EVALUATION OF TREATMENT SERVICES AND REFERRAL RATES AT
ORAL AND DENTAL HEALTH CENTERS IN TURKEY¹TÜRKİYE’DE AĞIZ VE DİŞ SAĞLIĞI MERKEZLERİNDE YAPILAN
TEDAVİLERİN VE SEVK İŞLEMLERİNİN DEĞERLENDİRİLMESİDilek ÖZTAŞ¹, Kemal Özgür DEMİRALP², Gamze BOZCUK GÜZELDEMİRCİ³,
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Öz: Amaç: Türkiye’de ağız ve diş sağlığı hizmetlerinin sunulmasında, verilen hizmetlerin niceliksel ve niteliksel olarak yeterliliği, sağlık insan gücü kaynakları, iş yükü, erişilebilirlik ve sürdürülebilirlik gibi konular başta olmak üzere çeşitli güçlüklerle karşılaşmaktadır. Bu çalışma ile ülkenin ağız ve diş sağlığı hizmet sunumunda büyük bir paya sahip olan Ağız ve Diş Sağlığı Merkezleri(ADSM) ile Ağız ve Diş Sağlığı Hastaneleri(ADSH)’nde sunulan hizmetlerin, yapılan tedavilerin değerlendirilmesi ve bu merkezlerdeki sevk hızları ile ilişkilendirilmesi amaçlanmaktadır. Ağız ve diş sağlığı ile ilgili hizmetlerinin etkili bir şekilde planlanabilmesi için bu analizler gereklidir. **Materyal ve Yöntem:** Bu kesitsel çalışmada, 2010-2014 yıllarında, Türkiye bütününde hizmet veren ADSM-ADSH’lerinden elde edilen veriler karşılaştırılmaktadır. **Bulgular:** ADSM-ADSH’ler için kişi başı diş hekimine başvuru sayıları 2010 yılında 0,12, 2011 yılında 0,21, 2012 yılında 0,20, 2013 ve 2014 yılında ise 0,39 olmuştur. Kişi başına diş hekimine başvuru sayıları 2012 den 2013 ve 2014 e geçildiğinde gözle görülür bir şekilde artmıştır. ADSM-ADSH’lerden yapılan sevklerde en iyi durumda olan bölgeler sırasıyla, İstanbul, Doğu Marmara, Batı Anadolu, Kuzeydoğu Anadolu, Ege ve Batı Marmara’dır. Sevk sayıları en az olup ilk altıya giren bu bölgeler, poliklinik sayılarında ve tüm tedavi uygulamalarında sayısal olarak en iyi durumda olan ilk altı bölge arasında girmektedir. Bölgede yapılan poliklinik sayısı ve verilen ağız ve diş sağlığı hizmetlerinin nüfusa göre yüzde oranı arttıkça bölgenin sevk hızı da düşmektedir. **Sonuçlar:** Elde edilen bu analiz sonuçları, yıllar itibarı ile artan nüfus ve yıllar itibarı ile “Sağlıkta Dönüşüm Programı” kapsamında artan hizmet sunumuna paraleldir. Başta diş hekimleri olmak üzere, ADSM-ADSH’lerdeki sağlık çalışanlarının kalitatif ve kantitatif artışının sağlanması, bölgeler arası farkların giderilmesi, ağız ve diş sağlığı hizmetlerinin aile hekimliği pratiğine entegre edilmesi yolundaki çalışmalar umut vermektedir. Türkiye’de, ağız ve diş sağlığını geliştirmek için, toplumsal ağız ve diş sağlığı programlarının yürürlüğe konması, ülkede ağız ve diş sağlığı alanında hizmet sunan tüm sektörlerin arasındaki entegrasyonun sağlanması gerekmektedir. Böylece, ağız ve diş sağlığı hizmetlerinde ulaşılabilirliğin artırılacağı ve tedavi maliyetlerinin de düşürülebileceği aşikardır.

Anahtar Kelimeler: Türkiye, Ağız ve Diş Sağlığı Merkezi, Tedavi, Sevk Sistemi

Abstract: Aim: Oral-dental health services in Turkey have several difficulties like qualitative and quantitative service provision, health manpower sources, workload, accessibility and maintainability. This study’s aim is to evaluate the treatment services and to associate these parameters with the referral rates at Oral-Dental Health Centers and Oral-Dental Health Hospitals which constitute a large proportion of the mentioned service presentation in our country and to plan these services more effectively. **Material and Methods:** In this cross-sectional study, the data were collected from ODHCs and ODHHs, which provide oral-dental health services in Turkey, between years 2010 and 2014. **Results:** The numbers of admissions to a dentist per capita at ODHCs/ODHHs were 0.12 in 2010, 0.21 in 2011, 0.20 in 2012 and 0.39 in 2013 and 2014. The regions which had the lowest referral rates from ODHCs/ ODHHs were Istanbul, Eastern Marmara, Western Anatolia, Northeastern Anatolia, Aegean and Western Marmara. Oppositely, Southeastern Anatolia, Mideastern Anatolia, Eastern Blacksea, Central Anatolia and Mediterranean Regions had the highest referral rates. These six regions which had the fewest referral numbers were the highest regarding the number of outpatient clinic numbers for all treatments evaluated, except for the Istanbul region. If the number of outpatient clinics and the percentage of oral-dental health services in the population increase, the referral rates of the region decrease. **Conclusion:** These results are parallel with the growing population and increasing service delivery within the Health Transition Project over the years. The studies give hope about ensuring the qualitative and quantitative increase of health providers, primarily dentists at ODHCs/ ODHHs, eliminating differences between the regions as well as integrating the oral-dental health care services into family medicine practice. Oral-dental health care programmes for the community should be put into place and improved accessibility to oral-dental health services and a decrease in treatment costs would appear to be feasible.

Key Words: Turkey, Oral-Dental Health Center, Treatment, Referral System

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INTRODUCTION

The main aim of health systems is to optimize health standards where possible and to decrease any statute differences between individuals, groups and regions, although health necessities are extensive and the sources are limited (Üstü, et all., 2011:55-61).

Modern health systems should provide services to 'everyone, everywhere and at all times'. National health systems regardless of development standards, have been trying to solve problems such as inequalities in health services, a qualitative and quantitative lack of health manpower and have been improving several strategies in this field(Boelen, et all., 2002:11). The philosophy of the developed world and the progress priorities of a country should be considered when designing a new system (Şahin et all, 2002:2-3) (Figueras, et all., 2005:170-1)

The basic targets of health services are to increase accessibility to health services, to provide a balanced health service which ensures equal benefits and to improve the life quality of individuals. Health services are included in the planning and inspection of public authorities concerning their basic characteristics (Üstü, et all., 2011:55-61).

The Turkish Republic is one of the important countries of its geographical region which covers a large area and has a population of

77695904. The population of rural areas (towns and villages) is 6409722 (8.2%). Turkey is defined as an intermediate country in terms of health standards. The infant mortality rate stands at 11.1% while 23% of the population are under 14 years of age and the elderly make up for 9% (DİE, 2014).

The Turkish Ministry of Health has been studying several problems within Health Transition Project (HTP) including a general improvement of health services, dissemination of patient centered health service, easy access to health services and a reduction in regional differences. Enough flexibility has been shown in Turkey concerning recommended new oral-dental health practice, how to provide such services and further sources have promised to improve oral-dental health services (Akdağ, 2011).

Dental and periodontal diseases are commonly seen all over the world as well as in Turkey; however, these diseases are not given enough attention because they are not mortal. In fact, oral-dental health is a part of general health and is an important subject in public health (Yazıcıoğlu, 2006).

The burden of oral-dental diseases is commonly seen in developing countries and is especially among the lower classes according to the World Health Organization Report of 2003. Studies on the relationships be-

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tween oral-dental health and socio-economic changes have shown that there were significant inequalities when compared with other health fields (Petersen, 2003:3-24) (Petersen, 2005:661-9).

Oral-dental health services in Turkey had been largely left to the market conditions in 2003. Citizens had to meet their health needs mostly from private dentists and had to pay the costs. Although there were 16371 dentists in Turkey in 2002, the number of dentists who were employed by the Ministry of Health was only 3211 (20%) (Atasever, 2014). Oral-dental health service delivery had on the whole been transferred to public institutions by the HTP in 2015. The HTP started in 2003 is a modern step to provide a reorganization of health standards. The aim of the HTP is to provide, organize and finance health services effectively and efficiently (DİE, 2014) (Atun et al., 2013:65-99) (Atasever, et al., 2015:56).

During this period, completing the set-up for treatments are aimed at a raised awareness in society on subjects concerning oral-dental health, education and preventive medicine as a whole.

Despite the proportion of resources for oral-dental health services in health charges being 4.8% in 2002, it had increased to 5.3% in 2013. Health charges have increased by

349.5% in this period while oral-dental health services charges have increased by 403% (Atasever, et al., 2015).

At least one ODHC was opened in every city between the years 2002-2013 by the HTP. There were 14 ODHCs, 1 ODHHs and 3211 dentists in 2002; these numbers increased over the years and there were 137 ODHCs, 6 ODHHs and 7750 dentists by 2014 (Başara et al., 2013).

Oral-dental health services performed at ODHCs/ ODHHs are; fillings, root canal therapies, fixed and removable dental prostheses, exodontias, pedodontic treatments and exodontias, scalings, orthodontic treatments and periodontal operations.

Dental caries is caused by dental plaque which accumulates due to the lack of oral care and includes microorganisms. Plaque initiates caries with a loss of mineral on the tooth face. When the loss of mineral persists, inside of the tooth is also affected resulting in dental caries. The next step would be to remove the decayed tissue and to place a filling (Aydın, 2010). Teeth with orthodontic abnormalities decay more easily because they do not have normal interdental contacts and are affected by food residues deposited here. Exodontia is another indirect reason for the acceleration of decay. If a tooth is removed from the dental arch, the other teeth in con-

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tact with the removed tooth move to the space freely. Optimal contact points of these teeth are damaged and food deposits occur causing dental caries.

Untreated dental caries causes intense pain in the long term and it may cause an intraoral or extraoral abscess. Periapical cysts may occur. In this case, root canal therapy or exodontia is required(Aydın, 2010)

Root canal therapy is an intervention when dental pulp is irreversibly infected. It involves the removal of the pulp which includes vessels and nerves. Canal therapy is the last intervention to save a tooth. The tooth with canal therapy may stay healthy for years according to the status of the tooth, the patient and the quality of the treatment.

Pedodontia is an area of dentistry which ensures oral-dental health care and improvement in healthy children or children who need special treatment (mentally or physically disabled, having systemic diseases etc.) in the period from infancy to youth. It presents several treatment opportunities regarding preventive and curative oral-dental health applications.

All artificial restorations which are used to reconstruct missing teeth for esthetic and functional needs are prostheses (Aydın, 2010). Fixed prostheses can not be removed by the patients. They are generally more natural and

more esthetic than removable prosthesis. Removable prostheses are used if anchored teeth can not carry the load when several teeth are missing or in cases of unilateral or bilateral free end ridges.

Orthodontic therapy is another treatment method provided at ODHCs/ODHHs. Orthodontic therapy is a branch of dentistry in which teeth are set in the correct position on alveolar crests, as well as diagnosing and treating face abnormalities.

Periodontology is the field of diagnosing and treating periodontium. Periodontal diseases are infections of the gingiva and other tissues that support teeth. Periodontal diseases are responsible for the loss of teeth in 70% of adults. These diseases can be treated easily and successfully if they are diagnosed at an early stage. Scaling is the most common and preventive treatment method for gingival diseases. It removes tartar or plaque to clean the teeth.

The aim of this study is to analyse the treatments provided by oral-dental health services quantitatively and to determine referral rates. In this way, it would be possible to improve the supply and demand equilibrium in the future.

MATERIAL and METHOD

In this cross-sectional retrospective study, data about oral-dental health services were

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extracted from ODHCs/ODHHS in Turkey between 2012 and 2014. ODHCs/ODHHS which are the main organizations of oral-dental health services and connected to the Ministry of Health were included in the study. There were 18070 dental units in 2014. Of these, 7650 (42.39%) were connected to the Ministry of Health. ODHCs had 4872 dental units and ODHHS had 846 dental units (Başara, 2014). ODHCs provide primary care concerning oral-dental health in Turkey. Dental units of public hospitals and other sectors such as university hospitals and private hospitals from which healthy data could not be obtained were not included in this study. The total number of outpatients treated at dental clinics was 37925956 in 2014 in Turkey, 24204277 of these were treated at ODHCs/ODHHS. As a result ODHCs/ODHHS in Turkey represented 42.39% of the dental unit numbers and 63.82% of all dental outpatient clinic numbers in the country. All of the population was included in the study as there was no sampling.

Data Collection

The data were collected monthly by our study group from ODHCs/ ODHHS over a 5-year period beginning from 2010. The data began to be analyzed in 2015. The data were collected from 137 ODHCs and 6 ODHHS in 81 provinces. Approval for the study was given

by the Public Hospital Institution of Ministry of Health.

This study was approved by the Local Ethical Committee of Yildirim Beyazıt University in its 04/21-24 session on 28.08.2015 (Number:110-113).

Our study was designed regarding the Nomenclature of Territorial Units for Statistics and Provinces-1 (NUTS-1). This was structured in the middle of the 1970s to present detailed data to the European Union (EU) by Eurostat (EU Statistics Office) and its primary goals were to collect statistics locally, provide socio-economic analyses and to structure regional policies for the society. The provinces were classified as Level-3 according to NUTS-1, neighboring provinces which had economic, social and geographical similarities were classified as Level-1 and Level-2 regarding their local development plans and population, then hierarchical NUTS was structured. Level-1 Statistical Regional Units were defined after Level-2 Statistical Regional Units had been grouped. There are twelve Level-2 regions and the NUTS-1 study is taken as a basis in all regional studies in the governmental sector (Başara, 2015).

Statistical Method Used

The data were recorded on the computer and presented as one-dimensional and two-dimensional tables. IBM-SPSS for Windows

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Version 22.0 statistical package was used to analyse the data. The admissions to ODHCs/ODHHs were calculated as admissions per capita regarding the population. The distribution of admissions per capita were given as to years and regions. The major services presented at ODHCs/ODHHs were; tooth filling, root canal therapy, exodontia, pedodontic exodontia and treatment, fixed and removable dental prostheses, scaling and periodontal operations and orthodontic treatments. The number of services given and their proportions in terms of outpatient clinic numbers were calculated as to years.

The distribution of services presented at ODHCs/ODHHs per unit and per dentist by

year were calculated. The classification of referrals from ODHCs/ ODHHs according to NUTS-1 and years were rated and distribution rates by years were calculated.

No hypothesis testing or comparisons were used because no sampling was performed and the data were mass data. The results were commented as 'increased' or 'decreased' compared to the previous years; the regions were compared by numbers and rates.

FINDINGS

The numbers of admissions to dentists in ODHCs/ODHHs per capita are shown in Table 1.

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Table 1. The Number of Admissions per Capita According to NUTS-1

Regions	ODHCs/ODHHs					All sectors, Turkey
	2010	2011	2012	2013	2014	2014
Mediterranean	0.09	0.17	0.18	0.29	0.27	0.42
Western Blacksea	0.12	0.28	0.27	0.44	0.41	0.65
Western Anatolia	0.16	0.28	0.29	0.43	0.42	0.71
Northeastern Anatolia	0.13	0.25	0.22	0.29	0.35	0.56
Southeastern Anatolia	0.11	0.19	0.18	0.27	0.29	0.40
Aegean	0.12	0.22	0.21	0.33	0.31	0.48
Eastern Marmara	0.20	0.29	0.26	0.40	0.38	0.57
Western Marmara	0.10	0.19	0.23	0.41	0.37	0.55
Eastern Blacksea	0.12	0.18	0.17	0.29	0.28	0.49
Istanbul	0.07	0.14	0.12	0.19	0.20	0.34
Mideastern Anatolia	0.14	0.22	0.17	0.32	0.33	0.48
Central Anatolia	0.12	0.19	0.22	0.36	0.36	0.60
ODHCs/ODHHs	0.12	0.21	0.20	0.32	0.32	
All sectors. Turkey ¹⁵	0.34	0.40	0.46	0.49	0.49	

The numbers of treatment types evaluated and their proportions in outpatient clinic services

at ODHCs/ according to years are shown in Table 2.

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Table 2. The Number of Treatments in Odhcs/Odhhs and the Proportion of Treatments in Outpatient Clinic Services

Regions	2010		2011		2012		2013		2014	
	Number	%	Number	%	Number	%	Number	%	Number	%
Outpatient clinic	8633688	-	15640080	-	14982652	-	24251448	-	24204277	-
Filling	1577924	18.28	3590629	22,96	1704372	11.38	6904310	28.47	6879398	28.42
Root canal therapy	25809	2.99	708618	4,53	288380	1.92	1622138	6.69	1700128	7.02
Fixed prosthesis	131168	15.19	3095496	19,79	1719044	11.47	4573890	18.87	4334476	17.91
Removable prosthesis	429893	4.98	618767	3,96	35.849	2.36	913728	3.77	909784	3.76
Exodontia	2350891	27.23	3465276	22,15	4618569	30.83	519984	2.14	5506120	22.75
Pedodontic treatment	461596	5.35	1003656	6,42	1100201	7.34	1941801	8.01	1960881	8.10
Pedodontic exodontia	484376	5.61	753875	4,82	27827	0.19	1282294	5.29	1246461	5.15
Scaling	161646	18.69	3398281	21,73	764024	5.10	2031589	8.38	1025931	4.24
Orthodontic treatment	3152	0.40	40159	0,26	42342	0.28	80001	0.33	82063	0.34
Periodontal operation	60861	0.70	50773	0,32	36612	0.24	102816	0.42	104274	0.43
Referral	71976	0.83	156065	1,00	159593	1.07	102827	0.42	100427	0.41

The number of primary services provided at the distribution by years are shown in Table ODHCs/ ODHHs per unit and per dentist and 3.

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Table 3. The Distribution of Services per Unit and per Dentist at Odhcs/ Odhhs According to Years

Regions	2012		2013		2014	
	Per unit *	Per dentist	Per unit	Per dentist	Per unit	Per dentist
Outpatient clinic	-	2394.40	3.721.88	4.516.76	3563.34	4231.72
Filling	-	218.09	989.80	1072.26	962.45	1077.68
Root canal therapy	-	36.81	230.86	252.63	230.26	259.91
Fixed prosthesis	-	255.72	614.13	670.72	566.69	636.55
Removable prosthesis	-	56.77	145.30	158.83	139.64	156.27
Exodontia	-	94.30	296.92	297.52	160.85	169.56
Pedodontic treatment	-	5182.63	440.09	393.46	6317.06	5862.24
Pedodontic exodontia	-	0.00	270.23	292.24	267.04	296.94
Scaling	-	5.63	220.26	221.75	199.66	216.05
Orthodontic treatment	-	28.27	0.00	0.00	4.04	5.48
Periodontal operation	-	1.78	9.15	8.75	5.97	5.96

The number of units in 2012 could not be extracted.

The rate of referrals from ODHCs/ODHHs according to years and regions are shown in Table 4.

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Table 4. The Distribution of Referrals According to Years and NUTS-1(%)

Regions	Referral Rates*				
	2010	2011	2012	2013	2014
Mediterranean	1.33	3.02	3.36	1.21	0.31
Western Blacksea	2.31	1.56	1.25	1.11	0.63
Western Anatolia	0.17	0.25	0.81	0.70	0.10
Northeastern Anatolia	0.98	0.98	0.80	0.62	0.14
Southeastern Anatolia	1.05	1.11	1.04	0.52	1.20
Aegean	0.87	0.74	1.41	0.40	0.19
Eastern Marmara	0.49	0.52	0.25	0.20	0.01
Western Marmara	0.66	0.47	0.19	0.20	0.20
Eastern Blacksea	1.95	1.26	0.83	0.20	0.71
Istanbul	0.00	0.02	0.05	0.10	0.01
Mideastern Anatolia	0.92	2.01	1.08	0.10	1.12
Central Anatolia	0.32	1.22	0.88	0.01	0.51
ODHCs/ODHHs	0.83	1.00	1.07	0.42	0.41

*Orthodontic referrals were excluded.

DISCUSSION

The numbers consulting a dentist at ODHCs/ODHHs per capita were 0.12 in 2010, 0.21 in 2011, 0.20 in 2012 and 0.39 in 2013 and 2014 (Table 1). The numbers were 0.34 in 2010, 0.40 in 2011, 0.46 in 2012 and 0.49 in 2013 and 2014 including all sectors in Turkey (Başara, 2014). The numbers have increased visibly by 2013 and 2014 when compared with 2012. Decree-Law 663, dated 2 November 2011 in the official journal concerning the Establishment and Duties of the Ministry of Health and

its affiliated institutions, the Public Hospital Institution which became functional by a new formation and restructuring of the General Secretariat which started working in 2012, has led to these changes. The Turkish Public Hospital Institution (TPHI) connected to the Ministry of Health was designed to open and manage hospitals, ODHCs and similar health centers for secondary and tertiary prevention by Decree-Law 663. The TPHI has authorizations and duties including the setting up and management of hospitals connected to the Ministry of Health; associating, separating or closing health institutions; evaluating perfor-

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mance; performing appointments, transfers, personnel affairs, payment and retirement of employees; performing purchases, rentals, care and repairs of institutions. Public Hospital Unions based on the TPHI were set up in the provinces (Atasever, et al., 2015). The first six regions using ODHCs/ODHHs the most were Western Anatolia, Western Blacksea, Eastern Marmara, Western Marmara, Central Anatolia and Northeastern Anatolia. The regions using at the least frequency were Istanbul, Mediterranean, Eastern Blacksea, Southeastern Anatolia, Aegean and Mideastern Anatolia Regions. When all sectors were evaluated, the results were found to be the same in the first and last sixth regions regarding admissions to ODHCs. The Istanbul Region was the worst of all sectors regarding the use of ODHCs/ODHHs and oral-dental health services.

According to TPHI data, the number of outpatients being treated in clinics in oral-dental health services was 4651716 in 2002. This increased to 32203511 in 2013 and 3179075 in 2014. The number of treatments increased in parallel with the number of outpatient clinics (Başara et al., 2014).

The numbers of root canal therapies were 31989, 219699, 268087, 524207, 162998 and 2053886 in 2002, 2005, 2007, 2009, 2013 and 2014 respectively, according to TPHI data. The numbers of fillings performed were

329449 in 2002, 1837046 in 2005, 2559367 in 2007, 2492383 in 2009, 8463888 in 2013 and 8382384 in 2014. The number of exodontias were 1377014 in 2002, 7994535 in 2013 and 7395928 in 2014. Fixed dental prosthesis totalled 261902, 5778493 and 5648983 in years 2002, 2013 and 2014, respectively while the numbers were 112446, 1256420, 5648983 for removable prosthesis for exactly the same years. Orthodontic therapies totalled 23772 in 2002, 121529 in 2013 and 83836 in 2014. The numbers of periodontal operations were 6870, 118655, 115162 in 2002, 2013 and 2014, respectively.

Oral-dental health services within TPHI have been provided in ODHCs/ ODHHs as well as in the dental units of public hospitals. The number of treatments and the proportion of treatments in outpatient clinics at ODHCs/ ODHHs are shown in Table 3 and all of these treatments are considered for the performance of dentists at ODHCs/ODHHs. The number of major services per unit and per dentist at ODHCs/ODHHs have increased over the years (Table 4).

Referrals transfer patients to another health center (hospital service of higher specialization) for the provision of necessary health services. Referral rates (%) of all health services at primary care institutions in Turkey were 0.4 in 2010, 0.7 in 2011, 2.1 in 2012 and 0.3 in 2013 and 2014.

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The referral rates at ODHC and ODHH were 0.83% in 2010, 1% in 2011, 1.07 in 2012, 0.45% in 2013 and 0.11% in 2014. The referral rates have decreased by 2013 and 2014 (Başara et al., 2014).

The Ministry of Health has invested for the capacity and variety of oral-dental health services within the HTP in 2010.⁶ After these changes, public dental services were restructured following Official Approval dated 06 October, 2010 (number 39929) by the Health Ministry Treatment Services General Management. The first ODHC was opened in 1998, the number of ODHCs was 14 in 2002 and had increased to 137 by the end of 2014.

Outpatient clinics and other services have increased and referrals decreased over the years. The regions in the best condition for referrals have been Istanbul, Eastern Marmara, Western and Northeastern Anatolia, Aegean and West Marmara, respectively. The worst regions are Southeastern Anatolia, Mideastern Anatolia, Eastern Blacksea, Central Anatolia and Mediterranean, respectively. These six better regions, on the other hand, have the least referral numbers and also have a higher number of outpatient clinics and treatments. If the number of outpatient clinics and percentage of oral-dental health services increases, the number of referrals decreases.

The number of dentists and dental clinics per 100000 people are also higher and referral numbers are also lower in these same six regions.

In contrast, although Istanbul region has a lower number of dentists and dental clinics per 100000 people, it also has a lower referral rate. It is thought that oral-dental health services in Istanbul have been provided mostly by private clinics (Korukluoğlu et al., 2006:26).

CONCLUSION

During the years after the Alma-Ata Declaration in 1978, the idea of ‘health for all’ has played an important role in developing the health policies and determining the priorities of health systems and by this way, basic health services have been prioritized. This declaration has suggested that basic health should be developed and implemented both urgently and effectively all over the world and especially in developing countries in a spirit of technical cooperation and suited to the local economic status (Atasever et al., 2015). “Health for all” means providing accessible and sustainable health care with enough oral-dental health services and qualified manpower. Therefore, the main aim is to evaluate the current status of oral-dental health services then to complete any deficiencies between

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the regions and finally to improve all services countrywide.

In a study, the treatment needs among people aged 5-74 years in Turkey have reportedly changed from 20.3% to 73.0% and the proportion of people above 65 years who had total edentulism and needed prosthesis was 48% (Gökalp et al., 2007:3-10) (Gökalp et al., 2007:8-11) .

The prior target of oral-dental health services is to determine the present status of these services, the awareness and current status of the population. Currently, 90% of the population have oral-dental problems. Therefore the number of oral-dental health services and providers should be increased and policies improving knowledge and awareness of the general population about oral-dental health should be structured (İstanbul Diş Hekimleri Odası, 2015:26-30).

The family dentistry system should be prioritized to generalize oral-dental health services, to decrease the proportion of patients at secondary and tertiary centers and to avoid higher costs because of advanced treatments. This model which at the first glance reminds "family medicine implementation", will complete the deficiencies in preventive dentistry in Turkey (Demiralp et al., 2012:60-70)

Appropriate policies should be developed, essential regulations should be structured to

attain the desired quality in oral-dental health services. Difficulties during application affect the success. Besides the other components of the health system, oral-dental health services and manpower are affected by the characteristics of the country itself

REFERENCES

AKDAĞ, R., (2003-2010). Türkiye Sağlıkta Dönüşüm Programı, Değerlendirme Raporu. Accessed Jan 2, 2016 at [http://ekutuphane.tusak.gov.tr/kitaplar/turkiye-saglikta-donusum-programi-degerlendirme-raporu-\(2003-2011\).pdf](http://ekutuphane.tusak.gov.tr/kitaplar/turkiye-saglikta-donusum-programi-degerlendirme-raporu-(2003-2011).pdf) (10.08.2015)

ATASEVER, M., (2014). Türkiye Sağlık Hizmetlerinin Finansmanı ve Sağlık Harcamalarının Analizi, 2002-2013 Dönemi. Bakanlık Yayın No:983, Ankara

ATASEVER, M., et al., (2015). Türkiye’de Ağız –Diş Sağlığı ve Dental Görüntüleme Hizmetleri, Ayrıntı Basımevi, Ankara

ATUN R., et al., (2013). Universal Health Coverage in Turkey: Enhancement of Equity. The Lancet 2013; 382(9886): 65-99

AYDIN, M., (2010). Mosby’nin Diş Hekimliği Sözlüğü, Çeviri Editörü, Dr.Murat Aydın, Mosby Elsevier, Nobel Kitapevi, Ankara

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(TRADEMARK)

(2015/04315- 2015-GE-18972)

BAŞARA B.B., et all.,(2014). Republic of Turkey, Ministry of Health General Directorate of Health Research. Health Statistics Yearbook 2013, Sentez Matbaacılık ve Yayıncılık, Ankara

BAŞARA B.B., et all.,(2015). Health Statistics Yearbook 2014 Republic of Turkey, Ministry of Health General Directorate of Health Research. Ankara: Sentez Matbaacılık ve Yayıncılık; 2015, Ankara

BOELEN, C., et all., (2002). Improving Health Systems: The Contribution of Family Medicine, A Guidebook. Singapore: WONCA; 11

DEMİRALP, K.Ö., et all., (2012). Türkiye’de Aile Dış Hekimliği Uygulaması İçin Bir Model Önerisi. Ankara Med J; 12(2): 60-70

DİE, GENEL NÜFUS SAYIMI SONUÇLARI, (2007-2014). (1935-2000 ve TÜİK adrese dayalı nüfus kayıt sistemi sonuçları, Accessed Sept 15, 2015 at www.tuik.gov.tr/PreIstatistikTablo.do?istab_id=1589 (09.08.2015)

FIGUERAS, J., et all., (2005). Menabde N, Busse R. The road of freedom. BMJ; 331: 170-1

GÖKALP, S., et all.,(2007). The Oral Health Profile of 5, 12 and 15 Year Olds, Tur-

key-2004. Hacettepe Dış Hek Fak Derg; 31(4): 3-10

GÖKALP, S., et all.,(2007). The Oral Health Profile of Adults and Elderly, Turkey-2004. Hacettepe Dış Hek Fak Derg; 31(4): 8-11)

İSTANBUL DIŞ HEKİMLERİ ODASI, (2015). Kamuda Çalışan Dışhekimleri Çalıştayı: ADSM’de Dışhekimliği Olmak. Dergi; 158: 26-30. Accessed Feb 15, 2015 at [https://www.ido.org.tr/lib_upload/files/ido%20dergi%20158%20WEB%20\(2\).pdf](https://www.ido.org.tr/lib_upload/files/ido%20dergi%20158%20WEB%20(2).pdf). (05.07.2015)

KORUKLUOĞULU, S., et all.,(2006). Family Medicine: The Turkish Model, 1st ed. Aydın S, editor. Ankara: Çetin Ofset;26, Ankara

PETERSEN, P.E., (2003). The World Oral Health Report 2003: continuous improvement of oral health in the 21st century-the approach of the WHO Global Oral Health Program. Community Dent Oral Epidemiol, 31(1): 3-24

PETERSEN, P.E., et all., (2005). The global burden of oral diseases and risks to oral health. Bulletin of the World Health Organization; 83(9): 661-9

ŞAHİN, B., et all.,(2002). Bigger Expectations at the Smaller World: Future Health Systems. Sağlık ve Toplum; 12(3): 2-3

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(TRADEMARK)

(2015/04315- 2015-GE-18972)

ÜSTÜ, Y., et all., (2011). Evaluation of Primary and Secondary Health Care Services in the Erzurum Region Between 2002-2008. Balkan Med. J. ; 28: 55-61

YAZICIOĞLU, B., Ağız ve Diş Sağlığı, Halk Sağlığı Temel Bilgiler (Güler Ç, Akın L. editörler) içinde. Ankara: Hacettepe Üniversitesi Yayını; 2006