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Evaluation of the relationship of the oral hygiene status of the children with special health care needs and their level of functioning in Ahmedabad city: A pilot study

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Evaluation of the relationship of the oral hygiene status of the children with special health care needs and their level of functioning in Ahmedabad city: A pilot study

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Keywords

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Abstract

Aim: The purpose of this study was to explore the relationships between the level of functioning of children with special health care needs and oral health status. **Materials and Methods:** A total of 46 children in the age group of 5-15 years were

examined at three different educational institutions which have different physical and mental challenges. Among these 14 children were having hearing impairment, 14 children were mentally challenged, and 18 were having visual impairment. Oral examination was done using mouth mirror and probe by a single operator. The children were examined for decayed-missing-filled teeth (DMFT) and gingival health index. Statistically significant negative correlation was seen for the communication skills and deft scores (P = 0.01), daily living skills, and DMFT scores (P = 0.006), socialization skills, and both deft and DMFT scores (P = 0.04), and motor skills with the gingival health scores (P = 0.004).

Conclusion: Caries prevalence was greater in the children with problems in the communication skills, daily living skills, and socialization skills. In this study, gingival health assessed in children was poorest in the children with limited motor skills.

Introduction

The disabled people form a substantial section of the community and it is estimated that worldwide, there are about 500 million people with disabilities.^[1] The National Sample Survey Organization Report (2002) suggests that the number of disabled persons in India is estimated to be around 18.49 million, which forms to about 1.8% of the total population.^[2]

"The persons with disabilities act, 1995" states the responsibility of the state toward protection of rights of persons with disabilities; provision of medical care, education, training, employment, and rehabilitation. There is no legislation till date that makes a provision of dental services to the disabled population.^[3] People with disabilities deserve the same opportunities for oral health and hygiene as those who are healthy, but sadly, dental care is the most common unmet health care need of the disabled people.^[4]

Individuals with special needs may have great limitations in oral hygiene performance due to their potential motor, sensory, and intellectual disabilities, and so are prone to poor oral health.^[5]

Those who are very young, those with severe impairments, and those living in institutions are dependent on parents, siblings,

or caregivers for general care including oral hygiene. Many of them are emotionally or intellectually incapable of dealing with the health problems of their less fortunate affiliates.^[6,7]

Dental care professionals play an important role not only in providing much-needed care for these children but also in educating parents and children about good oral hygiene and motivating them to engage in productive oral health promotion efforts.

Research shows that the more educated dental care providers are about how to treat special health care needs (SHCN) patients, the more likely they are to treat these children in their practices.^[8] One-way dental providers might get a better understanding of how to treat SHCN children and engage them and their parents in oral health promotion and disease prevention efforts is to make dentists aware of the role that the patients' level of functioning plays in their parents' willingness and comfort level with engaging their child in oral health promotion activities^[9,10] and this, in turn, reflects their oral hygiene status.

Parents and caregivers in general are dentists' best allies in this context. Parents' reports about their children's oral health, when used in conjunction with the dental chart information, were found to provide a good assessment of the children's oral health status and needs in general and for SHCN children specifically. In addition, asking parents/caregivers to share information about their child's level of functioning concerning listening and talking, taking care of their daily care needs, and interacting with others could also provide valuable information for dentists that might allow them to tailor their communication toward the needs of SHCN patients and their parents.^[11]

The purpose of this study was to explore the relationships between the level of functioning of children with SHCN and oral health status.

Materials and Methods

A cross-sectional descriptive single-blinded study was conducted in three different institutions of Ahmedabad city, deaf and dumb school, blind school, and mentally disabled school. A total of 46 children in the age group of 5-15 years were examined at these three educational institutions. Among these 14 children were with hearing impairment, 18 were visually impaired, and 14 were mentally disabled. Children and adolescents who were present at school on the days of the survey were included in the study. Individuals with severe mental retardation or serious medical disorders and those who were highly uncooperative were excluded from the study.

Informed consent of the parents or guardians and school authorities was obtained before the subjects were included in the study. The study was approved by the Ethical Committee of College of Dental Sciences And Research Centre, Ahmedabad, India.

The examination was carried out by the investigator and recorded by a trained recorder throughout the study. Light source: In all the locations, natural light was used, and the subject was placed in such a way that maximum illumination was obtained. Sufficient numbers of sterilized instruments were taken to avoid the interruption during the examination. Mouth mirror and probe were used (ADA classification type 3) to examine the oral cavity for decayed-missing-filled teeth (DMFT) and deft scores and papillary marginal attachment (PMA) index for gingival health.

PMA index

The facial surface of gingiva around a tooth divided into three units: Mesial interdental papilla (P), marginal gingiva (M), and attached gingiva (A). The presence or absence of inflammation on each gingival unit recorded as 1 or 0, respectively. Summation of these three units of a tooth is considered as PMA score of the tooth and summation of score of all teeth and divided by number of teeth is considered as PMA score of the person. Usually, central incisor to second premolars was examined. Accordingly, the children's gingival health was assessed by providers on a scale from 1 to 4 ="within normal limits;" 2= "mild gingivitis;" 3= "moderate gingivitis."

The level of functioning of the children was measured by Vinland II scale which is a categories standardized assessment tool to assess individual's daily functioning.

The survey assessed patients' background information as well as the types of conditions of the patients.

The Vineland is designed to measure the adaptive behavior of individuals from birth to age 90.

The Vineland-II contains 5 domains each with 2-3 subdomains. The main domains are: Communication, daily living skills, socialization, and motor skills. The domain scores yield an adaptive behavior composite. Communication domain consists of subdomains: Receptive, expressive, and written skills. Daily living skills domain consists of personal and domestic skills. Socialization domain consists of interpersonal relationships and play and leisure skills. Motor skills consist of gross motor and fine motor skills.

Statistical data analysis

Data were entered into the spreadsheets and were analyzed using the Statistical Package for the Social Sciences (17.0 J for Windows; SPSS Japan). One-way analysis of variance was used to test the differences in the mean scores of oral hygiene indicators. Chi-square tests were used to test the differences in frequencies between various groups.

Results

Table 1 provides an overview of the children's characteristics. Data were collected from 46 children with different SHCN. Among them, the majority were female (69.6%), and 30.4% were male. About 58.7% of children were of 5-10 years of age, and 41.3% were of 10-15 years of age.

The patients' level of functioning was measured in the following categories: Communication, daily living skills socialization, motor skills. Table 2 shows the oral and gingival health status

Table 1:	Children's	characteristics
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Chatacteristics	N (%)
Age (year)	
5-10	27 (58.7)
10-15	19 (41.3)
Sex	
Male	14 (30.4)
Female	32 (69.6)

Гal	ble	2:	Type	of	disa	bilit	y an	d ora	11	hygeine status
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Oral health status	Type of disability	Mean	Std.	P value	
			Deviation		
DMFT	Hearing impairment	1.93	1.008	0.93	
	Mentally disabled	1.43	0.85		
	Visual impairment	2.22	1.29		
Deft	Hearing impairment	1.86	1.65	0.97	
	Mentally disabled	2.36	1.78		
	Visual impairment	3.11	2.09		
Gingival health status	Hearing impairment	2.79	0.82	0.48	
	Mentally disabled	2.64	0.73		
	Visual impairment	2.83	0.80		

Oral health status		Communication	Daily living skills	Socialization	Motor skills
DMFT	Pearson Correlation	-0.55	-0.24**	-0.13*	0.25
	Sig. (2-tailed)	0.8	0.006	0.04	0.182
Deft	Pearson Correlation	-0.14**	0.48	-0.72*	-0.61
	Sig. (2-tailed)	0.01	0.7	0.04	0.22
Gingival health	Pearson Correlation	0.334	-0.203	0.13	-0.11**
	Sig. (2-tailed)	0.123	0.4	0.452	0.004

Table 3: Oral hygeine status and level of functioning

of children with SHCN. Higher DMFT, deft, and comparatively poor gingival health scores are associated with visually impaired children although the data are not statistically significant.

Table 3 shows the Pearson's correlation of oral hygiene status with the level of functioning of the children. Statistically significant correlation is seen for communication skills and deft scores (P = 0.01), daily living skills and DMFT scores (P = 0.006), socialization skills, and both deft and DMFT scores (P = 0.04), and motor skills with the gingival health scores (P = 0.004).

Discussion

Researchers agreed in general that SHCN children are at an increased risk for (a) poorer oral health and, (b) having unmet dental needs.^[12] The removal of plaque and debris from the teeth is a skill that can be mastered only when an individual has the dexterity to manipulate the toothbrush and understands the objectives of these activities.^[14] Most of the studies^[15] performed for evaluating the oral hygiene status of disabled people found poor oral hygiene levels, which is confirmed in this study as well.

Oral health promotion and disease prevention are, therefore, of utmost importance to these children who might be totally dependent on their parents for both accessing dental services and engaging in oral hygiene-related behavior.

Understanding the level of functioning of a patient with SHCN in the different behavioral subdomains provides one form of specific input that can inform dentists about potential successful strategies of communication with parents and their children and also oral health care that they should receive.

Previous research with patients diagnosed with an autism spectrum disorder analyzed the relationship between these children's level of functioning and their oral health and parents' level of comfort and interest in oral health education. These findings led to the conclusion that it is important to consider children's level of functioning when providing dental care for these patients and when educating their parents about oral health promotion and disease prevention.^[13] This study shows a relationship between the type of disability, their level of functioning, and oral hygiene status.

It was seen that in the institutes for the blind, the hearing impaired, and mental disability the number of females was significantly higher than that of the males with ratio of 1:2 in the Ahmedabad city. This study showed that the overall mean DMFT, deft, and gingival health score is poorer for visuallyimpaired children than the other two groups. However, the result is not statistically significant.

A previous study in Mangalore, Karnataka, India, found a mean DMFT of 2.48 ± 2.02 in hearing impaired and 5.92 in blind children (aged 6-18 years), which is high compared to this study.^[16]

A study conducted over 25 years ago in the United Kingdom reported a mean DMFT of 1.76 among the deaf, which is slightly lower than that found in this study, whereas among blind, it was 1.82, which is slightly higher than in this study.^[17]

In this study, level of functioning of children has been compared with the oral hygiene status which has not been done in the previous studies. The level of functioning is measured by Vinland II scale which is a standardized assessment tool to assess individual's daily functioning. In this study, DMFT score and the deft score is greater in the children with limitation on the communication skills and socialization and daily living skills. This result reflects the fact that dental needs of children with SHCN are underestimated are taken care of only when disease reaches an acute phase unless and until the parents or the guardians are aware, educated and concerned.

Gingival health status is poorest in the children with improper motor skills. The inference which can be drawn from this result is that maintenance personal and oral hygiene is hampered in these children due to which the gingival health is compromised. One more point which has to be highlighted is that the oral hygiene is not statistically different in the three types of disabilities, but limitation of the functioning is directly related to both the caries index and gingival health status of the children. Ameer et al. (2012)^[16] assessed oral hygiene status, oral hygiene practices, and periodontal status among 14-17 years old visually impaired, deaf and dumb, intellectually disabled and physically challenged and normal teenagers in the district of Nalgonda, South India. He found that the intellectually disabled group had the highest plaque scores and poor oral hygiene. The visually impaired and children with hearing impairment had better oral hygiene compared with other disability groups.^[18]

Conclusions

 The oral hygiene status of the children with SHCN is related with their level of functioning. Caries prevalence is greater in the children with problems in the communication skills, daily living skills, and socialization skills. In this study, gingival health assessed in children is poorest in the children with limited motor skills. Dental health education must be provided to the parents of the disabled children so that dental treatment needs of the children are not neglected.

References

- 1. Watson N. Barriers, discrimination and prejudice. In: Nunn J, editor. Disability and Oral Care. London: World Dental Press Ltd.; 2000. p. 15-28.
- 2. Disabled Persons in India. National Sample Survey Organization. Report No. 485 (58/26/1); 2003. p. A1.
- Kumar S, Sharma J, Duraiswamy P, Kulkarni S. Determinants for oral hygiene and periodontal status among mentally disabled children and adolescents. J Indian Soc Pedod Prev Dent 2009;27:151-7.
- 4. Hennequin M, Faulks D, Roux D. Accuracy of estimation of dental treatment need in special care patients. J Dent 2000;28:131-6.
- Nunn JH. The dental health of mentally and physically handicapped children: A review of the literature. Community Dent Health 1987;4:157-68.
- Friedrich WN, Friedrich WL. Psychosocial assets of parents of handicapped and nonhandicapped children. Am J Ment Defic 1981;85:551-3.
- 7. Bonito AJ. Executive summary: Dental care considerations for vulnerable populations. Spec Care Dentist 2002;22:5S-10.
- Alhammad NS, Wyne AH. Caries experience and oral hygiene status of cerebral palsy children in Riyadh. Odontostomatol Trop 2010;33:5-9.
- Garfinkle AJ, Richards PS, Inglehart MR. Providing care for underserved patients: Periodontists' and periodontal residents' educational experiences, attitudes, and behaviors. J Periodontol 2010;81:1604-12.
- 10. Weil TN, Inglehart MR. Three To Twenty one year-old patients

with autism spectrum disorders: Parents' perceptions of severity of symptoms and oral health and oral health-related behavior. Pediatr Dent 2012;34:473-9.

- 11. Bakry NS, Alaki SM. Risk factors associated with caries experience in children and adolescents with intellectual disabilities. J Clin Pediatr Dent 2012;36:319-23.
- Nelson LP, Getzin A, Graham D, Zhou J, Wagle EM, McQuiston J, et al. Unmet dental needs and barriers to care for children with significant special health care needs. Pediatr Dent 2011;33:29-36.
- 13. Pinkham JR. Oral hygiene in children: Relationship to age and brushing time. J Prev Dent 1975;2:28-31.
- Hashim NT, Gobara B, Ghandour I. Periodontal health status of a group of (Non-institutionalized) mentally disabled children in Khartoum State. J Oral Health Community Dent 2012;6:10-3.
- 15. Shaw L, Maclaurin ET, Foster TD. Dental study of handicapped children attending special schools in Birmingham, UK. Community Dent Oral Epidemiol 1986;14:24-7.
- 16. Ameer N, Palaparthi R, Neerudu M, Palakuru SK, Singam HR, Durvasula S. Oral hygiene and periodontal status of teenagers with special needs in the district of Nalgonda, India. J Indian Soc Periodontol 2012;16:421-5.
- 17. Weil TN, Inglehart MR. Three To 21-year-old patients with autism spectrum disorders: Parents' perceptions of severity of symptoms and oral health and oral health-related behavior. Pediatr Dent 2012;34:473-9.
- Rao DB, Hegde AM, Munshi AK. Caries prevalence amongst handicapped children of South Canara district, Karnataka. J Indian Soc Pedod Prev Dent 2001;19:67-73.

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