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RESEARCH ARTICLE

Oral Health Status of Children with Cerebral Palsy attending Center for Individuals with Special Health care Needs

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ABSTRACT

Aim: The aim of this study was to assess and compare the oral health status of cerebral palsy (CP) children attending a day care center for various age groups, gender, and socioeconomic background.

Materials and methods: Fifty-one subjects were selected out of which 49 reported. This study was carried out as a part of an oral health camp organized by us and consent was obtained from school authorities before the screening. School authorities provided the needed information during the screening by filling a questionnaire completed by the teachers. All the attending subjects were examined using standard World Health Organization methods and oral health indices to assess dental caries, oral hygiene status.

Results: Fifty-one subjects aged 6 to 20 years comprising 65% males and 35% females participated in the study. Over 85% were from parents of poor and middle-level educational background. The mean decayed, missing, filled teeth (dmft/DMFT) index score was seen to significantly increase with age, while there was no significant difference across gender and socioeconomic background. The oral hygiene status was mostly fair and poor for most of the population, while mean oral hygiene index-simplified (OHI-S) had no significant difference for age, gender, and socioeconomic background.

Conclusion: The prevalence of dental caries was high for the subjects in this study which increased with age. The results point toward lack of awareness and negligence for oral health care.

Clinical significance: The CP children would benefit from modification of diet by educating the parents, improved oral hygiene habits and regular visits to the dentists and steps should be taken to improve that.

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INTRODUCTION

Oral health in children is extremely important and for the children with special ability, it is all the more significant. These are the children lacking mental, sensory, physical, and emotional well-being. Attention-deficit hyperactive syndrome, autism, Down's syndrome, and CP are a few to be named.

Lack of attention, self-care problems, treatment difficulties, and undue pampering in the form of cariogenic food make their condition worse.[1] Cerebral palsy is a neuromuscular disorder. It is defined as a group of disorders of development of movement and posture, causing activity limitations that are attributable to nonprogressive disturbances, which have occurred in the developing fetal or infant brain.[2] Such disturbances include hypoxia, trauma, infection, and hyperbilirubinemia, but biochemical and genetic factors may be involved (Scully and Cawson 2005)[2].

The motor disorders of CP are often seen by the disturbances of sensation, cognition, communication, perception, and by a seizure disorder (per the International Workshop on the Definition and Classification of Cerebral Palsy).[2] Patients with CP have poorer oral health compared with nondisabled counterparts. The CP patients mostly have delayed first dental visit, suggesting problem in access to the dental set-up.

Patients with CP are seen with a decreased self-cleansing function of the oral cavity.

This is due to enormous amounts of drooling and uncontrolled movements of the tongue and facial muscles. Furthermore, their caregiver may have difficulties in following an appropriate oral hygiene protocol. Patients with CP have a poor function of speech, mastication, and swallowing, which increases their risk of caries.[3]

A number of studies have been performed to evaluate the oral health conditions of special children in different parts of India, but no study has been performed on CP children in the eastern parts of Uttar Pradesh.

Therefore, the objective of the present study is to assess the oral health conditions of CP children in an educational institute in eastern Uttar Pradesh using various indices as per factors, such as age, sex, and socioeconomic background.

MATERIALS AND METHODS

Fifty-one CP children of less than 20 years of age attending school for special needs in Varanasi were selected based on their medical records. The division of children were done as per their age, sex, and socioeconomic status. The age groups ranged from 6 to 10, 11 to 15, and 16 to 21 years.[4] The division of groups as per socioeconomic group was done as poor, middle class, and upper class. Socioeconomic background was determined by classifying the educational level of the mother and father:

- Upper class—Code 1: Those who attended college.
- Middle class—Code 2: Those who had up to secondary school education
- Lower class—Code 3: Those who had primary school education or no education.[4]

Thereafter, consent was obtained from the school authorities. Children who were absent on the day of screening were excluded from the examination. Teachers were asked to provide details which asked for age, name, and education of the parents. Children were assessed using DMFT index for permanent dentition, dmft index for primary dentition, and OHI-S (green and vermillion). Examination was performed using mouth mirror, probe natural daylight using world health basic methods.[5]

RESULTS

Forty-nine subjects presented themselves to the call of screening. Two were not cooperative enough and were excluded from the study. Subjects aged 6 to 20 years were examined. There were 32 males (65.3%) and 17 (34.7%) females; 30 (60.3%) were from parents of low socioeconomic status, 12 (24.4%) were from the middle socioeconomic status, and only 7 (14.2%) were from the high socioeconomic status. There were 22 subjects (44.8%) in the 6 to 10 years age groups, 17 (34.6%) in the 11 to 15 years age group, and 10 (20.4%) in the 16 to 20 years age group (Table 1).

The mean dmft/DMFT of the primary and early mixed (6–10 year) dentition years was 1.36 ± 2.013, while the mean DMFT of the late mixed dentition (11–15 year) was 1.94 ± 1.75, and that of permanent dentition (16–20 year) was 3.6 ± 0.0361 with a significant difference among the age groups [test of analysis of variance (ANOVA), $p = 0.0361$, $p < 0.05$] (Table 2).

Table 1: Sociodemographic characteristics of the study population

Characteristics	*N (%)*
Gender	
Male	32 (65.3)
Female	17 (34.7)
Age (years)	
Range 6–20 years	
6–10	22 (44.8)
11–15	17 (34.6)
16–20	10 (20.4)
Parents' educational level	
High	7 (14.2)
Middle	12 (24.4)
Poor	30 (61.2)
Total	49 (100.05)

Table 2: Mean dmft/DMFT and OHI-S for age groups

	6–10 years	*11–15 years*	*16–20 years*	*p-value*
dmft/DMFT index	1.36 ± 2.01	1.9 ± 1.74	3.6 ± 0.036	0.036
OHI-S index	2.32 ± 0.995	2.38 ± 1.01	3.08 ± 0.10	0.17

Table 3: Mean dmft/DMFT and OHI-S for gender

	Male	*Female*	*p-value*
dmft/DMFT index	1.97 ± 2.42	2.12 ± 2.12	0.83
OHI-S index	2.70 ± 1.00	2.17 ± 1.07	0.06

Table 4: Mean dmft/DMFT and OHI-S for socioeconomic class

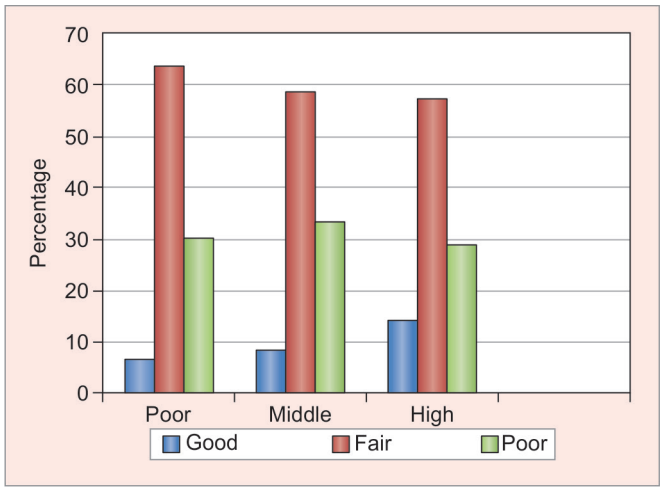
	Poor	*Middle*	*High*	*p-value*
dmft/DMFT index	1.96 ± 2.40	2.58 ± 2.10	1.28 ± 1.80	0.49
OHI-S index	2.57 ± 1.10	2.58 ± 1.01	2.5 ± 1.00	0.98

The mean dmft/DMFT for females and males was 2.12 ± 2.12 and 1.97 ± 2.42 respectively, with difference being not significant (t-test for two groups $t = 0.21$; $p = 0.83$) (Table 3).

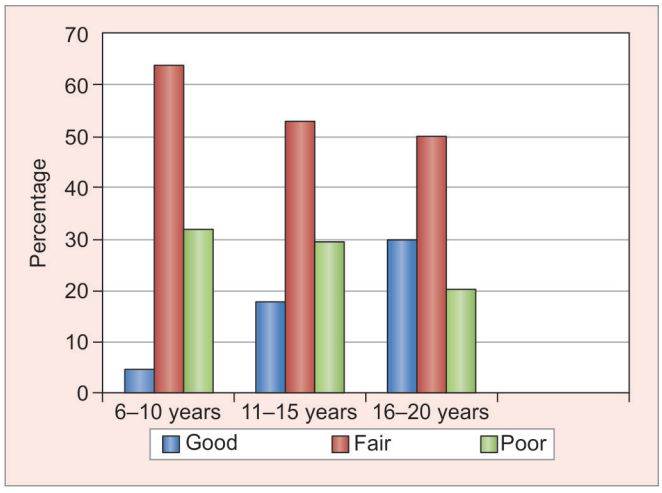
The mean dmft/DMFT of subjects of parents with high income was 1.967 ± 2.4 while that of those from middle level was 2.58 ± 2.1, and that of poor level was 1.286 ± 1.89 with no significant difference (test of ANOVA, $p = 0.49$) (Table 4).

The OHI-S in this study for males had a mean score of 2.75 ± 1.008, while females had 2.172 ± 1.07 with no significant difference across sex (t-test, $p = 0.06$) (Table 2). For various age groups, mean OHI-S was 2.32 ± 0.995 for 6 to 10 years, 2.38 ± 1.01 and 3.082 ± 1.015 for 11 to 15 years and 16 to 20 years respectively, with difference being not significant ($p = 0.175$) (Table 3).

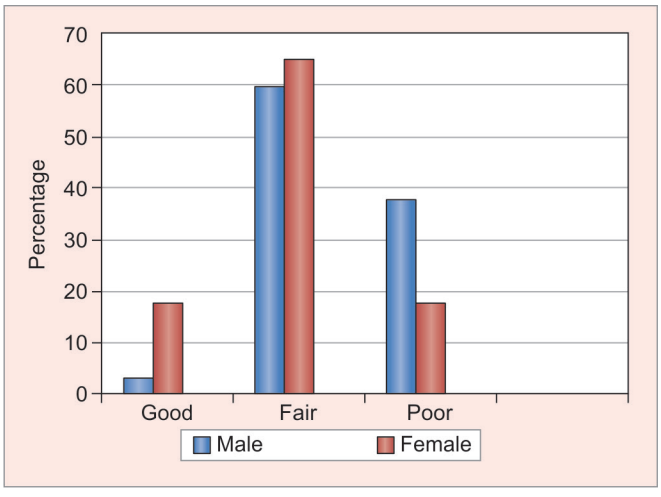
The OHI-S for high socioeconomic class was 2.5 ± 1.0; the same for poor and middle class was 2.57 ± 1.1 and 2.58 ± 1.00



Graph 1: Oral hygiene status according to socioeconomic status



Graph 2: Oral hygiene status according to different age groups



Graph 3: Oral hygiene status according to sex

respectively, with no significant difference among class (p-value = 0.98) (Table 4). Most of the population among each group has fair and poor oral hygiene and a very few percentage had very good oral hygiene as stated by Graphs 1 to 3.

DISCUSSION

This study was conducted in an institution for children with special needs in health care in eastern part of Uttar Pradesh. Age, sex, and gender were three factors taken into consideration for comparisons.[4]

As per our study, for the mean dmft/DMFT and oral hygiene status, no significant difference was found for the gender. This can be explained based on the fact that majority of these children are totally dependent on their caregivers for performing their daily activities. These findings are in sync with earlier reports that the prevalence of dental disease ought to be affected by demographic factors.[4,6]

- The mean dmft/DMFT was seen to be increasing with a great significance with age. The result of this study is also in accordance with the previous study, i.e., there was an increase in mean dmft with age.[4,6] A better condition of dental health among younger groups was seen because of immobility leading to decrease in opportunity to obtain sweet foods and possible closer attention from their parents and caregivers.
- If these children do not receive proper care and intervention due to lack of dental access, once they are grown-ups, their disability, physical impairment, along with mental retardation act as confounding factors, leading to a progressive increase in caries incidence.

This might account for the significant difference among age.[7] It was further pointed out that high dental morbidity and difference in oral health are caused by problems of behavior, age, and situation of dental clinic.[8] The medicines prescribed to children in order to control seizures are sweet, viscous, and given at night. Furthermore, the dose of the medicine increases which enhances the progression of dental caries.[2]

The mean dmft/DMFT value was also found to be greater in the CP group from the lower social class although this was not significant. Some studies were in accordance with this result while some opposed it. The conflicts in the results in different studies are due to the fact that different age groups have different severity of impairments and locations of residence of the population studied.[4,7]

The institution where this study was conducted is located at the outskirts in a village area, inhabited mostly by parents from the lower and middle socioeconomic status. It is assumed that the poorer the level of education of an individual, the lesser the health-seeking behavior of that individual and the family members.

Most of the participants in this study had poorer economic background and had either fair or poor oral hygiene (92%), which is in accordance with earlier studies

in India and elsewhere.[9] This is clearly illustrated in Graphs 1 to 3. This clearly signifies that the educational status of parents has a positive impact on the dental care of persons with special health care needs.

There are various ways which create obstruction to receiving oral health care; these include less priority placed on oral health by parents and longevity of oral diseases. If oral health is not considered as important, the children would not be taken for dental check-up.[10] A family is not able to be committed to the children's dental care due to lack of comprehension of the longer health risks that may burden a child who does not receive urgently needed care. In these individuals, oral health needs are competing with already gruesome chronic health conditions.[11]

CONCLUSION

Thus, conclusion can be made that

- There is an increase in caries' prevalence with age.
- Most of the participants in this study had poorer oral hygiene.
- There was an overall lack of understanding and awareness about oral hygiene methods.
- Steps are needed to provide education about the significance of oral health among these population.

CLINICAL SIGNIFICANCE

The CP children would benefit from education of parents on diet modification, improving oral hygiene practices, and regular dental visits and steps should be taken to improve that.

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