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Dental Cariesprevelance in 5-14 Years Students in Northwestern District of Rajasthan, India

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ABSTRACT: Introduction- Dental caries is one of the most commonly occurring chronic infections in children. It is caused by demineralisation of tooth substance by acid produced in the oral cavity by the bacterial interaction with carbohydrate. This decay may lead to improper nutrition to the children in their growing age. This in turn may hamper their overall growth. Objective of this study was to find out the prevalence of dental caries in mixed dentition age group children in Bikaner district and to motivate the students for maintenance of proper oral hygiene and to aware them of their dental treatment needs.

Methodology – 7 schools from different areas of Bikaner were selected for the oral examination of the children in the age group of 5 – 14 years. Schools were selected to include children from differnt backgrounds like socioeconomic, religious or rural background so that a true representation of all residents of the Bikaner can be involved in the study. Total 2304 students were examined in their schools. Decayed teeth were recorded in all the children and caries prevalence of 5-14 year mixed dentition age group children was recorded and compared with other cities of Rajasthan state, country and world.

Results - 2034 students from 7 schools were examined, out of which 1193 (58.65%) were male and 841 (41.34%) were female. 213(17.85%) male students were observed with decayed deciduous teeth whereas 56 (4.69%) male had decayed permanent teeth.140(16.64%) and 45(5.34%) female students had deciduous and permanent decayed teeth respectively.

Conclusion - More than 95 % of the children and their parents are not aware of the importance of deciduous dentition. Oral hygiene measures are very poorly understood by the children and it is required from the authority to take concrete steps to improve the oral health status of the children

KEY WORDS - Caries, prevalence, decayed, deciduous, permanent

I. INTRODUCTION

Dental caries is said to be one of the most commonly occurring chronic infection in children. It persists as a challenge to the medical and dental profession particularly. Etiology of the Dental caries is multi-factorial in nature. Bacteria present in the oral cavity metabolise the carbohydrate, present in the food adhered on the tooth surfaces, producing acid which get diffused in the dental hard tissues and demineralise these tissue1. This demineralisation leads to caries and this process of demineralisation and tooth decay may further be accelerated by the improper oral hygiene measures.

First global oral health goal was established by WHO and FDI was 'The children reaching the age of 12 years in 2000 will not possess an average of more than three decayed, missing and filled permanent teeth2. But this goal was just a remote aspiration for financially weaker countries may be because it is an expensive treatment[3-5].

FDI in association with WHO and International Association for Dental Research issued "Global Goals for Oral Health 2020[4]. A scale was given to measure the caries severity based on DMFT (decayed, missing and filled teeth) According to this scale

DMFT value from 0.0 to 1.1 very low caries activity

DMFT value from 1.2 to 2.6 low caries activity

DMFT value from 2.7 to 4.4 moderate caries activity

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DMFT value from 4.5 to 6.5 high caries activity

Objective-To measure dental caries prevalence among 5 to 14years age group,children with mixed dentition, in Bikaner district, Rajasthan, India.

To compare the findings with the studies from other parts of the State, country and the world.

II. METHODOLOGY

Dental examinations were done from February 2019 to April 2019 in different schools of Bikaner district, a dessert area situated in north western part of Rajasthan, India. Total 2034 students were examined in 7 schools in this study. Schools were selected in such a way that this study could get a true data from all the parts of the society in our district. One schools was from the higher socioeconomic area, One was from the average socioeconomic area, one Madarsa was chosen, which is solely meant for Muslim students (other schools have mixed students of all the religions including Hindu Muslims Sikh Christians etc). Other school was chosen from the out skirts of Bikaner district, and a small residential school of hearing impaired male students was also included in our study and remaining two schools from the poor socioeconomic area.

All the children were examined using mouth mirror, standardized dental probe, gloves, mask, and consistent light source, in their school chair. Final diagnosis of caries was made by only visual and tactile criteria, no radiographic examination was done. A tooth was recorded carious if a cavity is present, and if a filling was there than also it was recorded as carious. All the teeth present in the oral cavity were examined whether deciduous or permanent for caries.

Caries teeth were identified and a diagnosis of caries was made only when there was clear evidence of loss of tooth substance. White or brown spot in the enamel, which on removal show clear intact glossy surface, were not considered as carious. Caries were recorded as present when lesion on a smooth tooth surface had a detectable softened tooth substance or undermined enamel. Sticky and discolour fissures were accepted as carious only if there are clear evidence of cavitation beginning below the fissure. On proximal surface caries were recorded when the explorer had entered a lesion.

We have recorded only the Decayed teeth, no filled or missing component were recorded in our study, because in our previous surveys done in different schools, we have observed that in primary school students,` D' component is Predominant , where as` F' and `M' component were found to be negligible.

III. RESULTS

2034 students from 7 schools were examined, out of which 1193 (58.65%) were male and 841 (41.34%) were female (Table 1).In this study we observed that 5.69% (68) male students had single deciduous tooth caries, 4.52% (54) had two carious teeth and 7.62% (91) had more than 3 carious deciduous teeth. In Permanent teeth 4.31% (29) students showed caries in single teeth, 1.17% (14) with 2 teeth caries and 1% (13) students had multiple carious teeth. (Table 2)

Female had 5.46% (46) single caries tooth, 5.35% (45) of 2 carious teeth and 5.85% (49) of multiple carious teeth. In permanent teeth these figures are 2.02% (17), 2.14% (18) and 1.18% (10) for single, two and multiple carious teeth respectively.(Table- 2)

213(17.85%) male students were observed with decayed deciduous teeth whereas 56 (4.69%) male had decayed permanent teeth. 140(16.64%) and 45(5.34%) female students had deciduous and permanent decayed teeth respectively.(TABLE -3)

Table – 1 (Gender distribution of examined students)

Sr. No.	Total students	Male	Female
1	2034	1193(58.65%)	841(41.34%)

	School no	Total no. Of examined students	Sex	students with Single decayed tooth		students with Two decayed teeth		Student with 3=< decayed teeth	
				Deciduous	Permanent	Deciduous	Permanent	Deciduous	Permanent

	1	560	Male n=332 (59.28)	20 (6.02%	7(2.10)	18(5.42)	1(.30)	25(7.53)	2(.06)
			Female n=228(40.71)	13 (5.70	7(3.07)	19(8.33)	8(3.50)	20(8.77)	3(1.31)
	2	918	Male n=529(57.62)	13 (2,45)	10 (1.89)	18 (3.40)	8(1.51)	33 (6.23)	7(1.32)
			Female n=38 942.37)	10 (2.57)	7(1.79)	6 (4.88)	9 (2.31)	12 (3.08)	7(1.79)
	3	138	Male n=81 (58.69)	8(9.87)	3 (3.70)	7(8.04)	2 (2.46)	8(9.8)	0
			Female n=57 (41.30)	6 (10.520	0	5(8.77)	0	5(8.77)	0
	4	202	Male n=116(57.42)	7 (6.03)	1(.86)	6(5.17)	1(.86)	17 (14.65)	0
			Female n=86 (42.57)	5(5.81)	0	6(6.97)	0	3(3.48)	0
	5	136	Male n=71 (52.20)	10(14.08)	3(4.22)	4(5.63)	0	17(7..04)	1(1.40)
			Female n=65 (47.79)	8(12.30)	3(4.67)	8(12.30)	1(1.53)	4(6.15)	
	6	43	Male n=27 (62.79)	2(7.40)	1(3.70)	0	1(3.70)	1(3.70)	0
			Fmale n=16	3(18.75)	0	1(6.25)	0	1(6.25)	0

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			(37.20)						
	7	37	Male n=37	4(10.81)	0	1(2.70)	1(2.70)	2(5.40)	2(5.40)
			Female=0	-	-	-	-	-	-
	8	2034	Male n=1193(58.65)	68(5.69)	29(4.31)	54(4.52)	14(1.17)	91(7.62)	13(1.08)
			Female n=841(41.34)	46(5.46%)	17(2.02)	45(5.35)	18(2.14)	49(5.82%)	10(1.18)

Table – 2 (Schools showing decayed deciduous and permanent teeth)

Sr no.	Gender	No of students examined	No of decayed Deciduous teeth	No of decayed Permanent teeth
1.	Male	1193	213(17.85%)	56 (4.69%)
2.	Female	841	140(16.64%)	45(5.34%)

TABLE -3 Gender wise Caries Prevalence

IV. DISCUSSION

Carlos J P et al. In his study concluded that Reasons for the poor oral hygiene and caries status aremultifactorial. They could be because deciduous dentition's importance is always weighed less by the general population, children busy with study and other extracurricular activities and don't get time to meet dentist, student don't know that they are having any dental diseases, lack of awareness even among educated class, under estimation of preventive measure and one important cause is limitation to the access to the dentist[6].

Study conducted byRuiHouet al[7] in chinareveals that only 2% of teeth were filled, in the economically strong country likechina, this number is very low. In our study, we observe that students rarely visited the dentist for caries treatment that too for the main purpose of pain relieving, when it couldn't be treated by over the counter available pain killers, which clearly indicates the reason of using the decayed teeth only and not the dmft or dft in our study. And also it makes it clear that importance of deciduous dentition is yet to be properly understood by the parents or the caretakers.

Carlos J P et al[6]in their study observed that susceptibility to caries is low during first post eruptive year, and then in next 2-3years it increases to its maximum. According to Antuneset al[8] Female's teeth are exposed to the longer period of time to the risk of decay. FDI[9] also reports that higher prevalence of caries in female is attributed to the earlier eruption of permanent teeth which make the teeth stay longer in oral cavity as compared to male. In our study we observed the similiarresults, females did show higher caries prevalence in our study.

In china[7] DMFT was higher in urban students; poor attitude to poor oral hygiene was attributed to low socioeconomic status and low education level of the parents. Similar results were found by Christenson L B et al[10.] Dengzhu et al[11] observed in their study that 99% children do not brush at night and 99.5% are doing it improperly, this was found to be same in our study also.

Munjal et al[12] in their study at Ludhiana concluded that higher caries prevalence rate was attributed to, lack of awareness, motivation, illetracy, ignorance, poor oral hygiene, improper technique of brushing, inadequate exposure to Flouride, improper dietary habits like snacking between meals, cariogenic diet, longer outdoor stay etc.

According to Ueno Met al[13] Early age oral health awareness is necessary for overall health literacy and to avoid health Inequality. Hugoel P P et al[14]It has been a well established fact that information regarding a subjects caries pattern may provide insight on the etiology of the diseases So further concrete steps are to be taken by the authorities to fulfil the goal of no carious teeth in children.

WHO[15]also suggests clinical oral health survey should be conducted regularly every 5-6 years in the same community or setting, this could be possible only if proper funding or sponsorships

will be available to conduct these survey periodically.

V. CONCLUSION

To improve the oral health status in children, Awareness of various dental disease and their consequencesusing Audio visual aids like news paper and magazine publications, pamphlets, radio and television advertisements, public notices, etc should be done. To strengthen the prevention of dental diseases, health care workers can be a big help, so they should be regularly educated and trained about oral health and hygiene. Government and local NGO should come forward to improve the oral health status which will ultimately improve the overall health of our future generations.

REFERENCE:

[1]. Featherstone J D, Dental caries a dynamic disease process. Aust. Dental J. 53, 286-91.
[2]. Aggeryd T,1983 Goals for oral health in the year 2000; cooperation between WHO, FDI and national associations, Int. Dent. J 3, 55-59.
[3]. Mh Al Darwish, Wahid El Ansari, AbdulbariBener, Prevalence of dental caries among 12-14 years old children in Qatar, The Saudi dental journal(2015)2, 115-125.
[4]. Hobdel H, Peterson P.E, Clarkson J., Johnson N, 2003, Global goals for oral health2020. Int. Dent. J. 53, 285-288.
[5]. WHO, 2000, Global data on Dental Caries Prevalence (DMFT) in children aged 12 years. Geneva May 2000, WHO/ NMH/ MNC/ORH/ Caries 12y .003.
[6]. Carlos J P, C Helsohn A M, Longitudinal history of caries ii a life time study of caries incidence in the permanent teeth. Arch Biol. 195;10: 739-59
[7]. RuiHou, Young Mi, Quanhong XU, Fang Wu, Yuanyuan Ma, PengXue, Gao XIAO, Yan Zhang Yinhua Wei , Wenbing Yang; oral health survey and Oral health questionnaire for high school in Tibet, China, head andface medicine2014, 10;17
[8]. Antunes J L, Iunqueira SR, Frozoa P, Bisup CM, Pegoretti T, Narvai P C, city level gender differentiation in pprevelence of caries and restorative dental treatment. Health Place. 2003; 9:231-39
[9]. FDI technical report no. 31. Review of methods of identification of high caries risk group and individuals . Ind Dent J 1988; 38: 177-89
[10]. Christenson L B, PetersonPE,Hede B. Oral health in children in Denmark under different public dental health care schemes. Community Dent H ealth2010, 27(2)94-101
[11]. Dengzhu C, Wang Y; Investigation and analysis on oral hygiene status and caries prevalence rate among 200 Tibetan pupils in Lhasa Tibetan J Med2008, 29(2)6-7.
[12]. Munjal et al) VaibhavMunjal, Abhisheikh Gupta, PuneetKaur, RipinGarewal; Dental caries prevelenceand treatment needs in 12 and 15 year old school children in Ludhiana city Indian J of Oral Sciences, vol 4, issue 1, jan-april 27-30
[13]. Ueno M, Ohsara S, Inoue M, Tsugane S, Kawaguchi Y; Association between education level and dentition status in Japnees education adults: Japan pblic health centre- based oral healt study. Community Dent OraEpidemiol 2012, 40(6)481- 487.
[14]. Hugoel PP Lamont R J ,De Rouen T A, Davis S, Leroux B , wihin subject coronal caries distribution pattern; An evaluation of randomness with respect to medline. J Dent Res 1994; 73: 1575-79.