhi to assess the knowledge of participants on oral health promotion. CDER is the National Centre of Excellence for Implementation of National Oral Health Programme and the conference room of the institute was the study site for this one day training programme.

A purposive sampling was employed wherein selection of the AYUSH health professionals was done by the Ministry of AYUSH which nominated 52 participants from different parts of the country. The participants were purposefully selected from the government institutions of the specialty to ensure creation of pool of master trainers. The participants represented five different specialties of AYUSH (18 Ayurveda, 10 Unani, 14 Siddha and 10 Homeopathy). Their educational backgrounds and designations were a mix of various levels. Of the 52 participants selected, 49 participated in the training programme. One participant (Homeopathy) retired from his work tenure during the time lag for training programme whereas the other two participants (Unani) were unable to attend the training programme due to prior engagements (response rate = 94.23%). Participants who were willing to participate and provided informed consent were included in the present study.

The present study was carried from 20th – 28th February 2019 starting from the need assessment one week prior to the one day

training program. The permissions to conduct the training programme and selection of AYUSH health professionals started from February 2018 and the one day training programme was conducted on 28th February 2019.

Permissions to conduct the study were obtained from the Ministry of AYUSH and the Ministry of Health and Family Welfare. Participation was voluntary in the present study and implied consent was obtained prior to the start of the study. The ethical permission to conduct the study was obtained from the Institutional Review Board of All India Institute of Medical Sciences, New Delhi.

2.2. Assessment

A self-structured questionnaire assessing knowledge on oral health was designed in English language and made available online in Google documents. The 25 item questionnaire was assessed for translational or representational validity namely; face validity and content validity. Face validity was carried out by 10 individuals. Content validity was carried out by a team of experts consisting of faculties from the department of Public Health Dentistry. Cronbach's alpha (α) was used to calculate the reliability coefficient which for the totality of items was 0.974 indicating high internal consistency.

The final questionnaire consisted of 25 items. 7 items assessed the demographic variables whereas the remaining 18 items were on oral health knowledge which included 11 multiple choice questions, two true false and five specific image based questions. The questions focused on the topics related to importance of oral health; oral diseases and its prevention. All the questions were in a digital format, uploaded on Google forms.

Assessment of knowledge scores was done and every correct answer was designated as one point. Percentage change in knowledge scores and comparative evaluation of knowledge assessment scores among AYUSH health professionals was done to determine the effectiveness of training programme. Segregation of knowledge scores as good, medium and poor was restrained due to lack of objective differentiation amongst the three parameters in the particular study.

To ensure the feasibility and practical application a pilot study was conducted prior to the start of study among 10 AYUSH health professionals. Any difficulties that were encountered during the filling of the proforma were corrected. The responses of these study participants were not included in the final sample.

2.3. Study procedure

The 49 participants nominated by the Ministry of AYUSH, Government of India were trained on oral health promotion using previously validated manual [9] and audio-visual aids.

A week prior to the training programme need assessment was conducted using digital questionnaire sent via email and/or Whatsapp to all the participants. The questionnaire assessed the needs of participants regarding a training programme on oral health promotion.

Prior to the training programme, all the participants were administered a pre-test questionnaire consisting of 18 questions in form of an online semi-structured self-administered questionnaire in Google documents format.

A validated training module for oral health promotion which included information under six domains regarding oral anatomy/healthy mouth, dental diseases like dental caries, periodontal diseases and its sequelae, oral health and systemic disease, malocclusion and dental trauma, precancerous lesions and oral cancer, prevention and treatment modalities was used to train

Table 1
Need assessment findings among the AYUSH professionals.

| Questions | YES N (%) | NO N (%) |
|---|--------------|-------------|
| Participated in any oral health promotion training/workshop/CDE programme previously? | 1 (2.1) | 48 (97.9) |
| Conducted any oral health promotion training previously? | 1 (2.1) | 48 (97.9) |
| Need to participate in any oral health promotion training? | 100 | – |
| Awareness about National Oral Health Programme before the initiation of the Training Programme? | 25 (51) | 24 (49) |

participants on oral health promotion. 45 min–1 h were allocated for individual sessions which were also followed by hands on demonstration on oral examination with the total duration of training being 6 hours.

Post training assessment of the oral health knowledge scores was done using the same online semi-structured self-administered questionnaire in Google Documents format.

2.4. Data analysis

The collected data was analysed using (SPSS, IBM version 20.0). To check the normalcy of data collected Kolmogorov–Smirnov test and Shapiro–Wilks test were employed Based on the findings of the test employed the data was found to follow the non- normal distribution and hence the statistical significance was determined using Wilcoxon signed rank test, $p \leq 0.05$ was considered statistically significant.

3. Results

The results of this study are based on assessment of 49 AYUSH health professionals participating in the training programme.

A need assessment of AYUSH health professionals was also conducted a week prior to the day of training programme (Table 1). The type of dental diseases seen by the professionals and the referral of patients to a dentist is reported in Figs. 1 and 2. All participants (100%) felt the need to participate in oral health promotion training programme. Majority of the participants (97.9%) never participated or conducted oral health promotion training. Almost half (49%) of the participants were unaware about the National Oral Health Programme prior to the training programme.

The mean age of the professionals was found to be 40.60 ± 6.45 (Table 2). Majority of the participants in the present study were male (65.3%) and were from Ayurveda specialty (36.8%). Professionals participating in the training programme were primarily

Post Graduates (91.8%) in academic qualification; however, majority of professionals had teaching experience of less than 5 years (36.8%).

Table 3 shows the percentage change in knowledge scores of AYUSH Health Professionals for 13 multiple choice questions. An increase in knowledge scores was reported for the five image based questions. The distribution of pre and post training knowledge assessment scores is reported in Table 4. A comparative evaluation revealed significant difference between the pre and post knowledge assessment scores with significantly higher scores post training (15.26 ± 1.40).

4. Discussion

This study was carried out to assess the knowledge of AYUSH health professionals on oral health. A one day training programme was conducted for Oral Health Promotion of AYUSH health professionals at Centre for Dental Education and Research, AIIMS, New Delhi. This one day programme conducted under the mandate of National Oral Health Programme was the first ever collaboration of the Ministry of AYUSH and Ministry of Health and Family Welfare for oral health promotion and education. This interdisciplinary training programme provided a unique opportunity for the exchange of ideas and integration of the primitive medicine in oral health promotion. The training programme escalated from the traditional unidirectional approach to synergistic means of oral health promotion. This distinctive training programme was an amalgamation of AYUSH health professional from various parts of the country with faculty staff and researchers from Centre for Dental Education and Research, AIIMS, New Delhi.

Oral Health Promotion among the Ayurveda, Yoga and naturopathy, Unani, Siddha and Homeopathy (AYUSH) professionals provides a unique opportunity of safe and cost effective management of oral and dental diseases. The AYUSH curriculum empowers these health professionals with knowledge about the oral and dental structures. They frequently deal with various oral diseases like toothache, bleeding gums and swelling. Identification of oral diseases by AYUSH health professionals might significantly contribute to reduced oral disease burden and improved quality of life of the individuals.

The needs assessment revealed that all the AYUSH health practitioners felt the need to participate in oral health promotion training. The findings of this study were in line with the study done by Priya et al. [10] who also reported that Ayurveda and Siddha practitioners were keen to expand their oral health knowledge and felt definitive need for interdisciplinary symposia/lectures/conferences.

The present study revealed that 2.1% professionals previously participated in oral health training programme. Results of the present study are in accordance to the study conducted by Kulkarni et al. [11] who also reported the need among Ayurveda and Homeopathy doctors to undergo training in oral cancer.

The present study showed that dental caries and gum diseases were the commonly encountered major oral health problems by AYUSH Health professionals in their clinical practice. A study done by Senthil et al. [12], reported similar findings among nursing

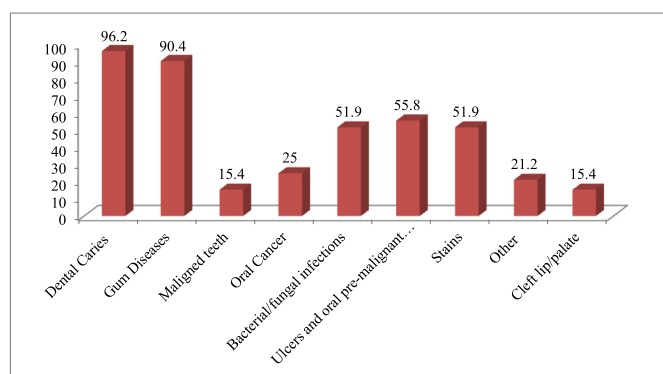


Fig. 1. Type of dental diseases seen in everyday practice (%)?

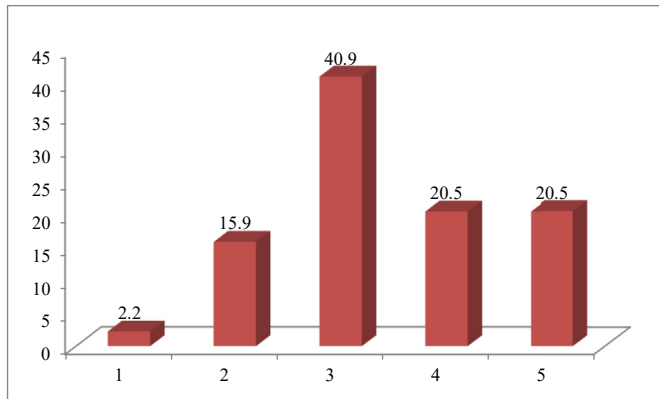


Fig. 2. Referral of patients to a dentist (%) (scale ranging from never-always).

students who also identified dental caries and periodontal diseases among patients on regular basis.

In a study conducted by Rajmohan et al. [3], majority of the Ayurveda/Siddha practitioners 89.2% (n = 91) referred their patients to the dentists for further consultation. In accordance to the findings of their study majority of practitioners (81.9%) reported referring their patients to dentists when asked about their rate of referral on a scale of 0–5 (never to always). The oral health education and promotion training in the present study was well received by the AYUSH health professionals which was in line with studies conducted for ASHA and anganwadi health workers [13,14].

A significant increase in the knowledge scores was seen after the training programme, which is in accordance to study conducted by Ocek et al. [15]. An increase in the knowledge scores of AYUSH health professionals was seen for majority of questions after the training programme; however, for 3 of the 18 item questionnaire the professionals reported a decline in scores. The decrease in knowledge scores was attributed to the inability to comprehend with the particular domain during the training protocol, the teachers were either not attentive or were confused during answering the questions which might have also led to decrease in the knowledge scores.

Few gaps in knowledge were identified during the pretest. Irrespective of the specialty, the misconceptions and myths regarding oral health and causes of oral diseases were commonly found. The identified constraints were discussed in detail and explained during the training programme.

As the present study was carried out in a closed setting with all the participants in proximity to each other the contamination in answering questions during knowledge assessment could not be fully controlled; however, measures via strict invigilation were

Table 2
Demographic variables among study participants.

| | | |
|---------------------------------------|-----------------------------|--------------|
| Age | Maximum | 30 |
| | Minimum | 58 |
| | Mean ± S.D. | 40.60 ± 6.45 |
| Gender N (%) | Male | 32 (65.3) |
| | Female | 17 (34.7) |
| Educational Qualification N (%) | Graduation | 1 (2.1) |
| | Post Graduation | 45 (91.8) |
| Teaching Experience N (%) | Additional Qualification | 3 (6.1) |
| | Nil | 6 (12.2) |
| | <5 years | 18 (36.8) |
| | 5–10 years | 12 (24.4) |
| Specialty N (%) | More than 10 years | 13 (26.6) |
| | Unani | 10 (20.3) |
| | Siddha | 12 (24.5) |
| | Homeopathy | 9 (18.4) |
| | Ayurveda | 18 (36.8) |

Table 3
Percentage change in knowledge scores of AYUSH Health Professionals.

| Question | Pre Training Score (%) | Post Training Score (%) |
|--|------------------------|-------------------------|
| First tooth erupts in the oral cavity usually by? | 54.3 | 95.9 |
| The hard tissue structure of oral cavity includes? | 80.4 | 87.8 |
| Which of the following is not included in 5A approach of tobacco counselling? | 52.2 | 98 |
| Knocked out tooth due to injury cannot be placed in? | 60.9 | 83.7 |
| Tetrad of the following causes dental decay? | 69.6 | 91.8 |
| Tooth extraction does not lead to loss of eyesight? | 73.9 | 93.9 |
| Which of the following is considered as safe trimester for dental treatment during pregnancy? | 41.3 | 55.1 |
| Diseases which affect oral health? | 65.2 | 69.4 |
| Loosening of teeth and sensitivity are the side effects of professional tooth cleaning/Scaling/Oral prophylaxis? | 76.1 | 85.7 |
| Diseases which affect oral health? | 34.8 | 30.6 |
| A patient came to your clinic/hospital with a complaint of reduced mouth opening. Identify the oral lesion? | 69.6 | 87.8 |
| Management of dental abscess? | 89.1 | 79.6 |
| Presence of brownish yellow spots or roughened surface on teeth due to high amount of fluoride causes? | 87 | 85.7 |

Table 4
Comparison of knowledge assessment scores among AYUSH professionals.

| Pre Training Knowledge Assessment (Mean ± S.D.) | Post Training Knowledge Assessment (Mean ± S.D.) | p value |
|---|--|-----------|
| 12.56 ± 2.26 | 15.26 ± 1.40 | .001* (S) |

Statistical test employed: Wilcoxon signed rank test (S) = statistically significant < 0.05.

* statistically significant.

undertaken. Another limitation which maybe stated is that the representation of the sample of AYUSH health professionals which was done by the Ministry of AYUSH consisted of those professionals working only in government sector.

Despite the limitations mentioned, this is one of the first studies which took into consideration the training of AYUSH health professionals on oral health promotion at such a wide scale. The evaluation of knowledge on oral health and the impact of training AYUSH health professionals will be subsequently assessed after 6 months and 1 year time interval, thus answering whether the training of AYUSH health professionals can be translated into positive practice or not.

The findings of the present study highlights the need for scientific meetings on oral health, basic management of dental emergencies and understanding the role of oral health for overall health.

5. Conclusion

A significant increase in mean knowledge scores from 12.56 ± 2.26 to 15.26 ± 1.40 of AYUSH professionals was seen after a one day training programme. The utilization of AYUSH health professionals for oral health promotion and education can aid as a valuable tool for population based oral health promotion approaches and the ultimate objective of achieving oral health for all.

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Conflict of interest

None.

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