

Original Article

ASSESSMENT OF ORAL HYGIENE STATUS AND PREVALENCE OF DENTAL CARIES AMONG 3-14 YEARS OLD SPECIALLY ABLED CHILDREN ATTENDING VARIOUS SPECIAL SCHOOLS IN MATHURA DISTRICT, INDIA

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Abstract:

Aim: The study aims is to assess oral hygiene status and prevalence of dental caries among 3-14 years old specially abled children attending various special schools in Mathura district, India. **Materials and Methods:** An epidemiological survey was conducted to assess oral hygiene status and prevalence of dental caries among 3-14 years old specially abled children attending various special schools for specially abled in Mathura district, India. A total of 200 children which included 95 female and 105 male students were examined. According to nature of handicap, they were divided into following groups: (1) Deaf and Dumb (2) Mentally retarded(MR) (3) Down's syndrome group (4) Learning disability (LD) and (5) Complex group (children with more than one handicapping condition/disability). A survey profoma prepared with the help of WHO oral health assessment form (1997) was used, Oral hygiene status was assessed using OHI-Simplified given by (Greene and Vermilion 1964) and dental caries was recorded using DMFT/deft index. **Results:** Data obtained was subjected to statistical analysis using SPSS version 17. ANOVA and tukey test were employed for within and inter group comparisons respectively. Statistically highly significant differences were observed on inter group comparisons. Down's syndrome group showed the highest mean DMFT/deft and OHI-S scores followed by the complex group and MR group, while the deaf and dumb group showed the lowest scores. Statistically non-significant difference was observed for all the groups when the respective groups were compared on the basis of gender. **Conclusion:** There is a need for renewed collaborative efforts by the various health disciplines and social service agencies to increase access to dental services for these children.

Key Words: Specially abled, oral hygiene, caries, complex group, Down's syndrome.

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INTRODUCTION:

The birth of a child is always eagerly awaited by family and friends, alike, as it is an event of joy and happiness. But when it becomes apparent that something is amiss with the newborn, the world of parents is shattered. Anger, denial and depression set in and parents of such children suffer a great agony. As the child grows, he is nurtured with great love and tenderness, but sometimes parents vent their rage on the innocent child who suffer for no fault of their own.¹ Handicapped is the loss or limitation of opportunities to take part in the normal life of the community on an equal level with others due to physical or social barriers (Waldman, 1995).² It is a complex phenomenon reflecting an interaction between features of a person's body and features of the society in which he or she lives.³

The maintenance of good general health of specially abled children is difficult and their dentition may be ravaged by dental caries and periodontal disease.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 affiliates.⁴ 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.⁵ These individuals often have worse oral health status than the general population and tend to have a higher incidence of dental caries and difficulty in accessing dental care (Chikte et al., 1991).² Children with disabilities need functional and aesthetic considerations comparable to that of normal persons, though the literature abounds with information on the normal children population, there is lack of information on the handicapped children.

Therefore, this study was designed with an aim to assess the oral hygiene status and prevalence of dental caries among 3-14 years old especially abled children attending various special schools in Mathura district, India.

MATERIAL AND METHODS:

An epidemiological survey was conducted to assess oral hygiene status and prevalence of dental caries among 3 to 14 years old specially abled children attending various special schools for the handicapped in Mathura district. There are two schools for specially abled children in Mathura district, all the children attending these special schools were included in the study.

A total of 200 specially abled children formed the study population. Among them, 95 were female and 105 were male. A schedule for data collection was prepared as per the permission hours granted by the two institutions. An average number of 10-15 school children were examined per day. The survey was conducted in August and September 2014. Before the start of the survey, ethical clearance to conduct the study was obtained from Institutional review board, K.D. Dental College and Hospital, Mathura. Official permission was obtained from Basic sikshaadhikari, Mathura and Heads of the respective special schools. The schools included in the study were:

1. Kalyanum Karuti, school for handicapped, Mathura
2. Asha, school for handicapped (AWWA), Mathura

A survey proforma was prepared with the help of WHO oral health assessment form (1997). Oral hygiene status was assessed using Oral Hygiene Index- Simplified given by (Greene and Vermilion 1964) and Dental caries was recorded using DMFT/deft index as described by WHO (1997). According to nature of handicap, the children were divided into following groups: (1) Deaf and Dumb

group (2) Mentally retarded(MR) group (3) Down's syndrome group (4) Learning disability group (LD) and (5) Complex group (children with more than one handicapping condition/disability). Before starting the study, the methodology and purpose of the study was informed and explained to the teachers and parents in a parent teacher meeting. To explain the purpose of the study and while recording of general information regarding name, age and oral hygiene practices, help of respective class teachers was very valuable.

Study was well planned and arranged for maximum efficiency and ease of examination. The children were examined on a chair or stool with examiner standing beside the chair, instruments were placed within the easy reach of the examiner. Platform table was used to keep the instruments and recording forms. The recording assistant was allowed to sit close enough to the examiner, so that the instructions and codes could be easily heard and the examiner could see that findings were being recorded correctly.

The status of dental caries was assessed by visual examination and tactile method using a sharp probe and plain mouth mirror, oral hygiene status was examined by using explorer and plain mouth mirror. After each day's survey all the instruments were autoclaved.

STATISTICAL ANALYSIS

The data was retrieved from pre-coded survey Performa to a computer. A master file was created for the purpose of data analysis. Descriptive statistics that included mean, standard deviation and percentages were calculated for each of the categories. Chi-square test was used to determine whether differences were present in dental caries and oral hygiene status between the handicapped groups. ANOVA test was used to determine whether significant differences were present in mean DMFT/ deft between

different handicapped groups. Significance for all statistical tests was predetermined at a probability value of 0.05 or less. Data were analyzed using the statistical package SPSS (Version 17, USA).

RESULTS

Statistically highly significant difference ($p=0.00$) was observed on inter group comparison. Down's syndrome group showed the highest mean OHI-S values followed by the complex group, while the deaf and dumb group showed the lowest mean OHI-S values (Table-1). Down's syndrome group also showed the highest mean DMFT/deft values followed by the complex group, while the deaf and dumb group again showed the lowest mean DMFT/deft values (Table-2). When the respective groups were compared for OHI-S and DMFT/deft scores on the basis of gender, statistically non-significant difference ($p\text{-value}=0.20$) was observed for all the groups (table-3,4).

DISCUSSION:

Despite advances in oral health, oral diseases continue to be a problem. Children with disabilities have a significantly higher burden of oral diseases because of the lack of oral health knowledge, access to care, and preventive measures such as fluoride supplements and dental sealants. These individuals often have worse oral health status and tend to have a higher incidence of dental caries, Chikte et al.(1991)², Declerk D et al.(1995)⁶, Rao D et al.(2001)⁷, Al-Qahtani Z et al.(2004)⁸, compared to other handicapping conditions, as observed in this study, deaf and dumb children have better oral hygiene which is similar to the findings of Rao D, et al.(2005)⁹, Sanjay V, et al.(2014)¹⁰. DMFT/deft scores were also observed to be minimum in deaf and dumb children, Ajami BA, et al.(2007)¹¹, Sanjay V, et al.(2014)¹² which is in contradiction with observations of Simon EN, et al.(2008)¹³

Table 1:
Mean OHI-S scores according to disability

ORAL HYGIENE STATUS					
	COM	D&D	DOW	LD	MR
Mean	1.82	0.82	1.83	1.20	1.63
SD	0.294	0.283	0.203	0.558	0.3
P-value=0.00					

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	31.53	4	7.88	84.91	0.00	2.43
Within Groups	15.32	165	0.09			
Total	46.85	169				

Down's syndrome group showed the highest mean OHI-S values followed by the complex group, while the deaf and dumb group showed the lowest mean OHI-S values

Table 2:
Mean DMFT/deft scores according to disability

DMFT/deft					
	COM	D&D	DOW	LD	MR
Mean	2.90	1.04	3.11	1.60	2.29
SD	1.51	1.41	2.13	1.58	1.36
P-value=0.00					

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	31.53	4	7.88	84.91	0.00	2.43
Within Groups	15.32	165	0.09			
Total	46.85	169				

Down's syndrome group showed the highest mean DMFT/deft values followed by the complex group, while the deaf and dumb group again showed the lowest mean DMFT/deft values.

Table 3: Mean OHI-S scores according to gender

ORAL HYGIENE STATUS		
	F	M
Mean	1.38	1.49
SD	0.54	0.52
P-value=0.20		

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.45	1	0.45	1.64	0.20	3.90
Within Groups	46.39	168	0.28			
Total	46.85	169				

When the respective groups were compared for OHI-S scores on the basis of gender, statistically non-significant (P-value=0.20) difference was observed for all the groups.

Table 4: Mean DMFT/deft scores according to gender

DMFT/deft		
	F	M
Mean	2.20	2.19
SD	1.89	1.66
P-value=0.96		

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.01	1	0.01	0.00	0.96	3.90
Within Groups	502.59	168	2.99			
Total	502.59	169				

When the respective groups were compared for prevalence of dental caries on the basis of gender, statistically non-significant (P-value=0.96) difference was observed for all the groups.

Reddy VK, et al.(2013)¹⁴. Children in Down's syndrome group showed highest OHI-S and DMFT/deft scores compared to other handicapping conditions. The preventive and restorative treatment needs of many children in the present study were unmet. Dental care for those with disabilities should be given higher priority in public dental funding. Factors contributing to the unmet treatment needs include insufficient trained dentists to treat individuals with disabilities, inadequate funding and resources and complex treatment needs requiring specialist care or general anaesthesia.¹⁵ High unmet needs may also be indicative of the barriers to dental care experienced by individuals with disabilities, such as lack of access, fear and lack of motivation.¹²

The inequitable distribution of health care services to the handicapped is obviously contrary to several clauses in the Declaration of the Rights of the child and also of the Rights of the Mentally Retarded Persons adopted by the United Nations General Assembly in 1971.¹⁶ Since oral health is a vital component of overall health, it contributes to each individual's wellbeing and quality of life by positively affecting physical and mental health, appearance and interpersonal relations. People 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 people.

Pope and Curzon commented that higher quality restorative treatment might have been achieved if it had been performed under general anaesthesia or by paediatric dentistry specialists.¹⁷ General anaesthesia should be used for first-line treatment to address the restorative backlog; continuing efforts should be made thereafter to secure cooperation once the child has been rendered dentally fit and integrated into a preventive programme

not reliant upon the use of general anaesthesia.¹⁵

The profoundness of the disability and its effect on the child's ability to accept dental treatment or use preventive measures may influence disease more than the disability. For example, two patients with Down syndrome may appear similar and have similar intelligence but one may accept treatment readily while the other may need general anaesthesia for the simplest treatment. It was Chaushu and Becker's¹⁸ view that the specific problems encountered, such as an enhanced gag reflex, uncontrolled movements, inability to submit to prolonged dental treatment procedures, drooling and the possible need for general anaesthesia as an adjunct to care, were more reliable predictors of favourable outcomes. Though the literature abounds with information on the normal children population, there is lack of information on the handicapped, especially on the occlusal characteristic of these children. Therefore, there is need for more information on children with special needs, especially on the occlusal characteristics of this population.

CONCLUSION:

It appeared that a relatively high proportion of the children in our study did not currently receive or had not yet received any form of professional oral care. This suggests that there is a need for renewed collaborative efforts by the various health disciplines and social service agencies to increase access to dental services for these children.

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