

Oral Health Status of the Visually Impaired Children – A South Indian Study

Vabitha Shetty* / Amitha M Hegde ** / Srikala Bhandary*** / Kavita Rai ****

*Oral health is an important aspect of health for all children, and is all the more important for children with special health needs. The oral health of children who are visually impaired can be disadvantaged, since they are often unable to adequately apply the techniques necessary to control plaque. **Purpose:** The purpose of the present study was to evaluate the oral health status of visually impaired children. **Method:** A modified WHO oral health assessment form was used to assess oral conditions, oral hygiene status, caries experience and gingival status. **Results and conclusion:** The children exhibited suboptimal levels of oral health with majority of the children showing a high caries prevalence as well as moderate to severe gingivitis.*

Keywords: visually impaired children, oral health.

J Clin Pediatr Dent 34(3): 213–216, 2010

INTRODUCTION

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. Oral health is an important aspect of health for all children, and is all the more important for children with special health needs.¹ In many instances, a disabled child's oral hygiene care becomes the responsibility of another person, generally a parent or guardian, many of whom are emotionally or intellectually incapable of dealing with the health problems of their less fortunate ones.²

The oral health of people who are visually impaired can be disadvantaged, since they are not in a position to detect and recognize early oral disease and may be unable to take

immediate action unless informed of the situation. The individual's ability to cope with everyday tasks of personal hygiene, including oral hygiene, is critical to the maintenance of an independent existence.³

Visually impaired children are challenged everyday in learning everyday skills, maintaining proper oral hygiene being one. These children have been found to have poorer oral hygiene as compared to their sighted peers. Adequate instruction in proper care of the teeth and oral tissues is essential.^{4,5}

Blindness as a disability seems to produce difficulties to achieve an ideal health status of the teeth. A number of studies have shown that challenges to oral health are more complex for disabled children, who are often unable to adequately apply the techniques necessary to control plaque.²

Children with disabilities deserve the same opportunities for oral health and hygiene as those who are healthy. Unfortunately, oral health care is one of the greatest unattended health needs of the disabled children.⁶ Since there is a paucity of data regarding the oral health status of these children, hence the need for the study.

MATERIALS AND METHODS:

Two hundred twenty-one visually impaired children between the ages of 6-12 years were randomly selected, from various schools and centers for the visually impaired, namely in Karnataka, south kanara district. Oral health of these children was evaluated after obtaining prior consent from the respective schools/centre authorities and from the parents/guardians.

Oral health status of all the children were recorded using a modified WHO oral health assessment form (1997).⁷ The oral cavity of children was examined for oral lesions and Caries experience was recorded using the dft, DMFT

* Vabitha Shetty, Professor, Department of Pedodontics and Preventive Children Dentistry, A. B. Shetty Memorial Institute of Dental Sciences.

** Amitha M. Hegde, Professor and Head of the Department, Department of Pedodontics and Preventive Children Dentistry, A. B. Shetty Memorial Institute of Dental Sciences.

*** Srikala Bhandary, Assistant Professor, Department of Pedodontics and Preventive Children Dentistry, A. B. Shetty Memorial Institute of Dental Sciences

**** Kavita Rai, Professor, Department of Pedodontics and Preventive Children Dentistry, A. B. Shetty Memorial Institute of Dental Sciences

Send all correspondence to: Dr Amitha M. Hegde, Professor and Head of the Department, Department of Pedodontics and Preventive Children Dentistry, A.B. Shetty Memorial Institute of Dental Sciences, Derlakatte, Mangalore-575018, Karnataka, India.

Fax no: 0824-2204572.

Email: amipedo@yahoo.co.in
chinkushri@gmail.com

indices. Gingival status was recorded using Gingival index given by Sillness and Loe.⁸ Oral hygiene of the children were assessed using the Simplified oral hygiene index by Greene and Vermillion JK.⁹

The visually impaired children were examined at their respective schools/centers, seated on an ordinary chair, under good illumination, either natural light or hand torch using a sterile mouth mirror and CPI probe while taking protective cross infection control measures using disposable gloves and masks. All examinations were conducted by the same examiner.

RESULTS:

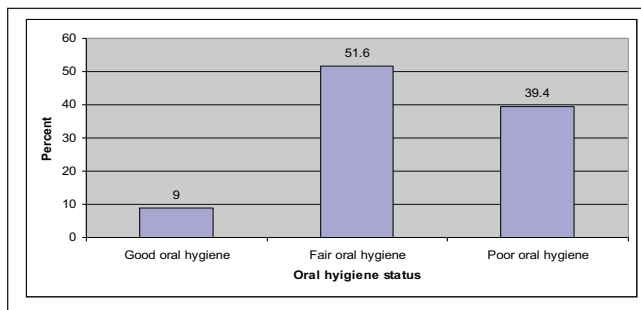
The study group consisted of 97 (43.8%) males and 124 (56.2%) females. The extra oral conditions revealed that 174 (78.8%) of the children had normal extraoral appearance while the most common extra oral condition amongst the remaining was enlarged cervical lymph nodes 43 (19.4%). 210 (95.0%) of the children showed normal oral mucosa while amongst the remaining, the most common intraoral mucosal condition observed was ulceration in 9(4%) (Table 1).

When the oral hygiene status of the children was evaluated, it was found that 104(51.6%) of the children exhibited fair oral hygiene, 87(39.4%) of the children poor oral hygiene and only 20 (9%) of the children exhibited good oral hygiene (Graph 1). All the children in the study group belonged to the mixed dentition. 117 of the 221 (52.9%) children used tooth brush and paste while 104 (47.1%) used tooth brush and powder to clean their teeth. All the children included in our study group brushed their teeth only once daily.

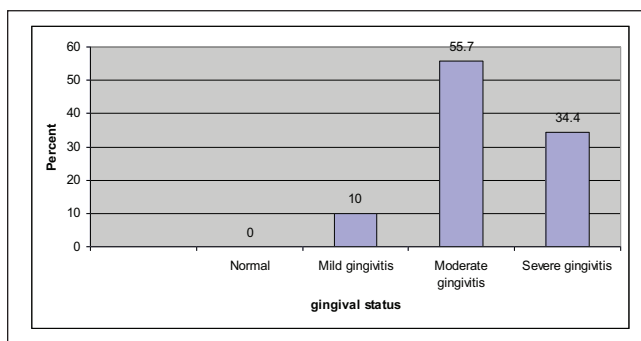
Out of the 221 children examined, 217 (98.5%) had carious teeth with a mean dft of 7.260 and mean DMFT of 4.87 (Table 2). The decayed teeth formed the largest component of both the dft and the DMFT.

Gingival status of the children when assessed revealed moderate gingivitis in 123 (55.6%), severe gingivitis in 76 (34.4%) and mild gingivitis in 22 (10%) (Graph 2).

Dental anomalies in the study group showed crowding of teeth in 8 (3.6%) of the children, spacing in 5(2.2%) and diastema in 2(0.9%). 191(86.6%) of the children had class I molar relation while 14 (6.3%) had class II and only 1 (0.4%) had class III molar relation. 16.3% of the respondents were aware that their child had unrepaired fractured anterior teeth which showed the ignorance of the care providers regarding these children.



Graph 1. Showing the oral hygiene status of the children



Graph 2. Showing The Gingival Status Of The Children

Table 1. Shows Extra Oral Conditions

Extra oral conditions	Frequency	Percentage(%)
Normal extra oral appearance	174	78.8
Ulceration, sores, erosions and fissure (head, neck, limbs)	0	0
Ulceration, sores, erosion, fissures (nose, cheeks, chin)	2	0.9
Ulcerations, sores, erosions and fissure (commissures)	0	0
Ulceration, sores, erosions, fissures (vermillion border)	0	0
Enlarged cervical lymph nodes	43	19.4
Abnormalities of upper and lower lips	0	0
Other swellings of face and jaws	2	0.9

Table 2: Showing The Caries Experience In The Children

Number of children	Number of children with caries	% with caries	Mean dft	d/dft	f/dft	Mean DMFT	D/DMFT	M/DMFT	F/DMFT
	Total	Total	Total	Total	Total	Total	Total	Total	Total
221	217	98.5%	7.260	689	27	4.87	363	0	7

DISCUSSION

The sensory modalities are often taken for granted as long as they function normally. However, when this functioning is interfered by illness or medication, perception of our environment may be affected. It is through the senses that we learn about our world; therefore the development of a child maybe severely compromised by loss of one or more of the sensory modalities.

Most studies¹⁰⁻¹² of oral disease prevalence in disabled groups find significantly poor levels of oral hygiene which is confirmed in the present study. In our study when the oral hygiene status of the children was assessed, they exhibited a fair to poor levels of oral hygiene. This could be attributed to the decreased ability of the blind children in maintaining their oral hygiene, caused by lack of manual-visual coordination. Most of these children brushed their teeth only once a day without any parental supervision. The child's reduced concern for his/her appearance could also be a contributory factor. These findings are in agreement with the study conducted by Al- Qahtani (2004).¹³

There was an overall increased incidence of caries in these children. The mean dft was 7.260 and mean DMFT was 4.87. The filled component of dft (f/dft) was 27 and F/DMFT was only 7 and the missing component in DMFT was 0. However the d and D components accounted for a higher proportion of the total dft and DMFT respectively. The higher caries rate amongst these children could be due to the frequent consumption of sweets and in between snacking as reported by their care providers. Significant events such as birthdays and anniversaries were often celebrated with distribution of sweets and candies. It was also observed that their daily diet included one serving of sweet dish. Similar findings were observed by Wyne AH and Al Qahtani Z (2004)¹³ Chowdary R (1993).¹⁴ The high number of children with decayed teeth along with lack of dental consultation as reported by their care providers, shows that these children have unmet preventive and restorative treatment need.

In our study, the most prevalent extraoral manifestation was cervical lymphadenopathy, observed in 19.4% of the children. This could be due to the presence of chronic infection caused by unattended dental decay.

Varying degrees of gingivitis were observed in the children of the study group. Children exhibited moderate to severe gingivitis. Gingival inflammation may be increased in these children because all the children practiced unsupervised brushing which may account for ineffectively removed plaque. This is in accordance with the findings of Ohito *et al*,¹⁵ Bhavsar.¹⁶

Eventhough the dental profession wants to serve this group, capacity is sometimes restricted because of lack of knowledge and experience, and a constrained work environment.¹⁷ The main barriers to equal access to dental treatment for individual with disabilities seems to be inadequate facilities and insufficient time,¹⁸ lack of adequate knowledge, and general stress related to treating this group¹⁹; i.e costs, fear, and negative attitudes to dentistry.²⁰

Even though efforts have been made in the western world

to improve the oral health of these less fortunate children, no attention has been directed by the health authorities in India. In our opinion, oral health care should be approached jointly with general health care in order to achieve a more holistic view of the individual's physiological and psychological wellbeing.¹⁷

CONCLUSION

- Most of the children exhibited fair to poor oral hygiene.
- There was an overall increase in the prevalence of dental caries among most of the children with a significant number of children having untreated carious teeth.
- Most of the children showed moderate to severe gingivitis.
- Children had unrepaired fractured anterior teeth which show the ignorance of the care providers towards these children

RECOMMENDATIONS

Recommendations to the Dental institutions:

- Formulation and implementation of a complete plan of preventive procedures through community/school programs.
- Promote training of personnel for dental care of the visually impaired children.
- Institute dental treatment programs for these children in schools where they may not have facilities for dental services to these children.
- Programs and workshops on dentistry for these children should be conducted as continuing education courses to stimulate dentist's interest.

Recommendations to the care providers:

- Daily oral hygiene practices should be encouraged including tongue cleaning and preferably supervised by care providers. Use of dental floss is also recommended.
- Care providers should be instructed that these children should perform oral hygiene procedures twice daily, once after breakfast and just before bed time.
- Advised modification of the tooth brush to suit the child's requirements e.g- the handle of the toothbrush could be custom designed to suit the child. As an alternative, the use of a powered tooth brush can also be recommended.
- Use of medium to soft bristled tooth brushes to reduce discomfort while brushing as most of these children have gingivitis.
- Use of a fluoridated tooth paste while brushing the teeth to reduce the incidence of dental caries.
- Following sweet consumption, a thorough rinsing of mouth with water is recommended.
- The practice of in between snacking to be discouraged.
- Suggestion of alternative/substitute food in place of cariogenic food stuff.
- Regular professional dental consultation and care for every child should be emphasized.

REFERENCES

1. Mitrea AG, Karidis AG. Oral health status in greek children & teenagers with disabilities. *J Clin, Pediatr Dent*, 26: 118–8, 2001.
2. Schembri A, Fiske J. The implications of visual impairment in an elderly population in recognizing oral disease and maintaining oral health. *Spec Care Dent*, 21: 222–226, 2001.
3. Dinesh Rao, Hegde Amitha, Avatar Kishan Munshi. Oral hygiene status of disabled children and adolescents attending special schools of South Canara, India. *Hong Kong Dental Journal*, 2: 107–13, 2005.
4. Greelev CB, Goldstein PA, Forrester DJ. Oral manifestations in a group of blind students. *ASDC J Dent child*, Jan-Feb: 43(1): 39–41, 1976.
5. Joseph Z. Anaise. Periodontal disease and oral hygiene in a group of blind and sighted Israeli teenagers (14-17 years of age). *Community Dent. Oral Epidemiol*, 7: 353–356, 1979.
6. M. Hennequin, D-Faulks, D- Roux. Accuracy of estimation of dental treatment need in special care patients. *Journal of Dentistry*, (28) 131–136, 2000.
7. WHO: oral health surveys, basic methods, 4 th edition. World health organization, Geneva, 1997.
8. Loe H: The gingival index, plaque index and the retention index systems. *J. Periodontol*, 38: 610–616. 1967.
9. Greene JC, Vermillion JK. The simplified oral hygiene index. *J Am Dent Assoc*, 68–71, 1964.
10. Murray JJ McLeod JP. The dental condition of severely subnormal children in three London boroughs. *Br Dent J*, 134: 380–5, 1973.
11. Brown JP, Schodel DR. A review of controlled surveys of dental disease in handicapped persons. *ASDC. J Dent Child*, 43: 313–20, 1976.
12. Morton ME. Dental disease in a group of adult mentally handicapped patients. *Public Health*, 91: 23–32, 1977.
13. Al-Qahtani Z, Wyne AH. Caries experience & oral hygiene status of blind, deaf and mentally retarded female children in Riyadh, Saudi Arabia. *Odontostomatol Trop. Mar*; 27(105): 37–40. 7, 2004.
14. Gupta DP, Chawdhury R, Sarkar S. Prevalence of dental caries in handicapped children of Calcutta. *J. Indian Soc Pedod Prev. Dent*, Mar; 11(1): 23–7, 1993.
15. Ohito FA, Opinya GN, Wang Ombe J. Dental caries, gingivitis dental plaque in handicapped children in Nairobi, Kenya. *East Afr. Med J*, Feb; 70(2): 71–4, 1993.
16. Bhavsar JP, Damle SG. Dental caries & Oral hygienes amongs 12-14yrs old handicapped children of Bombay, India. *J Indian SDC Pedod Prev Dent*, Aug; 13(1): 1–3, 1995.
17. Zimmer S, Didner B, Roulette JF. Clinical study on the plaque removing ability of a new triple headed toothbrush. *J Clin Periodontal*, 26: 281–5, 1999.
18. Hallberg U, Strandmark M, Klingberg G. Dental health professional's treatment of children with disabilities: a qualitative study. *Acta Odontologica Scandinavica*, 62: 319–27, 2004.
19. Edwards DM, Merry AJ. Disability part 2: access to dental services for disabled people. A questionnaire survey of dental practices in Merseyside. *Br Dent J*, 193: 253–5, 2002.
20. Bedi R, Champion J, Horn R. Attitudes of the dental team to the provision of care for people with learning disabilities. *Spec Care Dentist*, 21: 147–52, 2001.