

ORIGINAL RESEARCH ARTICLE

PREVALENCE OF DENTAL CARIES AMONG PUBLIC SCHOOL CHILDREN
IN EASTERN NEPAL

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ABSTRACT

To assess the prevalence of dental caries among public school children of eastern Nepal using DMFT and dft index. Methods: Six hundred and sixty six school children were examined for decayed missing and filled teeth. Decayed, Missing and Filled Teeth (DMFT), decayed and filled teeth (dft) and prevalence were calculated. Results: The mean decayed and filled teeth were 1.82 whereas mean Decayed, Missing and Filled Teeth were 0.37. The prevalence of dental caries were 60.3% and 55.6% in the primary and permanent dentition respectively. Conclusion: The prevalence of dental caries was low in permanent dentition compared to primary dentition.

Key Words: Dental caries, Public school, Sunsari.

INTRODUCTION

Dental caries is the most common chronic infectious disease of oral hard tissues in developed as well as in developing countries. It varies from place to place as well as among gender and various 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. The World Health Organization (WHO) had set a target of achieving a below 3 DMFT for children aged 12 years by the year 2000.¹ Studies regarding dental caries in Nepal are mostly focused to the central region. Therefore, the purpose of the present study was to assess the prevalence of dental caries among public school children of Sunsari and Dhankutta using DMFT and dft indices.

MATERIALS AND METHODS

This cross-sectional study was conducted on a randomly selected sample of school children in the Dhankutta and Sunsari districts of eastern Nepal. Six public schools were selected under a school health program through a convenience sampling method. Written consent was obtained from the schools as well as the guardians of the children. Ethical clearance was obtained from the IERB (Institutional Ethics Review Board, BPKIHS Dharan). A total of 666 children, whose parent had consented, took part in the study. Oro-dental examinations were carried out using a plane mirror and ballpoint probe under adequate daylight. Radiographs were not taken. The number of carious, missing and filled teeth and surfaces were recorded on examination forms, as per WHO guidelines. Due to the difficulty in distinguishing between teeth extracted for caries and exfoliation, the missing

component for primary dentition was not recorded.² For primary dentition, dft/dfs (decayed filled teeth/surface index) and for permanent dentition DMFT/DMFS (Decayed Missing Filled Teeth/Surfaces index) were used as the standard tool to record dental status of the children. Data were entered into the computer and statistical analyses were carried out using SPSS 20. Descriptive statistics such as mean and standard deviation as well as independent sample t test were done. The level of significance was taken as $p < 0.05$.

RESULTS

A total of 666 children participated in the study with a male female ratio of 1:1. It was observed that 4.2% had primary dentition, 82.4% had mixed dentition and 13.4% had permanent dentition. Hence, 577 children were assessed for decay teeth (dt), filled teeth(ft), and dft whereas 638 were assessed for DT, (missing teeth) MT, FT, and DMFT.

The mean dft and dfs was 1.82 and 3.05 respectively. The prevalence of dental caries was 60.3% (Table 1). The mean dt, ft and dft among males were 1.80, 0.03 and 1.84 respectively. Similarly, the mean dt, ft and dft among females were 1.74, 0.02 and 1.80 respectively. There was no significant difference in the caries status among the males and females in the primary dentition (Table 3).

The mean DMFT was 0.37 and DMFS was 0.42. The prevalence of dental caries was 55.6% (Table 2). When the caries status was compared between genders, it was observed that females had higher DT and DS as well as higher DMFT/DMFS compared to males which was statistically significant (Table 4). None of the

children had missing permanent teeth.

Table 1: Mean decayed and filled teeth in primary dentition

	Mean and SD
dt	1.77 ± 2.52
ft	0.03 ± 0.21
dft	1.82 ± 2.57
ds	2.92 ± 4.98
fs	0.04 ± 0.28
dfs	3.05 ± 5.18
Prevalence of dental caries	60.3 %

Table 2: Mean decayed, missing and filled teeth in permanent dentition

	Mean and SD
DT	0.36± 0.85
MT	0
FT	0.01 ± 0.10
DMFT	0.37 ± 0.87
DS	0.40 ± 1.06
MS	0
FS	0.01 ± 0.10
DMFS	0.42 ± 1.08
Prevalence of dental caries	55.6 %

Table 3: Comparison of dt, ft, dft, ds, fs and dfs between male and female

	Male	Female	t value	p value	95 % CI
dt	1.80 ± 2.52	1.74 ± 2.52	0.261	0.794	-0.358 to 0.468
ft	0.03 ± 0.26	0.02 ± 0.14	0.818	0.414	-0.020 to 0.049
dft	1.84 ± 2.54	1.80 ± 2.59	0.163	0.870	-0.386 to 0.456
ds	2.91 ± 4.76	2.93 ± 5.20	-0.070	0.944	-0.846 to 0.787
fs	0.03 ± 0.26	0.04 ± 0.31	-0.118	0.906	-0.050 to 0.045
dfs	2.96 ± 4.82	3.15 ± 5.52	-0.439	0.661	-1.038 to 0.659

Table 4: Comparison of DT, MT, FT, DMFT, DS, MS, FS and DMFS between male and female

	Male	Female	t value	p value	95 % CI
DT	0.27 ± 0.76	0.45 ± 0.93	-2.771	0.006*	-0.319 to -0.054
MT	0.00	0.00 ± 0.05	-1.016	0.310	-0.009 to 0.003
FT	0.01 ± 0.78	0.01 ± 0.12	-0.408	0.683	-0.020 to 0.013
DMFT	0.27 ± 0.78	0.46 ± 0.95	-2.753	0.006*	-0.326 to -0.055
DS	0.32 ± 0.96	0.51 ± 1.15	-2.321	0.021*	-0.360 to -0.030
MS	0.00	00	-	-	-
FS	0.01 ± 0.07	0.01 ± 0.12	-0.408	0.683	-0.020 to 0.013
DMFS	0.32 ± 0.97	0.52 ± 1.17	-2.322	0.021*	-0.366 to -0.031

*significant ($p < 0.05$)

DISCUSSION

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 national³ and WHO goals.⁴ The dft value was 1.84 which was less compared to the study by Salman FD.⁵ The DMFT value was 0.32 which was similar to the study by Baginska et al⁶ but was less compared to others.⁷⁻¹¹ It was observed that dt, ft and dft were more in males compared to females which was similar to other studies^{5,12} whereas ds and dfs were more in females compared to males. Females had higher DT and DS as well as higher DMFT/DMFS compared to males which was opposite to the study by Salman FD.⁵ The prevalence of dental caries in permanent dentition was 55.6% which was high compared to that reported by others^{13,14} but was lower compared to many studies.^{7-10,15,16} Similarly, the prevalence of dental caries was 60.3% in primary dentition which was similar to that of the study by Zmarandache et al.¹⁶ It was more compared to the study by Yee et al.³ but less compared to that by Saravanan et al.¹³

CONCLUSION

The study showed a low dft/DMFT and lower prevalence of dental caries which is encouraging but at the same time the burden of treatment was high as decayed component constituted the major portion of dft and DMFT with negligible proportion of filled component. Hence, focus should be on prevention through health education rather than on treatment which a developing country like Nepal cannot afford.

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