

Dental caries status and oral health practice among 12-15 year old children in Jorpati, Kathmandu

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ABSTRACT

Oral health is an essential component of health throughout life. There has been a decline in dental caries and periodontal disease in developed countries which can be attributed to the implementation of preventive programmes but in developing countries dental diseases are still on the rise. Therefore this cross sectional study was carried out to assess the prevalence of dental caries and oral hygiene practices among 12 to 15 years old children. Self administered close ended questionnaires were used to assess the oral hygiene practice. The overall dental caries prevalence was 58.3% and the mean DMFT score was 1.2 (± 1.79) and the deft score was 0.6 (± 1.24). Majority of the children (84.1%) presented with the practice of brushing their teeth once everyday using tooth brush and toothpaste. Regular dental check up was very poor (5.6%) but 77.4% reported that they visited a dentist in case of pain or presence of stains in the teeth. Females (63.4%) and children studying in higher secondary class (74.2%) showed a "good" level of oral hygiene practice than males and children in secondary class respectively. Children having "good" practice presented with "low" dental caries severity. The utilization of dental services was poor in the children, therefore highlighting the necessity to implement preventive programmes is important which would help in reducing the incidence of the dental caries as well as aiding in prompt treatment of dental caries at its initial stages.

Key words: dental caries, oral hygiene practice, toothbrushing

INTRODUCTION

Oral diseases such as dental caries, periodontal disease, tooth loss etc., are major public health problems worldwide and poor oral health has a profound effect on general health and quality of life.¹ Increased level of dental caries in children and adolescents have been observed in developing countries, in contrast to developed countries.² Regarding the etiology of dental caries the multifactorial relationship of plaque, sugar consumption, tooth susceptibility and time has been demonstrated in the previous studies.³ Nutritional transition with easy access to refined carbohydrates, low use of fluoridated toothpaste and irregular tooth brushing habits lead to increasing trend in dental caries in developing countries.^{4,5}

Although children have a basic knowledge of dental health, such as importance of proper brushing and diet in preventing dental caries, many fail to brush their teeth effectively and tend to consume cariogenic foods and may underestimate health risks.⁶ Hence the aim of this study was to assess the oral hygiene practice in the children of 12 to 15 years old and also to determine the prevalence of dental caries in this population which would help us in planning and implementing necessary preventive measures.

MATERIALS AND METHODS

This was a cross sectional study carried out in 252 school children of age group of 12-15 years old from January 2014 to February 2014. Four Schools were selected randomly in the locality and all healthy children of age group 12 to 15 were included in the study. The children of age group 12 is the index age recommended by WHO,⁷ and the mean age group in this study was 13.04(± 1.1). The date of birth of these children was obtained from school register. Consent was obtained from the school headmaster and the parents prior to the screening of the school children. Prevalence of dental caries was determined using decayed, missing, and filled permanent teeth (DMFT) index.⁷ All children were examined by a single trained examiner. The children were seated on the chair and examined in day light using mouth mirror and an explorer. Data on oral health practice was collected by means of 10 self-administered close ended questionnaires, which were distributed in the class room and filled by the children under the supervision of the class teacher to ensure that all questions were answered by the children. The questionnaire contained questions regarding the brushing frequency, use of tooth paste and toothbrush, consumption of the sugar containing food and practice of visiting a dentist.

Statistical analysis:

Data were entered using SPSS package 11.5 and descriptive data were obtained. The association of different variables with dental caries was analyzed using Pearson's chi square test.

RESULTS

This cross sectional study was done among 252 school children of age group of 12 to 15 years old, the mean age being 13.04(± 1.1). There were 118 males and 134 females who participated in the study.

Table 1: General characteristics of the children

Gender	N	%
Males	118	46.8
Females	134	53.2
Age	115	45.6
12	51	20.2
13	46	18.3
14	40	15.9
15		
Mean age=	13.04	
Secondary school	163	64.7
Higher Secondary school	89	35.3
Total	252	100

The prevalence of the dental caries was 58.3%. The mean DMFT(decayed, missing and filled teeth due to caries for permanent dentition) score was 1.2 (± 1.79) and for deft(decayed, indicated for extraction and filled teeth in primary dentition) was 0.6 (± 1.24), the D/d component was dominating in the DMFT and deft score. For analyzing the dental caries status, the severity of dental caries was taken into reference and categorized as <1.26="Low", 2.7- 4.3="Moderate" and > 4.4="High".⁸ In the studied population most of the children had "low" severity of dental caries (67.5%).

Table 2: Caries status of the children

	N	%	
Caries free	105	41.7	
At least one caries	147	58.3	
Gender	63	53.4	(p value= 0.1)*
Caries present (N=147)	84	62.7	
Males			
Females			
Age (N=147)	78	67.8	(p value= 0.008)*
12	27	52.9	
13	18	39.1	
14	24	60.0	
15			
Mean DMFT	1.2 (± 1.79)		
Mean deft	0.6 (± 1.24)		

*P value from pearson's chi square test

Among the studied sample the females presented with more caries (62.7%) than the males (53.4%), but this difference was not statistically significant ($p= 0.135$). Regarding the different age groups, children belonging to 12 years of age presented with maximum dental caries (67.8%). However, this difference was not statistically significant.

Regarding the oral hygiene practice of the children, it was observed that 84.1% of the children brushed their teeth everyday with toothbrush (89.7%) and toothpaste (97.6%) but only 36.9% had the habit of brushing twice a day. The proportion of population which consumed sweet snacks more than 3 times a day was 51.6% but only 43.3% had the habit of rinsing the mouth after taking sweet snacks. 74.6% of children had the habit of rinsing their mouth after every meal. 29.8 % of children uses toothpick as an inter dental aid. Regular visit to dental hospital was seen in only 5.6% among the studied population, but 77.4% reported that they visit dental hospital if only they have pain or stains in the teeth.

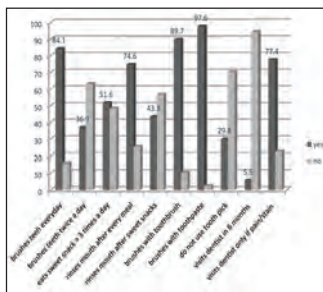


Fig: 1. Graph showing oral hygiene practice of the children

The scoring of practice was regrouped as "Poor" (0-5.9) and "Good" (6-10) taking the mean practice score (5.9) as the cutoff point. 72.5% of the children aged 15 years fell in the "Good" category whereas children of 12 years of age fell most into the "Poor" category. Regarding gender, it was seen that females (63.4%) showed better oral hygiene practice than males (59.3%). This difference was not statistically significant. Children in higher secondary level (74.2%) had better practice compared to that of children in secondary level (54.6%) and this difference was statistically significant ($p= 0.002$).

Table 3: Oral health practice

	good	poor	
Gender			
Males	59.30%	40.70%	(p=0.50)*
Females	63.40%	36.60%	
Education			
Secondary	54.60%	45.4%	(p=0.002)*
higher sec	74.20%	25.80%	

*P value from pearson's chi square test

The children who had a "good" practice (62.9%) presented with "low" severity of dental caries, but the difference was not statistically significant.

Table 4: Relation of oral hygiene practice and dental caries

Caries(N)	Practice		
	Poor	Good	
Low (170)	37.1%	62.9%	(p= 0.04)*
Moderate (68)	41.2%	58.8%	
High (14)	38.5%	61.5%	

*P value from pearson's chi square test

DISCUSSION

This study was conducted to evaluate the oral hygiene practice and dental caries status in 12–15 years old children with the mean age of 13.04(±1.1). The 2004 national oral pathfinder survey in Nepal has shown the dental caries prevalence of children aged 12-16 years to be 25.6%.⁹ But in our study it was seen that caries prevalence was 58.3% in the studied sample with the children having at least one dental caries. This is somewhat similar with the dental caries prevalence studies by Lonim et al and B Subedi et al which showed that 12-13 years old children of different population had 41% and 53.23% caries prevalence respectively.^{4,10} This increase in the caries status be could be attributed to the changing pattern of lifestyle, the diet habit and the ignorance shown by the people regarding periodic visit to the dentist.¹⁰ It was seen that the practice of visiting dentist for a regular check up was very poor (5.6%) in the studied population and most of them had a habit of going to the dentist only when they have pain or stains in the teeth (77.4%). The D/d component was dominating in the DMFT and deft score with cavitated, unrestored teeth but when the caries severity was categorized most of the children fell into the "low" category.

Among the studied population the children of age group 12 (67.8%) had the maximum number of dental caries. The decrease in the dental caries status in the older age might be because of the reduction in the number of primary teeth due to exfoliation.⁵ Regarding the gender, females (62.7%) showed a good oral hygiene practice compared to that of males (53.4) which was similar to the study done by Yee et al where female presented with better oral hygiene than

males which can be attributed to behavioural differences between two genders.³ Even though the oral hygiene practice was seen to be good in females they had more dental caries (63.4%) than the males. This was concurrent with another study done among the Nepalese population where dental caries was found to be more prevalent in females than males.¹⁰ This could be due to chances of interviewer bias² and the caries' multifactorial etiology.^{5,11}

In the studied population majority of the children used tooth brush(89.7%) and toothpaste (97.6%) to brush their teeth and had the habit of brushing the teeth everyday (84.1%) but only (36.9%) brushed their teeth twice a day. Prasai et al and Humagain have reported that the habit of brushing the teeth twice in a day was poor 24% and 40% respectively in different Nepali population.^{4,12} Rinsing mouth with water after meal is common practice in Nepal,⁴ similar practice was observed in the studied population with maximum children rinsing their mouth after every meal (74.6%).

Humagain have reported in his study that 100% of children had the knowledge that the sweets have an negative impact on the dental health,¹² even though it was seen in our study that there were 51.6% of children who were consuming sweet snacks more than 3 times in a day and there were 43.3% of children who reported that they do not have the habit of rinsing their mouth after taking sweet snacks.

When the practice score was re-categorized into "good" and "bad" it was seen that children studying in secondary higher class had a "good" level of practice which was statistically significant (p=0.002) and the children having good practice had "low" severity of caries. However it has been seen in previous literature that oral health practice cannot be understood simply based on the Knowledge attitude practice chain and other factors should be considered as well.¹³

In this study dental caries was found to be highly prevalent, even though the oral hygiene practice was found to be good in the studied population. It was seen that most of the children had untreated dental caries which was due to poor utilization of the available dental services in the community. Regular dental check up facilitates early diagnosis and treatment of the dental caries. Therefore, rehabilitative care targeted towards treatment of the existing problems of dental caries should be made available and more accessible to the children. Along with this, oral health education programs at individual, and community levels should be implemented aimed primarily at improving the knowledge and awareness of the communities towards the risk factors associated with oral problems in order to decrease overall incidence and prevalence of dental caries.

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