ORIGINAL RESEARCH PAPER

Volume-7 | Issue-6 | June-2018 | PRINT ISSN No 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

ORAL HEALTH OF VISUALLY IMPAIRED SCHOOL GOING INDIVIDUALS IN BANGALORE, KARNATAKA, INDIA

Dental Science

Dr. Shelja Vashisth* Assistant Professor Department of Public Health Dentistry Himachal Pradesh Government Dental College Shimla, Himachal Pradesh *Corresponding Author

Dr. Aruna Devi Ex-Professor Department of Public Health Dentistry V. S. Dental College and Hospital Bangalore, Karnataka India.

ABSTRACT

BACKGROUND: Children and adolescents with visual impairment appear to have poorer oral health than their non disabled counterparts. Hence a study was carried out to look into the oral health of visually impaired school going individuals in Bangalore, Karnataka, India.

MATERIAL AND METHODS: A crossectional study was carried out among visually impaired individuals going to school in Bangalore. The information was recorded using Gingival index, Plaque control record index, Oral hygiene index, Dean's Fluorosis index, DMFTand deft index, Angle's classification for malocclusion. The data was then analysed using SPSS (ver.19) and Chi- square test was used for comparative analysis.

RESULTS: Gingivitis was present in 98.5% subjects. The presence of subgingival and / supragingival calculus was seen in 78.8% subjects. Dental caries was experienced by 28.2% subjects. 12.3% subjects showed one or more fractured incisors.

CONCLUSION: The oral condition of the visually impaired individuals is not satisfactory.

KEYWORDS

Oral Health, Visual Impairment, School

INTRODUCTION:

The goal of dentistry is to prevent the occurrence and progression of oral diseases. It requires the optimal utilization of available resources for those who need it the most. This includes those individuals or groups of individuals who are most prone to develop a disease. In any community, there are 'special groups' whose needs have to be considered over and above those of the general population. Any sort of 'handicap' or 'impairment' can be a criterion to categorize an individual into a 'special group'. [1]

Vision may be the most important sense for interpreting the world around us; and when sight is impaired in childhood, it can have detrimental effects on physical, neurological, cognitive, and emotional development.[2] So visual impairment is a condition that might limit an individual's ability to perform all the functions to the fullest extent, with his or her own efforts. Hence, visual impairment may include an individual into the 'special group' which needs attention.[1]

In the first-ever Surgeon General's Report, Oral Health in America and the release of Healthy People 2010, many aspects of the oral health care for individuals with special needs were highlighted. Oral health and quality oral health care contribute to holistic health, which should be a right rather than a privilege.[3,4] That is why individuals with disabilities deserve the same opportunities for dental services as those who are healthy.[2]

Although individuals with special needs are entitled to the same level of health and care as the general population, it has been observed that they experience poorer general and oral health. Oral health care is the most common unmet health care need of disabled children which requires special attention.[1] Children and adolescents with visual impairment appear to have poorer oral health than their non disabled counterparts.[5,6] In view of scarcity of information regarding oral health status of visually impaired individuals, the present study was conducted to assess the oral health condition of school going visually impaired individuals in Bangalore, Karnataka.

MATERIALS AND METHODS

A crossectional study was carried out among visually impaired individuals going to school in Bangalore. After conducting the pilot study sample size of 297 was determined. Cluster random sampling was used to recruit the desired sample size. The Information regarding schools for the visually impaired was collected from National Association for the Blind, Bangalore. Out of total nine registered schools three schools were randomly selected. The ethical clearance was obtained prior to beginning of the study.

The permission to carry out the study was granted by the school administrative authorities after which all the visually impaired students in the selected school were included in the study except for those with other physical and metal disabilities, orthodontic appliances and medical problem which may contraindicate the examination.

The examination was carried out by two trained and calibrated examiners. (Kappa=0.82) The information was recorded using Gingival Index, Plaque control record index, Oral hygiene index, Dean's Fluorosis index, DMFT and deft index, Angle's classification for malocclusion. The data was then analyzed using SPSS (ver.19) and Chi- square test was used for comparative analysis.

RESULTS

Total of 390 subjects were examined in the age group of 7-20 years with mean age of 12.15 ± 2.57 years. 58.2% (227) were males and rest 41.8% (163) were females. Out of total 78.2% (305) had low vision and 21.8% (85) were totally blind. 87.4% (341) were blind by birth and rest 12.6% (49) were blinded after birth.

63.6%(248) subjects showed Class I molar relation with no treatment needs compared to 26.9% (105)subjects showed Class I malocclusion, 8.7% (34) subjects showed Class II and 0.8% (3) subject showed Class III malocclusion according to Angles classification. Total of 12.3% (48) subjects showed one or more fractured incisors. Total of 3.6% (14) subjects lost one or more teeth because of trauma.

Fluorosis was found in 16.67% (65) subjects amongst whom 60.8% showed mild fluorosis, 34.8% showed moderate and rest 4.4% showed severe fluorosis. The presence of stains was seen in 94.6% (369) subjects out of which 3% (11) had intrinsic stains (apart from fluorosis) and 97%(358) had extrinsic stains. The presence of sub gingival and / supra gingival calculus was seen in 78.8% (307) subjects compared to 21.2% (83) showing absence of it.

Gingivitis was present in 98.5% (384) subjects out of which 40.9 %(157) were females and 59.1% (227) were males. Mild gingivitis was present in 4.7 %(18), 76.3% (293) had moderate gingivitis and rest 19% (73) had severe gingivitis. The mean gingival index score as 1.5 ± 1.1 Amongst the males it was 1.6 ±1.1where as for females it was 1.4 ±1.3 and the difference was not statistically significant ($p < 0.05$)

The mean plaque control record score for the study population was 85 ± 14. Amongst the males it was 86 ±11 where as for females it was 83±13 and the difference was not statistically significant ($p < 0.05$)

The dental caries was experienced by 28.2% (110) subjects. The mean DMFT was found to be 0.83±1.9 The mean deft was found to be 1.9 ±1.7. The mean decayed teeth were 1.6 ±1.3, mean missing teeth were .08 ±0.9 and mean filled teeth were .01±.21. The difference between males and females was not found be significantly different from each other.

DISCUSSION

The World Health Organization (WHO) completed an impressive global review of a large number of surveys on visual impairment, and estimated that there were 161 million people worldwide with visual impairment, out of which 90% lives in developing countries. This is one such condition which can have a noticeable impact on an individual's ability to live independently.[7,8]

Visual impairment as a disability seems to produce difficulties in maintenance of oral health. Hence, it is a special group which needs attention so that they enjoy the same standard of oral health as their counterparts. The first step towards this direction involves the attainment of data on the present oral health status of this group. Since there is scarcity of data in this regard, the present study was conducted to assess the oral health condition of school going visually impaired individuals in Bangalore, Karnataka.

The prevalence of trauma to anterior teeth was found to be 12.4% in the present study which was 24.6% in the study conducted by Venkata SSM [9] .This difference could be attributed to the controlled environment in which the students live and move around in the present study as it was conducted in a residential school in contrast to the other study which was conducted in a non-residential school.

The results showed that the mean DMFT (0.83 ± 1.9) for the study subjects in the present study was lesser than that found in the study by Rao D, Hegde AM and Munshi AK (4.5±3.7).[10] The reason for the difference could be the inclusion of individuals with mental and physical handicap apart from the visually impaired individuals in the latter. The other reason for lower caries experience could be the controlled diet that these individuals were given in the schools which residential in nature. An interesting finding was that the filled component was very negligible(0.01) which may reflect inadequate utilization of health care services which could be because of lack of perceived need for care or may be inability to access care due to physical or financial constraints.

The study subjects showed mean plaque control record (PCR) score of 85% which is suggestive of poor oral hygiene indicating the need for oral health education program for these individuals. These findings were contradictory to a study by Chang CS and Shih Y (mean Plaque control record score of 59%).[11] The reason for this difference could be attributed to the small sample size in the latter study, as it was conducted on three individuals only. Another study by Chan Sek Lun T et al[12] showed mean Plaque control record score of 39%, thus showing better oral hygiene among the study subjects than the subjects in the present study. This could be explained by the difference in exposure of the subjects to the oral health education. The subjects in the present study were never exposed to oral health education; where as subjects in the latter study had oral health education as the part of their curriculum.

The prevalence of calculus deposits among the study subjects was found to be 78.8%, which is similar to another study showing the prevalence of more than 75%[1], hence reflecting the poor levels of oral hygiene.

The results of the present study revealed that the oral condition of the visually impaired individuals is not satisfactory. This could be due to the fact that they encounter more barriers to receipt of oral health care than other people. They experience problem in accessing oral health care services and also at greater risk of developing oral diseases .Oral health may have a low priority in the context of pressures, like illness and disabilities that are more life threatening [13]. Barriers to accessing and using oral health care services include lack of perceived need, inability to express need, and lack of ability to provide self-care[14]. Moreover, the attitudes to oral care and the knowledge of health professionals and health care workers have been identified as barriers to oral health for individuals who are dependent on others for oral hygiene[15]. There is urgent need to develop specially designed oral health education programs to cater to the needs of this special group as it has been seen that the ordinary educational health programs are not successful for this group of population because visually impaired children cannot learn by visual imitation of home care instruction[16]. This should be complemented with incremental oral health care.

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