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Study to Assess Perception of Dental Hygiene among Children of Low Socio-economic Strata in a Primary School of Rural India

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ABSTRACT

Background: Dental caries in childhood remains a major public health concern, particularly among children from disadvantaged socio-economic backgrounds. Untreated dental caries can adversely affect nutrition, speech, school performance, and the development of permanent teeth, often leading to pain, infection, and costly treatment. The present study aimed to determine the prevalence of dental caries among primary school children and to assess their awareness and practices related to oral hygiene.

Methods: A questionnaire-based cross-sectional study was conducted among 100 school children aged 5–12 years. Data regarding oral hygiene practices were collected through personal interviews using a pretested questionnaire. This was followed by a basic oral examination to assess dental caries status. Each child was examined individually, and oral health education was provided after the assessment.

Results: Dental caries was observed in 37% of the children. Oral hygiene awareness was found to be inadequate in most participants. Only 36% brushed their teeth in the morning, and 27% brushed for more than one minute. More than half of the children (52%) had never visited a dentist.

Conclusion: The findings indicate insufficient awareness and poor oral hygiene practices among children from low socio-economic backgrounds. Parental involvement was also limited. School-based oral health education programs and regular dental screening camps are essential to improve oral health outcomes in this population.

Key-words: Dental caries, Oral hygiene, Low socio-economic status, Primary school children

INTRODUCTION

Dental caries is one of the most prevalent yet neglected chronic diseases affecting children worldwide. A substantial proportion of preschool and school-aged children experience dental caries early in life, which often persists into adolescence and adulthood [1,2].

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The condition arises from a complex interaction of dietary habits, microbial activity, oral hygiene practices, fluoride exposure, and socio-economic factors [2,3].

Frequent consumption of sugar-rich foods and beverages, along with inadequate oral hygiene, promotes the growth of cariogenic microorganisms such as *Streptococcus mutans* and *Lactobacillus* [4,5]. These bacteria metabolize fermentable carbohydrates, producing acids that progressively demineralize tooth enamel. Additional determinants such as parental education, household income, family size, and access to dental care significantly influence the risk of caries development [5].

Early childhood caries and its severe forms are particularly aggressive, initiating soon after tooth

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eruption and progressing rapidly if untreated [6,7]. Children from low socio-economic backgrounds are disproportionately affected due to limited access to preventive dental services and a lack of awareness regarding oral hygiene [8,9].

In India, the prevalence of dental caries varies across regions, age groups, and living conditions. National surveys have consistently reported a high burden of dental caries among school-aged children [10]. Poor oral health has been shown to negatively impact a child's physical growth, academic performance, social interaction, and overall quality of life [11,12].

Oral hygiene reflects the overall health of teeth and supporting structures, enabling effective mastication, speech, and aesthetics. Despite this, awareness and practice of proper oral hygiene remain inadequate in many rural and economically disadvantaged communities [13,14].

The definition of poor dental hygiene was as per WHO Guidelines 2010, i.e., oral hygiene is a condition of the total well-being of the teeth as well as the supportive and the soft tissues so that it can properly fulfil the function of mastication, phonation and aesthetics [15].

MATERIALS AND METHODS

Place of the study- The study carried out was a school-based observational descriptive study with a cross-sectional design at Chaklalpur Primary School in South Sutahata, Haldia, West Bengal, which is the rural field practice area of the Department of Community Medicine, ICARE Institute of Medical Sciences and Research, and BC Roy Hospital.

Inclusion Criteria

1. All boys and girls enrolled at Chaklalpur Primary School from pre-primary to class 5 during the study period.
2. Children present on the day of examination whose parents/guardians provided informed consent.

Exclusion Criteria

1. Children with known maxillofacial defects, dental malocclusions, or chronic systemic illnesses (e.g., tuberculosis, hypothyroidism, epilepsy on anti-epileptics, rickets, malnutrition).

Research Design- The total study period was 1month. The study population included all children, both boys and girls, attending this school**.** It is a co-educational school with children from pre-primary to class 5. Sample Size was 100 because out of the total 111 students, 6 did not participate and 5 children with maxillofacial defects, dental malocclusions, history of chronic illness like tuberculosis, hypothyroidism, and known cases of seizures on anti-epileptics, rickets and malnutrition were excluded from the study. The study was done by interviewing and examining children with a predesigned, pretested questionnaire. Children were interviewed after taking consent for the study from the school authorities and parents. One student was interviewed and examined at a time. Students were also provided with basic information to maintain good oral and dental hygiene, like frequency of tooth brushing, rinsing mouth after meals, avoiding excessive sugar meals, and junk food, etc. The students who were having very poor dental hygiene were referred to the outpatient department of Haldia Institute of Dental Science and Research.

Statistical Analysis- Data was compiled and analyzed by Microsoft Office Excel 2007 software and SPSS software version 20.0, IBM, Armonk, New York, USA. The association of variables was obtained by the chi-square test at 5% significance level.

RESULTS

Total children who participated in the study was 100, and the prevalence of caries was observed in 37 cases. It was evident from Table 1 that dental caries was more prevalent among children aged 6-9 years compared to 10-12 years and more among males compared to females.

Table 2 presents the oral hygiene habits of our study sample, indicating that 5% of children brushed their teeth more than twice a day, 22% brushed twice a day, 54% brushed only once a day, and 19% never brushed their teeth. It was observed that 71% of the children used a toothbrush and toothpaste to clean their teeth, 10% used toothpaste on their fingers, and 4% washed their mouths with water only.

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Table 1: Socio-demographic characteristics and prevalence of dental caries among study participants (n = 100)

Variable	Category	Caries n (%)	Non-caries n (%)	*p*-value
Age group (years)	6–9	27 (41.5.)	38 (58.5)	0.287
	10–12	10 (28.6)	25 (71.4)	
Gender	Male	21 (35.0)	39 (65.0)	0.77
	Female	16 (40.0)	24 (60.0)	

Table 2: Oral hygiene practices among study participants (n=100)

Variable	Category	n (%)
Frequency of brushing/day	Never	19
	Once	54
	Twice	22
	> Twice	5
Cleaning method	Toothbrush + toothpaste	71
	Toothpaste on finger	10
	Neem stick	15
	Wash with water only	4
Time of brushing	Morning	36
	Before bedtime	18
	Both	27
	Do not brush	19
Duration of brushing	< 30 seconds	25
	1 minute	29
	> 1 minute	27
	Do not brush	19

Most subjects (36%) preferred to brush in the morning. About 27% of the subjects brushed their teeth for more than 1 min, while 29% brushed for at least 1 min, and 25% for half a minute. It was found that 32% of the parents, either father or mother, advised and watched while brushing. While 30% of the children reported that they were only advised but not watched while brushing. On the contrary, 38% of the children reported that their parents neither advised them nor watched them while brushing.

It was observed that only 4% of the subjects visit their dentist regularly, once every 6-12 months. 22% visit a dentist when they experience pain, whereas 52% reported that they had never visited a dentist. Approximately only 6% of them had their last dental visit 6 months ago, while 52% never visited a dentist to date.

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Table 3: Parental supervision and utilization of dental services (n=100)

Variable	Category	n (%)
Parental supervision	Never supervised	38
	Mother supervises	22
	Father supervises	10
	Advice only	30
Frequency of dental visit	Never	52
	Occasionally	22
	Regular (6–12 months)	4
	During pain only	22
Time since last dental visit	Never	52
	< 6 months	6
	6–24 months	28
	> 2 years	14

Table 4 shows that children who believe brushing prevents caries have 80% lower odds of caries compared to those who don't. Children without parental supervision have 6.6 times higher risk of caries compared to those supervised by at least one parent. Children who never visited a dentist have 5 times higher odds of caries than those who have. Awareness that sweets damage teeth reduces the odds of caries by about 73%. Children who care for their teeth like other body organs have 75% lower odds of caries.

Table 4: Association between awareness/practices and dental caries (n=100)

Variable	Category	Caries (n)	Non-caries (n)	p-value
Brushing prevents caries	Yes	18	52	<0.001
	No	19	11	-
Parental supervision	At least one parent	4	28	-
	None	33	35	0.001
Ever visited dentist	Yes	9	39	-
	No	28	24	<0.001
Sweets affect teeth	Yes	17	48	0.004
	No	20	15	-
Care teeth like body organs	Yes	18	44	0.003
	No	19	19	-

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DISCUSSION

Dental caries is a multifactorial disease influenced by host characteristics, environmental factors, and behavioural practices. The present study demonstrated a caries prevalence of 37%, highlighting a significant oral health burden among children from low socio-economic backgrounds [16].

A higher prevalence was observed among younger children compared to older age groups [17]. This may be attributed to increased consumption of sugary foods, immature brushing skills, and a lack of parental supervision in younger children. Similar trends have been reported in previous Indian studies [18].

Although most children reported brushing at least once daily, a notable proportion did not brush regularly, indicating poor oral hygiene awareness [19]. The predominant use of toothbrush and toothpaste was encouraging; however, the continued use of fingers or traditional cleaning methods reflects gaps in health education [20,25].

Parental involvement emerged as a critical determinant of oral health. A significant number of parents neither supervised nor reinforced proper brushing practices [21]. This lack of guidance may contribute to higher caries prevalence, emphasizing the importance of family-centered oral health education [22,26].

Dental service utilization was low, with most children seeking care only during pain or not at all [23]. Limited access to dental services, financial constraints, and lack of perceived need may explain this pattern [24].

Despite reasonable awareness regarding the role of sweets and fizzy drinks in causing dental problems, this knowledge did not consistently translate into healthy practices [27]. Awareness of the relationship between oral and general health was also suboptimal [28].

CONCLUSIONS

The study reveals a considerable burden of dental caries among primary school children from low socio-economic backgrounds, along with inadequate oral hygiene awareness and practices. Parental supervision and regular dental visits were notably insufficient. Implementation of school-based oral health programs, parental education, and periodic dental screening camps is essential to reduce the prevalence of dental caries and promote lifelong good oral health habits.

CONTRIBUTION OF AUTHORS

Research concept– Biswadeep Sengupta
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