ORIGINALESEARCHARTICLE

Oral health status of sensory impaired children in Delhi and Gurgaon
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Abstract
Background: Sensory impairments can compromise an individual’s efficiency to maintenance of oral health care. Aims: To evaluate the prevalence of dental caries, gingivitis, malocclusion and traumatic injury to upper anterior teeth in sensory impaired children. Materials and Methods: A total of 614 children with varying sensory impairments (blindness, deafness/muteness) within the age group of 5-16 years attending special schools in Delhi and Gurgaon were included. Results: The prevalence of dental caries was more in the deaf/mute children at 72.43% while in the blind it was 59.68%. Gingivitis was more in the blind at 71.53%, than the deaf/mute at 49.65%. The prevalence of malocclusion was 58% in the deaf/mute, while in the blind it was 30.69% and for trauma it was almost doubles in the blind (44.28%) when compared with the deaf (24.48%). Conclusion: The prevalence of dental diseases especially dental caries and gingivitis is as high as that seen in the normal children (60-70%) and that there is a need for administration of proper and professional dental treatment in these children.

Key Words: Blind; Deaf; Gingivitis; Dental Caries; Prevalence; Oral Health

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Introduction
The American Health Association defines a child with disability as a child who for various reasons cannot fully make use of all his or her physical, mental and social abilities.(1) As per census 2001, there are about 21 million people with disability in India.(2) It is believed that the number of handicapped individuals is increasing in proportion to the general population. Oral health is a vital component of overall health, which contributes to each individual’s wellbeing and quality of life by positively affecting physical and mental healthiness, appearance and interpersonal relations.(3) Individuals with special needs have greater limitations in oral hygiene performance due to their potential motor, sensory and intellectual disabilities and are thus, prone to poor oral health.(4) Several reports have been documented in literature regarding the dental status in disabled children.(1, 2, 5, 6) The present study was planned to determine the prevalence of dental caries, gingivitis, malocclusion and traumatic injury to upper anterior teeth in sensory impaired children.

Material and Methods
A total of 614 children, within the age group of 5-16 years attending special schools in Delhi and Gurgaon were included. The inclusion criteria for the study were: a) children with either one of the following sensory impairments, blindness, deafness and inability to speak, b) children between the age group of 5-16 years of age and c) children free from any other form of mental handicap. The Research protocol of the study was approved by the Institutional Reviews Committee. The schools randomly selected, centered towards education and rehabilitation of sensory impaired children. Out of the entire sample, 350(Group A) were blind subjects and, 264(Group B) were deaf. Prior to the examination of children a written formal permission was taken from parents and the administrative authorities of the selected schools. Demographic information regarding the age, school and the residential address was collected from the schools itself.

The children were examined in the school using natural day light and sterilized instruments with participants seated on an ordinary chair. The findings were recorded on a specially designed oral health assessment form. For assessment of caries the DMFT index was used in the permanent teeth while for the primary teeth the ‘def’ index was used. The gingival health was assessed using the gingival index. For determining malocclusion 4 sub categories were selected, these were a) spacing, b) crowding, c) cross bite and d) increased over jet and f) any other. For anterior tooth trauma the presence or absence of the trauma was noted as given in the oral health assessment form.

After the examination a dental health education class was held for the students, teachers and the care givers so that the children could be educated with regards to maintaining their oral health and hygiene. The data was recorded in excel table using patient names and identification numbers and statistical analysis was done.
Results

The total sample comprised of 614 subjects. Out of which 57% (350) were blind, while 42.99% (264) were deaf with an age range of 5-16 years. The mean deft/DMFT in the blind population was found to be 2.40, while that in the deaf group was slightly more at 3.18.

Caries prevalence in group A (blind) was found to be less at 59.68% when compared with that of the group B (deaf) at 72.43%. The prevalence of gingivitis was more in the blind population with, 71.53% (250 children of the total 350) of group A showing varying degrees of gingivitis. In the deaf/mute population however, the prevalence of gingivitis was slightly lower at 49.65% (131 children of the total 264 in this group). Overall prevalence of trauma was more in group A (blind) at 44.28% (155 of 350) as compared with that of group B (deaf/mute) at 24.48% (65 of 264). Overall prevalence of malocclusion was more in the deaf children at 57.98% (153 of the total 264) as compared with that of blind children at 30.69% (107 of the total 350) Graph1.

Graph 1: Oral Health status of both Groups

When the sub- categories of malocclusion were studied it was found that in group A (blind) 32.57% had crowding/spacing, 2.28% had cross bite, 15.7% had over jet >2mm, while 6.85% were categorized as any other. Similarly, group B (deaf/mute) had 37.5%, 6.43%, 15.53% and 4.16% in respective categories.

Discussion

Good health is a fundamental goal for people and the societies in which they live.(7) Sir William Osler has stressed the significance of oral health as the mirror of general health. (8) People with physical and intellectual disabilities (PID) form a sub-group the ‘special needs population’. (5) They have limited ability to be advocates of their health and little is known about their oral health, also they experience substantially higher levels of oral disease and have extra barriers to accessing dental care. (9) Gupta et al reported that the mean DMFT of 4.85 in the blind while that in the deaf/mute to be around 4.02. (10) This difference could be attributed to the fact that in our study all the blind children were hostellers thus, their dietary consumptions were restricted and under check, while the deaf/mute population sample comprised of both day scholar students and hostellers, resulting in unsupervised eating habits. For the assessment of dental caries we used the decayed, missing, and filled teeth (DMFT) index as it is one of the most commonly used index in various epidemiological studies to measure the degree of caries experience of subjects with primary as well as permanent dentition. In our study the prevalence of dental caries was higher in the deaf/mute at 72.43% whereas that in the blind was 59.68%.

The status of gingival health was determined using the gingival index. In our study we found a relatively high prevalence of poor gingival health in the blind at 71.53% as compared with the deaf at 49.65%. Poorer oral hygiene and gingival health in the studied children are consistent with the findings of other studies also, which can be attributed to environmental, systemic and local factors. (11, 12) The majority of the study population had moderate to mild gingivitis. There were no subjects with poor score. This may be attributed to their institutionalization in special schools and being under direct supervision of the teachers of the institutions.

In our study we found the prevalence of traumatic injuries to teeth in the blind to be nearly twice as that found in the deaf children. In the blind children we found a prevalence of 44.28%, and in the deaf it was, 24.48%. Children who are blind are at greatest risk for traumatic injury due to their compromised vision. This difference could however be attributed to a size of the sample and variation in the area where the study was carried out. Hearing impaired children had more opportunities to play and move around as compared to non-sighted peers. (13)

In our study we found that amongst the blind children 32.57% had crowding/spacing, 2.28% had cross bite, 15.7% had over jet >2mm, while 6.85% were categorized as any other. Similarly, in deaf/mute children the prevalence was 37.5%, 6.43%, 15.53% and 4.16% in respective categories. This could be because deaf/mute appear to have a less flexible tongue during speech production than do hearing subjects. This difference could disrupt tongue function just as abnormal habits would. With
changes in the tongue, cheek, and lip muscle functions, the overall effect is a significant narrowing of the maxillary arch, similar to that of open mouth syndrome or mouth breathing subjects. (14)

Conclusion

In conclusion a) the prevalence of dental caries was more in the deaf/mute children as compared the blind, b) Prevalence of gingivitis was more in the blind than the deaf/mute, c) The prevalence of malocclusion was more in the deaf/mute, as compared with the blind, d) Prevalence of trauma was almost twice in the blind when compared with the deaf, e) It can be concluded that the prevalence of dental diseases especially dental caries and gingivitis is as high as that seen in the normal children (60-70%) and that there is a need for administration of proper and professional dental treatment in these children.

Recommendations

- Children requiring special care are a priority group indicated for use of fissure sealants, such a program should be designed such in all the children, the permanent molars should be sealed soon as they erupt.
- Regular school-based programs of tooth brushing should be implemented and reinforced in all these groups with disabilities.
- Supervised programs of fluoride supplementation should be reinforced in these schools, and the use of topical fluoride varnishes should be recommended.
- There is a clear need to involve the dental profession more actively in dietary counseling and provision of preventive oral health care and treatment.

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References


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