

Original Research Article

## Oral Health Status, Knowledge and Caries Occurrence in Visually Impaired Students

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### ABSTRACT

The aim of the study was to evaluate the oral health status, knowledge and occurrence of caries in visually impaired students in a boys-only residential school for blind in Pune, Maharashtra, India. The study was conducted on a total of 85 students all of whom were male. The students belonged to varying ages broadly falling into the age group of 6-13 years. With the help of questionnaires we found that most of the students brushed their teeth twice a day and using a toothbrush and toothpaste. Many of the students knew that sugar played a major role in formation of dental caries. Knowledge of oral hygiene was decently present due to previous dental programs held in the school. 49 of the 85 students had good oral hygiene. 29 had fair oral hygiene and 7 had poor oral hygiene. 55 had good awareness of role of sugar in caries and 25 had poor awareness. Caries occurrence was minimal in students with good oral hygiene. There were minimum to none differences in oral conditions of these students and normal students. Lack of motivation and absence of vision does make oral hygiene maintenance slightly difficult for them though.

**Key words:** Visually impaired, oral hygiene, dental caries, toothpaste, disability.

### INTRODUCTION

According to WHO, 285 million people worldwide are visually impaired and 90% of them live in low income countries. Blind students are at a high risk of having bad oral hygiene or caries. Many of the blind children might also have one or many other disabilities along with visual impairment. These additional disabilities make it even more difficult for them to maintain oral hygiene. Removal of plaque can be a difficult task for the visually impaired students. Chemical methods of plaque removal have been suggested for these students. <sup>[1,2]</sup> Sensitizing them against oral health issues can be a challenge for dentists and health workers. Health workers need to explore alternate methods to reach out to these children and facilitate a good oral health for them.

### MATERIALS AND METHODS

Total of 85 students were selected for the study from the students in boys-only school for visually impaired. Knowledge about healthy oral habits was evaluated. A questionnaire was designed and following questions were used

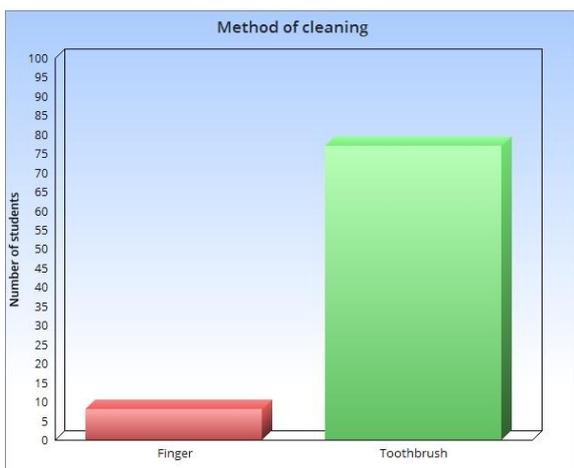
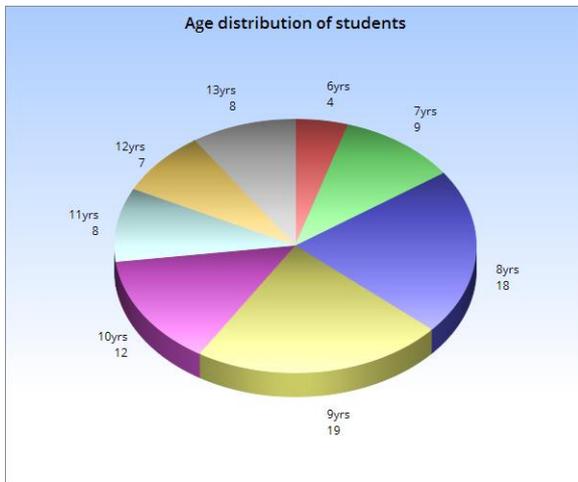
1. How often do you brush your teeth?
2. How do you clean your teeth?
3. Do you use toothpaste?
4. Do you know the role of sugar in dental decay?
5. How many times have you been checked by a dentist?

The study was conducted at the school using simple chair, mirror probe and intra-oral camera by a single examiner in daylight. DMFT and DEFT index was used for caries evaluation and Green and vermillion index for general oral hygiene.

## RESULTS

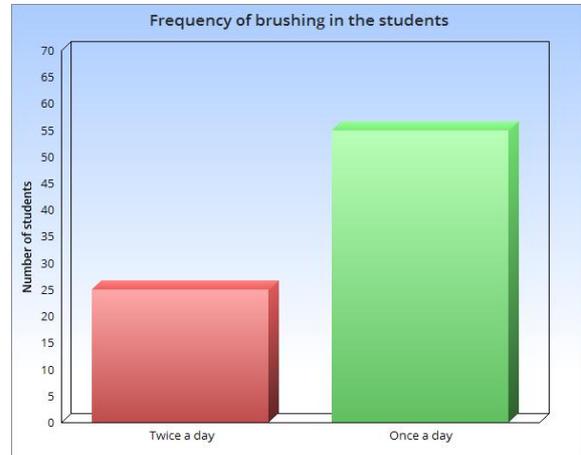
1. A total of 85 blind school children were subjected to the study, wherein all (100%) were boys.

An age group in the range of 6 to 13 years children were included in the study, wherein 4.71% were 6-year-old boys (n = 4), 8.23% were 7-year-old boys (n =9). 21.2% children were 8-year-old boys (n = 18), the majority, 22.4% were 9-year-old children (n=19). 8-year-old group of children belonged to the second majority.14. 11% were 10-year old (n=12).9.41% were 11-year old (n=8). 8.24% were 12-year old (n=7). Finally, 9.41% were 13-year old (n=8). The least population belonged to the group of 6-year-old children.

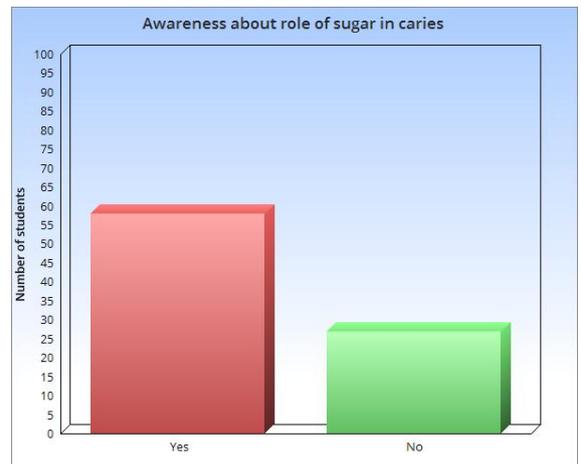


2. The questionnaire was analyzed according to their responses. 29.41% children responded that they brushed twice a day (n = 25), whereas 64.7% children

answered that they brushed their teeth only once in the morning (n = 55). 98.82% (n = 76) of children used toothbrush to brush their teeth and only 9 (10.6%) children used finger to clean their teeth.

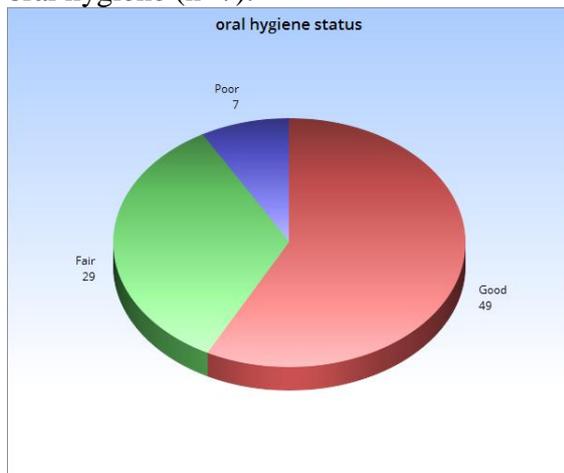


3. 100% of the children responded that they used tooth paste along with the cleaning tool. Regarding the knowledge of the role of sugar in producing dental caries, 63.5% (n = 54) of the children responded that they are aware that sugar plays a role in producing dental caries, whereas 36.4% (n = 31) of children responded otherwise.



4. While conducting the examination regarding dental caries, and assessing the DMFT and DEFT index, it was observed that the mean DMFT score was found to be 0.58, and mean DEFT score to be 2, and the oral hygiene status was good for 57.6% children (n=49), 34% children had fair oral

hygiene (n=29). 8.23% children had poor oral hygiene (n=7).



5. Test of significance used was Kruskal-Wallis Chi-Square test for identifying the significance of DMFT index and DEFT index among different ages in the study group. We observed that there is no statistically significant difference in the DMFT scores recorded in children of Different ages ranging from 6 to 13 years, and the same were observed with DEFT scores and the oral hygiene status.

**Analysis of DMFT scores**

Age (yrs.)	n	Mean	Std. devn	Min	MMax
6	04	0.63	1.04	1	3
7	09	0.61	1.21	0	3
8	18	0.54	0.98	0	3
9	19	0.41	0.70	0	2
10	12	0.56	0.69	0	2
11	08	0.63	0.71	0	2
12	07	0.59	0.52	0	1
13	08	0.67	0.76	0	2

**Analysis of DEFT scores**

Age (yrs.)	n	Mean	Std. devn	Min	MMax
6	04	1.31	1.44	0	6
7	09	1.39	1.98	0	6
8	18	1.40	1.92	0	6
9	19	2.24	2.14	0	6
10	12	2.34	1.98	0	6
11	08	1.65	1.82	0	5
12	07	1.94	2.08	0	3
13	08	1.02	1.00	0	2

**Analysis of OHI scores**

Age (yrs.)	n	Mean	Std. devn	Min	MMax
6	04	0.38	0.09	0.16	0.68
7	09	0.43	0.28	0.19	1.15
8	18	0.59	0.48	0.17	0.71
9	19	0.61	0.21	0.16	2.39
10	12	0.58	0.35	0.18	1.19
11	08	0.49	0.29	0.17	1.25
12	07	0.49	0.36	0.31	2.14
13	08	0.41	0.41	0.33	1.42

## DISCUSSION

India has one of the highest numbers of visually impaired as 15 million of the world's 40 million visually impaired population is in India. 75% of them have lost their sight due to avoidable causes. Blindness brings a number of daily life problems along with it and difficulty in oral care is one of them. Most of us learn about good oral habits like brushing by looking at others. [3,4] Blind children are at a disadvantage here that they cannot imitate others due to absence of vision. [5] Also, many times if the blindness is due to any syndrome then associated impairments like hearing loss, bone disorders etc. are also present adding to the difficulty. [6,7] Our study proves that various methods of brushing viz.- with finger and using toothbrush and the number of times viz.- once or twice a day does not make a significant difference on the number of caries present. Students with good oral hygiene have a decent oral health with less number of caries. [8] Visually impaired students and normal students have similar caries index. The oral hygiene is comparatively poor in blind students. Our study had students who had been given oral care training and sessions a few times. Hence oral health related awareness was better. A study by P.E Peterson *et.al.* showed that there was no significant difference in the oral health of normal and visually impaired students. [2,9]

## CONCLUSION

Dental plaque facilitates formation of dental caries while also giving way to periodontal problems. Early dental visits can help reduce dental caries and has also shown to reduce the number of dental treatments needed. Our study shows that there is no major difference in the oral conditions of normal and visually disabled children. [7,10] Difficulty in conveying the information to them and trouble in cleaning mouth without vision is a concern. Students

in residential institutions for disabled need to be given special consideration, and customized dental programs should be developed for these students wherein they undergo periodic dental check-ups and treatments. Sensitization programs with interesting audio and Braille options should be created to get these students interested in dental health. [10,11]

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