Research Paper

JMS (ISSN 1682-4474) is an International, peer-reviewed scientific journal that publishes original article in experimental & clinical medicine and related disciplines such as molecular biology, biochemistry, genetics, biophysics, bio-and medical technology. JMS is issued four times per year on paper and in electronic format.

For further information about this article or if you need reprints, please contact:

Hojjat Zeraati
Department of Epidemiology and Biostatistics,
School of Public Health,
Tehran University of Medical Sciences,
Tehran, Iran

Tel: 98 21 8989126
Fax: 98 21 8989127

J. Med. Sci., 6 (1): 1-4
January-March, 2006

An Investigation on DMFT and DMFS of First Permanent Molars in 12 Year Old Blind Children in Residential Institutes for Blinds in Tehran, Iran

[1]H. Zeraati and [2]M. Ghandahari Motlagh

A descriptive study on 12 year old blind children, in residential Institutes for blinds in Tehran was carried out to determine Decayed, Missing and Filled Teeth index (DMFT) and Decayed, Missing and Filled Surfaces Index (DMFS), considering socio-economic and oral health variables. All sixty three 12 year old blind children in three institutes were studied. A general questionnaire, as well as a dental questionnaire including some information on the first molars, were completed by this population. The average DMFT of the first molars was 3.30±1.19 and the average DMFS was 6.22±3.95. DMFT was higher in the lower molar, comparing to the upper ones. However, DMFS was higher in the upper molars. The present study shows that the values of these indices, among blind children, are close to those of normal population, indicating that under controlled health condition and good education, acceptable values for DMFT and DMFS will be obtained.

Key words: DMFT, DMFS, caries, blind children

ANSInet
Asian Network for Scientific Information

[1]Department of Epidemiology and Biostatistics,
[2]Department of Pediatric Dentistry,
Tehran University of Medical Sciences, Tehran, Iran

INTRODUCTION

DMFT and DMFS are considered to be an important indexes to determine the oral health status, both in adolescents and adults. The different indices determined in this study include DMFT, the total number of decayed (d), extracted (m) and filled (f) teeth among the teeth and DMFS, the total number of decayed (d), extracted (m) and filled (f) surfaces among the teeth. The mean of DMFT(or DMFS) is usually calculated as a health measure. If the DMFT in a person is zero, he or she is considered caries free.

WHO and FDI have estimated this index less than 2, among 12 year old children, as the gold standard by the year of 2000[1].

By the age of 12, the first molars have almost erupted for about 6 years in the mouth, so they can be considered as a good basis to study the oral health status of these children and such a study can be used as a powerful aid for planning a proper health care system at early ages, including parents' knowledge enhancement about the importance of these teeth, since most of them are unaware of the permanacy of the first molars. Because of the special morphology of the first molars, they are at greater risk of damage and loss.

It should be noted that DMFT and DMFS have been studied from different point of views, among various age groups, upto now, but such a work, in blind adolescents, has not been done so far.

In the present study, the above indices, have been determined for 12 year old blinds, studying in the secondary school.

MATERIALS AND METHODS

Sixty three blind adolescents student have been studied to determine the DMFT and DMFS of the first molars. This number of students at secondary school of disables, Tehran residential institutes for blinds.

A general questionnaire, regarding social status and health habits, followed by a routine dental questionnaire to evaluate knowledge on the first molars, were completed by this population. Buccal, lingual, mesial, distal and occlusal surfaces were checked for DMFS index. Decay criteria were based on slack and Jackson standards[2].

According to that, a tooth is considered as decayed when in addition to color change, the explorer is retained, white spots are not considered as decayed in this study.

For proximal surfaces, Marthateler method was used[2]. By this method, a surface is diagnosed as decayed if the explorer is retained. No bitewing radiography has been used in this study.

RESULTS

The mean DMFT, for this population, was 3.30 (SD = 7.79).The above index was also determined for each molar separately and each component of this index, namely decayes, missings and fillings, were estimated (Table 1 and 2).

The higher values of DMFT is related to lower molars and a great percentage of DMFT is due to decays (2.94) (Table 2).

Only six out of one hundred upper right molars, have been filled, that generally is quite a low rate of filling, while on average.

DMFS has also been calculated for this population It's total value for the first molars was 6.22 (SD = 3.95) (Table 3).

Like DMFT, This Index has also been calculated for each surface namely: buccal, lingual, mesial, distal and occlusal (Table 4).

Occlusal surfaces have the highest mean decay (3.09), however, buccal upper right and lingual lower right surfaces have the lowest rate. As a result, the decay of occlusal surfaces is greatly responsible for high DMFS value.

Further investigations show that DMFT and DMFS are not equal, considering different social and health variables. These children were asked some questions

Table 1: Mean±SD of DMFT of first molars

Molar	Mean±SD
Upper right	0.79±0.45
Upper left	0.79±0.41
Lower right	0.86±0.40
Lower left	0.86±0.40
Total	3.30±1.19

Table 2: Mean±SD of components of DMFT

Molar	D	M	F
Upper right	0.73±0.45	0.00±0.00	0.06±0.24
Upper left	0.76±0.43	0.00±0.00	0.03±0.18
Lower right	0.75±0.44	0.03±0.18	0.07±0.27
Lower left	0.70±0.46	0.08±0.27	0.08±0.27
Total	2.94±1.23	0.11±0.32	0.25±0.62

Table 3: Mean±SD of DMFS of first molars

Molar	Mean±SD
Upper right	1.71±1.36
Upper left	1.75±1.36
Lover eight	1.54±1.20
Lower left	1.22±1.07
Total	6.22±3.95

Table 4: Mean±SD of DMFS of each tooth surface

Molar	Buccal	Lingual	Mesial	Distal	Occlusal
Upper right	0.079±0.027	0.560±0.50	0.19±0.39	0.140±0.35	0.75±0.44
Upper left	0.110±0.320	0.510±0.50	0.27±0.45	0.110±0.32	0.75±0.44
Lower right	0.350±0.480	0.079±0.27	0.13±0.34	0.140±0.35	0.84±0.37
Lower left	0.270±0.450	0.032±0.18	0.63±0.25	0.095±0.29	0.76±0.43
Total	0.810±1.040	1.170±1.04	0.65±1.06	0.490±1.03	3.09±1.23

Table 5: DMFT and DMFS according to parents, Job and education

Variables		No.	DMFS (SD)	DMFT (SD)
Mother education	Illiterate	20	5.15 (3.80)	3.05 (1.31)
	Primary	18	7.83 (4.90)	3.61 (0.70)
	Secondary	5	4.40 (2.90)	2.60 (0.89)
	Diploma	9	5.00 (3.00)	3.00 (1.73)
	Under diploma	10	7.50 (3.00)	3.00 (1.03)
Father education	Illiterate	11	5.18 (5.23)	3.00 (1.26)
	Primary	18	6.72 (4.65)	3.28 (1.18)
	Secondary	5	5.80 (3.90)	3.20 (1.10)
	Diploma	9	5.33 (3.10)	3.00 (1.73)
	Under diploma	14	6.64 (0.39)	3.43 (0.94)
Mother occupation	Housewife	55	6.45 (4.10)	3.35 (1.10)
	employee	7	4.43 (2.76)	2.86 (1.86)
Father occupation	Worker	24	7.21 (4.62)	3.33 (1.13)
	Employee	14	5.36 (2.10)	3.64 (0.74)
	Business man	13	6.10 (4.77)	2.90 (1.44)
	Other	11	5.36 (3.20)	3.18 (1.47)

Table 5a: D, M and F averages according to parents, education an job

Variables		D (SD)	M (SD)	F (SD)
Mother education	Illiterate	2.85 (1.35)	0.05 (3.80)	0.15 (1.31)
	Primary	3.28 (1.13)	0.056 (4.90)	0.28 (0.70)
	Secondary	2.40 (0.55)	0.0 (2.90)	0.20 (0.89)
	Diploma	2.56 (1.59)	0.11 (3.00)	0.33 (1.73)
	Under diploma	3.10 (1.1)	0.30 (3.00)	0.40 (1.03)
Father education	Illiterate	2.73 (1.35)	0.091 (5.23)	0.18 (1.26)
	Primary	2.78 (1.35)	0.17 (4.65)	0.33 (1.18)
	Secondary	3.20 (1.1)	0.0 (3.90)	0.00 (1.10)
	Diploma	2.85 (1.7)	0.0 (3.10)	0.11 (1.73)
	Under diploma	3.00 (0.96)	0.14 (0.39)	0.60 (0.94)
Mother occupation	Housewife	3.02 (1.19)	0.09 (4.10)	0.24 (1.10)
	employee	2.28 (1.49)	0.14 (2.76)	0.43 (1.86)
Father occupation	Worker	3.10 (1.4)	0.12 (4.62)	0.12 (1.13)
	Employee	30.1 (1.1)	0.14 (2.10)	0.43 (0.74)
	Business man	2.50 (1.56)	0.07 (4.77)	0.31 (1.44)
	Other	2.90 (1.24)	0.096 (3.20)	0.26 (1.47)

Table 6: DMFT and DMFS according to the health habits

Questions		No.	DMFS (SD)	DMFT (SD)
How many times a day	Never	7	6.57 (3.55)	3.70 (0.76)
do you brush?	Once	30	6.43 (4.50)	3.30 (1.15)
	Twice	15	5.27 (3.40)	3.10 (1.53)
	More	11	6.73 (3.43)	3.36 (1.02)
Who checks the health	Parents	22	6.14 (4.49)	3.23 (1.23)
Of your teeth?	Health staff	28	7.00 (3.76)	3.64 (0.87)
	None	9	4.56 (3.20)	2.78 (1.39)
	Both	11	5.00 (4.10)	3.30 (1.90)
Do your parents check?	Yes	27	5.26 (3.02)	3.10 (1.30)
your teeth?	No	36	6.94 (4.42)	3.50 (1.10)
Do your parents				
help you?	Yes	31	5.19 (2.29)	3.10 (1.25)
brush your teeth?	No	32	7.22 (4.56)	3.50 (1.10)
When do you go	In the case of	41	6.07 (3.72)	3.34 (1.30)
to the dentist?	a problem			
	Never	22	6.50 (4.40)	3.23 (0.97)
Morning brush	No	28	5.70 (3.94)	3.32 (1.15)
	Yes	35	6.6 (3.96)	3.29 (1.22)
Night brush	No	17	8.47 (5.1)	3.65 (0.78)
	Yes	46	5.40 (3.1)	3.17 (1.29)
Brush	Night after dinner	20	4.75 (2.5)	3.15 (1.29)
	Morning after			
	breakfast	35	6.6 (3.96)	3.29 (1.22)
	Else	8	8.25 (5.8)	3.75 (0.71)
Snack during	No	5	5.00 (3.0)	3.20 (1.1)
the day	Yes	58	6.33 (4.02)	3.31 (1.2)

about their health and nutritional habits, their reference rate to the dentist and the person who checks their teeth (Table 5 and 6).

The highest DMFS value (7.83) belongs to parents with primary school and under diploma education. The same results are true for DMFT (Table 5).

Children, with housewife mothers, have a greater DMFT and DMFS values (3.35 and 6.45, respectively) and those, with worker fathers, have the highest DMFS (7.21) (Table 5).

Table 5a, shows D, M and F averages, based on parents' education and job, indicating that high number of decays is greatly responsible for high DMFT, among parents with primary level of education. Also, the highest percentage of DMFT is due to decays among house wife mothers and worker fathers.

Children who brush their teeth twice a day have the lowest DMFT and DMFS (3.1 and 5.27, respectively) (Table 6).

Health staff check and help the children to brush their teeth, they have the lowest DMFT and DMFS.

It has also been observed that children who brush their teeth at night after dinner, have the lowest DMFT and DMFS. These indices were the highest for those who eat snack during the day (Table 6).

DISCUSSION

Based on the present study, the average reported DMFT for blind children is 3.3, that is more than the value suggested by WHO[2,3].

It should be mentioned that the proposed DMFT values, by WHO, for European countries and all 12 year old world population, have been 2 and 3, respectively by the year of 2000.

In a study conducted by Damlesg and Bhavasav, five hundred ninety three (593) 12-14 year old students, from different disability categories, were selected. It was observed that the highest rate of decay belonged to mentally retarded students, while the lowest rate was found among blind group[4].

Poorhashemi *et al.*[5] reported this index as 3.17 in 1991 and 3.08 in 1998, in the city of Tehran[5].

As a result, based on these findings, the DMFT obtained in the present study is close to the mean value of normal population, indicating that blindness a lone is not a sufficient risk factor for a high DMFT and taking care of blinds in an educational center associated with a suitable training can result in acceptable health status, similar to normal population.

This is in accordance with Greeley's study on 120 blind student, in which no significant relationship was found between decay and the percentage of blindness[6].

Therefore, blindness alone is not responsible for decay and high DMFT, as long as suitable training and education are available.

It should be noted that if we study a random population of 12 year old blinds in Tehran, is studied than different kinds of results, will certainly be obtained.

Although finding such a group of blinds all over the city of Tehran is a difficult job and if possible, more accurate results will be available.

REFERENCES

1. WHO, 1991. Health for All Targets. The Health Policy to Europe Copenhagen. WHO Regional office for Europe.
2. Arenal, A.A. and J.A. Alvarez *et al.*, 1998. DMFT/dmft and treatment requirements of school childrenin a Sturias/Spain. Community Dent Oral EPidemiol., 26: 166-90.
3. Schuller, A.A. and D. Holst, 1998. Change in the oral healt of adults from Trondelag/Norway. 1973. 1383.1994. Community Dent. Oral Epidemiol., 26: 201-80.
4. Bhavsar, J.P. and D.A. Sco, 1995. Dental caries and oral hygiene amongst 12-14 year-old handicapped children of Bambay, India. J. Indian Soc. Pedod. Prevdent., 13: 1-3.
5. Poorhashemi, 1998. Assessing the success rate of curvent prevenivc methods employed agalns caries attack 12 years-old tehranian children dent. School B. Vni., 32 Spring 1998, pp: 21-25.
6. Goreeleg, C.B., P.A. Goldstein and D.J. Fonrester, 1976. Oral manifestation in a group of blind students. Am. Soc. Dent. Child. J., 43: 39-41.