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**EFFECTIVENESS OF DENTAL HEALTH EDUCATION PROGRAM ON  
KNOWLEDGE, ATTITUDE, PRACTICES RELATED TO DENTAL  
MYTHS AND FACTS AMONG ASHA WORKERS IN MYSURU DISTRICT  
– AN INTERVENTION STUDY**

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**ABSTRACT**

**Context** - Myth is a serious problem which is prevalent from ages. ASHA (Accredited Social Health Activist) play a major role in creating awareness on diverse aspects related to health among rural population in India. **Aim-** To assess change in knowledge, attitude and practices (KAP) related to dental myths among ASHA workers in Mysuru district, India, following a dental health education (DHE). **Materials and method:** This was an interventional study conducted among ASHA workers selected at various Primary Health Centers (PHCs) in Mysuru District. Two-stage cluster sampling was used for selection of study participants. All ASHA workers available in selected PHCs were considered. Assessment of their KAP related to various dental myths was assessed at baseline using a 15-item validated questionnaire. DHE was given by a qualified public health dentist using audio-visual aids. Two post intervention assessments were done, one immediately after DHE and other, one month after DHE. The change in KAP between baseline

and post intervention periods was compared using Repeated Measures Analysis of Variance. **Results:** 389 ASHA workers were included at baseline and 384 were able to complete data one month after intervention. Mean KAP score improved significantly from  $8.71 \pm 2.8$  at baseline to  $12.93 \pm 1.9$  immediately after DHE. However, the score decreased to  $11.09 \pm 2.1$  one month after intervention. **Conclusion:** Although, a substantial improvement was evident in KAP scores immediately following DHE among ASHA workers, there was a decline in this score after one month of DHE indicating the need for periodic reinforcements.

**Keywords:** Dental myths, Dental taboos, ASHA workers, Anganwadi workers and Dental Health Education

## INTRODUCTION

Most people believe in one or the other dental myth. These myths are so profound that makes them difficult to distinguish from reality. They are generally, more prevalent in underprivileged backward areas where there is lack of access for dental services, people have less knowledge or cannot afford the dental services [1-3]. Myths seem harmless in beginning but they can be at times detrimental and lead to disability [4]. They are present almost in every part of world. The myths influence the way of living and lifestyle of individual [5]. People often trust these myths rather than discovering the truth and sooner or later, these myths become so ingrained in their respective cultures that it seems difficult to distinguish fact from fiction [2]. Existence of dental myths will act as barriers to utilization of dental services. Many studies have been conducted in the past to assess knowledge, attitude, practices, awareness and beliefs on

dentistry among school children, parents and teachers all over world [5, 6]. To the best of our knowledge, very few studies have been conducted upon dental/ oral myths in India [4].

The primary health workers at the village levels such as ASHA (Accredited Social Health Activist) play a major role in creating awareness on diverse aspects related to health among rural population in health care delivery system in India. Published literature assessing the prevalence of dental myths among ASHA workers is practically non-existent. ASHA worker is viewed as the mirror of society reflecting the attitude and practices among the population to which they belong. Assessment of their level of knowledge and attitude related to these dental myths will provide an opportunity to educate, motivate and reinforce these workforces on scientific facts related to these myths who in turn can play a dominant

role in changing the general perception of rural population on dental myths. In this background, the present study was undertaken to assess the change in the levels of knowledge, attitude and practices related to dental myths following a dental health education among ASHA workers.

## MATERIAL AND METHODS

**Study design and setting:** This was an interventional study conducted over a period of three months 20<sup>th</sup> December 2017 to 2<sup>nd</sup> February 2018 among ASHA workers selected from various primary health centers in Mysuru District. Study protocol was approved by the Institutions ethics committee (IEC). Permission was obtained from district health officer (DHO) and concerned authorities to conduct the study. A written informed consent in Kannada was obtained from ASHA workers participating in the study after informing them about the research protocol.

**Sample Size:** Sample size was estimated to be 380 by using the formula:  $\text{Sample size} = (Z^2 \times [p] \times [1 - p]) / D/E^2$  assuming the  $P$  to be 60%, design effect ( $D$ ) = 1 and margin of error ( $E$ ) = 5%.

**Selection of study participants:** Two-stage cluster sampling was used for selection of study participants. In the first stage, five taluks were selected out of seven using simple

random sampling. All the PHCs in the selected five taluks were listed and 10-20% of the PHCs in these taluks were again randomly selected in the second stage. All the ASHA workers who fulfilled the following eligibility parameters from these PHCs were considered for the study.

### Inclusion criteria:

- ASHA workers who were willing to participate in the study by offering an informed consent.

### Exclusion Criteria

- ASHA workers who were not available during both pre and post assessment schedules.
- Incompletely filled questionnaires.

**Questionnaire Development:** The initial questionnaire consisting 43 questions was developed using review of literature; discussion with faculty in the Department of Public Health Dentistry, JSS Dental College and Hospital; nurses; patients visiting hospital; etc. This questionnaire was subjected to face and content validation by four subject experts in department of Public Health Dentistry, JSS Dental College. This questionnaire was further subjected to cognitive interview and reliability assessment among ten nurses in JSS Hospital, Suttur in a rural area. The final questionnaire consisting of 15 items was used for data collection

among ASHA workers in the selected Primary Health Centers (PHCs). The pilot testing of the research protocol was done on 30 ASHA workers selected from four primary health centers. This pilot testing enabled us to check the operational efficiency of the research protocol.

**Collection of baseline data:** The baseline knowledge, attitude and practices about various myths on oral hygiene, tooth pain, tooth decay, milk tooth, oral cancer and those related to dental treatments was obtained using a self administered questionnaire in English/Kannada language. The questionnaire had six sections. Section one consisted of three general questions; Section two consisted of three questions on tooth pain & tooth decay; Section three consisted of two questions on oral hygiene habits; Section four consisted of two questions on milk tooth (primary dentition); Section five consisted of two questions on oral cancer and Section six consisted three questions related to dental treatments. Among 15 items, eight items elicited knowledge while seven elicited attitude and practices. The questionnaire used in data collection is attached as a supplement.

**Intervention:** Selected ASHA workers were asked to attend dental health education session (DHE) at their respective Primary health center. Dental Health education (DHE) on

scientific facts related to most prevalent dental myths was offered to ASHA workers using audio visual aids besides providing a printed booklet (health education material) by a qualified public health dentist.

**Post intervention data collection:** The post intervention data related to knowledge and practices about various oral and dental myths among ASHA workers was obtained using the same self administered questionnaire that was used at the baseline. The data was collected twice, once immediately after the Dental health education and again after one month following dental health education.

The change in knowledge, attitude and practices immediately after DHE as well as one month following intervention were assessed and compared between different subgroups. The sub groups were made according to age and education status. The study participants were divided into three age groups 20 – 30 years, 31 – 40 years and 41 years and more. The two sub groups based on educational status were those with less than secondary education and those with more than secondary education.

#### **Statistical Analysis:**

Data analysis was done using SPSS version 22. The change in mean Knowledge, attitude and practices between baseline, immediately and one month after intervention was assessed

using Repeated Measures Analysis of Variance. Mean KAP between different categories based on age and educational attainment at baseline, immediately and one month after intervention was done using one way Analysis of variance (with Tukey's post hoc test) and independent sample t-test respectively. Categorical data was analyzed using Pearson's Chi square test. The statistical significance was fixed at 0.05.

## RESULTS

The distribution of study participants based on age and educational status is denoted in **Table 1**. The mean age of study participants was 34.3 years with a standard deviation of 5.9. The mean knowledge, attitude and practice score among study participants improved significantly from  $8.71 \pm 2.8$  at baseline to  $12.93 \pm 1.9$  immediately after dental health education. However, the score decreased to  $11.09 \pm 2.1$  one month after intervention.

Posthoc test suggested that the difference between baseline and other time intervals as well as between the two post intervention time intervals was statistically significant ( $p < 0.001$ ). These results were true even when an exclusive comparison was made for different age groups (**Table 2**). Participants in younger age group demonstrated a significantly higher KAP score at baseline as well as in the post intervention time periods. These results were true even after DHE (**Table 2**). Participants with more than secondary education had significantly higher KAP score ( $9.29 \pm 2.7$ ) at baseline compared to those who had their educational status up to secondary school ( $8.29 \pm 2.8$ ). These results were true even after DHE sessions (**Table 3**). These results clearly indicate that DHE was most effective among those who are younger and those with higher educational status.

**Table 1: Distribution of study participants in relation to age and educational status**

Age groups	Less than secondary education N (%)	More than secondary education N (%)	Total N (%)
20 – 30 years (Group 1)	53 (44.9)	65 (55.1)	118 (100)
31 – 40 years (Group 2)	140 (65.7)	73 (34.3)	213 (100)
41 years and more (Group 3)	32(55.2)	26 (44.8)	58(100)
Total	225 (57.8)	164 (42.2)	389(100)
Statistical inference	X <sup>2</sup> Value: 13.687 df: 2		p value : 0.001

Table 2: Comparison of mean knowledge, attitude and practice score (KAP) before and after dental health education in relation to age

Age groups	Baseline Mean $\pm$ SD	Immediately after DHE Mean $\pm$ SD	One month after DHE Mean $\pm$ SD	Statistical inference**	Posthoc test
20 – 30 years (Group 1)	9.48 $\pm$ 2.8	13.37 $\pm$ 1.8	11.68 $\pm$ 2.1	F: 225.43 df: 2 p value: <0.001	Group 1Vs 2:<0.001 Group 1 Vs 3:<0.001 Group 2 Vs 3:<0.001
31 – 40 years (Group 2)	8.17 $\pm$ 2.7	12.70 $\pm$ 2.0	10.78 $\pm$ 2.2	F: 510.92 df: 2 p value: <0.001	Group 1Vs 2:<0.001 Group 1 Vs 3:<0.001 Group 2 Vs 3:<0.001
41 years and more (Group 3)	9.14 $\pm$ 2.8	12.88 $\pm$ 1.8	11.00 $\pm$ 2.0	F: 102.965 df: 2 p value: <0.001	Group 1Vs 2:<0.001 Group 1 Vs 3:<0.001 Group 2 Vs 3:<0.001
Total	8.71 $\pm$ 2.8	12.93 $\pm$ 1.9	11.09 $\pm$ 2.1	F: 826.65 df: 2 p value: <0.001	Group 1Vs 2:<0.001 Group 1 Vs 3:<0.001 Group 2 Vs 3:<0.001
Statistical inference*	F value: 9.467 df: 2 p value: < 0.001	F value: 4.817 df: 2 p value: 0.009	F value: 6.922 df: 2 p value: 0.001		
Post hoc comparison	1 Vs 2: <0.001 1 Vs 3: 0.713 2 Vs 3: 0.047	1 Vs 2: 0.006 1 Vs 3: 0.237 2 Vs 3: 0.80	1 Vs 2: 0.001 1 Vs 3: 0.110 2 Vs 3: 0.763		

\*One way ANOVA was used \*\* Repeated Measures Analysis of Variance was used

Table 3: Comparison of mean knowledge, attitude and practice score before and after dental health education in relation to educational status

Educational status	Baseline Mean $\pm$ SD	Immediately after DHE Mean $\pm$ SD	One month after DHE Mean $\pm$ SD	Statistical inference**	Post hoc test
Less than secondary education	8.29 $\pm$ 2.8	12.6 $\pm$ 1.9	10.63 $\pm$ 2.2	F: 524.55 df: 2 p value: <0.001	Group 1Vs 2:<0.001 Group 1 Vs 3:<0.001 Group 2 Vs 3:<0.001
More than secondary education	9.29 $\pm$ 2.7	13.4 $\pm$ 1.8	11.72 $\pm$ 2.0	F: 308.20 df: 2 p value: <0.001	Group 1Vs 2:<0.001 Group 1 Vs 3:<0.001 Group 2 Vs 3:<0.001
Total	8.71 $\pm$ 2.8	12.93 $\pm$ 1.9	11.09 $\pm$ 2.1	F: 826.65 df: 2 p value: <0.001	Group 1Vs 2:<0.001 Group 1 Vs 3:<0.001 Group 2 Vs 3:<0.001
Statistical inference*	t value:-3.195 df: 387 p value: 0.002	t value: -2.61 df: 387 p value: 0.01	t value: -3.525 df: 387 p value: <0.001		

\*Independent sample t test was used. \*\* Repeated Measures Analysis of Variance was used

## DISCUSSION

The myths on dental procedures are widely prevalent in the society and these myths play a major role in determining the utilization of oral health care. But, with the best of our knowledge assessment of the prevalence of dental myths among ASHA workers in India is scanty. In the background of lack of research on KAP among ASHA workers on dental myths, the present study was undertaken to assess the effectiveness of dental health education program on knowledge, attitude, and practices related to dental myths and facts among ASHA workers in Mysuru district. Mean KAP among ASHA workers at baseline was  $8.71 \pm 2.8$ . This was quite low. *Poornima K et al* conducted a study to assess KAP towards oral health care among Anganwadi workers of Mysore city. They reported low level of knowledge among 16% participants, medium level of knowledge among 68% participants and high level of knowledge among 18% participants. Favorable attitude was found in 51% participants and 26% had unfavorable attitude [8].

It was evident from the results that the younger generation (20 – 30 years group) had a significantly higher KAP score ( $9.48 \pm 2.8$ ) compared to other age groups. We presume that the younger generation could have had more access to relevant information through

various sources. Moreover, the younger generation is more enthusiastic in using the available resources to enhance their knowledge. On the other hand, the older adults are more orthodox, show resistance to change and may not be well versed with the use of technology for gaining knowledge. This trend remained the same even after DHE. These results were similar to the findings of a study *Pandya P et al* who found an increase in mean values of dental myths with increasing age. The highest mean value was reported among 60 years and above ( $9.13 \pm 3.70$ ), followed by 45- 60 years ( $6.87 \pm 4.43$ ), 30- 45 years ( $6.27 \pm 3.75$ ) and lowest in 18- 30 years ( $6.22 \pm 3.38$ ) [9]. *Kanduluru A et al* conducted a similar study to assess misconceptions about oral health care among out patients attending a dental college in Bangalore city. The study reported a higher prevalence of misconceptions among participants aged 45 years (48%) and above than compared to those aged 18 to 25 years of age (40%) [4]. *Kochhar S et al* conducted a study to assess occurrence of oral health beliefs and misconceptions among Indian population. The study reported high prevalence of dental myths among the age group of 40-49, 50-59 and 60 years and above with mean knowledge value of  $9.9 \pm 3.3$ ,  $10.1 \pm 2.9$  and  $11.3 \pm 2.3$  respectively. The study concluded that the prevalence of

dental myths increased as the age increased [10]. The high prevalence of dental myths among those aged 41 years and more compared to younger age groups immediately and one month after DHE might be due to deep rooted traditional beliefs and less utilization of dental services by elderly individuals who rely more on home remedies for dental care than visiting a qualified dentist. Similar finding was reported by *Nagaraj A et al.* who found that old age people practice more home based remedies in dental health care and believed in myths [11].

ASHA workers with higher educational status had higher KAP score compared to those with lesser educational attainment at baseline as well after intervention. Participants with higher education are believed to apply their knowledge and correlate efficiently the scientific facts with real life situations as compared to those with minimum education. This could be the reason for a high KAP score among individuals with higher educational status in the present study. Similar results were reported in a study conducted by *Pandya P et al.*, in which dental myths were more marked among participants who were less educated as compared to those who were more educated. This study reported an increase in mean values of dental myths among participants who were illiterates followed by

participants with education up to primary school, participants education with higher school and participants who were graduated ( $9.78 \pm 4.54$ ,  $7.43 \pm 2.25$ ,  $6.53 \pm 3.42$  and  $6.03 \pm 3.66$ ) similar to our findings [9]. Another study conducted by *Singh S V et al.* reported high prevalence of dental myths among participants who were illiterate (86%) than those who were educated up to primary level (75%). Similarly, prevalence of myths was found to be more among people with up to primary level education than the participants who were educated more than primary level [12].

#### **Mean KAP before and after intervention:**

The mean knowledge, attitude and practice score among study participants improved significantly from  $8.71 \pm 2.8$  at baseline to  $12.93 \pm 1.9$  immediately after dental health education. However, the score decreased to  $11.09 \pm 2.1$  one month after intervention. The slight decrease in the KAP related to dental myths one month after DHE indicate the need for repetition of DHE at regular intervals without which there is every possibility of this increased awareness to fall back to its original values. This decline in KAP among ASHA workers after one month following the DHE could be attributed to natural human tendency of forgetfulness in absence of reinforcement at timely intervals. However, the KAP score for

some ASHA workers remained the same even after one month following DHE as scored immediately after DHE. The Kannada booklet provided to each participant which some of these participants went through at their free time could have helped them retain this knowledge.

**Novelty:** This was the first of its kind study where an attempt was made to assess the effectiveness of DHE in increasing the knowledge related to dental myths among ASHA workers. The DHE was offered in local language along with distribution of a booklet that contained the scientific evidence based answers for most commonly asked questions related to dental myths in this geographic region.

**Limitations:** The DHE predominantly focused on widely prevalent myths in and around Mysore district. All existing myths from other geographic locations were not included in the booklet offered to them. The follow up period was only one month while a longer follow up could have given more meaningful information.

## CONCLUSION

- ❖ ASHA workers had some misconceptions about dental health. The mean KAP on dental myths at baseline of was  $8.71 \pm 2.8$  which indicates the existence of dental myths

even in this group of primary health care workers.

- ❖ The younger age groups and those with more than secondary education had higher KAP at baseline compared to their older counterparts and those with less than secondary education respectively.
- ❖ Dental health education on myths and facts using audio-visual aids by a qualified public health dentist significantly enhanced their knowledge, attitude and practices related to dental myths among ASHA workers.
- ❖ The mean KAP on dental myths was highest immediately after DHE followed by one month after DHE. These post intervention scores were significantly higher compared to baseline scores. This is suggestive of the effectiveness of DHE in changing their perceptions on dental myths.
- ❖ The increase in KAP post DHE was also more among younger individuals and those with more than secondary education than older individuals and those with less than secondary education.
- ❖ The decrease in KAP score one month after DHE compared to immediately

after DHE indicate the need for reinforcements at regular intervals.

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