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Original article

An Assessment of Dentition status and treatment needs of Hearing Impaired Institutionalized students of Mysore city, Karnataka

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A R T I C L E I N F O

Keywords:
Dentition status, Treatment needs, Hearing Impaired, Institutionalized, Dental caries.

A B S T R A C T

Background; The disabled form a substantial section of the community. About one in 600 neonates has a congenital hearing loss. Primary target of a nation should be to improve the health and financial functioning of the deprived people.

Aims and objectives: To assess the dentition status and treatment needs and provide base line data among the hearing impaired students of Mysore city.

Materials and methods: A cross sectional study involving all the hearing impaired 822, 4-22years old students data, using modified WHO oral health survey proforma 1997, by type III examination procedure, with specially designed proforma including socioeconomic status, oral hygiene practices, diet, consumption of snacks were added. Data was analyzed using SPSS Version 10.0 (Statistical Package Software). Statistical significance was determined by Chi-square test.

Results: Out of 822 students, 490(59.6%) were males and 322(40.4%) were females. Mean dmft was 2.15 and no missing and filled teeth were found. The mean DMFT was 2.62, indicating dental caries increases with age. 554(67.3%) students were caries free and 268(32.7%) needed treatment, with need of one surface filling the most & sealants.

Conclusion: This study demonstrates that hearing impaired students in these institutions have high prevalence of unmet dental care. This highly alarming situation requires immediate attention through proper education, motivation and health services.

Introduction

Health of an individual and health of a Society are recognized as being interrelated. Not only is a healthy human being necessary for a healthy society, a healthy society is necessary for a healthy human being. This broad concept has promoted the World Health Organization to redefine Health as "a complete state of physical, mental and social well being and not merely the absence of disease or infirmity".[1]

"The best and the most beautiful things in the world cannot be seen or even touched. They must be felt with the heart". – Hellen Keller.

The disabled form a substantial section of the community and it is estimated that worldwide there are about 500 million people with disabilities. Historically they have been justified, ignored, vitrified or even hidden away in institutions. Providing health care services for children with special care needs will continue to be a challenge in the 21st century.[2]

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Age group	Subjects =N	percentage
4-7	49	6%
8-12	74	9.1%
13-17	476	57.9%
>17	223	27.0%
Total	822	100%

Table:1: Distribution of subjects according to age groups

About one in 600 neonates has a congenital hearing loss. Hearing impairment accounts to 12, 61,722 with 5.76 percent of the total disability.[3] Two main types of deafness may be described, conductive and sensory neural. The degree of hearing loss resulting from these impairments may range from slight (average loss not exceeding 40 decibels) to profound (average loss in excess of 95 decibels) and may be unilateral or bilateral. According to a WHO 1980 report, the main causes of hearing impairment in India were 1) Infections such as bacterial meningitis, mumps and measles, 2) neglect and 3) ignorance. Hearing impaired children constitute one of the major population groups of disabled children.[4,5]

Speech disabled means a person will be recorded as having speech disability, if he/she is dumb or whose speech is not understood by a listener of normal comprehension and hearing. Where as a person who stammers but whose speech is comprehensible will not be classified as disabled by speech. Speech disability accounts to 16, 40,868 with 7.49% of total disability. [6,7]

Gender	Subjects= N	percentage
Male	490	59.6%
Female	332	40.4%
Total	822	100%

Table:2: Dsistribution of subjects according to gender

Deafness: Deafness is defined as 'a hearing impairment that is so severe that the child is impaired in processing linguistic information through hearing, with or without amplification. Deafness may be viewed as a condition that prevents an individual from receiving sound in all or most of its forms. In contrast, a child with a hearing loss can generally respond to auditory stimuli, including speech.[8]

In recognition of the importance of oral health to individuals, the U.S. Surgeon General and the World Health Organization have made oral health a national and international priority. In today's environment of technical advancement and sophistication in obstetric and perinatal care, the likelihood of a handicapped child surviving and living a full life is greatly enhanced and thus the demand for dental care of these individuals has simultaneously increased.[9]

The primary target of a nation should be to improve the health and social functioning of deprived people. Hearing disorders affect general behavior, and impair the level of social functioning. Dental caries is the most prevalent disease among children worldwide, and "dental treatment is the greatest unattended health need of the disabled."

Brown and Schodel, reviewed 32 studies of handicapped children and reported that such children tended to have poorer oral hygiene than their normal

Age Groups	N	dt	mt	ft	Mean dmft
4 – 7 years	18	2.11	0.0	0.0	2.11
8 – 12 years	33	2.10	0.0	0.0	2.10
Total	51	2.15	0.0	0.0	2.15

Table:3: Distribution of decayed, missing and filled (dmft) and mean dmft scores according to age groups

Age Groups	N	DT	MT	FT	Mean DMFT
4 – 7 years	30	2.10	0	0	2.11
8 – 12 years	43	2.10	0.00	0.20	2.30
13 – 17 years	113	2.10	0.17	0.40	2.67
> 17 years	82	2.90	0.09	0.41	3.4
Total	268	2.65	0.25	0.07	2.62

Table:4: distribution of decayed, missing, filled and mean DMFT scores, According to age groups

Mean dmft	2.15
Mean DMFT	2.63

Table:5: distribution of mean scores

counterparts. In developing countries such as India, these special groups are often neglected because of ignorance, fear, stigma, misconception and negative attitude. To date, only few studies have been documented in this place.[10]

Hence, the aim of this study was to assess dentition status and treatment needs of the hearing impaired institutionalized students of Mysore city, Karnataka.

MATERIALS AND METHODS:

The target population included all the institutionalized hearing impaired students. The study is a total enumeration of the entire subjects of these institutions, who were under the guidance of care takers. The study population who were present on the day of examination were considered (n=822) and the age ranged from 4 to 22 years and grouped into 4-7 years, 8-12 years, 13-17 years and >17 years.

The list of the institutionalized hearing impaired students was obtained from "Department of Handicap and Senior Citizens Welfare", Podium block, visveshwaraiah centre, Bangalore-01.

This proposed study was reviewed by the institutional ethical committee of Farooqia dental college & Hospital, Mysore, and clearance was obtained. Initially, to begin the study, permission were obtained from, "Department of Handicap and Senior Citizens Welfare", Podium block, Bangalore and from the head of the institutions as well. The institutes and the number of students included for the study were:

LIST OF SCHOOLS AND STUDENTS

1) Government school for the Deaf, Tilak Nagar, Mysore.
2) Sai ranga vidya samsthe, deaf boy's school, Bannimantap,Mysore.
3) Lady Mercy School for the Deaf, Mysore
4) Puttaveeramma School for the Deaf, T.K Layout, Mysore.

Before the start of the study, training and calibration of the investigator was carried out and only the investigator carried out the survey. A pilot study was conducted on 40 students in their institutions, to know

subjects	Caries free	one surface filling	Two surface filling	Pit & fissure sealants	Pulp care	Extraction	Fixed partial denture	Total
N=822	554 (67.3%)	144 (17.5%)	33 (4.01%)	58 (7.05%)	13 (1.58%)	13 (1.58%)	07 (0.58%)	268 (32.6%)

Table:6: Distribution of subjects according to Treatment Needs

the prevalence of dental caries, feasibility, difficulties and implementation of the survey.

The scheduling of the survey was carried out according to the convenience of the institutional authorities and was conducted for a period of three months in the institution itself. A detailed examination was done in natural day light, using mouth mirror and CPI probe, in accordance with the WHO criteria for diagnosis of dental caries. Cold sterilization of the instruments were done using Korsolex. The data was recorded in a specially designed WHO oral health assessment form (1997) modified, to record dentition status and treatment needs. Information about name of the institution, socioeconomic background, oral hygiene practices, dietary habits and previous visit to dentist were collected. Teachers were utilized for the communication with the students.

Inclusion and exclusion criteria:

All the institutionalized hearing impaired students present at the time of study were included. Students with medically compromised conditions were excluded.

STASTICAL ANALYSIS.

Data was analyzed using SPSS Version 10.0. Chi-square test was used to find the significance. P value < 0.05 % was considered as statistically significant.

RESULTS

The present epidemiological study comprised of 822 hearing impaired institutionalized students of Mysore city. 490 (59.6%) were males and 332 (40.6%) were females and were in the age group of 4-22 years old. 49 (6%) students were aged 4-7, 74 (9%) were 8-12years , 476 (57.9%) were 13-17 years and 223 (27.1%) were >17 years old. Most of their parents were of low socioeconomic background. Tables 1 & 2

Majority of students around 815 (99.1%) used tooth brush and paste, brushed once daily, with mixed diet and consumed snacks.

Mean decayed teeth (dt) was 2.11 in 4-7 years group, 2.10 in 8-12 years group and mean dmft was 2.15. no missing and filled component was found. Table (3)

The mean DMFT was 2.11 in 4-7 years, 2.30 in 8-12 years, 2.67 in 13-17 years and 3.4 in >17 years group. The mean decayed teeth (DT) was 2.38, mean missing teeth (MT) was 0.04 and mean filled teeth (FT) was 0.20.total mean DMFT was 2.62. Males had high prevalence of dental caries, and caries increased with age. Table (4).

The average mean scores of dmft were 2.15 and that of DMFT was 2.62. Table (5)

Among 822 subjects, 268 (32.6%) needed treatment and 554(67.4%) were caries free.

144(17.5%) needed one surface filling, followed by 58(7.05%) needed pit & fissure sealants, 33 (4.01%) needed 2 surface filling, 13 (1.58%) needed pulp care, 13 (1.58%) needed extraction and 7 (0.58%) needed fixed partial dentures. Table (6)

DISCUSSION

The greatest challenge that people who are handicapped have had to face has been society's misperception that they are a "breed apart", as historically they have been pitied, ignored or even hidden away in homes and institutions. Providing health care services for individuals with special health care needs of these handicapped individuals will continue to be a challenge in the 21st century. (British Society for Disability and Oral Health, 2000; 2001).[11] Oral health and quality oral health care contribute to holistic health, which should be a right rather than a privilege (Clark & Vanek,1984).[12] That is why individuals with these handicapped conditions deserve the same opportunities for dental services as those who are healthy.

Although there are epidemiological studies concerning individuals with these handicapped conditions in many countries, there is a paucity of information about the assessment of dentition status and treatment needs of institutionalized hearing impaired students of Mysore city, and hence, this study was instituted.

The commonly accepted recommendation for tooth brushing frequency for handicapped has been twice a day (Frandsen, 1986).[13] and in this study, all most all the subjects reported brushing once a day thus, disagreeing to this general advice.

The mean dmft among the hearing impaired was similar to the study conducted by D.P.Gupta et al in 1993 at Calcutta, India, [14] showed a mean dmft of 2.15.

The present study showed a mean DMFT of 2.62 which were similar to a study conducted by Rao DB et al in 2001 at Mangalore, Karnataka[15], with the mean DMFT of 2.60. In a study conducted by Shaw L et al in 1986 at United Kingdom[16], reported a mean DMFT 1.76 among the deaf, which is lower, compared to the present study.

In a study conducted by Aruna C.N et al [2] in 2005 at Davangere, Karnataka reported a mean DMFT 1.64 for the deaf, which is lower, compared to the present study.

In a previous study conducted by Maddi Shyama et al , in 2001[17], at Kuwait showed higher caries experience with mean DMFT score for the deaf of 5.0, probably due to the changes in lifestyle and dietary habits and the mean dmft was 2.11 which was similar to the present study. A study conducted by Alvarez-Arenal A et al[18], june 1988, Spain, showed that one and two surface fillings were required in all age groups. Which was similar to the present study.

In the present study, 144(17.5%) needed one surface filling, followed by pit and fissure sealants, which was less compared to the study conducted by Holland TJ and O.Mullane in 1986 at Ireland.[19]

The most important reasons for failure to treat patients with these handicapped conditions were that few sought care on their own and that there was a lack of interest on the part of the dental profession (Entwistle, 1980).[20]

In this high-risk population, pit and fissure sealants should be applied to permanent teeth soon after eruption, as these measures are highly effective in preventing occlusal caries and care takers should be

advised of the need for regular monitoring and maintenance of fissure sealants (Pediatric Dentistry, 1999).[21]

It has been demonstrated that training care staff in basic oral health care procedures can help improve oral health (Sheiham, 1993).[22]

The present findings demonstrate high caries prevalence, and extensive unmet needs for dental treatment in our study population.

CONCLUSION

The present study showed that mean dmft was 2.15, with only decayed teeth and no missing and filled component. The mean DMFT was 2.62, indicating dental caries prevalence increased with age. Majority of the subjects needed one surface filling, followed by pit & fissure sealants application. This suggests that there is lot of unmet treatment needs among these subjects.

It is a prudent suggestion that a greater degree of awareness should be created among teachers, caregivers, dentists and health educators. Topical applications of fluoride, fluoride conatining tooth paste, balanced diet plays an important role in maintaince care. Higher levels of dental diseases in these subjects seemed to be due to poor utilization of dental services and lack of dental awareness .School authorities should organize regular dental check up camps, which motivates the students to maintain their oral health.

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