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Evaluation of DMFT in school going children of mixed dentition stage: An original research

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***Abstract*---**Aim: The purpose of the present research was to assess the DMFT index in school going children having mixed dentition. Methodology: Total n=937 school-going children from age 6 to 15 were screened. All the subjects have been randomly selected through school visits. A team of dental surgeons performed intraoral examination in participants with particular focus on the DMFT Index, showing the number of teeth that have undergone decay, extractions or restorations as a result of dental caries. Their oral hygiene has been

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observed, and treatment needs have been recorded, if any. Results: It has been found that out of total n=937 subjects who have been included in the present study and screened for their DMFT status n=656 subjects were males, 65%, while n=281 were females (35%). Age range was from 6 years to 15 years with mean age ranging from 10.53± 2.844. These subjects have been randomly selected through school visits. Mean Decayed, missing filled teeth index (DMFT) calculated was 0.51±0.902 which indicates low to moderate caries prevalence. Conclusion: The prevalence of dental caries was found to be ranging between low to moderate among mixed dentition stage children, and the trend was even more common among the age group 9 to 11 years.

***Keywords*---**caries, mixed dentition, DMFT, school going children.

Introduction

In children, primary teeth play a vital role in eating, phonetics, esthetics and also as a space maintainer for permanent teeth.[1] Oral health is an integral part of general health.[2] Dental caries, because of its ubiquitous nature, remains one of the most prevalent afflictions of mankind.[3] The early childhood caries is a combination of a child being infected with cariogenic bacteria, and the frequent ingestion of sugar is one of such diseases.[4] Often problems in permanent teeth in the form of pain and swelling can cause distress to the child, leading to the inability to chew or speak properly or even may affect the appearance of a child.[1] This disease not only causes damage to the tooth but is also responsible for several morbid conditions of the oral cavity and other systems of the body.[5] The prevalence pattern of dental caries not only varies with age, sex, socio-economic status, race, geographical location, food habits, and oral hygiene practices but also within the oral cavity.[6] Oral hygiene may be poor not only because of the carefree age and the emotional stresses of the child but also due to frequent intake of refined sugars, soft and sticky foods, shedding of deciduous teeth and the eruption of the permanent teeth.[7] It is crucial to control the carious process by assessing and rendering the treatment required, along with spreading awareness about the prevention of dental caries. Many studies have been conducted worldwide which reveal the prevalence of dental caries among different populations.[8-12] Several studies have claimed that all children are not at equal risk at developing dental caries.[13-17] Healthy mouth enables an individual to eat, speak and socialize without active disease or discomfort and contribute to the general well-being. It is concerned with maintaining the health of craniofacial complex, teeth, and gums as well as the tissues of the face and head that surrounds the mouth.[18] Voluminous dental literature exists about dental caries levels in the Indian population. The overall impression is that dental caries has increased in prevalence and severity over the last couple of decades.[19] Preventive approaches seems to be a viable alternative to tackle the seemingly overwhelming problem of dental caries. However, data necessary to plan such a preventive measure is found lacking. During mixed dentition period oral hygiene is poor because of care free age, emotional stresses of the child, frequent intake of refined sugars, soft and sticky foods, shedding of deciduous and eruption of permanent

teeth. But this period is considered as the critical stage from the point of view of development of normal occlusion, preservation of permanent first molar from hazards of dental caries is one of the most important responsibilities of the profession.[20] In developing countries, the main reason for increase in dental caries is due to flaws in health care system with main focus on curative care rather than being on preventive side and failure to practical implement oral health promotion and preventive projects at grass root level. There are multiple causes that can lead to dental caries, and its prevalence among population is influenced by number of risk factors such as dietary patterns, age, sex, tooth brushing technique, and ethnic group. The role of diet has a strong association in relation to development and prevalence of dental caries, and dental caries activity is markedly influence by nature of sugar and frequency of intake. Each year, more than 49 million hours are wasted of school students around the world, because of oral issues [21], so it is essential to emphasize a regular checkup to a dentist.

Aim of the present study

The purpose of the present research was to assess the DMFT index in school going children having mixed dentition.

Methodology

The study was carried out on a total number of 937 school-going children from 6 to 15 years with mean age (9.6±3.592). The study was approved by Ethics Committee. Prior permissions and consents were obtained from school authorities, parents, and teachers. The examination of children was done on a simple wooden chair using plane mouth mirrors, tongue depressors, and community periodontal index probe. The examination was done under natural daylight and torchlight using WHO criteria for recording the DMFT Index. The children were examined for the presence of decay, missing, and filled teeth (dmft) index was used to record the dentition status. The parents were informed about the dental treatment requirements of their children by sending a copy of the individual's examination form to home. The WHO deft/DMFT index calculation criteria were categorized as very low in the value of 0.0-1.1; low in the value of 1.2-2.6; moderate in the value of 2.7-4.4; high in the value of 4.5– 6.5; and very high in the value above 6.6. The age group selected for this study was those having mixed dentition without any gender specification.

Results

Data was entered on an Excel spreadsheet and was cleaned, coded, and uploaded to SPSS 22.0 for analysis. As a result of the screening process, it has been found that n=297 (26.03%) of the school-going children had carious maxillary teeth while n=358 (31.37%) had carious decay in their mandibular teeth mostly first permanent molars. The most prevalent type of carious decay found was pit and fissure caries. Previous tooth extractions have also been recorded, and it was found that n=31 (2.72%) had upper teeth missing due to extractions while n=17 (1.49%) had undergone tooth extractions in their lower arch. n=11 (0.96%) restored teeth have been found in the maxilla while n=16 (1.40%) tooth restorations have been found in the mandibular teeth. (Table 1) The oral hygiene

status revealed that n=565 (49.60%) of the individuals with good oral hygiene, while n=217 (19.02%) had moderate and n=355 (31.11%) had poor oral hygiene. (Table 2) About n=483 (42.33%) required some corrective treatment while n=657 (57.58%) had sound dentition in all respects and did not require any further treatment. A total of 937 children were surveyed for DMFT prevalence by using WHO screening forms for dental caries. 627 male and 337 females were included in the study and were selected randomly. Total DMFT recorded is 0.51±0.902, which indicates low to moderate Caries prevalence in overall sample.

Discussion

Caries prevalence varies from country to country and from region to region in same country. Geographic variables like race, climate, diet, culture and economic factors also affect the caries prevalence. An early first dental visit may ensure that the dentist can perform preventative measures such as the application of fluoride and fissure sealants, provide oral hygiene instructions and motivate the parents and their children regarding proper oral hygiene maintenance and dietary control as well as the importance of regular visits to the dentist.[22] Parents play an important role in preventing dental caries, and they should take care of their children to minimize caries manifestation. According to Canadian study parents who believed permanent teeth were important had children with significantly lower caries rates than those who believed otherwise.[23] Therefore parental knowledge appears to have a direct effect on the oral health of the child. Experience of oral caries was ranging from moderate to high in different age groups of school children reporting 30 % of having poor oral hygiene, and the mean prevalence of decayed teeth was 0.432 ±0.902. A study conducted in Nepal among 9–11 years old schoolchildren had reported that 45% of children suffered from tooth problems with 31% of having poor oral hygiene and dental caries problem.[24] Another study results revealed that only 56% of school children brushed their teeth daily. In this current study, 53.5% n=501 reported brushing daily and n=436 (46.5%) of not brushing at all. Brushing twice daily with fluoridated toothpaste is a recommended practice for excellent Oral health.[25] The frequency of consuming sugar-rich foods was very high in this study. About n=658 (70.2%) reported consuming sugary rich foods on a daily basis. Only 279 (29.8) reported not consuming sugary diets during school daily routine, and carbonated drinks consumption was 384 (41%). Intersectoral collaboration for educating children with education and government sectors and public policy departments will have profound effect on the improvement of oral health on community level, and school provides ideal setting for educating and improving oral hygiene of at an early age. Only education can never be the sole component for improving the behaviour of children but practice and vigilance of the parents will make it possible to change the behaviour and developing lifelong skills of children in improving oral health.

Conclusion

The prevalence of dental caries was found low to moderate among mixed dentition stage, and the trend was even more common among the age group 9 to 11 years. Strict preventive programs should be implemented with inter-sectoral collaboration.

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Tables

	N	Minimum	Maximum	Mean	Std. Deviation
Decayed	937	.00	6.00	.4123	.89001
Missing	937	.00	4.00	.0491	.32357
Filled	937	.00	3.00	.0342	.27103
Total DMFT	937	.00	6.00	0.5	1.015

Table 1- Descriptive Statistics for mean DMFT

	Frequency	Percentage
Good	461	49.2
Moderate	187	20.0
Poor	289	30.8
Total	937	100.0

Table 2-Oral hygiene status of patients