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EVALUATION OF ORAL HEALTH EDUCATION INTERVENTION ON ORAL HYGIENE STATUS AMONG HIGH SCHOOL STUDENTS

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ABSTRACT

Health education aims to improve knowledge regarding oral health which helps in developing posititve attitude and favourable oral health behavior.Aim: The present study was aimed to assess the effectiveness of oral health education on oral hygiene status of students.Methodology: An interventional trial was conducted. Base line data on oral hygiene status was recorded using Silness and Loe plaque index. Health education was given to them with the help of audiovisual aids. Plaque values were again recorded after 4 weeks of the interventional health education session.Results: A total of 109(41-F and 68-M) students aged13, 14and 15 years participated in the study. Mean scores of plaque at base line and after 4 weeks were 1.7697± 0.7904 and 1.3779±0.6537 respectively. Conclusion: Statistically significant reduction was observed in plaque scores after the short session of health education. Females had lower plaque scores than males both at baseline and after 4 week observations.

KEY WORDS: **oral health education, oral hygiene, effectiveness, evaluation.**

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INTRODUCTION

Oral health is integral to general health. Dental caries and periodontal disease are the most common chronic diseases affecting a large proportion of population[1-3]. Poor oral health is commonly associated with many systemic diseases[4-7]. Oral health plays an important role in overall health and wellbeing of an individual[8]. Various measures have been employed at both individual and community level to reduce the prevalence of these diseases. Primary prevention is considered as the major tool for better oral health of children. Health education has emerged as one of the fundamental approaches in primary prevention[9].If we want to inculcate healthy lifestyle and practices we should certainly remember the saying, "Catch them young"[10]. Childhood is the period of one's life when skills and attitudes are taking shape. Once formed they are deeply ingrained and are resistant to change. Schools form an ideal setting by offering an efficient and effective way to reach over 1 billion children worldwide and through them, their families as well as communities[11-13].To make maximum utilization of available resources there is definite need to know which preventive program is most effective and appropriate. Since little literature is available on evaluation of efficacy of health education, the present study was carried out among school going children of Bijapur. The present study was aimed to assess the effectiveness of oral health education on oral hygiene status of high school going children.

MATERIALS AND METHODS

The present study was carried out among high school going children of Bijapur city, Karnataka. List of schools was obtained from block education officer, Bijapur city and a school was selected for the study using the lottery method. Necessary permissions were obtained from institutional ethical committee, the school authorities namely the block education officer and headmaster of the school. The study population belonged to 8th, 9th and 10th standard and were aged between 13-15 years. The following inclusion and exclusion criteria were adopted in the study.

Inclusion Criteria

1. Children aged between 13-15 years of age.
2. Those residing in the same area with similar dietary habits,
3. Those who give informed consent.

Exclusion criteria

1. Children with chronic illness and prolonged medication,
2. Those with orthodontic appliances,
3. Those with history of consuming antibiotics in the past 3 months[14].
4. Those with gross orofacial malformations.

Out of 226 students 127 children were selected for the study. Written informed consent was obtained from the parents of these students. The selected students were separated classwise and baseline plaque scores were measured using Silness and Loe plaque index[15]. All the examinations were conducted by a single calibrated examiner (Kappa=0.7). The mouth mirror, a dental explorer and air drying of the teeth and gingival under natural lighting conditions were used in the scoring of this index. Following day all the students were given health education with the help of power point presentation, educative charts and models. The presentation and charts contained information like the importance of teeth, morphology, functions of teeth, effect of sugar and sticky carbohydrates on caries initiation and progression, importance of brushing, tongue cleaning, rinsing after every meal, the deleterious effect of snacking between meals, common oral diseases, causes, detection, prevention and treatment. They were appraised about the ill effects of deleterious habits like tobacco consumption, chewing gutkha and alcohol. Each class was demonstrated brushing technique[16,17] with the help of models and

students were instructed to brush twice a day. Students were told that they will be examined again at the end 4 weeks from this day of examination.After 4 weeks the recording of the plaque scores was repeated and the data was tabulated and analysed and subjected to statistical tests

RESULTS

A total of 127 students were included in the study. At the end of one month 109 students were available for follow-up, hence only the scores of 109 students were considered for analysis. Out of 109, 41(37.62%) were female and 68(62.39%) males. Table no 1 shows the distribution of subjects according to their age and gender.

Table 1
Distribution of Students According To Age and Gender.

Age (years)	Female	Male	Total
13	13	22	35
14	16	23	39
15	12	23	35
total	41	68	109

Table 2
Plaque Scores Before and After Oral Health Education

	Plaque Scores		
	Baseline	After 4 weeks	P Value
Mean	1.7697	1.3779	
SD	0.7904	0.6537	
Paired t test	1.982		p<0.05

Table no 2 shows mean plaque scores at base line and after 4 weeks and it was 1.7697±0.7904 and 1.3779±0.6537 respectively (p<0.05). Table 3 explains gender wise comparison of plaque scores. At baseline mean plaque scores were found to be 1.3146±0.7773 and 2.0441±0.3398 among females and males respectively. Plaque scores at the end of 4 weeks was found to be 1.0732±0.5580 and 1.5618±0.2645 among females and males respectively. There was statistically significant difference (p<0.05) observed between females and males both at baseline and at the end of 4 weeks.

Table 3
Gender wise Comparison of mean Plaque scores between males and females

	Base line		After 4 weeks	
	Female	Male	Female	Male
Mean	1.3146	2.0441	1.0732	1.5618
SD	0.7773	0.3398	0.5580	0.2645
T test	1.993		1.991	
P value	P<0.005		P<0.005	

Table no 4 shows the age wise values of plaque observed at baseline and after 4 weeks. The mean scores of plaque at baseline was 1.4971±0.8315,1.0333±0.7631, 1.6429±0.8211 for 13,14 and 15 years of age respectively. The scores of plaque were 1.0514±0.6670, 1.0050±0.6121, 1.2514±0.6805 for ages 13, 14, 15 years respectively at the end of 4 weeks. Chi-square test was performed and p value was found to be greater than 0.05 and hence the variables are independent and no correlation was observed.

Table 4
Comparison of mean plaque scores in different age groups

Age in years	Base line value Mean ±SD	Value after 4 weeks	χ^2	P value
13	1.4971 ± 0.8315	1.0514±0.6670	28.6823	P>0.005
14	1.0333±0.7631	1.0050±0.6121	15.1021	P>0.005
15	1.6429±0.8211	1.2514±0.6805	18.1304	P>0.005

DISCUSSION

The present study was conducted among students attending a municipal school, to assess the effectiveness of a health education program on oral health status. To maintain uniformity and minimize effects of confounding factors students from single school were included in the study.High school children were included in the study as it was presumed that at this age students can clearly understand the subject being taught to them and they have enough manual dexterity to master the correct technique of brushing. Ingale et al[18] conducted a study among primary school children as they opined that the intervention at an early age would bring about behavior change early in life, they have reported that children below 9 years of age could not completely follow the oral hygiene instructions. Computer based oral health education was employed in this study. A statistically significant improvement in the oral hygiene was observed in the study. Similar results were reported by Zaki H A and Bandt C L[19] who employed slide and sound synchronizing machine. Some author employed video and audio tapes[8] and observed statistically significant results.A statistically significant reduction in plaque scores was observed from baseline to end of 4 weeks. Our results are in agreement with reports of Ingle et al[18] and Christoph et al[20]. The changes reported in the study subjects demonstrate that despite being regarded as a difficult group, they can be successfully motivated to change their behavior.There was a significant reduction in plaque levels from baseline to follow up of 4 weeks and the difference was seen in both male as well as females. Similar results have been reported by other researchers[18]. Health education must have motivated both male as well as female participants to maintain oral hygiene which has been observed in terms of improved oral hygiene status. In contrast to our reports Christoph et al[20] reported a better improvement among females as compared to males, authors attribute this finding to limited enthusiasm among males.The baseline plaque level among females found to be lower than among males this difference was statistically significant ($p<0.05$). The difference might have been because of differences in the knowledge and oral health behavior among both genders. It may further be presumed that females are often more careful and conscious about their appearance. Similar results were reported by Hossain Neamatollahi et al[21] and Ilkay Peker et al[22]. Comparisons of baseline values between different age groups have shown significant differences at 4 week follow up in all the age groups. This effect might be due to the behavior of children towards oral hygiene practices. The argument which cannot be denied is that, curiosity of being part of some intervention might have made children to perform meticulous oral hygiene measures. Jeffcoat A K[23] has referred to this phenomenon as “Hawthorne effect” such a phenomenon might be playing a role in our study also. To overcome this, a long term study by following up students up to 12 months or 18 months may be tried. The factors which should further be of consideration while evaluating a student is stress associated oral lesions[24] as these may also play a role in oral hygiene maintenance.

CONCLUSION

Within the confines of the present study, this trial has shown that there is a significant improvement in the oral hygiene status of the students after a short session of oral health education. However it fails to show whether these effects are sustained for the life time or whether there is a need to reinforce the same at interval of a period of time. Hence a long term study involving larger sample size and longer study period to elucidate the truth. But it cannot be denied that a trial like this does bring about improvement in oral hygiene status and hence oral health education topics should be integrated in the general school curriculum as it will not be time consuming.

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