ORIGINAL ARTICLE

Caries Experience and Oral Health Status among Disabled Individuals of Special School of Gadap Town Karachi

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ABSTRACT

Objective: To assess caries and oral health status of disabled individuals of special school in Gadap Town of Karachi, Pakistan.

Materials and Methods: This descriptive cross sectional study was carried out in 94 participants. The study was conducted on special persons, aged between 4-33 years, who were examined for caries and oral health status and were then included in the study upon fulfilling the inclusion criteria. A self-structured questionnaire related to the DMFT and plaque index was developed and data of each disabled individual was collected by trained house officers. Data was analyzed using SPSS software 20 version.

Results: In this study males were 72.6 % and females were 26.3%.Study participants with mental retardation were 41.1%, being highest in frequency, followed by cerebral palsy 9.5%,autistic disorder 3.2% and Down`s syndrome 3.2% respectively. Study results clearly indicated that oral hygiene was inadequate in all conditions of special persons who were studied. The group with lack of motor skills did not have significantly better oral hygiene than the group who had good motor skills. Overall both groups had poor oral hygiene.

Conclusion: Oral health status in disabled individuals is found to be poor.Adequate follow-up of daily oral hygiene, even in self-sufficient special persons is needed. There is a strong need for enhanced education on mechanical as well as chemical plaque control to the parents/ guardians/ care givers of the disabled individuals.

Keywords: Down syndrome, Mental retardation, Cerebral palsy, Autistic disorder, Oral hygiene

INTRODUCTION:

Disabled individuals comprise a considerable section of the community, and it is estimated that worldwide there are about 500 million people having disabilities.[1]

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Prevalence may vary from country to country,however variation in prevalence may be recognized on ascertainment basis and by standardization methods employed from study to study. According to World Health Organization estimates, individuals with disabilities comprise 10% of the population in developed countries and 12% in developing countries.[2]

Children with disabilities, having serious psychological, physical and intellectual problems, should obtain special preventive care in dental clinics.[3]Consequently, inadequate dental care or poor dental public health measurements may have harmful influence on the oral health status and because of inadequate or sometimes complete dysfunction of their stomatognathic apparatus, often due to anatomical malformations of the orofacial cavity and children's uncooperative behavior, accomplishment of good oral hygiene measures usually require the assistance of parents or caretakers.[4] The most important risk factor for dental caries in disabled children is poor oral hygiene and inadequate tooth brushing practices.[5,6] Preventive measurements should thereby include sufficient education and inspiration both for patients and their caretakers, finally aiming at obtaining and maintaining satisfactory oral hygiene throughout lifetime.[7]

According to the Rehabilitation Council of Indian Act, it defines mental retardation as acondition of arrested or incomplete development of the mind of an individual, which is specially characterized by sub-normality of intelligence. Inspite of the high level of dental disease, individuals with disabilities or illnesses receive less oral care than normal people.[8] Characteristically, it has been reported that dental treatment is the greatest unattended health need of the disabled.[9] Some of the most important reasons may be inadequate recall systems, practical difficulties during sessions of the treatment, socioeconomic status and underestimation of treatment needs or

pain, communication problems and poor cooperation.[10,11] Oral health of the disabled may be ignored because of a disability condition, and limited access to oral health care which is the purpose of our study. Additionally, because of their level of function and their limited ability to undergo an oral examination, the maintenance of oral hygiene in disabled individuals is a difficult task, when their oral health is assessed.[12] However, with appropriate planning, clear communication and carefully drawn restrictions to the service provided, the dramatic results of dental health can be successfully alleviated.[13] A number of studies have shown that challenges to oral health are more complex for disabled children, whoare regularly unable to adequately apply the techniques necessary to control mechanical and chemical plaque. In several instances, a disabled child's oral healthcare becomes the responsibility of another human being, generally a parent or guardian, many of whom are emotionally or intellectually incapable of dealing with the health problems of their less fortunate affiliates. Some of the most important reasons as mentioned earlier may be unsatisfactory recall systems, practical difficulties during treatment sessions, socioeconomic status and underestimation of treatment needs or pain, communication problems and bad cooperation of disabled children, which often requires sedation or general anesthesia in different hospital setup.With this background, our present study was designed to assess caries and oral health status in disabled individuals of a special school in Gadap Town of Karachi, Pakistan.

MATERIALS &METHODS:

The target population included all the special persons attending the special needs in the school of GadapTown, Karachi. The 94 special children and adults between the ages of 4 to 33 years were examined. The subjects were classified according to their medical diagnosis. The diseases present were Down's syndrome,intellectual problems, deafness and dumbness,blindness, learning problems, cerebral palsy, autistic disorder, behavioral disorder and mental retardation. Before the dental examination, demographic information was registered for each subject: age, gender along with information regarding education and father's occupation. Clinical examination was done by a single examiner for assessment of oral hygiene status with dental mouth mirror. Dental fluorosis, plaque index and any other extra as well as intra-oral lesions were observed.Ethical approval for conducting the study was availed from the dental school. Informed consent was taken from principal as well as from the parents before subjects were included in the study.

Statistical analysis: Data was entered and analyzed using the statistical package for social sciences (SPSS version 20) was used to describe the patterns of oral hygiene status and caries experience which were calculated for all groups.

RESULTS:

Table 1a illustrates the general profile of the study population. Out of 100 special persons 95 were examined. The remaining individuals were either absent from school for a long period or highly uncooperative and very difficult to examine and there was one questionnaire which was incompletely filled and considered as a missing value.There was difference in the distribution of subjects according to age group as well as there was unequal gender distribution with males comprising of 72.6 % and females 26.3% of the total sample.The study participant age range was from 4 years to 33 years. The students belonged to the classes from nursery to manageable senior (manageable class was special class for special children)as shown in Table 1b.The frequency of fathers occupation was: Private Job55.8%, Government Employee16.8%, Businessman 17.9%, Retired officer 2.1%, not alive 4.2% and Jobless 2.1%. Table 2 illustrates the distribution of children according to their condition:mentally retarded were 41.1%, which is highest in frequency and the other conditions were cerebral palsy 9.5%, autistic disorder 3.2%, Down's syndrome 3.2%, blind 18.9%, deaf & dumb 15.8%, learning problems 1.1%, intellectual problems were 1.1% and others were 5.3%.

Table: 1a
Socio-demographic profile

Age in years	Frequency	Percent
4	2	2.1
5	2	2.1
6	5	5.3
7	5	5.3
9	2	2.1
10	4	4.2
11	8	8.4
12	8	8.4
13	9	9.5
14	9	9.5
15	9	9.5
16	5	5.3
17	3	3.2
18	8	8.4
19	6	6.3
20	3	3.2
21	1	1.1
22	2	2.1
25	2	2.1
33	1	1.1
Total	94	98.9
Missing System	1	1.1
Total	95	100.0
Gender	Frequency	Percent
Male	69	72.6
Female	25	26.3
Total	94	98.9
Missing System	1	1.1
Total	95	100.0

We examined the permanent and deciduous decayed missing and filled teeth in disabled children. In permanent dentition the decayed teeth were 87, missing teeth were 7 and filled teeth were 3.While in deciduous dentition 60 teeth were decayed, 1 tooth was missing and no filled teeth was found.However the frequencies of permanent decayed first molar were as high as 10.5% and central incisor as low as 1.1%, the permanent central incisor missing teeth frequency was 4.2% whereas the missing canine frequency were 1.1% and the frequencies of permanent filled teeth was 1.1%. The highest frequencies of decayed first molar deciduous teeth were 6.3% and lower frequency of decayed deciduous teeth was 1.1%, the frequency of missing deciduous canine was 2.1% and there were no filled teeth present in the deciduous dentition (Table 3). The plaque index score were visible plaque 50.5% and abundant amount of visible plaque 20.0%. Dental fluorosis was 8.4% (Table 4).

Table: 1b
Educational level

School Class	Frequency	Percent
Nursery	12	12.6
KG I	10	10.5
KG II	4	4.2
Class 1	7	7.4
Class 2	19	20.0
Class 3	2	2.1
Class 4	2	2.1
Class 5	7	7.4
Class 6	3	3.2
Class 7	4	4.2
Class 8	2	2.1
Class 9	5	5.3
Class 10	1	1.1
Minimal Group	2	2.1
Trainable junior	2	2.1
Trainable senior	11	11.6
Manageable group	1	1.1
Total	94	98.9
Missingsystem	1	1.1
Total	95	100.0

Table: 2
Conditions of special children

Conditions of Child	Frequency	Percent
Mental Retardation	39	41.1
Cerebral Palsy	9	9.5
Autistic Disorder	3	3.2
Down's Syndrome	3	3.2
Blind	18	18.9
Deaf & Dumb	15	15.8
Learning Problems	1	1.1
Intellectual Problems	1	1.1
Others	5	5.3
Total	94	98.9
Missing System	1	1.1
Total	95	100.0

Table: 3a
Total DMFT score and frequencies

Permanent Dentition		
Decayed	Missing	Filled
87	7	3
Average Dmft Score		09
Deciduous Dentition		
Decayed	Missing	Filled
60	1	0

Table: 3b

Permanent Decayed	Frequency	Percent
0	67	70.5
1	10	10.5
2	6	6.3
3	1	1.1
4	4	4.2
5	2	2.1
6	2	2.1
11	1	1.1
15	1	1.1
Total	94	98.9
Missing System	1	1.1
Total	95	100.0
Permanent Missing	**Frequency**	**Percent**
0	89	93.7
1	4	4.2
3	1	1.1
Total	94	98.9
Missing System	1	1.1
Total	95	100.0
Permanent Decayed	**Frequency**	**Percent**
0	92	96.8
1	1	1.1
2	1	1.1
Total	94	98.9
System	1	1.1
Deciduous decay	**Frequency**	**Percent**
0	75	78.9
1	6	6.3
2	4	4.2
3	1	1.1
4	6	6.3
7	1	1.1
12	1	1.1
Total	94	98.9
System	1	1.1
Total	95	100.0
Deciduous Missing	**Frequency**	**Percent**
0	92	96.8
1	2	2.1
Total	94	98.9
Missing System	1	1.1
Total	95	100.0
Deciduous filled	**Frequency**	**Percent**
0	94	98.9
System	1	1.1
Total	95	100.0

Table: 4
Plaque index and dental fluorosis

Plaque Index	Frequency	Percent
No visible plaque	27	28.4
Visible plaque	48	50.5
Abundant amount of visible plaque	19	20.0
Total	94	98.9
Missing System	1	1.1
Total	95	100.0
Dental Fluorosis	Frequency	Percent
Yes	8	8.4
No	86	90.5
Total	94	98.9
Missing System	1	1.1
Total	95	100.0

DISCUSSION:

Oral health disparities are found among people with mental and physical disabilities and there is limited literature available on the oral health status of the disabled population. Little research has been conducted to assess the impact of various socio-demographic and clinical variables on the oral hygiene status, periodontal status and dental fluorosis in disabled population.[14]

The oral hygiene status in the study participants was not satisfactory. The study participants were special children who had the highest percentage of children with poor oral hygiene. The removal of plaque and debris from teeth is a skill that can be mastered only when an individual has the dexterity to manipulate the toothbrush and understand the objectives of these actions.[15] The success of good oral hygiene reflects the skill and motivation of an individual. [16]Several studies of disabled children have reported that such patients tend to have poor oral hygiene than their non-disabled counterparts. Most of these findings highlight the difficulties encountered by disabled individuals in maintaining an adequate level of oral hygiene. The reasons for poor oral hygiene in disabled children have been attributed to low powers of concentration and lack of motor skills.[17]The lack of manual coordination in disabled children was afactor in the difficulty of their oral hygiene maintenance and other studies mentioned that the most obvious challenge is the physical inability to adequately clean the oral cavity [18,19,20], as same results seen in this study.In general, there is a wide range of tooth brushing ability, which is related to coordinated muscular movements, innate skills, ability to understand instructions and age of the individual.[21] According to different investigators, powered brushes are predominantly well suited for people with reduced motor skills. On the other hand, various different types of specially designed manual tooth brushes have been developed to solve this problem.

Income status of parents was also significantly associated with oral hygiene and periodontal status as confirmed by a previous study which observed that oral hygiene status deteriorated as the income decreased.[22]Different studies of oral disease prevalence in disabled groups found significantly poor levels of dental hygiene, [23,24] which is confirmed in this study. It is hoped that the results of this study would help in planning dental preventive and restorative services in these children. Furthermore, caries in first permanent molars, as well as bad habits and poor oral hygiene due to plaque and calculus deposition, were more common in children with disabilities than in healthy children. Several systemic conditions increase the risk of bad oral hygiene, which in turn is a risk factor for a number of systemic conditions. Some authors have confirmed that effective oral health programs commencing well before the usual first contact with dental services at the age of 5 are needed for young children who are at high risk of dental caries. Our present study has observed that poor oral health is a major health problem for disabled persons and their oral health seemed to indicate a cumulative ignorance, which may be a part of overall parental neglect of these special persons in relation to other basic health measures and may reflect the manner that oral health lacks importance in the overall scheme of health management. The oral hygiene and periodontal status of the present population was poor and was influenced by medical diagnosis, IQ level, disabled sibling, parent'slevel of education and socioeconomic status. The promotion of oral health should be aimed specifically at special needs schools and parents of disabled children. The oral health promotion should include facilitating access and regular use of oral health services. Taking into consideration the multi-factorial influence on oral hygiene and periodontal status of the present disabled population, oral health promotion and intervention programs should be planned and concentrated towards these risk groups.[25]

According to their previous studies, different authors have concluded that the main barriers to equal access to dental treatment for individuals with disabilities seems to be inadequate facilities and insufficient time, lack of sufficient knowledge and general stress related to treating this group; these are the same barriers as for non-disabled individuals that is fear and negative attitudes towards dentistry.[22,23,24,25]

In our opinion, oral health care should be approached together with general health care in order to achieve a more holistic view of the individual's physiological and psychological well-being.To improve the oral hygiene status of individuals with disabilities is an over whelming task, but it can be achieved if the parents or guardians are given appropriate health education.

CONCLUSION:

Oral hygiene is found to be inadequate in all conditions of special persons who were studied.The groups with lack of motor skills did not have significantly better oral hygiene and even groups having good motor skills had a poor oral hygiene. Adequate follow-up of daily oral hygiene, even in self-sufficient special persons is needed and there is a strong need for enhanced education on mechanical as well as chemical plaque control.There is a strong need for in-service training programs on oral hygiene. Finally, the clinical assessment by care givers also remains complicated. In this respect, regular repetition of programs should be necessary. This should be the primary and continuous goal of any task force for improving the oral health care of handicapped individuals and for any dentist providing oral healthcare to disabled people. A higher awareness on the part of care givers would contribute to the quality of life of this target population.

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