International Journal of Science and Research (IJSR)
ISSN: 2319-7064
ResearchGate Impact Factor (2018): 0.28 | SJIF (2018): 7.426

# Radiological Investigation of DMFT Index and Treatment Requirements of Patients Presenting to the Outpatient Clinic

**Dt. Ali ALTINDAĞ, DDS**

ÇiçekliMah. SoyerSok. 9/1 Keçiören/ANKARA, Turkey
Tel: 00905054627132
E-mail: alialtindag1412[at]gmail.com

**Abstract**: ***Aim: The aim of this study was to radiographically evaluate caries, filled, missing and teeth of 1056 adult patients admitted to the clinic and to determine their treatment needs. Materials and Methods: Patients were grouped according to gender (female and male) and age (20-29, 30-39, 40-49 and 50+). Panoramic and conventional bite-wing radiographs were evaluated. The radiographs were evaluated in 3 areas as caries, filled and missing teeth. Results: A significant relationship was found between the age groups and treatment needs of the individuals. As the age group increased, treatment requirements increased. The maximum number of decayed teeth was observed in the 30-39 age group, while the number of filled teeth was observed in the 40-49 age group. Male patients had more treatment needs than female patients. Conclusion: In this study conducted on adult patients admitted to the clinic, oral hygiene was found to be well below the required standards in all age groups.***

**Keywords:** Age groups, Need for treatment, Radiography

## 1. Introduction

Tooth decay is one of the most common chronic diseases worldwide; individuals are prone to this disease throughout their lives. Caries are epidemic diseases that affect societies to a great extent.

Tooth decay is caused by a complex interaction that occurs over time between many host factors, such as acid-producing bacteria, fermentable carbohydrates, teeth, and saliva. [2] The first step in protecting individuals from this interaction is to raise awareness and then apply the appropriate treatment. Studies such as the present study, which provide data on treatment needs of individuals, will form the basis of protective and preventive treatments.

Since the discovery of X-rays in 1895, there have been significant improvements in obtaining and the maintenance of the received films. In the early 1940s, the advancement of computer technology was the first step in digital imaging in diagnostic devices, as in all other areas.

Radiography in dentistry; is one of the basic elements that help in diagnosis. Recently, significant advances have been made in radiography techniques. As in all fields, technology is developing rapidly in dentistry and consequently, conventional radiographs are being replaced by digital radiographs that improve image performance and facilitate diagnosis and treatment planning. [3]

Panoramic radiographs are used regularly in clinical dentistry due to their features such as showing all teeth on a single film, ease of use and low radiation dose given to the patient. Panoramic radiography is an active method which can be resulted in a short time for the detection of pathologies in toothless patients. [4] Bite-wing radiographs, on the other hand, provide a more detailed overview of the crowns of the upper and lower posterior teeth together with some view of the roots. [5] Although it displays more limited areas than panoramic radiography, it allows to see more details.

The basic oral and dental health criteria used to determine the oral hygiene level of populations and to evaluate the success of the programs to improve oral hygiene are comparable according to the groups surveyed and the geographical region where the research was conducted. In these studies, oral dental health diseases and prevalence affecting individuals, level and severity of disease in different age groups in society are determined. [6]

Some of the main criteria established by the World Health Organization (WHO) to determine the level of oral dental health of the population are as follows: Prevalence of caries experience, Percentage of untreated caries, Average number of teeth, Average number of caries and missing teeth, DMFT index (Caries, loss, filled teeth index), Percentage of edentulousness, Dental fluorosis, Community periodontal index (CPI). [7]

The aim of this study was to determine oral hygiene conditions in men and women in a Turkish subpopulation and to evaluate the results obtained.

## 2. Materials and Methods

Participants included in the research; were adults above the age of 20 (grouped 20-29, 30-39, 40-49, 50+), who applied to the outpatient clinic for examination and treatment in 2018-2019.

In order to obtain data, radiographic examinations of a total of 1056 patients (528 male, 528 female) was performed. Generalization of the research was performed by evaluating panoramic and bitewing radiographs of equal number of individuals from all age groups.

Radiographs were evaluated under 3 subjects; Fillings: Restorative materials such as composite, amalgam, radiographically different density, Caries: Caries lesion in cement, enamel, dentin, Missing tooth: Teeth other than third molars on radiograph.

## 3. Results

DMFT values according to age and gender distribution of the patients are shown in Table 1-6. DMFT (D: caries, M: missing tooth, F: fillings, T: total) values of the patients included in the study were evaluated according to WHO standards.

**Table 1:** DMFT index according to age

| | DMF/T | D/T | M/T | F/T |
|---|---|---|---|---|
| **20-29** | 3,856 | 1,613 | 0,553 | 1,689 |
| **30-39** | 5,681 | 2,125 | 1,931 | 1,625 |
| **40-49** | 7,871 | 1,909 | 3,515 | 2,446 |
| **50+** | 8,053 | 2,015 | 4,295 | 1,375 |
| **TOTAL** | 6,365 | 1,915 | 2,573 | 1,742 |

**Table 2:** DMFT index according to gender

| | DMF/T | D/T | M/T | F/T |
|---|---|---|---|---|
| **FEMALE** | 6,140 | 1,907 | 2,312 | 1,920 |
| **MALE** | 6,590 | 1,924 | 2,835 | 1,831 |
| **TOTAL** | 6,365 | 1,915 | 2,573 | 1,875 |

**Table 3.**DMFT index in female patients

| | D/T | F/T | M/T | DMFT/T |
|---|---|---|---|---|
| **20-29** | 1,287 | 1,333 | 0,363 | 2,984 |
| **30-39** | 1,765 | 1,674 | 1,257 | 4,69 |
| **40-49** | 1,977 | 1,674 | 3,393 | 8,143 |
| **50+** | 2,598 | 1,901 | 4,234 | 8,734 |
| **TOTAL** | 1,907 | 1,920 | 2,312 | 6,140 |

**Table 4.**DMFT index in male patients

| | D/T | F/T | M/T | DMFT/T |
|---|---|---|---|---|
| **20-29** | 1,939 | 2,045 | 0,742 | 4,727 |
| **30-39** | 2,484 | 1,575 | 2,606 | 6,667 |
| **40-49** | 1,840 | 2,121 | 3,636 | 7,598 |
| **50+** | 1,431 | 1,583 | 4,356 | 7,371 |
| **TOTAL** | 1,924 | 1,831 | 2,835 | 6,590 |

**Table 5:** Intergroup evaluation of DMFT values according to age groups.

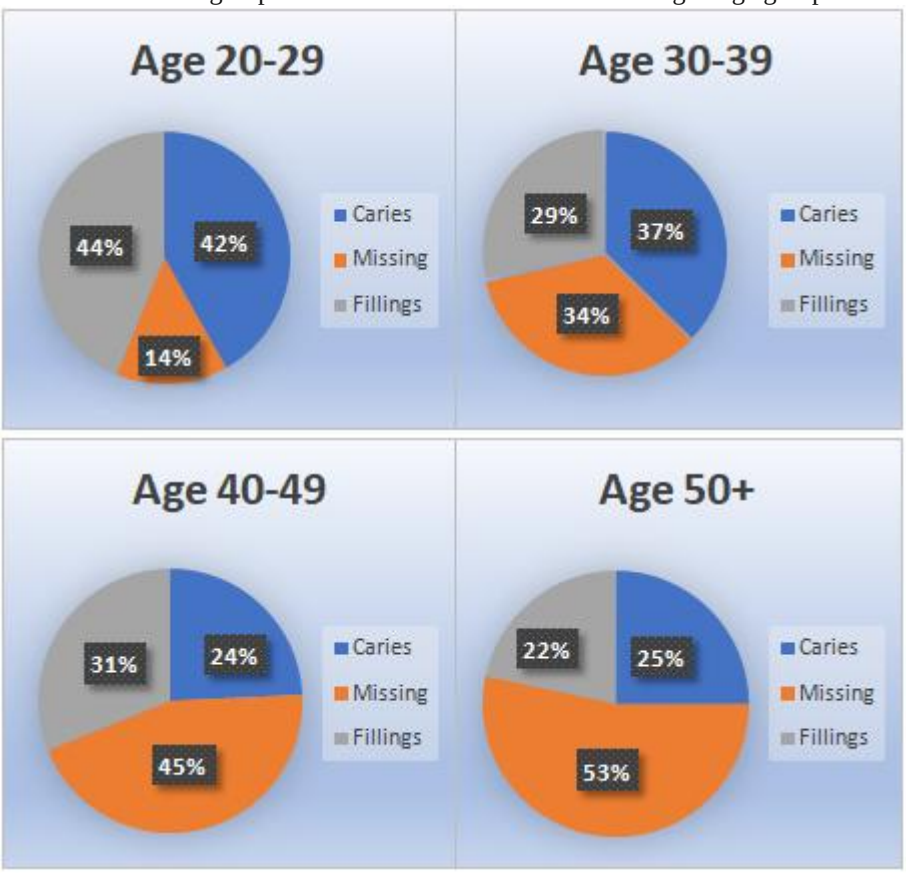
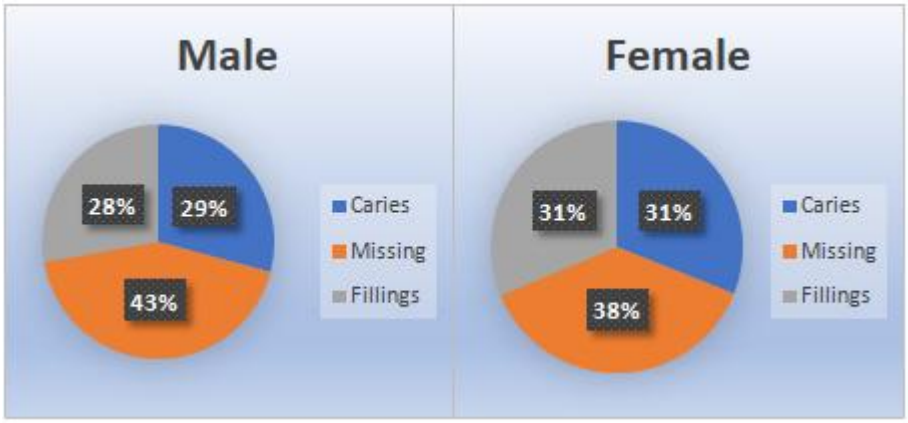


**Table 6:** Intergroup evaluation of DMFT values according to gender




## 4. Discussion

In the present study, decayed, filled and missing teeth of 1056 patients admitted to the outpatient clinic were evaluated and grouped according to age and gender.

Radiographic data; has gained place in the forensic medicine because of re-examination opportunity of the data, evaluation of the data without showing dependence on the individual and being objective. [8] Intraoral radiographs have an important role in the detection of caries and periodontal disorders because of their advantages such as high resolution and minimum distortion. [9]

In the present study, 1056 radiographs, obtained from 528 female and 528 male patients, were evaluated and the patients were divided into age and sex groups. In general, when the age groups were examined, in the age 50+, the number of filled teeth decreased and the number of missing teeth increased. DMFT and MT rates increased with age, although DT and FT rates did not differ significantly.

It was found that the D/T ratio of female patients between 20-29 years of age was lower than male patients of the same age group. The ratio of caries in the same age group was lower in women. Female patients in this group were found to have a lower F/T ratio than men. It was found that the number of decayed teeth was less in females and the number of filled teeth was also less. M/T ratio of female patients of the same age group was found to be less than that of men.

D, F, M and DMF rates were found to be low in women in the 30-39 age group compared to men. As a result of these findings, oral care habits of women in 20-29 and 30-39 age group were thought to be better.

In the 40-49 age range, D, F and DMF were found to be low in males and M was found to be low in females. Although there was not an extreme difference between women and men among the ages of 40-49, it has been thought that women behaved a little moreinattentive compared to men as an increase in caries, filling and missing teeth was observed.

In patients over 50 years of age, D, F and DMF were found to be low in males and M was found to be low in females. The increase in the number of missing teeth was noteworthy in this age group.

The DMFT index of the 20-29 age group is 3.856, and this ratio wasobserved to be composed of decayed and filled teeth rather than lost teeth.DMFT index of the patients in the 30-39 age group is 5.681 and this ratio mostly consisted of decayed teeth followed by missing teeth.In this case, it may be interpreted that the general oral care is weaker and the frequency of visits to the dentist is lower due to the fact that the proportion of filled teeth is lower and the proportion of lost teeth is higher than the patients in the 30-39 age group compared to the 20-29 age group.It is seen that most of DMFT values of 40-49 age group and 50+ group patients are caused by tooth loss. This may be due to periodontal diseases and systemic factors that progress with age.

Although DMFT indexes of male and female patients were very close, male patients had higher DMFT indexes and treatment needs. Although most of the DMFT indexes in both patient groups comprised of missing teeth, this ratio was higher in the male patient group. It may be hypothesized that males do not allocate time for treatment and controls and prefer more radical treatment methods may be related to this result. The proportion of filled teeth was higher in women. This may be attributed to the aesthetic concerns of female patients and the fact that they demand more treatment due to intraoral changes during menopause and pregnancy. [10]

It is a known fact that brushing teeth significantly reduces the risk of caries. It has been shown that those who brush their teeth twice a day and those who acquire this habit at an early age, have less caries. [11] There is a relationship between tooth decay and sucrose intake with nutrition. Although Akıncı et al. reported that there was no significant relationship between the number of caries or fillerings and consumption of carbonated beverages. [12]

In the study conducted in Istanbul-Bayrampaşa among children 6-12 years of age, the mean DMFT of the children was 8.72 ± 2.05 and the mean DMFT of the mothers was 11.62 ± 6.72. It has been reported that DMFT and child's knowledge level, mother's knowledge level and

mother's DMFT affect each other significantly. [13] The awareness of individuals also suggests that the next generation will have better oral hygiene.

## 5. Result

The relationship between age and treatment requirements was significant. DMFT index was high in all age groups and treatment needs increased with age.

Oral hygiene education should be given importance from an early age and individuals with better oral hygiene and health should be targeted by making continuous information and reminders about oral and dental health. In this context, preventive medicine services should be increased and public awareness should be created through continuous motivation and awareness-raising training, advertising and other services in order to maintain oral dental health at high levels throughout life.

## References

[1] Bodur, H., A. Bodur, V. Yücesoy, and K. Baloş, *İki farklı yaş grubunda diş çürüğü prevelansı ve periodontal durumun değerlendirilmesi.* Gazi Üniversitesi Diş Hekimliği Fakültesi Dergisi, 2004. **21**(1): p. 35-39.
[2] Selwitz, R.H., A.I. Ismail, and N.B. Pitts, *Dental caries.* The Lancet, 2007. **369**(9555): p. 51-59.
[3] Evlice, B.K. and H. Öztunç, *Dijital Radyografi ve Diş hekimliğinde İleri Görüntüleme Yöntemleri.* Arşiv Kaynak Tarama Dergisi, 2013. **22**(2): p. 230-238.
[4] MİLOĞLU, Ö., D.Y. YAŞA, and H. GÜNGÖR, *Bir Grup Dişsiz Hastada Panoramik Radyografi İncelemesi.* Atatürk Üniversitesi Diş Hekimliği Fakültesi Dergisi, 2012. **2012**(3): p. 230-234.
[5] Zafersoy, Z., G. Kayaoğlu, Ö. Topuz, and H.E. Can, *Aproksimal çürüklerin teşhisinde konvansiyonel radyografik teknikler, RVG ve klinik muayenenin karşılaştırılması.* Gazi Üniversitesi Diş Hekimliği Fakültesi Dergisi, 2001. **18**(1): p. 9-12.
[6] Yıldız, E., M. Şimşek, Z. Gündoğar, and A.M. Aktan, *Oral health survey of children referring to Faculty of Dentistry in Gaziantep.* Gaziantep Med J, 2015. **21**(2): p. 118-124.
[7] Geneva, W.H.O., *Oral health surveys : basic methods, 4th ed.* 1997.
[8] Forrest, A., *Collection and recording of radiological information for forensic purposes.* Australian dental journal, 2012. **57**: p. 24-32.
[9] Valachovic, R.W., C.W. Douglass, A.B. Reiskin, H.H. Chauncey, and B.J. McNeil, *The use of panoramic radiography in the evaluation of asymptomatic adult dental patients.* Oral Surgery, Oral Medicine, Oral Pathology, 1986. **61**(3): p. 289-296.
[10] Yeşilova, E., Ö. Irmak, and M.A. Kılıçarslan, *Panoramik radyografi üzerinden yaygın görülen dental durumların yaş ve cinsiyetle ilişkisinin değerlendirilmesi.* Selcuk Dental Journal. **5**(3): p. 239-245.
[11] Altun, C., G. Güven, F. Başak, and E. Akbulut, *Altı-onbir yaş grubu çocukların ağız-diş sağlığı yönünden değerlendirilmesi.* Gülhane Tıp Dergisi, 2005. **47**(2): p. 114-118.
[12] ÖZYÜREK, A., M. CİNAR, N. YAVUZ, M. BEKTAŞ, and A. ÇETİN, *İlkokul Öğrencileri ve Annelerinin Ağız ve Diş Sağlığı Konusundaki Bilgi ve Uygulamaları Arasındaki İlişkinin İncelenmesi.* Sakarya Üniversitesi Eğitim Fakültesi Dergisi, 2015(30): p. 34-48.
[13] Namal, N., H.E. Vehid, S. Vehid, G. Can, and S. Hekimi, *Altı-on iki yaş grubu çocukların diş sağlığını etkileyen anneye ait faktörlerin araştırılması.* Çocuk Dergisi, 2009. **9**(3): p. 123-126.