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Prevalance of Dental Caries among School Children of Hajipur Village A Rural Area of Katihar, Bihar

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ABSTRACT
This study was conduct in Rural Health Training Centre, Hajipur of Katihar Medical College, Katihar. Four hundred children were selected from four schools randomly. Children were examined by two dentists. The presence of dental caries was correlated with known factors of dental carries like cleaning of teeth, eating of sweets, education and income of family. Over all prevalence in this study was found to be 53.75 which were found strongly related to bad oral hygiene and regular eating of sweets. Other factors like maternal education and income also show some relation but not found statistically significant.
Key Words: *Dental caries, Prevalence, statistical significance.*

INTRODUCTION

Dental caries is the most prevalent disease among the children of all nations, Irrespective of geographic and bio cultural differences [(1)]. In the developing countries such as India, changing life styles and dietary patterns are distinctly expanding caries incidence[(2)]. In India the incidence has gone up from 40% to around 80% during past four decades, but in the past two decades the prevalence of caries has declined by 35%-50% in most industrialised countries.

Fluorine is essential for normal mineralization of bones and formation of dental enamel. Fluorine is often called a two edged sword. Prolonged ingestion of fluorides through water in excess of daily requirements is associated with dental and skeletal fluorosis and inadequate intake with dental caries. The use of fluoride is recognized as the most effective means available for prevention of dental caries [(3)]

According to the "National Oral Health Policy of India the goal is to bring down the Decayed/

Missing/Filled Teeth index in school children between 6-12 years of age to less than 2 which is approximately 4 at present. Habit of brushing of teeth, promoting traditional diets, practice of rinsing mouth with plain water after each meal, should be promoted. Chocolate eating and chewing gums and use of soft drinks are invitation to caries and poor condition of teeth. In developing countries change in living condition urbanization adoption of change in life style are considered as potential risk factors for the incidence of dental caries and recent population data show that the prevalence of dental caries is related to socioeconomic factors in developing countries as for developed countries [(4)]

Dental caries not only causes pain and discomfort, but also in addition, places a financial burden on the parents.

OBJECTIVE

1) To assess the prevalence of dental caries among school children 6-12 years school student studying in Govt and private Schools of rural area of Ktihar, Bihar
2) To find their association with socio-economic status of family like literacy of mother and income of family and dietary factors like intake of coffee, sweets etc.
3) To determine Oral hygiene status like mode of teeth cleaning, brushing habits etc.

MATERIAL AND METHOD

This cross sectional study was conduct in the 2 government school and 2 private school of Hajipur Village, Rural health training centre of Katihar Medical College Katihar during July 2016 to October 2016. In each school all children of 6-12 years were assessed who were present and the process continued till the desired sample size was achieved. Consent was obtained from the school principal and subjects before the commencement of this study.

Sample Size: The sample size was calculated by using formula 4PQ divided by E square. While prevalence caries was taken 50 % (P) and allowable error as 10% and Q (100 – P). To meet the statistical relevance the minimum sample size was estimated to 400.

List of school were prepared and 2 school of each group were selected by using Simple random technique.

Questions were asked pertaining to oral hygiene practices, dietary intake and preventive awareness, frequency and regularity in tooth brushing & use of tooth paste (fluorinated & non-fluorinated). Dietary questions included frequency of eating sweats like candy, chocolate etc. Inquiry was also made regarding income of family and education of mother etc.

EXAMINATION OF DENTAL CARIES

Examination was carried by qualified dentists. Materials used to ascertain dental caries were mouth mirror, explorer no 17 and 23 and straight probe.

Total no of patients were evaluated for the presence of dental caries.

Tooth was considered to be caries when a cavity was seen as

1. Pit and fissure caries
2. Smooth surface caries
3. Proximal caries
4. Tooth grossly decayed

Pit and fissure caries was determined if catch Point was found on the occlusal surface of the posterior on running the explorer no 23 or the straight probe.

Similarly smooth surface caries was determined by catch points on the smooth surface of tooth.

For proximal caries detection explorer no 17 was used to check for catch points in the inter proximal areas.

At the end of survey in every school, a lecture was delivered using dental models to student about oral hygiene, caries, healthy snacking, tooth brushing and dental visit.

RESULT

Prevalence of dental caries in this study was found to be 53.75%

Table – 1 Number of children in different age group

Age group	Number	(%)
6+	64	16
7+	65	16.25
8+	64	16
9+	67	16.75
10+	70	17.5
11+	70	17.5
6 – 12	400	100

All the age group from 6 years to 12 years was almost equally represented in the study population.

Table – 2 Age and sex wise distribution of dental caries

Age	Boys 200		Girls 200		Total 400	
	No.	(%)	No.	(%)		
6+	12	(6)	13	(6.5)	25	(6.25)
7+	14	(7)	15	(7.5)	29	(7.25)
8+	17	(8.5)	18	(9)	35	(8.75)
9+	20	(10)	19	(9.5)	39	(9.75)
10+	21	(10.5)	21	(10.5)	42	(10.5)
11+	23	(11.5)	22	(11)	45	(11.25)
6 – 12	107	(53.5)	108	(54)	215	(53.75)

x^2 = 12.25, df = 5 ; P =0.029 insignificant

Table two shows a high prevalence of caries in school children. Table shows an increase in prevalence of caries with the age that is 6. 25% at the age of 6 years age group and 11.25 % in 11 year age group. However difference was not found statistically significant.

Table – 3 Distribution of dental caries according to mode of tooth cleaning

Mode of tooth cleaning	n = 400		Children affected	
	No.	(%)	No.	(%)
Brush and paste	65	(16.25)	31	(7.75)
Using Datun(Sticks)	49	(12.25)	30	(7.5)
Manjan with fingers	110	(27.5)	64	(16)
Non	176	(44)	90	(22.5)
	400	(100)	215	(53.75)

x^2 = 3.41, df = 3 ; P = 0.33 insignificant

Prevalence of caries was found lowest in the children using brush and paste 7.75% while it was found highest among the children who did not clean their teeth 22.5%. However the difference was not found statistically significant.

Table – 4 Distribution of children according to oral hygiene and caries at the time of interview

Hygienic condition	n = 400 children found		N + 215 Children with caries	
	No.	(%)	No.	(%)
Good	103	(25.75)	34	(15.81)
Average	169	(42.25)	89	(41.4)
Poor	128	(32)	92	(42.79)
Total	400	(100)	215	(100)

x^2 = 34.82, df = 2 ; P < 0.0001 Highly significant

Dental caries was found significantly high among the children with the poor oral hygiene 42.79% than the children with good oral hygiene 15.81.

Table – 5 Prevalence of caries according to habit of eating chocolate and toffee

Age group	Daily		Occasionally	
	No.	Affected	No.	Affected
6 – 9 years	34	24(70.59)	159	55(34.59)
9 –12 years	49	38(77.55)	158	98(62.02)
6 –12 years	83	62(74.7)	317	153 (48.26)

x^2 = 42.87, df = 3 ; P < 0.0001 highly significant

Prevalence of caries was found high the children eating chocolate or toffee daily 74.7 than the children eating chocolate occasionally 48.26 and the difference was found to statistically highly significant.

Table – 6 Prevalence of carries according to maternal literacy status

Literacy status	N =400		Affected	
	No.	(%)	No.	(%)
Illiterate	336	(84)	188	(55.9)
Just literate	45	(11.25)	20	(44.44)
Primary school	11	(2.75)	4	(36.36)
Middle school	8	(2)	3	(37.5)
	400	(100)	215	53.75

x^2 = 4.41, df = 3 ; p 0.22 insignificant

Education of mother shows direct relation with prevalence of caries. Children of educated mother shows lower prevalence 37.5% while children of illiterate shows 55.9%. However the difference was not found statistically significant.

Table – 7 Prevalence of caries according to socio economic status

Income group	n = 400 N0.	(%)	Affected No.	(%)
LOW	365	(91.25)	193	(52.87)
Middle	23	(5.75)	15	(65.22)
Upper Middle	12	(3)	7	(58.33)
High	-		-	
	400	(100)	215	(53.75)

x^2= 1.43, df = 2 ; P = 0.49 insignificant

The prevalence of caries upper middle class was found to be slightly high 58.33 than the low socioeconomic group 52.8% but the difference was insignificant.

DISSCUSSION

Data from WHO shows wide variation in the prevalence of caries 40% to 80%. Developing countries are showing high prevalence of caries because of affluence and poor education status.

The prevalence of dental carries is found high 53.75 % in presented study; reasons could be illiteracy, poor living condition and lack of health facilities.

Lower prevalence reported by Singh G al [(6)] and pandit et al [(7)]. While it was reported higher 55.33 by Chatufale JD et al[(8)] and 68.5% by Retnakumari N [(9)] in Kerala and 65% by Bajaj et al [(10)].

Prevalence of dental caries was found significantly higher in children with bad oral hygiene 42.79% than only 15.81 in good oral hygiene similar finding were reported by Retnakumari N [(7)].

Children eating sweets daily shows higher prevalence 74.7% than the children eating occasionally 48.26% similar findings were reported by Retnakumari N [(7)] and Doifode VV et al [(11)].

Prevalence of caries was found having some relation with maternal literacy, it was found higher in children of illiterate mothers 55.9% while 36.6% in primary educated and 37.5% in middle school educated mothers although it was not found statistically significant. Similar findings were reported by Retna Kumari N [(9)]

CONCLUSION

Oral Hygiene which is the reflection of parental education, health education of children, availability of health service and income of the family seems to be main reasons of high prevalence of carries. This could affect the school children by increase in absence from school and scoring of good results

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