

Evaluation of DMFT (Decay Missing Filling Teeth) index of permanent first molar in children 6 to 12 years old referred to pediatric dental offices in Khorramabad in 2021

¹Dr. Fatemeh Zarouni, Department of Pediatric, Faculty of dentistry, Lorestan University of Medical Sciences, Khoramabad, Iran.

²Dr. Mohamad Noori, Department of orthodontic, Faculty of dentistry, Lorestan University of Medical Sciences, Khoramabad, Iran.

³Neda Moghaddam, Dentist

Corresponding Author: Dr. Mohamad noori, Department of orthodontic, Faculty of dentistry, Lorestan University of Medical Sciences, Khoramabad, Iran.

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Abstract

Introduction: Tooth decay is the most common chronic disease. The aim of this study was to evaluate the DMFT level of the first permanent molar in children aged 6 to 12 years referred to specialized pediatric dental offices in Khorramabad in 2021.

Methods: The statistical population of this study was a descriptive cross-sectional study of children aged 6-12 years who referred to specialized pediatric dental offices in Khorramabad in 2021.

Information on age, sex, socioeconomic status of registered patients and clinical examination of children's first permanent molar teeth were performed by catheter and mirror under natural light. Data were analyzed using SPSS23 software.

Results: Out of 139 subjects in the study, 68 were girls and 71 were boys. The results show that the mean DMFT of the first molar was 1.57 ± 1.690 and there is no significant difference between boys and girls in terms of DMFT ($p > 0.05$). The results also showed that there is a significant difference between the DMFT score between the ages of 6-8 and 8-10 years ($p < 0.05$). But there is no significant difference in DMFT score between other age groups ($p > 0.05$). There was no significant relationship between parent's education level and children's DMFT ($p > 0.05$). The results also showed that there was no significant difference between the mean DMFT of people with incomes above 5 million and below five million ($p > 0.05$) and for neither parent there was a relationship between the job and the child's DMFT score ($p > 0.05$).

Conclusion: In general, it can be said that the level of DMFT of the first molar in children of Khorramabad is higher than the goals set by the World Health Organization and therefore it is necessary to inform parents about the importance of prevention and timely treatment of this tooth.

Keywords: DMFT, dental caries, students.

Introduction

Tooth decay is the most common chronic disease that is caused by the consumption of sugars and the effect of microorganisms on them and as a result the loss of calcified tooth tissue. [1]. The most common and important epidemiological scale for measuring dental caries is the DMFT index, in which the number of permanent teeth (T), caries (D), lost due to caries (M) or restored due to caries (F) Are evaluated. This index is used as an important criterion to show the status of oral health and plays an important role in health decisions [2].

There is a strong correlation between the mean of permanent first molar caries index (DMFT) and DMFT index [3]. Inattention to the maintenance of these teeth has caused various dental problems, which require high treatment costs and a lot of time to treat the complications caused by this negligence [4]. The World Health Organization considers 12-year-old children to be one of the target groups because at this age in most countries children attend school and most of their teeth have erupted except for the third molar.[5]

The organization's goals for oral health in 2010 focus on using experiences and evaluating previous goals and emphasizing the importance of oral health as an inevitable component of public health. The World Health Organization recommends that each country conduct regular oral health surveys every 5 years if

possible [4]. The study of the National Oral Health Plan for primary school students in the country stated that the DMFT of 6-year-old children was 0.2 and stated that the average DMFT was 5 times at 9 years old and 1.5 times at 9 years old at 12 years old [6]. Also, the results of a study conducted in collaboration with WHO and the Ministry of Health and Medical Education showed that the DMFT index in Iran is 3.17, which was lower than the WHO standard. The first molars were the most permanently decayed teeth, girls had higher DMFTs than boys, and half of the students did not brush their teeth [7]. One of the goals of the World Health Organization until 2020 was that the level of DMFT in 12-year-old children should be less than one [8]. According to the above, this study aims to evaluate the DMFT index of the first permanent molar in 6 to 12 year old students in Khorramabad(IRAN).

Methods

The statistical population of the study is children aged 6-12 years who referred to dental offices in Khorramabad (Iran) in 2021. The sample size was calculated based on the study of Moradi et al. [9] 139 people.

Initially, information about the patient's age, gender, and socioeconomic status was recorded. Then, the first permanent clinical examination of pediatric molar teeth was performed with catheters and mirrors under natural light. The criteria for diagnosing the condition of teeth in terms of caries, filling and loss was based on the standards defined by the World Health Organization [10].

Teeth that were missing only due to decay were considered lost, and teeth that were missing due to orthodontics, accident, etc. were not considered lost. A tooth whose surface had one or more permanent fillings and showed no old or new caries was considered a

restored tooth. Each permanent first molar was given a value of one for each case of decay, loss, and filling. Finally, these numbers were added together to obtain each person's DMFT.

To describe the data, descriptive statistics, calculation of central indices and dispersion for quantitative and frequency variables and percentage for qualitative variables were used. To compare the amount of DMFT according to the study variables, the normality of the data was first measured using the Shapiro-Wilk test. Independent t-test and analysis of variance (Anova) and if the data distribution is not normal, non-parametric equivalents of the tests were used. All statistical tests were performed using SPSS software version 25 with P <0.05 as the significance level.

Results

According to the purpose of the present study, the sample consisted of 139 children including 68 girls and 71 boys. Table 1 presents descriptive findings for decayed teeth.

Table 1: Frequency distribution of the number of decayed teeth (D) in the sample.

percentage	frequency	Decayed teeth (D)
44/6	62	0
22/3	31	1
20/9	29	2
7/9	11	3
4/3	6	4
100	139	Total

Table 2 presents descriptive findings related to missing teeth.

Table 2: Frequency distribution of the number of missing teeth (M) in the sample.

percentage	frequency	Missing teeth (M)
97/1	135	0
2/2	3	1
0/7	1	2
100	139	Total

Table 3: presents descriptive findings related to filling teeth.

Table 3 Frequency distribution of the number of filled teeth (F).

Percent	f	(F) Filled teeth
66/9	93	0
12/9	18	1
15/1	21	2
2/9	4	3
2/2	3	4
100	139	Total

Table 4: DMFT frequency distribution

Percent	f	DMFT
35/3	49	0
15/8	22	1
15/8	22	2
10/8	15	3
22/3	31	4
100	139	Total

Table 4 shows 49 children with a score of 0 in DMFT (35.3% highest), 22 children with a score of 1 in DMFT, 22 children with a score of 2 in DMFT, 15 children with a score of 3 in DMFT (10.8% lowest) and 31 people got a score of 4 in DMFT. Table 5 shows the frequency distributions for DMFT and its indicators.

Table 5: Information on DMFT by gender.

Minium	Upper	S. D	Average	DMFT	
.	٤	١/١٥	١/١٣٢	Decay	girls
.	١	٠/١٧	٠/٠٢٩	Missing	
.	٤	١/٠٠	٠/٦٦١	Filling	
.	٤	١/٥٦	١/٥٦٢	DMFT	
.	٤	١/١٨	٠/٩٧٨	Decay	boys
.	٢	٠/٢٦	٠/٠٤٢	Missing	
.	٤	٠/٩٨	٠/٥٤٩	Filling	
.	٤	١/٥٩	١/٨٢١	DMFT	
.	٤	١/١٦	١/٠٥٠	Decay	Total
.	٢	٠/٢٢	٠/٠٣٦	Missing	
.	٤	٠/٩٨	٠/٦٠٤	Filling	
.	٤	١/٥٧	١/٦٩٠	DMFT	

Student t test was used to evaluate the relationship between gender and DMFT, the results of which can be seen in Tables 6.

Table 6: Comparison of DMFT index by gender.

P value*	Ave (S.D)	F	DMFT	
0/333	(1.56)1/56	٧١	boys	SEX
	(1.59)1/82		Girls	
T student				

The results of Table 6 The data obtained from this table show that there is no significant relationship between gender and DMFT (P <0.05). Descriptive findings related to DMFT index by age group are presented in Table 7.

Table 7: Frequency distribution of DMFT index by age group.

P value	Standard deviation	Average	f	Group
٠/٠٣٨	١٥٠/	١/٣٢	٥٦	٨-٦
	١/٥٣	٢/٠٩	٥١	١٠-٨
	١/٦٥	١/٦٨	٣٢	١٢-١٠
	١/٥٧	١/٦٩	١٣٩	Total

* Anova

The results of Table 7 show that there is a relationship between DMFT index and age groups and in order to obtain this relationship, a two-by-two comparison of age groups was performed.

Table 8: Comparison of DMFT differences by age group

١٠-١٢ (Average changes)	٨-١٠ (Average changes)	٦-٨ (Average changes)	Group
٠/٣٦٦	٠/٧٧٧*	-	٨-٦
٠/٤١٠	-	٠/٧٧٧*	١٠-٨

-	•/۴۱•	•/۳۶۶	۱۲-۱•
			Total

*p<0.0

The results of Table 8 show that there is a relationship between age groups and DMFT index ($p < 0.05$). There is a significant difference between the two age groups of 6-8 and 8-10 years between the DMFT score so that the DMFT score of the 10-10 age group is more than 6-8 ($p < 0.05$) but there is a significant difference between the other age groups. There is no comment on the DMFT score ($p < 0.05$).

Discussion

The findings are consistent with the results of many previous studies. Among them: the study of Gatova et al. (2018) which reported the mean DMFT of the first molar tooth for Greek children during 2002-2004 as 1.59, 1.46, 1.52 and 1.47, respectively [11]. Also, in the study of Tabuada Aranza et al. (2018), the DMFT value of the first molar tooth for students in southern Mexico City was 1.4. 1.4 [12]. In Iran, the study of Pour Afrasiabi et al. (2017) showed that the mean DMFT index of permanent first molars in Gorgan students is 0.23 0.07 ۲ [38]. Khosravani et al. (2014) reported the mean DMFT index in children aged 9 to 11 years in Shiraz as 1.46 ۹ .[13] 0.94

Also, the study of Montazerifar et al. (2015) reported the mean DMFT index in children 6 to 11 years old as 3.97 1.6 ۹, Sahib Nasq et al. (2015) reported DMFT for 14-year-old students as 2.68 2 2.4 [14]. These results are not consistent with the results of the present study. It is calculated.

The results also showed that there was no significant difference between boys and girls in terms of DMFT ($p < 0.05$). This finding is consistent with the results of some studies such as the study of Mohtadinia et al.

(2011) and Khosravani et al. (2014) which showed that there is no difference between girls and boys in terms of DMFT index.[13]

Also, the lack of a significant difference between the mean DMFT index of girls and boys is inconsistent with the results of some previous studies, including: Amiri et al.'s (2017) study which showed that there was a statistically significant difference between boys and girls and caries index. It was more common in boys [15]. The study of Pourafraziabi et al. (2017) showed that the mean DMFT index of permanent first molars in Gorgan students was significantly higher in girls than boys.[16]

The results also show that the mean DMFT of the first molars for the age group of 6-8 years is 1.32 1.50 •, for the age group of 8-10 years is 2.09-0.5 and for the age group of 10-12 years is 65.65. It was 1.68. There is a significant difference between the DMFT score between the ages of 6-8 and 10-8 years, so that the DMFT score of the age group of 8-10 years is more than 6-8 years ($p < 0.05$). But there is no significant difference between other age groups ($p < 0.05$).

These results are consistent with the results of some previous studies, including the study of Haerian Ardakani et al. (2012) showed that the DMFT score of the first molar of 11-year-old Yazdi children is significantly higher than 7-year-old children [17]. To justify this result, it can be said that the rate of tooth decay increases with age and it is natural that the DMFT score of older children is higher than younger children.

The results showed that there was no significant relationship between parents' education level and children's DMFT ($p < 0.05$). This result was inconsistent with the results of previous studies, including: Pourafraziabi et al. (2018) which showed that with increasing the level of parental education, the average

DMF6 index in students decreases significantly [16]. In the studies of Mortazavi and Chami (1997) in Najafabad, Razavi and Soleimani in Ilam (2001) and Javadinejad et al. (2006) in 12-year-old students, the rate of tooth decay was lower in students with educated parents [18]. In the study of scrolls and Rahim Levy (2001) on 7-year-old children in Tehran, with increasing the level of education of parents, their awareness of oral health of children increased.[19]

Probably the reason for this difference in previous studies with the current study could be related to their time. Previous studies date back to the last decade or two, and today, regardless of education level, the level of parental awareness and information has increased compared to the past.

In this study, there was no relationship between parents' occupation and children's DMFT score ($p < 0.05$). Also, no significant difference was found between the mean DMFT of children and the level of family income ($p < 0.05$).

The findings are inconsistent with the results of previous studies, including the study of Poor Afrasiabi et al. (2018) showed that the rate of caries-free teeth in all grades in non-profit school students was higher than public school students. They considered the type of school as an indicator of parental income [16]. Absolute and Popular Kandahari (2003) also reported a higher prevalence of caries in students whose families were better off economically in their study, due to more access to cariogenic foods for well-off individuals.[20]

Conclusion

In general, it can be said that the permanent first molars are one of the most important and key teeth, and informing the community about the importance of prevention and timely treatment prevents tooth

extraction. This study showed that between the level of education of parents, There is no significant relationship between parents' occupation and family income with children's DMFT ($p < 0.05$). In this study, the DMFT of the first molar at 6 to 11 years of age is higher than the goals set by the World Health Organization. Also, at this age, only 4-5 years have passed since the eruption of this tooth and this figure is higher than the life of the tooth. This fact indicates the need for a comprehensive planning and implementation and continuous monitoring by the Office of Oral Health and Health Departments of medical universities across the country to reduce these indicators in the coming years.

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