

# Assessment of Oral Health Status among Institutionalized Visually Impaired Children and Adults aged 6-25yrs in Delhi

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## ABSTRACT

**Aim:** The purpose of the study is to assess the oral health status in visually impaired children and adults aged 6-25yrs attending special schools in Delhi. **Materials and Methods:** A total number of 1131 visually impaired individuals studying in various special care institutions in Delhi were examined. Extra-oral as well as intra-oral examinations were carried out and Oral hygiene index simplified (OHI-S) was used to assess the oral health status. The relevant findings were entered in the proforma. **Results:** The overall mean of the oral hygiene status in the study groups of the 6 – 12-year division is 1.05 and that of 13 – 25 years is 1.77. No significant difference was observed in the oral hygiene status among males and females in the mixed dentition category. However, the oral hygiene status of males is better than that of females in the permanent dentition group. The overall mean of the oral hygiene status noted in children is 1.51, and that of adults is 1.85. The difference noted is statistically significant ( $p < 0.001$ ) and males were found to have better oral hygiene as compared to females among children and adults. **Conclusion:** The oral hygiene in most individuals was found to be “fair” with males having better oral hygiene as compared to females.

**KEYWORDS:** Children And Adults, Institutionalized, Oral Hygiene Status, Special, Visually Impaired

## INTRODUCTION

WHO defines blindness as “visual acuity of less than 3/60 m or loss of corresponding visual field in the better eye with the best possible correction,” meaning that whilst a blind person could see 3 m, a non-visually impaired person could see 60 m. Visual impairment relates to a person’s eyesight, which cannot be brought back to normal vision.

According to the International Statistical Classification of Diseases (Update and Revision 2006), there are seven levels of visual function, namely: mild visual impairment, moderate visual impairment, blindness, severe blindness, very severe blindness, total blindness and unspecified.<sup>1</sup> Moderate visual impairment combined with severe visual impairment is grouped under a broad terminology called “low vision”: low vision clubbed with blindness includes all visual impairments.

Total visual impairment (blindness) affects more than 15 million people. The total number of visually impaired individuals in the world is not accurately known, but it has been estimated various times by the World Health Organization. The overall incidence of blindness in children is about 1 in 3000, 46% of these children are born blind, and an additional 38% lose their sight before the age of 1 year.<sup>2</sup> The number of visually impaired people in India is 10,634,881 accounting for 48.55% of

total disability (Kishor, 2006). Although the prevalence is not so high, oral diseases can greatly affect their quality of life and would, in turn, worsen their capability to access oral health care.

Visual impairment may impact on oral health through physical or social barriers related to the impairment, or lack of information. Oral health has strong biological, psychological and social projections because it affects aesthetics and communication. Also, the quality of life is affiliated with oral health status.<sup>3</sup>

On the other hand, poor oral health has a negative impact on nutrition, digestion, the ability to chew and enjoy food, facial shape and speech. A lack of diagnosis and insufficient oral health treatment contribute to the poor oral health of individuals especially those with disabilities. As the prevalence of visual impairment is increasing, so should our understanding of it. This can be brought about by various health care schemes and prevention based intervention programs thereby creating awareness among these individuals.

Though various studies on the oral health status of the normal population have been carried out in the past, only limited studies have been done comparing the dental health of different kinds of Special Care children more so for the visually impaired children and adults in the city of Delhi. Comparing the oral health of these children would

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be helpful in obtaining baseline data to understand their oral health needs and accordingly recommending appropriate preventive measures.

## MATERIALS AND METHODS

A cross-sectional epidemiological study was conducted to assess the prevalence of oral hygiene status among visually impaired children and adults in the age group of 6-25yrs in Delhi.

100% bilateral blindness, patient acceptance/ cooperation, parental compliance were the factors considered for inclusion and partially blind children and adults / unilateral blindness, as well as children below 6 years of age & adults above 25 years of age, were excluded from the study.

A total number of 1131 visually impaired individuals were screened. Self - administered close-ended questionnaire, written in English, was prepared by the Department of Paedodontics and Preventive Dentistry, SudhaRustagi College of Dental Sciences and Research, Faridabad.

The responses were recorded with the help of the guardians or the class teachers who were used as co – coordinators for the study. Each individual / group of individuals in a classroom was explained about the method of examination and the entire procedure using “Tell-Feel-Do” technique.

Type III clinical examination was carried out inside the school premises using mouth mirror and explorer by a single examiner. Extra-oral as well as intra-oral examinations were carried out. Oral hygiene status was recorded using Oral Hygiene Index – Simplified (OHI-S) given by John C. Greene and Jack R. Vermillion in 1964.<sup>4</sup>

After a thorough extra– oral and intra– oral examination, for those children needing treatment – oral prophylaxis and ART was performed. Clinical findings of the individuals were reported to the class teachers at the end of the examination. Reference slips were forwarded to the parents or guardians of the individuals through their class teachers for information and necessary action.

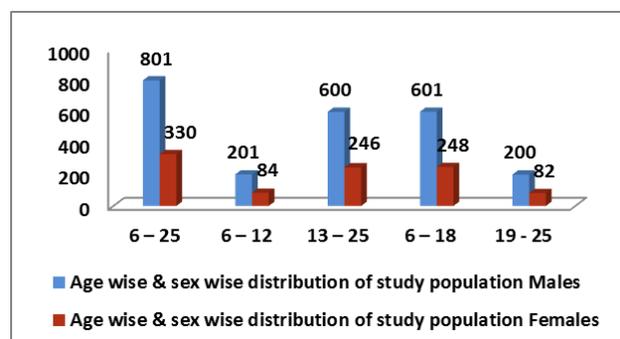
**Data analysis:** All the data obtained was punched using Microsoft excel. A master file was created for the purpose of statistical analysis. The same sample was divided accordingly into two different groups:

- i) Mixed dentition (6-12yrs) and permanent dentition (13-25 yrs) (CATEGORY A)
- ii) Children (6-18 yrs) and adults (19-25 yrs) (CATEGORY B)

Chi-square analysis was used to explore the association between explanatory variables of oral hygiene status (good, fair and poor). Mann-Whitney U- test was applied to compare the categorical variables (age and gender). Statistical significance was fixed at  $P \leq 0.05$ .

## RESULTS

A total of 1131 visually impaired students, both children, and adults in the age group of 6-25 yrs were enrolled in the study. Among the different groups, the majority of the individuals were males (Graph 1) and belonged to the permanent dentition category.



Graph 1 - Age wise & gender wise percentage distribution of study population

**Results of CATEGORY A:** The age wise distribution of Oral Hygiene Status in mixed and permanent dentition was found to be statistically significant (Table 1) i.e the overall mean of the oral hygiene status in the study groups of the 6 – 12 year division was 1.05 and that of 13 – 25 years was 1.77 and this difference was statistically significant ( $p < 0.001$ ). Also, oral hygiene status of males was better than that of females in the permanent dentition group (Table 2); while that in mixed dentition proved otherwise (Table 3)

Age (years)	Total	OHI-S	P <sup>a</sup> value
		Mean±SD	
6 – 12	285	1.05±0.65	<0.001, S
13 – 25	846	1.77±0.88	

Table 1 - Age wise distribution of Oral Hygiene Status in mixed and permanent dentition

Gender	Total	OHI-S	P <sup>a</sup> value
		Mean±SD	
Males	849	1.51±0.85	<0.001, S
Females	282	1.85±0.94	

Table 2 - Gender wise distribution of oral hygiene status in permanent dentition (13 – 25 years)

Gender	Total	OHI-S	P <sup>a</sup> value
		Mean±SD	
Males	201	1.02±0.66	0.088, NS
Females	84	1.12±0.62	

Table 3 - Gender wise distribution of oral hygiene status in mixed dentition (6 – 12 years)

**Results of CATEGORY B:** The age wise distribution of oral hygiene status in children and adults was statistically significant ( $p < 0.001$ ) proving that the oral hygiene of children was better than that of adults (Table 4). The mean oral hygiene among children between the males and females were 1.45 and 1.65 respectively, and this difference was statistically significant (Table 5) which was not observed among the male and female adults (Table 6).

Age	Total	OHI-S	P <sup>a</sup> value
		Mean±SD	
Children	200	1.80±0.92	0.456
Adults	82	1.96±0.99	

Table 4 – Age wise distribution of Oral hygiene status in children and adults

Gender	Total	OHI-S	P <sup>a</sup> value
		Mean±SD	
Males	601	1.45±0.81	0.003, S
Females	248	1.65±0.91	

Table 5 – Gender wise distribution of oral hygiene status in children (6 – 18 years)

Gender	Total	OHI-S	P <sup>a</sup> value
		Mean±SD	
Males	200	1.80±0.92	0.456
Females	82	1.96±0.99	

Table 6 – Gender wise distribution of oral hygiene status in adults (19 – 25 years)

## DISCUSSION

The American Academy of Paediatric Dentistry defines pediatric dentistry as an age - defined specialty that provides both primary and comprehensive, preventive and therapeutic oral health care for infants and children, through adolescence, including those with special health care needs.

Children with physical disabilities come under a group as “special needs population.”<sup>5</sup>

Blindness is not an all or none phenomenon; a person is considered to be blind if the visual acuity does not exceed 20/200 in the better eye with corrective lenses or, if the visual acuity is greater than 20/200 but is accompanied by a visual field not greater than 20°.<sup>6</sup>

Visual impairment may be congenital, i.e., present at birth, or acquired as the patient ages. The reasons attributed to acquired visual impairment included accidents, retinal damage, choroidal coloboma, crevices in the eye leading to blindness, brain surgery, etc. It is so stated that the visually impaired children who have been blind since birth may have inferior oral hygiene skills versus a child who lost his/her vision later on in childhood similar to the findings noted in the present study. The ability to have practiced proper oral hygiene techniques prior to the onset of blindness would likely be a benefit to the visually impaired child.<sup>7</sup>

Unfortunately, oral health care is one of the greatest unattended health needs of visually impaired people (Joseph, 1979; Bhavsagar et al., 1995; Ahmed et al., 2009; Miliani et al., 2009; Shetty et al., 2010). The oral health of people who are visually impaired is compromised since they are unable to detect initial oral disease and are also unable to implement immediately any preventive and /or curative measures unless guided adequately in the situation.

In the current study, out of the total; 987 (87.27%) were cleaning mouth only in the morning, 977 (86.38%) were using a toothbrush as a tool for cleaning the mouth, 972

(85.94%) used paste as dentifrices. This number is in accordance with the study done by Ahmad et al<sup>8</sup>; wherein out of the total, 61 (76%) were cleaning their mouths only in the morning, 78 (98%) were using a brush as a tool for cleaning the mouth, 70 (87.5%) used paste as dentifrices. Similar results were observed by ShettyV, Hegde A. M. et al.<sup>9</sup>

The results of the study showed that the oral hygiene status of the visually impaired children and adults was “fair” (53.05%), followed by good (37.58%) and poor (9.37%). This could be due to the decreased ability of the blind children in maintaining their oral hygiene, caused by lack of manual – visual coordination. 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 Z, Wyne A H,<sup>10</sup> and ShettyV, Hegde A.M. et al.<sup>9</sup>

When compared the adults with the children, it was seen that the mean Oral hygiene scores among the adults were 1.85 and that of children was 1.50. Out of a total of 282 in the adult age group, 186 had fair hygiene constituting 65.96%, followed by 57 (20.21%) good and the remaining had poor oral health (13.83%). On the contrary, in a study by Jin E YW<sup>11</sup> the adults perceived their oral health to be good.

Very few studies carried out on visually impaired population quote the difference in oral health status among males and females. In the present study, males exhibited better oral hygiene as compared to that of females in both the groups. The reason could be due to the increased prevalence of male population getting admitted in these schools as compared to females, thereby masking the existence of fair to poor hygiene among the females. This is in accordance with very few studies (Shetty V, Hegde AM et al., 2013; Jain A, Gupta J et al., 2013).

## CONCLUSION

The following conclusions were drawn from the study:

- The oral hygiene in most individuals was found to be “fair” according to the SOHI index. This is likely due to the reduced ability to carry out hygiene tasks and/or a lack of the information required in implementing proper oral hygiene habits.
- Among the mixed and permanent dentition groups; males had better oral hygiene as compared to females, and this difference was statistically significantly noted in the permanent dentition group.
- Among children and adults also; males exhibited better oral health status as compared to females and there was a statistical significant difference observed only in children.

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