

## Evaluating Dental Health of Trainees in Correction Center of Tehran Province in 2008

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### Abstract

**Background:** For planning in health, preventing and representing valuable dentistry services, we need to identify and evaluate the information on the status of individuals' dental hygiene and health. In this examination, evaluating dental health which is one of hygienic main and key problems has been conducted according to world's standards in correction center of Tehran province in 2008.

**Methods:** The examination was performed based on the suggested standards of World Health Organization (WHO). The mission team sent to this center includes senior students of dentistry who divided into two (examiner and coder) groups. These students examined 190 persons (172 male and 18 female) and filled the relevant form. After collecting information and filling examination forms, the statistical analysis was carried out and the results were reported.

**Results:** The DMF index was 6.3 in the studied population. The values for females and males were 6.9 and 6.2, respectively. D, M and F indexes were 3.69, 1.89 and 1.72, respectively. About 13% of samples were caries free and dental Hypoplasia was detected in 11% of samples and fluorosis was observed in 2%. The most required treatment were filling one surface and filling complicated and pull a tooth: 27.2%, 8.5% and 6%, respectively.

**Conclusions:** DMF index was averagely lower than 4 which represented low levels of dentistry hygiene. Only 13% of samples were caries free which represented the preventive services weakness of mouth health. Therefore, it is necessary to perform special program for the purpose of WHO about DMFT rate.

**Keywords:** Oral and dental hygiene, DMFT index, Tooth caries, Caries free

### Introduction

As legislated regulations in Constitution Law, caring and securing individuals' health in community is one of IRI purposes. The health of individuals is securable only via hygiene and prevention. Thus, by planning in preventive and hygiene affair, affecting to dental diseases can be minimized and dental health can be secured by minimum expenses and time consuming in society since the prevention is precedent to treatment and the required budget for prevention is lesser than relevant expenses for treatment. For planning in hygiene and preventive affair and representing dentistry services and applying knowledge and new techniques in this affair, identifying and evaluating the information on health status and dental diseases, teeth keeper tissues, caries rate and missing teeth are required [1].

For learning and comprehensive knowledge on hygiene and treatment problems of country and finding their quantity and quality in different points of country in view of population, geography, community and etc and also analyzing findings and consequently research and executive planning for resolving problems, a research is

concluded in different hygienic fields across Iran entitled "Health and Disease Project in Iran". Collecting such information, in one hand, shows the existing status and on the other hand has an effect on hygienic, preventive and treatment planning. Nowadays, epidemiological research in dentistry especially in preventive affair has wide dimensions. Especially in the recent years by creating Community Dentistry major in Iran, wide steps have been stepped in collecting information on dental hygiene, hygienic, preventive and treatment planning and relevant policies [1, 2].

For harmonizing and integrating these researches, World Health Organization (WHO) and International Dentistry Organizations have considered and registered some indices to be applied for all countries [2]. For measuring and investigating these indices, the examination of all society's individuals are not necessary, because this is a most time-consuming and impossible affair and it is impossible by a few examiners. Determining the severity rate of different indices of evaluating health status and dental diseases can be effective and useful for some individuals of that group.

Considering the existing status shows the importance of researches in relation to dental health status. Treatment needs are determined, preventive plans on dental health are conducted and necessary policies are reconsidered. Examining dental health of trainees in correction center leads to receive information on dental status of special group of individuals in community. In addition to the other researches, it can be considered as a source of required policies in societies [3, 4].

## Methods

The statistical community includes 190 trainees (172 males and 18 females) of correction center of Tehran province. It should be mentioned that the examined people were between 12 to 20 years old. To collect the information the dental health of selected population, the translated form of WHO (1997) were used, including the parts mentioned in table 1.

Research and researcher specifications	1-16 parts
General specification of examined person	17-31
Extraoral examinations	32
Evaluating temporomandibular joint status	33-36
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Keeper tissues status and their adhering to teeth	60-65
Teeth status and treatment needs (DMFT)	66-161
Status of existing dentures in mouth	162-163
The need for dentures	164-165
Facial dental abnormalities, spacing analyzing, occlusion status	166-176
Emergency patients	177-179
Need to referral	180
Considerations	----

Each indices mentioned in above form have been described completely in the book "International Epidemiological Indices in Dentistry Researches" [2, 5].

The most important indices of this research are as follows:

- DMFT Index
- Decayed, Missing, Filled Teeth
- CPI Index
- Community Periodontal Index

The information collected in examination sheet is in a way that health and treatment plans of a district, city or country can be regulated and we can also examine the required changes in existing method of services representation.

For examining people and completing examination forms, a mission team comprised of 3 examiner groups, each one includes two senior dentistry students (12<sup>th</sup> semester), one of them was examiner and the other one was responsible for registration of data (coder). All three groups equipped with necessary instruments like catheter, mouth mirror, periodontal probe, internal-mouth flashlight, gloves, mask and absorbent. It should be mentioned that the members of team interested in doing the research and they received necessary trainings on doing work and examining people. Also, they are calibrated during 3 consecutive sessions through different tests, so that among students diagnoses were same and correct in rate of 95%. The mission team settled in a location with enough light. The people were examined in sitting position and the form of examination was filled by coder. During examination the information relevant to parts 1-180 examined and coded, respectively. After collecting information and completing all questionnaires relevant to 190 examined persons, data entered to SPSS 16 software for further analysis.

Table 2: DMF index regarding to D, M, F in two genders

	Male	Female	Total
DMF	6.2	6.9	6.3
DMF-Decay	3.65	4.05	3.69
DMF-Missing	1.82	2.5	1.89
DMF-Filled	0.75	0.33	0.71

## Results

Based on information on decayed, filled and missed teeth the DMF index was computed.

Since all considered populations in this research are in permanent dentition period and don't have any deciduous tooth, so only DMFT index has been computed based on 32 permanent teeth.

Because there were only 12 samples in <13-year-old group and 3 samples in >18-year-old age group and distribution of considered population was normalized and unified; so, DMF index cannot be measured based on age distribution. Also, in considered samples there was uniformity in geographical index in which its statistical evaluation is not significant. Studied samples comprised of 190 trainees (172 males and 18 females) that based on it DMF index regarding to D, M and F in two genders are shown in table 2 and figure 1.

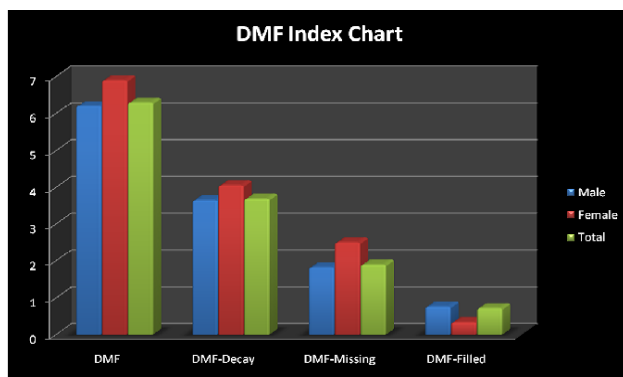


Figure 1: Gender distribution of DMF index

## Dental Status Details

In studied group, from 6042 evaluated teeth, the results of dental status regarding to gender have represented in table 3. Totally 13% of them have been Caries free. This

index was lower in studied females and it was about 11%.

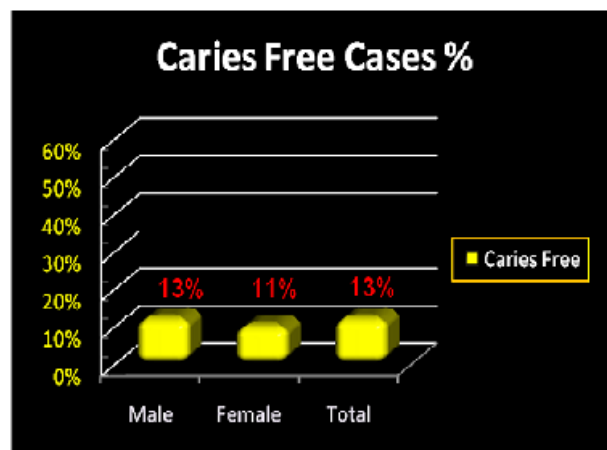


Figure 2: Distribution of caries free teeth in two genders

Root caries were shown in 50 teeth which its prevalence reported less than 1%.

The rate of unerupted teeth in females is more than males. The average of latency in females is 1.4 teeth per person and it is 0.8 in males.

In 57% of females and 67% of males, the missing teeth are not related to tooth pulling

	Male	Female	Total
Healthy teeth	4239	427	4666
Cariou teeth	629	73	702
Filled without caries	89	4	93
Filled with caries	41	2	43
Missing	314	45	359
Missed due to EXT	112	19	131
Missed due to other reason	202	26	228
Fissure sealed	10	0	10
abutment	4	0	4
Unerupted	132	25	157
traumatic injury	8	0	8
6042 Included			
24 EXCLUDED			

Table 3: Tooth crown regarding to gender

In females, root filling, dental trauma and dental sealant are not observed which is not statistically discussible and significant for low number of population.

Totally, 6% of samples didn't have at least one of premolar to premolar teeth of two mandibles in which 57% didn't have one tooth, 28% two teeth and 14% three teeth. Missing in premolar to premolar teeth was seen only in males (figure 4).

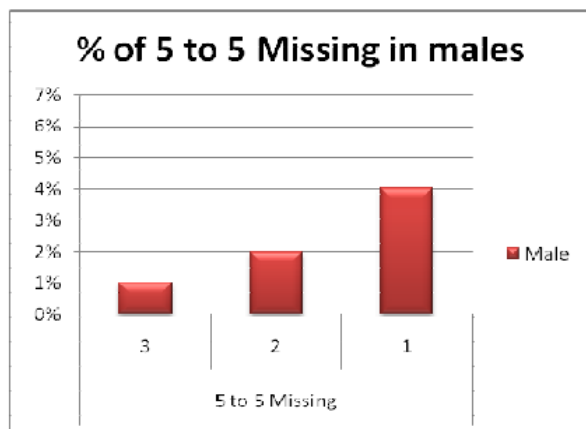


Figure 4. Missing in premolar to premolar teeth in males

While transcending of M index in females, M in interior part of females was 0, which represents the effect of beauty and static issues in keeping anterior teeth in females.

**Required Treatments**

Required treatments for studied population are shown in figure 5. As seen in table, utmost treatment is related to filling one surface and filling complicated.

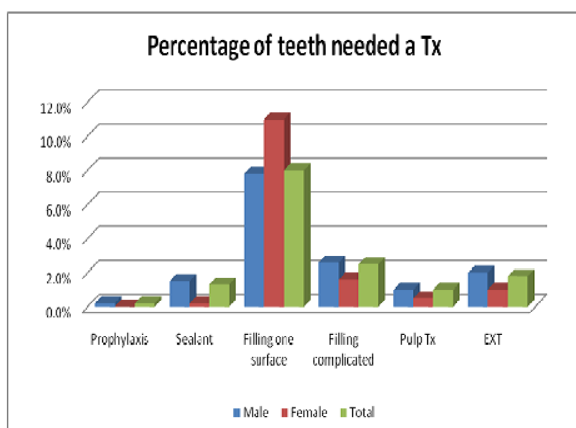


Figure 5. percentage of teeth needed a treatment regarding to genders

Totally, 10% of samples need to prosthetic treatment (Figure 6). About 3% of samples had pain or infection which they needed to referral.

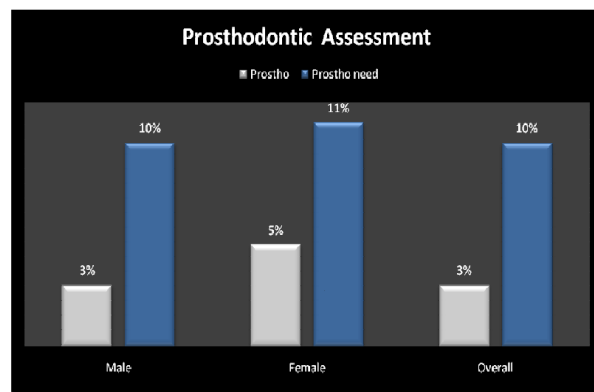


Figure 6. Prosthetic need and status in two genders

**Orthodontic Indices**

Based on our results, 22% of samples had dental crowding and 13% had dental spacing. The average of spacing abnormalities in maxilla was 4.05 millimeters and in mandible was 2.66 millimeters.

Twelve percent of samples had more than 3 millimeters overjet and 11% of samples were open bite which the rate of this index in females was more considerable (38%).

Twelve percent of samples, also, had molar abnormal relation which this index in females was 33%.

**TMJ Status**

Fourteen percent of samples had TMJ which is less than other epidemiologic studies but since the studied population was young and JMJ diseases occurred in old ages; thus, it is justifiable.

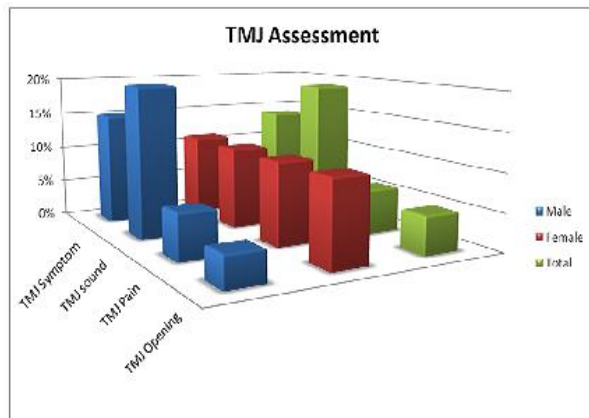


Figure 7. TMJ diseases prevalence regarding to gender

**Oral Lesions**

Totally 6% of samples had coded oral lesions in study form. Among them, 5% of males and 16% of females had oral lesions. The most common place for oral lesions was oral mucosa with 54% lesions.

Teeth hypoplasia was seen in 11% of samples and Fluorosis in 2% of them. This index in female statistical population was not significant.

Table 4. Hypoplasia and Fluorosis in two genders

	Male(%)	Female(%)	Total(%)
Hypoplasia	19(11%)	0(insignificant)	19(11%)
Flourosis	3(2%)	0(insignificant)	3(2%)

The CPI of 46% of samples in all periodontal sextants was equal to 0 and they had completely healthy periodontal status. The remainder samples had some levels of gingivitis and germ in some sites and or all sextants.

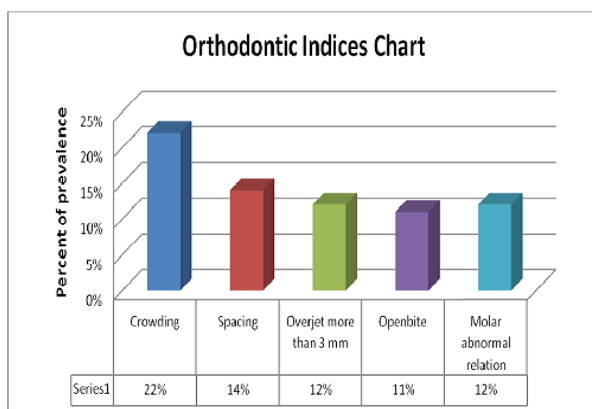


Figure 8. Orthodontic indices percentage

Eleven percent (21 persons) of samples in extraoral examinations had inflation, swell and lesion and etc on head and face which this rate was further up in males.

Table 5: Gender distribution and frequency percentage of health samples regarding to periodontal

	Male(%)	Female(%)	Total(%)
CPI = 0	83(48%)	4(22%)	87(46%)

**Discussion**

Up to now, different studies have been conducted on examining dental health and diseases in community specially measuring DMF index in different points of Iran regarding to geographical, cultural, education level and different age groups. Also, a list related to some of these studies is invalid based on examined individuals. As Leos P. et al, DMFT rate of 12-year-old age group from North, Center and South districts of Iran have been summarized from 1959 to 1989 in table 6[6]. As mentioned in this table, DMFT rate has been increased over time in all considered districts of Iran. Table 7 summarizes the record of examining dental hygiene and health in Tehran. Also, DMFT index rate in recent years in some points of Iran regarding to location, age, and research year are shown in table 8 [7-23].

Table 6. Average rate of DMFT in 12-year-old age group of different districts of Iran from 1959 to1989

Iran Dist.	DMF Average		
	1959	1974-76	1987-89
North	2.2	2.5	2.8
Center	1.9	4.2	5.8
South	1.4	2.6	3.4
Total	1.8	3.1	4

Table 7. the record of evaluating dental health and hygiene in Tehran

Year	Age	n	DMF	D	M	F	Project executor
1959	12	228	2.1	1.8	0.2	0.1	Nevit
1962	15-16	80	6.1	-	-	-	Held
1962	30-34	53	10.8	-	-	-	Held
1987	12	Less than 100	3	-	-	-	Makarem

Examining dental health, as mentioned before, enjoys from special importance in other countries.

Cypriano S. et al (2007) examined dental health and DMFT index among 12-year-old students of eastern-south schools of Brazil in which the DMFT rate of students computed 2.29[24]. Akarslan ZZ. et al (2006) evaluated dental health of teenager patients who refer to dentistry faculty of Ankara in Turkey. Their DMFT rate regarding to the research computed equal to 5[25].

Also another research in 2006 was performed by Tagliaferro et al. in which DMFT rate of Bauru City's residents in Brazil reported in years 1976, 1984, 1990, 1995, 2001, 2006 equal to 9.89, 6.98, 4.30, 4.29, 1.53, and 0.90, respectively[26]. Farsi N (2003) reported DMFT rate of 12-17 year old peoples of Arabia equal to 7.59 [27].

As mentioned in table 2, DMF index computed totally 6.3% (6.9% in females and 6.2% in males). Based on conducted studies, DMF index was averagely lower than 4 which represented low level of dentistry hygiene and cares training. Over time and in case of neglecting, this index was getting more and more and reach to 17 and 6 and the rate of D and M getting more too.

Transcending of DMF in females is not discussible because of low numbers of statistical society. Only 13% of samples were caries free which represented the preventive services weakness of mouth health.

This findings are in accordance with the results of similar studies which represent DMF increasing in developing countries and its decreasing in developed countries.

In line with promoting mouth health and public health in country, the purposes of governmental and private macro-polices should be planned in two phases:

- 1) Quality replacing of DMF index from D and M to F (quality phase)
- 2) Decreasing the rate of DMF (quantity phase)

Reaching to this important affair can be realized by some measurements such as hygiene training, fluoride therapy, fluoridation of drinking water, promoting culture of dentistry cares, managerial plans in line with realizing preventive services insurance in the field of dentistry for target groups specially in 6 to 12 years old

children and training or strengthening non-operative forces involved in hygiene and preventive training like mouth hygienists and hygiene educators of schools.

Table 8. DMFT index rate in recent years in some points of Iran country

Ref.#	DMFT	Age of Examined people	Research Year	Research Location
8	0.98	12	1991	Ardebil City
9	1.37	12-17	1992	Behbahan City
10	2.67	12-15	1993	Zanjan City
11	0.68	6, 12, 15	1993	Shahr-e Kord City
12	2.21	12	1994	Siahrood District of Tehran Province
13	1.49	6-11	1994	Ray City
14	3.88	12	1997	Esfahan City
15	5.5	7.9	1999	Golestan Province
16	3.59	12	2004	Sari City
17	4.2	15-19	1990-1992	Tehran Province
18	1.73	12	1996	Yazd City
19	1.14	12, 15	1996	Kashan City
20	2.57	12	1996	Behshahr City
21	2.62	12, 15	1996	Talesh City
22	2.2	16-18	2007	Ghazvin City

#### Conflict of Interest

The authors declare that they have no conflict of interests.

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