

# Relationship Between Dental Caries And Oral Hygiene Status Of 8 To 12 Year Old School Children

B Rai, R Jain, J Duhan, S Anand

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## Abstract

The 2304 children from 15 schools, selected through double blind random sampling were examined for dental caries and oral hygiene status. The mean DMFT was found to be 2.82, 2.87, 3.40, 3.15, mean DMFS 3.82, 3.87, 3.76, 4.26 in a 9 to 11 and 12 year olds respectively. Female recorded higher mean values of DMFT (3.27) than males (3.15). The overall prevalence of dental caries was found to be higher in 11 year old children compared to 12 year children. This study provides epidemiological data to impart knowledge school age group children to achieve good oral health.

## INTRODUCTION

Caries experience and occurrence of untreated lesions in permanent teeth has increase with age and oral hygiene status worsened as age advanced<sup>1</sup>. Females experienced more decay as compared to males and the oral hygiene status was poorer in males<sup>1</sup>. Dental caries and periodontal diseases are most commonly seen oral diseases showing striking geographic variations, socio-economic patterns and severity of distribution all over the world<sup>2,3,4,5,6</sup>. There is paucity of information regarding the frequency and prevalence of dental caries and oral hygiene status in many parts of India. A number of factors have been put forward to explain the variation in prevalence and severity of dental caries and periodontal diseases, not only between rural and urban populations. In general, these factors can be divided into local intraoral factors associated with plaque accumulation and metabolism and fluoride exposure<sup>3</sup>, or general factors such as age, sex and socio-cultural variables<sup>6,7</sup>.

Though many studies are conducted in different parts of the World, the review of literature indicates that there is a great deficiency in baseline data concerning the oral health of Indian school children. Hence an attempt has been made to determine the oral hygiene status and dental caries experience of 9, 10, 11 and 12 year old school children from Rohtak (Haryana).

## MATERIALS AND METHODS

The 2304 children of 9, 10, 11 and 12 years age (Males : Females, 1290 : 1014) were included in double blind,

randomized study during Preventive and Community Dentistry program by Dental College "various schools of Rohtak".

A proforma was prepared to collect the data regarding the oral health status oral hygiene status and general information and filling the performa provided by W.H.O. for programmes.

He oral hygiene status was assessed by using oral hygiene index simplified (OHI-S) decayed missing filled (DMF) caries index was used to assess the caries status. The children were examined in the classroom with sufficient natural day light or an ordinary chair. The data obtained was computed and mean values of DMFT, DMFS, OHI(S) and its components were estimated using relative deviate<sup>2</sup> and analysis of variance (ANOVA) i.e. (Software SPSS).

## RESULTS

DMFT and DMFS scores by age (Table-I) presents the mean and standard deviation of DMFT and DMIS and its components by age

**Figure 1**

Table 1: Mean±Standard Deviation Of DT, MT, FT DMFT And DS, MS, FS And DMFS By Age

Age (years)	No. of Cases	DT	MT	FT	DMFT	DS	MS	FS	DMFS
9	500	2.43± 1.41	0.09± 0.27	0.17± 0.49	2.82± 2.27	3.01± 2.91	0.31± 0.92	0.26± 0.56	3.82± 3.71
10	567	2.57± 2.41	0.10± 0.37	0.18± 0.43	2.87± 2.31	3.21± 3.11	0.35± 0.95	0.37± 1.36	3.87± 2.94
11	624	2.69± 1.49	0.07± 0.36	0.13± 0.56	3.40± 2.94	3.15± 3.17	0.43± 1.12	0.39± 1.12	3.76± 3.82
12	613	2.98± 2.47	0.39± 0.42	0.59± 0.92	3.15± 2.94	4.12± 1.19	0.59± 0.97	0.47± 0.97	4.26± 3.72
Significance p value		<0.02	<0.01	<0.03	<0.02	<0.01	<0.01	<0.01	<0.02

The mean DFMT was found to be 2.82, 2.87, 3.40, 3.15 in 9, 10, 11 and 12 year olds while the mean DMFS was found to be 3.82, 3.87, 3.76, 4.26 in 9, 10, 11 and 12 year old respectively. The results were statistically significant (p<0.005).

Table-II presents the mean and standard deviation of DMFT, DMFS and its components by sex. The mean DMFT for males was 3.15, while for females 3.27, which is statistically significant (p<0.01). Through higher DMFS was recorded in female than males i.e. 4.12, the result were not very significant.

**Figure 2**

Table 2: Mean±Standard Deviation Of DT, MT, FT DMFT And DS, MS, FS And DMFS By Sex

Sex	No. of Cases	DT	MT	FT	DMFT	DS	MS	FS	DMFS
Male	1290	2.67± 2.17	0.32± 0.42	0.21± 0.72	3.95± 2.67	3.12± 3.32	0.72± 1.94	0.34± 1.03	4.28± 4.32
Female	1014	3.12± 2.73	0.12± 0.28	0.32± 0.82	3.27± 2.65	3.71± 3.27	0.54± 0.92	0.32± 1.82	4.29± 4.28
Significance p value		NS	NS	NS	<0.001	<0.03	NS	NS	NS

Table-III presents the mean and standard deviation of OHI-S and its components by sex. The lowest mean, 1.32, was recorded in females and the highest mean, 1.48 was recorded in males, the results were statistically significant (p<0.02).

**Figure 3**

Table 3: Mean±Standard Deviation Of DI-S, CI-S And OHI-S Indices By Sex

Sex	No. of Cases	DI-S	CI-S	OHI-S
Male	1290	0.92±0.32	0.57±0.67	1.48±0.82
Female	1014	0.82±0.31	0.52±0.63	1.32±0.89
Significance p value		<0.01	NS	<0.01

Table-IV present the mean and standard deviations OHI-S

and its components by age. The mean OHI-S in 11 year olds (1.45), which is slightly higher than which recorded for 9, 10 and 12 year olds, however, this is not statistically significant.

**OHI-S INDICES BY AGE**

**Figure 4**

Table 4: Mean±Standard Deviation Of DI-S, CI-S And OHI-S Indices By Age

Age (in years)	No. of Cases	DI-S	CI-S	OHI-S
9	500	0.90±0.32	0.54±0.61	1.42±0.87
10	567	0.88±0.38	0.55±0.72	1.43±0.97
11	624	0.91±0.36	0.59±0.62	1.45±0.86
12	613	0.89±0.35	0.56±0.62	1.43±0.92
Significance p value		NS	NS	NS

**DISCUSSION**

Oral health is a part of general health and hence affects the total well being of individuals assessment of oral health in important in deciding a treatment plan or dental public health programme<sub>1</sub>. In the present study, an attempt is made to determine the oral hygiene status and dental caries experience of school children from Rohtak (Haryana).

Caries experience with age advancement might be due to more exposure of teeth to the oral environment<sub>3</sub>.

In the present study females exhibited a higher mean DMFT and DMFS than males studies done by Sogi G and Bhasker DJ<sub>1</sub>, Dummer<sub>11</sub>, Fronchen JE<sub>12</sub>, Havold DS<sub>13</sub> and Keroso E<sub>14</sub> also show similar findings.

In the present study, in the DMFT/DMFS index, the main components are the decayed (D) and filled (F). the mean missing component in males as compared to female and 12 year children as compared to other age groups but study (Sogi G et al) the mean missing component in 14 year olds were founds to be higher than that in 13 year old children<sub>1</sub>.

The major component was the increase in mean decayed teeth/surfaces in females than in males study by Sogi G et al<sub>1</sub>. The mean missing component was higher in males when compared to females. High caries experience seen in females could be because of the earlier eruption of teeth in females<sub>15</sub>.

However, a study conducted by Gift HC<sub>3</sub> has shown that female children visit dentist more frequently, so the treatment factor could be influcing the DMF data observed,

however, this was not seen in present study.

Amid LI<sub>16</sub>, Tewari A<sub>17</sub> and Yonemitsu M<sub>18</sub> in their studies have reported that oral hygiene index and its components has increased within age, but in the present study the man calculus index simplified (CI-S) were higher in 14 year olds, but mean values of debris index-simplified (DI-S), CI-S and OHI-S were not statistically significant as study by Sogi G et al<sub>1</sub>. The OHI-S and its components showed a higher mean value for males, where females showed reduced values, the probable reason for lower scores for less OHI-S and its components in females was perhaps the increased grooming habits of girls in this age group<sub>11</sub>.

An interpretation of result of 1986-87 survey of oral health in US children was that 50% were caries free. This study considered only deciduous teeth<sub>19</sub>.

## CONCLUSION

It is concluded from the present study that caries experience and occurrence of untreated lesions in paramount teeth with age and oral hygiene status worsened as age advanced. Females experienced more decay as compared to males and the oral hygiene status was poorer in males. Exploring these links between clinical conditions and their personal and social outcomes not only promotes a more complex appreciation of oral health, it also provides the opportunity to identify interventions to minimize the consequences of oral diseases by Dental Acting School Dental Health Programmes. Knowledge imparted through these programmes would go to long way in maintenance of oral health.

## CORRESPONDENCE TO

Dr. Balwant Rai S/o Sh. Ramsawroop Village – Bhangu  
Distt. Sirsa Post Office – Sahuwala I. E-mail :  
drbalwantraissct@rediffmail.com Mobile No. :  
091-9812185855

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**Author Information**

**Balwant Rai, B.D.S. Intern**

Government Dental College, Pt. Bhagwat Dayal Sharma, Post Graduate Institute of Medical Science

**Rajnish Jain, (M.D.S.) Endodontics**

Additional Prof., Mulana Azad Medical College

**Jigyasa Duhan, (M.D.S.) Endodontics**

Government Dental College, Pt. Bhagwat Dayal Sharma, Post Graduate Institute of Medical Science

**S. C. Anand, (M.D.S.) Oral & Maxillofacial Surgery and Orthodontics**

Professor (Brig.), Government Dental College, Pt. Bhagwat Dayal Sharma, Post Graduate Institute of Medical Science