

Prevalence of Dental Caries and Oral Hygiene Practice in School Children of Bhaktapur, Nepal

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Abstract: The aim of this study was to assess the prevalence of dental caries and oral health practice of school children of 5-15 years of Bhaktapur, Nepal. Methods: Three hundred and forty school children were examined for decayed, missing and filled teeth. Decayed, Missing and Filled Teeth (DMFT) in permanent teeth and decayed and filled teeth (dft) in primary teeth were calculated. Then the DMFT index and dft index were calculated. Results: In total study population, the mean DMFT index was 0.28 ± 0.37 whereas mean dft index was 1.21 ± 2.28 . It was observed that dft index was higher in males compared to females but there was no significant difference was found. For the DMFT index, it was significantly higher in females compared to males ($p < 0.01$). Conclusion: High prevalence of dental caries was found among the children of age group 4-15 years. The dft index was higher in male whereas DMFT index was higher in female.

Key words: Dental caries • Nepal • School children • Oral hygiene

INTRODUCTION

Dental caries is a highly prevalent oral disease in the world and it is an important public health problem. Dental caries is still a major oral health problem in most industrialized countries, affecting 60-90% of schoolchildren and the vast majority of adults. It is also a most prevalent oral disease in several Asian and Latin American countries [1]. It varies according to location, gender and age groups. Children are the ones who are most commonly afflicted by the disease. DMFT (Decayed, Missing and Filled Teeth) and dft (decayed, filled teeth) indices have been widely used to assess dental caries in permanent and primary teeth respectively. DMFT/dft gives out average or mean caries prevalence in any population [2].

During last years, as a result of prevention programs like fluoridation, improved oral hygiene practice, use of fluoridated tooth paste, school oral health services, accessibility to oral health care services and affordability, the oral health status including dental caries among the people has remarkably improved in most developed countries [3,4]. The incidence of untreated dental caries in

Nepal is increasing. The WHO Pathfinder survey conducted in 1994 showed that 36% of the 12 year old children in Nepal were affected by dental caries and a mean 12 year old DMFT is 0.9 [5]. Education is one of the determinants of the health and an important aspect of health promotion. In studies of social class and health behavior it was found that high scores of dental knowledge and attitudes to teeth and oral health care is more frequent in people with high education attainment [6].

In context of Nepal, the dental caries is one of the most prevalent diseases causing pain and discomfort. In addition, dental caries is more prevalent in children. The aim of this study was to estimate the caries status as well as assess the knowledge and care practices among the school children of age group 4-15 years old in Bhaktapur, Nepal.

MATERIALS AND METHODS

The study was a descriptive and cross sectional study conducted in Pranodhaya School, Bhaktapur district, Nepal. This study was done on the children of

age between 4 to 15 years old. A total 340 students (150 were male and 190 female) from different ethnicity and socioeconomic status were examined. The research team consisted of 3 dentists and 4 dental assistants. One dentist and one dental assistant visited the district and the school in advance and the information sheet was sent along with the consent form to the parents of the students through school teachers. In addition, the district education office was approached and formal permission was received to carry out the study.

In coordination with the school, the rooms of the school were used for dental examination. Three dentists were calibrated to conduct the oral examination. Then, on the day of the study, 3 dentists interviewed the students regarding oral hygiene related behaviors followed by assessing of the oral health condition of the children with a standard survey instrument. The data were recorded on individual examination chart in December 2015.

The number of carious, missing and filled teeth was recorded on examination forms as per WHO guidelines. The missing component for primary dentition was not recorded because of the difficulty in distinguishing between teeth extracted for caries and exfoliation [7]. For primary dentition, dft (decayed filled teeth index) and for permanent dentition DMFT (Decayed Missing Filled Teeth index) were used as the standard tool to record dental status of the children.

After examination, each child was taught of correct brushing techniques and provided with a toothbrush and fluoridated toothpaste. The children who required urgent treatment were given a referral slip to visit a nearby hospital for the needful treatment. A mass education session with practical demonstration on oral hygiene practices was also organized following the completion of the interview and oral examination. Data were entered in Microsoft excel and then transferred to SPSS 18.0. Descriptive analysis was done and dft and DMFT index were also compared between male and female school children using one sample t-test at 95% confidence interval (CI).

RESULTS

The background characteristic of the school children is shown in Table 1.

The results of mean dft and DMFT index in primary and permanent dentition in total students is shown in Table 2. In primary dentition, the mean dft was 1.21 ± 2.28 and in the permanent dentition, the mean DMFT was 0.28 ± 0.37 .

Table 3 shows the comparison of dft and DMFT index between male and female. It showed that the dft index was higher in male whereas, the DMFT index was higher in female.

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The results of the oral hygiene habits of the school children are shown in Table 4. The oral hygiene habit was found to be satisfactory. Some students had bad oral habits; never brushing, using finger for brushing and using non fluoridated tooth paste.

Table 1: Background characteristics of the school children

Characteristics	Number
Total students	340(100%)
• Male	150 (44.11%)
• Female	190 (55.88%)
Age groups:	
• 4 to 9 years	200 (58.82%)
• 10 to 15 years	140 (41.17%)

Table 2: Mean dft and DMFT index in primary and permanent dentition in total students

SN	Index	Mean \pm SD
1	dft index	1.21 ± 2.28
2	DMFT index	0.28 ± 0.37

Table 3: Comparison of dft and DMFT index between male and female

Index	Male (Mean \pm SD)	Female (Mean \pm SD)	t-value	p value	95% CI
dft index	1.54 ± 2.43	0.88 ± 2.14	3.77	0.99	0.32 to 1.01
DMFT index	0.22 ± 0.28	0.34 ± 0.47	-3.13	<0.001*	-0.19 to -0.04

*significant ($p < 0.05$)

Table 4: Results of oral hygiene habits of the school children

Characteristics	Male (n=150)	Female (n=190)	Total (N=340)
1. Brushing habit			
• Twice a day	28 (18.66%)	34(17.89%)	62 (18.23%)
• Once a day	55 (36.66%)	78 (41.05%)	133 (39.11%)
• Occasionally	56 (37.33%)	66 (34.73%)	122 (35.88%)
• Never	11 (7.33%)	12 (6.31%)	23 (6.76%)
2. Means of brushing			
• Toothbrush	137 (91.33%)	175 (92.10%)	312 (91.76%)
• Finger	13 (8.66%)	15 (7.89%)	28 (8.23%)
3. Use of toothpaste			
• Fluoridated	68 (45.33%)	93 (48.94%)	161 (47.35%)
• Non-fluoridated	67 (44.66%)	81 (42.63%)	148 (43.52%)
• Never	15 (10%)	16 (8.42%)	31 (9.11%)

DISCUSSION

This study gives a representation of oral health condition of school children of age groups 5-15 years. In addition, it also presents the oral health related behaviors. Dental caries prevalence and severity was investigated using dft and DMFT indices. The observed dft and DMFT values of the children were well within the national and WHO goals [8,9].

A recent study on oral health condition was done among 5-6 years and 12-13 years children in Nawalparasi district, Nepal [10]. Oral health of the children was poor, chiefly dental carries remained widespread. Among 5-6 years old children, a remarkable proportion of dental caries (64.4% and mean DMFT score 4.4 ± 3.0) was noted. This result was comparatively higher than the result from present study. Most of the students use tooth paste and tooth brush. So, we can predict they and their parents are aware of their children's oral health. Even a small scale dental camp can give a great benefit to common people.

It was observed that dft index was higher in males compared to females but there was no significant difference was found. For the DMFT index, it was significantly higher in females compared to males ($p < 0.01$). These results were similar to the study done by in Eastern part of Nepal [11].

Another study was done in prevalence of dental caries in Chepang communities (one of the most deprived ethnic communities) in Nepal [12]. The caries prevalence for 5-6 years old was above the goals recommended by WHO and Federation of Dentistry international of less than 50% caries free children. Caries prevalence in 5-6 years old was 52% and 12-13-year-olds was 41%.

The mean dmft, DMFT score of 5-6 years olds and 12 -13 years was 1.59, 0.31 and 0.52, 0.84 respectively.

Similar dental caries prevalence study was done in Iran [13]. 440 students from urban and rural areas were visited to indicate the DMFT index. DMFT values were determined 2.19 ± 0.26 and 2.69 ± 0.17 for urban and rural areas, respectively. In urban community, DMFT values reported 2.43 ± 0.21 and 1.95 ± 0.12 for male and female, respectively. Also for rural communities, DMFT values were calculated 2.79 ± 0.3 and 2.60 ± 0.18 for male and female, respectively. Results revealed the routine tooth brushing has the most significant effect on decreasing dental caries.

Poor oral health needs a substantial attention, as it leaves intense effect on general health as they are related to general health and conditions as well [14-17]. Negative impact on school attendance and performance is also one of the outputs of poor oral health [18]. A dental camp plays an important role in bringing awareness among the people regarding their oral health and in the prevention and interception of any oral disease in their early stage. Such programs help the children to understand the importance of oral health changing their knowledge, attitude and practice.

CONCLUSION

High prevalence of dental caries was found among the children of age group 4-15 years. The dft index was higher in male whereas DMFT index was higher in female. Schools are good platform for providing oral health promoting environment.

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