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## Research Article

# COMPARATIVE EVALUATION OF ORAL HEALTH TALK WITH PRACTICAL DEMONSTRATIONS IN IMPROVING ORAL HEALTH STATUS OF 11-13 YEARS OLD SCHOOL CHILDREN- AN EXPERIMENTAL STUDY

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### ABSTRACT

To compare the effectiveness of oral health talk with practical demonstrations in school children divided in two groups of a selected school. One hundred school children selected by convenience sampling method were divided in two groups based on the type of intervention viz Group A – Oral health talk and practical demonstrations in Group B. The gingival and plaque scores for both Group A and Group B individuals were recorded at baseline, 1 week and 1 month. The results obtained were entered in Microsoft excel worksheet and analyzed using SPSS (Statistical Package for Social Sciences version 21). Analysis of variance (ANOVA) and unpaired t test were applied to compare between the groups. Statistically significant reduction in mean gingival and plaque scores was seen in both groups, but reduction was more in children who received oral health education through practical demonstration than in the children who received oral health talk ( $p < 0.05$ ). Practical demonstrations as a method of health education can have a bigger impact on the oral health practices of the school children and can be an important tool in promoting oral health.

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## INTRODUCTION

Oral health is fundamental and integral part of general health and is of prime importance (Stella K *et al*, 2005). General health is promoted by oral health and the diseases of oral health affects the general health and it can further affect quality of life of an individual. Health promotion and health education differ from each other in which health education provides learning which comprises some part of communication which may further improve knowledge and skills which are important to individual and community health (Jawdekar A *et al*, 2015). An individual with healthy mouth can carry out several tasks without any problem of embarrassment and discomfort (Stella K *et al*, 2005). Especially among children dental caries which is a global disease is more prevalent and it might be due to refined sugars which is present in beverages and food that is processed (Kumar Y *et al*, 2015). Various health education activities can be carried out in school children for practising healthy lifestyle which will last for a longer period of time (Goel P *et al*, 2005). Oral health services can

be easily provided to children in school as they spend more time in school where gaining access to children having higher risk for dental caries becomes easy (Priya M *et al*, 2013). Children can be made aware about oral health problems and diseases through oral health education. The education that is provided should motivate the children. Education can also be imparted through entertainment and playing games which makes learning more easy and is often enjoyed by children. Basic concepts of health can be taught to children by playing games and is an alternative method of teaching. There are many methods of giving health education through games. There is a paucity of data available about the effectiveness of games in providing oral health education among school children therefore, the aim of the present study was comparative evaluation of effectiveness of oral health talks and practical demonstrations on gingival and plaque scores in children aged 11-13 years.

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## MATERIALS AND METHOD

After obtaining appropriate permission from the Ethical Committee and consent of the parents/guardians, the school authorities, the study was carried out. This study followed the principles of Declaration of Helsinki on medical protocol and ethics. From the previously carried out study sample size derivation was done which came out to be 40 children which was rounded off to 50 children in each group.<sup>3</sup> Two schools were randomly selected by convenience sampling. List of 11-13 years old school children was taken in each school. Separate list was made of the children willing to participate in the study after getting permission from parent/guardians. The list of children of same gingival and plaque score were included in the study. In school A (n=75) and school B (n=65). Before intervention was given all children were given serial number and 50 children were randomly selected by lottery method. In school A i.e Group A (n=50) oral health talk was given and in Group B (n=50) practical demonstration was given.

### Inclusion Criteria

1. Children within the age group of 11-13years.
2. Similar gingival and plaque scores recorded at baseline for both the groups

### Exclusion Criteria

1. Children with mental disorders and systemic diseases.
2. Children undergoing orthodontic treatment
3. Children on antibiotic therapy

Children in Group A were explained about proper brushing techniques, brushing habits, and dietary counselling was done using only health talk method. The following experiments were conducted for children in Group B as follows:

**Experiment 1-** Two hardboiled eggs were taken for experiment. One egg was kept in a soft drink, while the other one was placed in milk overnight. On the day of practical demonstration liquid content for both samples in which the eggs were placed was poured out and students were asked to examine the difference between the eggs. Egg kept in the soft drink had changes in colour. From this experiment it can be concluded that soft drinks or aerated drinks are not good for oral health and it is necessary to brush teeth twice daily in order to avoid staining of teeth and improve dental health (Education World. Healthy Teeth: Hands on science activities [Online]).

**Experiment 2-** Two eggs were taken for experiment. One was kept in a plastic bag containing 1.23% APF fluoride gel such that the entire egg shell was covered with fluoride for 24 hours and the second egg was kept as it is. On the day of practical demonstration, both eggs-one kept in fluoride gel and the other one without fluoride were put in a separate jar containing vinegar such that half of the jar was filled with vinegar. Children were then asked to observe bubbling or reactivity of both the eggs. Both eggs were taken out of jar and examined. Shell for egg soaked in fluoride was hard. Shell for egg not soaked in fluoride was soft. Students were convinced to draw conclusion that fluoride is important for teeth as it may prevent developing caries (Education World. Healthy Teeth: Hands on science activities [Online]).

**Experiment 3-** Two eggs were taken for experiment. One was kept in a container containing fluoride rinse solution such that the entire egg shell was covered with solution for 24 hours and the second egg was kept as it is. On the day of practical demonstration, egg treated with fluoride was placed in one container of vinegar and the untreated egg was placed in another container. Again children were asked to observe bubbling or reactivity of both the eggs. The egg that was not treated with fluoride started to bubble as the vinegar is an acid that starts to attack the minerals that are present in the egg shell (Education World. Healthy Teeth: Hands on science activities [Online]).

**Experiment 4-** A glove was worn in one of the hand and the fingers were extended and pointed upwards. The fingers were placed apart and then peanut butter was spread with the fingers. It was made sure that the peanut butter gets deep between the finger joints. Fingers were tighten together such that the peanut butter flows between them. In this experiment, fingers indicates teeth, and the peanut butter that is present between the fingers is trapped food between your teeth whenever we eat something. With the fingers that were tightly held together and pointed upward, the toothbrush and toothpaste was used to remove the peanut butter (not moving the fingers apart). The investigator then had someone come from the audience remove the butter present between the fingers using the floss. Children were asked which does a better job of cleaning or removing the peanut butter between the fingers- the toothbrush toothpaste or the dental floss. The toothbrush cannot reach everywhere between the teeth. Dental floss can clean the food that is trapped between teeth (Education World. Healthy Teeth: Hands on science activities [Online]).

After giving oral health talk and practical demonstrations in both the groups gingival index and plaque index was used to assess the oral health status at baseline, 1 week and after 1 month. Comparison was done to assess the status of both groups- the oral health education group and the intervention group. The data obtained from the study subjects was entered in Microsoft excel (version: Microsoft Office 2013). To compare the baseline values and the first and the second follow-ups, repeated measure ANOVA followed by post- hoc test was used. The unpaired t test was done for comparison of mean gingival scores of Group A with Group B at baseline, 1 week and 1 month. The p value <0.05 was taken to be statistically significant. The statistical analysis was done using the Statistical Package for Social Sciences software (SPSS version 21 for windows 8.1).

## RESULT

There were 50 children in both the groups. Group A had 23 female and 27 males and Group B had 25 females and 25 males. Gingival and plaque scores of study participants in Group A and Group B (Table 1). The mean difference of gingival scores in Group A at baseline with 1 week and 1 month was found to be 0.57, 0.12 respectively. This difference was statistically not significant. The mean difference of gingival scores at 1 week with 1 month was found to be 0.45. This difference was also not found to be statistically not significant. (Table 2)

The mean difference of gingival scores in Group B at baseline with 1 week and 1 month was found to be 0.12, 0.16

respectively. This difference was statistically not significant. The mean difference of gingival scores at 1 week with 1 month was found to be 0.28. This difference was found to be statistically significant ( $p < 0.05$ ). (Table 2)

**Table 1** Total Gingival and Plaque scores in Group A and Group B

Groups		0=Normal	1=Mild gingivitis	2=Moderate gingivitis	3=Severe gingivitis	
Gingival scores	Group A	Baseline	9	36	5	0
		1 week	11	38	2	1
		1 month	16	35	1	0
	Group B	Baseline	10	36	2	2
		1 week	12	36	1	1
		1 month	21	29	0	0
Plaque scores	Group A	Baseline	7	37	6	0
		1 week	19	40	1	0
		1 month	16	34	0	0
	Group B	Baseline	4	35	2	2
		1 week	7	35	7	1
		1 month	18	30	2	0

**Table 2** Intra group comparison of Gingival scores in Group A and Group B at baseline, 1 week and 1 month

Groups	Baseline		1 Week		1 Month		
	Mean Difference	p value	Mean Difference	p value	Mean Difference	p value	
Group A	Baseline	-	0.57	0.068	0.12	0.65	
	1 Week	0.57	0.68	-	-	0.45	0.56
	1 Month	0.12	0.65	0.45	0.56	-	-
Group B	Baseline	-	0.12	0.46	0.16	0.52	
	1 Week	0.12	0.46	-	-	0.28	0.03*
	1 Month	0.16	0.52	0.28	0.03*	-	-

The mean difference of plaque scores in Group A at baseline with 1 week and 1 month was found to be 0.13,0.34 respectively. The difference was statistically not significant with 1 week but was found to be statistically significant with 1 month ( $p < 0.05$ ). The mean difference of plaque scores at 1 week with 1 month was found to be 0.20. This difference was statistically not significant. (Table 3)

The mean difference of plaque scores in Group B at baseline with 1 week and 1 month was found to be 0.37,0.60 respectively. This difference was statistically significant ( $p < 0.05$ ). The mean difference of plaque scores at 1 week with 1 month was 0.23. This difference was also found to be statistically significant ( $p < 0.05$ ). (Table 3)

**Table 3** Intra group comparison of Plaque scores in Group A

Groups	Baseline		1 Week		1 Month		
	Mean Difference	p value	Mean Difference	p value	Mean Difference	p value	
Group A	Baseline	-	0.13	0.557	0.34	0.03*	
	1 Week	0.13	0.557	-	-	0.20	0.118
	1 Month	0.34	0.03*	0.20	0.118	-	-
Group B	Baseline	-	0.37	0.000*	0.60	0.000*	
	1 Week	0.37	0.000*	-	-	0.23	0.038*
	1 Month	0.60	0.000*	0.236	0.038*	-	-

The mean difference of gingival scores in Group A when compared with Group B at baseline,1 week and 1 month was found to be -0.08, -0.02,0.19 respectively. Group B showed more statistical significant values ( $p < 0.05$ ) at 1 month when compared to Group A. (Table 4)

The mean difference of gingival scores in Group A when compared with Group B at baseline, 1 week and 1 month was found to be 0.47, 0.12, 0.22 respectively. Group B showed more statistical significant values ( $p < 0.05$ ) at 1 month when compared to Group A. (Table 4)

**Table 4** Comparison of mean gingival and plaque scores of Group A with Group B at baseline, 1 week and 1 month

Gingival score						
		Mean (SD)	Mean Difference	p value		
Baseline	Group A	0.44(0.39)	-0.08	0.510		
		Group B			0.53(0.41)	
	1 Week	Group A	0.38(0.37)		-0.02	0.64
		Group B	0.41(0.38)			
	1 Month	Group A	0.43(0.37)		0.19	0.012*
		Group B	0.23(0.38)			
Plaque score						
Baseline	Group A	0.80(0.58)	0.47	0.84		
		Group B			0.88(0.68)	
	1 Week	Group A	0.67(0.52)		0.12	0.32
		Group B	0.51(0.45)			
	1 Month	Group A	0.46(0.36)		0.22	0.004*
		Group B	0.24(0.39)			

## DISCUSSION

Oral health when given at the right age can retain throughout the adulthood. School setting is the best setting for giving oral health education to the children where children of same age can be targeted which can contribute in achieving oral health needs in a developing country like India (Ajithkrishnan CG *et al*, 2010). Oral health education is an important aspect of oral health promotion is considered to be a basic part of oral health service when it is given verbally and by performing various practical demonstrations.

Oral health can be promoted by various methods which in turn may improve awareness which may ultimately change the attitude of people towards oral health and leads to the adaptation of healthy lifestyles. In present study oral health talk and practical demonstration was useful in improving oral health status of children. Similar results were observed in the study conducted by Goel P *et al* 2005.

In the present study where one group was given oral health education through oral health talk and another group was given through practical demonstration gingival and plaque scores were found to reduce at 1 week and 1 month but the statistically significant difference was found at 1 month which is in accordance with the study conducted by Kumar Y *et al*, 2015. In our study gingival and plaque scores were reduced in both the groups but it was observed that scores were highly reduced in group that received oral health education through practical demonstration. This may be due to the reason that when person actually see the things through his perspective it get retained throughout the life.

Games can be used as an important and most useful educational aids in creating awareness and improving oral health status among children. When health education or health messages are given through different medium such as games and if they are repeatedly played and some points that are important are revised again and again games may be helpful in improving oral health as it can increase application and retention power of an individual (Kumar Y *et al*, 2015).

Castillo Lizardo *et al*, 2001 conducted a study among school children to determine whether there is any effect of educational strategy using snake and ladder game in teaching concepts of health and it was found that games containing health messages can be helpful in teaching health concepts. In our study we found practical demonstration can be helpful in teaching oral health education and can be used as alternative strategy in improving oral health status of school children. In another study conducted by Ahire *et al*, 2012 where they have used robot (ROBOTUTOR) that demonstrates the tooth brushing technique to adults and found that it is helpful in teaching brushing technique and also clinician time can be saved. John BJ *et al*, 2013 conducted a study where they found that impact of drama can change the attitude and behaviour in improving oral health.

Messages of health when given through different educational aids such as leaflets, videos, games etc can improve children's behaviour and their attitude towards health as well as oral health (John BJ *et al*, 2013). Our results states that practical demonstration proved to be an effective strategy in improving oral health of school children which is in accordance with the study conducted by Shah N *et al*, 2016 where they have used educational video to improve knowledge regarding oral health.

Oral health education through practical demonstration can be used in outreach programs, schools in improving their oral health status. Also their knowledge, attitude and behaviour of school children towards oral health can also be changed. During imparting oral health public health dentist should keep in mind that level and kind of education that we are providing to the children depends on the development of child. Preventive actions should be targeted to high risk group or population who are mostly susceptible strategies should be developed that increase knowledge about health. With this in mind practical demonstrations may capture the attention and motivate the participation of children in learning importance of oral health education. In school programs through practical demonstrations teachers can be trained in giving oral health education to the children. It can be effective in developing interest of children that ultimately improves their oral health and increase their knowledge towards oral health. Practical demonstrations may be useful in children with disability in improving their oral health as it can be difficult for their caregivers to explain the importance of oral health education. Through different games, demonstrations it can help their caregivers and parents in providing them with good oral hygiene. Results in another group who received oral health talk may be affected due to barriers in communication, educators teaching skills may be the limitation of the study.

## CONCLUSION

Practical demonstration proved to be an effective tool in developing oral health education. It may create interest and increase knowledge amongst school children that may change their attitude and behaviour towards oral health. Also this method of providing oral health education is cost effective, its implementation is also easy which can be helpful in providing oral health education to school childrens that may reduce dental caries.

## References

1. Ahire M, Dani N, Muttha R. (2012): Dental health education through the brushing ROBOTUTOR: A new learning experience. *J Indian Soc Periodontol* 16, 417-20.
2. Ajithkrishnan CG, Thanveer K, Sudheer H, Abhishek S. (2010): Impact of oral health education on oral health of 12 and 15 years old school children of Vadodara city, Gujarat state. *J Int Oral Health* 2, 16-20.
3. Castillo Lizardo JM, Rodriguez-Moran M, Guerrero-Romero F. (2001): Games as an alternative for teaching basic health concepts. Games as an alternative for teaching basic health concepts. *Rev Panam Salud Publica* 9, 311-314.
4. Goel P, Sehgal M, Mittal M. (2005): Evaluating the effectiveness of school based dental health education program among children of different socioeconomic groups. *J Indian Soc Pedod Prev Dent* 23, 131-3.
5. Education World. Healthy Teeth: Hands on science activities [Online]. Available at: [http://www.educationworld.com/a\\_lesson/04/lp332-01.shtml](http://www.educationworld.com/a_lesson/04/lp332-01.shtml). (Accessed: 9<sup>th</sup> October 2016).
6. Jawdekar A, Katre A, Inamdar J, Pendkar R, Jain B. (2015): Development and Evaluation of a Novel Audio-Visual Tool "Happy Tooth Song" for Oral Health Promotion in Children. *Adv Dent Oral Health* 1, 001-4.
7. John BJ, Asokan S, Shankar SJ. (2013): Evaluation of different health education interventions among preschoolers: A randomized controlled pilot trial. *J Indian Soc Pedod Prev Dent* 31, 96-9.
8. Kumar Y, Asokan S, John B, Gopalan T. (2015): Effect of conventional; and game based teaching on oral health status of children: A randomized controlled trial. *Int J Clin Paed Dent* 8, 123-6.
9. Priya M, Devdas K, Amaral D, Venkatachalapathy A. (2013): Oral health attitudes, knowledge and practice among school children in Chennai, India. *J Educ Ethics Dent* 3, 26-33.
10. Shah N, Mathur, Kathuria V, Gupta T. (2016): Effect of an educational video on oral health-related knowledge. *Indian J Dent* 7, 70-5.
11. Stella K, Poul EP, Cynthia P and Annerose B. (2005): *Bulletin of the World Health Organisation* 83, 677-685.

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