

Demographic Characteristics, Referrals and Patients' Accessibility to an Oral and Maxillofacial Surgery Clinic

SUMMARY

Background: Throughout the financial crisis in Greece, health expenditures have been significantly reduced. As a result, patients' accessibility to various health care providers has been significantly reduced. The aim of the present study was to determine the profile of patients visiting a maxillofacial clinic in Northern Greece and the patients' accessibility to the specific healthcare. **Material and Methods:** Data were collected from 481, out of the 600, patients visiting for the first time the University Maxillofacial Clinic of a hospital in Northern Greece during 2013 and 2014. The sample was called to answer to an anonymous self-reference questionnaire with questions regarding their demographic and clinical characteristics, the pattern of their referral to the specific clinic, their city of residence, as well as information regarding their hospitalization. **Results:** The majority of patients (53.4%) were referred by a physician, while 38.4% by a dentist. More than half (51.4%) were admitted to the specific clinic with admission diagnoses such as Benign Lesions-Cysts (25.2%), Masticatory Myalgia-Temporomandibular Joint Dysfunction (21.6%), Infections (19.5%) and Fractures (18%). The median time to seek to hospital evaluation/treatment, from the initial diagnosis, was 30 days. Nine out of ten patients stated that there was no Maxillofacial Surgery Clinic in their area of residence, while 80.3% reported using a private means of transport to access the clinic. **Conclusions:** The results indicated a delay with respect to the final diagnosis, as well as difficulty in patients' accessibility, something that could contribute to an increase in morbidity and subsequently in the cost for managing patients' maxillofacial problems.

Key Words: Oral and Maxillofacial Clinic, Referral, Patient, Accessibility

Katerina Veneti¹, Stavros Stafylidis²,
Theodora Kaffkia³, Mixalis Kourakos⁴,
Konstantinos Antoniadis⁵, Christos Zilides⁶,
Stilianos Dalampiras⁵

¹Theagenio Oncology Hospital
Thessaloniki, Greece

²Department of Medicine
Aristotle University of Thessaloniki
Thessaloniki, Greece

³Alexander Technological Institute of Thessaloniki
Thessaloniki, Greece

⁴General Hospital "Asklepeion" Voulas
Athens, Greece

⁵School of Dentistry
Aristotle University of Thessaloniki
Thessaloniki, Greece

⁶Technological Educational Institute of Thessaly
Larisa, Greece

ORIGINAL PAPER (OP)

Balk J Dent Med, 2017; 21:19-23

Introduction

The Greek National Health System (GNHS) has been re-structured in the beginning of 1980s based on the British model. There are a lot of district health centers with the basic medical specialties (medical, surgical, paediatrics, obstetrics, general practitioners) working 24 hours (primary healthcare), district general hospitals in the capital of every prefecture (secondary healthcare), big district general hospitals (>400 beds) and university hospitals (tertiary healthcare). Alongside the

public healthcare system there are a lot of private clinics/hospitals that provide services to Greeks.

Dental services are provided within the GNHS in some big district health centers, in secondary and tertiary hospitals. More specifically they are provided in ten hospitals out of twenty-six in the Northern Greece, an area that is inhabited by 2.806.000 million people and has provided shelter for more than 30.000 refugees. In the funding law of GNHS maxillofacial services were planned to be provided in tertiary, and some secondary, hospitals and more specifically in one university hospital and one unit in the Northeast part of Greece (Alexandroupoli

and Komotini, respectively), in one general hospital in the center of north Greece (Kilkis) and in one university and one oncology hospital in the center of north Greece (Thessaloniki).

Over the last years, the Greek health system has suffered a major setback due to the financial adjustment program and the austerity policies. To be more specific, based on the research conducted by the Organization for Economic Co-operation and Development (O.E.C.D), reducing expenditures from 2009 to 2012 was estimated to be 25%¹. Inevitably, this reduction led to some public regional hospital clinics' permanent closure or to suspension of operations mainly due to doctors' retirements and lack of hiring new. Cutdowns in health services resulted in maxillofacial clinics (Alexandroupi University Hospital) and outpatients' clinics (Komotini District and Kozani District General Hospital and Theagenio Oncology Hospital of Thessaloniki) on the Northern prefectures of Greece to be forced to close permanently. As a result specialised care previously delivered by maxillofacial healthcare professionals, was, at that moment, delivered by general surgical wards and surgeons or ear nose throat (ENT) surgeons with no further specialisation.

Several studies conducted internationally, have studied the tendency of patients with dental and maxillofacial problems to seek immediate care in accidents and emergency departments and not in specialised clinics². However, only few studies have researched the characteristics of those patients as well as their accessibility to public specialized maxillofacial healthcare structures^{3,4}.

The financial crisis had major impact on the provision of services in Public Health Centers and university hospital units⁵. Concerning is the fact that closures of several healthcare units occurred when increased number of Greeks have reported that they do not seek health or dental care examination or treatment even though they believe it is necessary for them^{6,7}.

The aim of the present study was to determine the profile of patients seeking care for maxillofacial problems, emergencies or not, in a maxillofacial clinic in Northern Greece and the patients' accessibility to the specific healthcare facility. The research question set was that whether the current maxillofacial clinic in Northern Greece met the needs of the population of the specific area.

Material and Methods

All patients visiting the Out-Patient Clinic of the University Oral and Maxillofacial Surgery Clinic (OMFS) at the General Hospital of Thessaloniki "G. Papanikolaou", during 2013 and 2014, were approached and were invited to participate in the study (n=600).

More than two thirds accepted to participate (n=481). The population was asked, while waiting in the reception area of the clinic, to answer to an anonymous printed self-completed questionnaire, with questions regarding their demographic and clinical characteristics, the pattern of their referral, their city/town of residence, as well as data regarding their hospitalisations with the same problem (where, when, why, procedures performed).

Prior to the research, there was a pilot study conducted on a sample of 50 individuals at the same clinic of the particular hospital. For the study gender and place of residence, were set as the independent variables, whereas hospital admissions, diagnosis, days from the first diagnosis and final diagnosis were the dependent variables. The reliability of the pilot study, using the same questionnaire, based on the Cronbach's α (Alpha) was 0.91 (high reliability)⁸.

Statistical analysis

Statistical analysis of the results was conducted with the statistical package IBM SPSS v22. In descriptive statistics, the continuous variables with normal distribution were expressed by the mean value and the standard deviation (S.D.), whereas those not following a normal deviation were expressed by the median and range values. The dichotomous and the categorical variables were expressed by frequencies.

The nonparametric tests Mann-Whitney U and Kruskal-Wallis were carried out to compare the mean independent samples, while for the degree of correlation between continuous variables that did not follow a normal distribution Spearman's rho correlation coefficient was used. To test the dichotomous and categorical variables of independent samples Chi-square test (χ^2) and the Fisher's exact test were both used. Finally, the significance level for the hypotheses testing was set at 5% ($p < 0.05$).

Results

Females were the 52.8% (254/481) of the sample and the 49.3% (237/481) of the sample were married. The 37% (170/481) of the respondents were employed, while 27% (124/481) were unemployed and the rest almost equally divided between pensioners (84/481) and students (81/481). Most of the patients were residents of Central Macedonia prefecture (81.7%) and almost all had social insurance (97.3%). The mean age of the sample was 43.9 (± 21.1) years old (42.1 to 45.9) with a median age of 41.3 years old (Table 1).

From the patients visiting the OMFS Clinic, the 86.5% (n=416) were, finally, hospitalized with the most common admission diagnoses of Benign Lesions-Cysts (25.2%), Masticatory Myalgia-Temporomandibular Joint (TMJ) Dysfunction (21.6%), Infections (19.5%)

and Fractures (18%). The initial diagnosis was set by the referring physician, which was usually a surgeon, an internal pathologist or an orthopedic surgeon. From the initial diagnosis until the visit in the outpatients' clinic, included in the study, a median time of 30 days was found (1 day - 120 days) (Table 2).

Table 1. Demographic characteristics of the sample

	n/N	%
Marital status		
Married	237/481	49.3
Single	178/481	37.0
Divorced	31/481	6.5
Widowed	19/481	4.0
Profession		
Employed	170/481	37.0
Pensioner	84/481	17.5
Student	81/481	16.8
Unemployed-Homemaker	124/481	27.0
Area of Residence		
Central Macedonia	393/481	81.7
West Macedonia	30/481	6.2
East Macedonia	31/481	6.4
Other	16/481	3.3
Social Insurance		
Yes	468/481	97.3
No	13/481	2.7

Table 2. Clinical characteristics of the population

OPD Diagnosis	n/N	%
Fracture	75/416	18.0
Benign Lesions-Cysts	105/416	25.2
Masticatory Myalgia-Temporomandibular Joint (TMJ) Dysfunction	90/416	21.6
Infections	81/416	19.5
Cancer	18/416	4.3
Osteonecrosis	18/416	4.3
Salivary Diseases	13/416	3.1
Oro-Antral Communication	4/416	1.0
Orthognathic Clefts	12/416	3.0
Admission to clinic		
Yes	416/481	86.5
No	65/481	13.5

Table 4. Comparison between area of residence and admission to the clinic

	Place of residence	Central Macedonia	West Macedonia	East Macedonia	Other	P value
Admission to clinic	YES	48.3% (158/327)	68.6% (24/35)	68.6% (24/35)	68.4% (13/19)	0.025
	NO	51.7% (169/327)	31.4% (11/35)	31.4% (11/35)	31.6% (6/19)	

Most of the patients came to the OMFS clinic, after being referred by a physician (53.2%) and by the dentist (38.3%). The majority of the physicians providing referrals were surgeons (79.7%). The absence of Maxillofacial Surgery Clinic in their area of residence was reported from the 94.8% of the patients. As for how the patients accessed the clinic, the 80.2% of them stated that they used a private means of transportation (Table 3).

Table 3. Referrals' data

Person making the referral	n/N	%
Physician	256/481	53.2
Maxillofacial Surgeon	37/481	7.7
Dentist	184/481	38.3
Other Health Professional	4/481	0.8
Specialty of the referring Physician		
Surgeon	204/256	79.7
Pathologist	52/256	20.3
Means of transport		
Private Car	386/481	80.2
Bus	62/481	12.9
Ambulance	20/481	4.2
Other means of transport	13/481	3.1
Is there an OMFS Clinic		
Yes	25/481	5.2
No	456/481	94.8

Correlations

After correlating the patients' place of residence with admissions to the OMFS clinic, a statistical significance was found ($p=0.025$). To be more specific, patients from West and East Macedonia prefecture were more frequently admitted than those residing in Central Macedonia prefecture (Table 4).

Comparing the actual time of visit to an OMFS outpatients clinic from the initial diagnosis, in relation to the area of residence, it was found that patients residing in Central Macedonia prefecture had the lowest visit time (30 days) compared to patients residing in West and East Macedonia prefecture (60 days respectively), however there no statistical significant difference ($p=0.995$) (Table 5).

Table 5. Comparison of actual time of visit to the OMFS clinic (from initial diagnosis) to the area of residence

Area of residence	Time of visit to OMFS clinic from initial diagnosis		p value
	median (in days)	Value range (in days)	
Central Macedonia	30	1-2555	0.995
West Macedonia	60	15-60	
East Macedonia	60	10-90	

Afterwards, it was decided to investigate any possible correlation between gender and actual admission to the OMFS clinic. It was found that males were more frequently admitted in the clinic (56.4%) than females (46.6%), with a statistically significance ($p=0.045$) (Table 6).

Table 6. Comparison between gender and admission to the clinic

Admission to clinic	Gender		p value
	male	female	
YES	56.4% (110/195)	46.6% (103/221)	0.045
NO	43.6% (85/195)	53.4% (118/221)	

Finally, as regards to gender and the clinical characteristics of the patients (admission diagnosis), it was found, with a statistically significance ($p<0.001$), that males were more frequently diagnosed with fractures (33.3% -64/192) and benign lesions and cysts (26% - 50/192), while females were mostly diagnosed with masticatory myalgias – TMJ dysfunctions (31.2% - 69/221) (Table 7).

Table 7. Comparison between gender and admission diagnosis

Diagnosis on admission	Gender		p value
	Male	Female	
Fracture	33.3% (65/195)	5% (11/221)	<0.001
Benign Lesions-Cysts	26.1% (51/195)	24.4% (54/221)	
Masticatory Myalgia – Toothache TMJ Dysfunction	10.3% (20/195)	31.2% (69/221)	
Infections	16.5% (32/195)	22.2% (49/221)	
Cancer	4.6% (9/195)	4.1% (9/221)	
Osteonecrosis	1% (2/195)	7.2% (16/221)	
Salivary diseases	5.2% (10/195)	1.4% (3/221)	
Oro-Antral Communication	1% (2/195)	0.9% (2/221)	
Orthognathic & Clefts	2% (4/195)	3.6% (8/221)	

Discussion

The present paper provides information regarding the demographic data as well as the patients' accessibility to an OMFS Clinic in Northern Greece. The fact that women seek for medical oral healthcare more than men⁹⁻¹¹, is confirmed in this paper as well. The most common diagnoses observed were benign lesions-cysts, masticatory myalgia- TMJ dysfunction, fractures and oral cavity infections. The majority of patients visiting the OMFS Clinic were referred by other medical professionals. In particular, the majority of patients (53.2%) were referred by a physician, while 38.3% by a dentist. In a relevant study conducted by Haberland et al. in 1999, the opposite was found; patients were referred mainly by dentists (55%) and physicians (45%)⁴. This could be attributed to the different structure of the healthcare systems.

As regards to the patients' accessibility to medical maxillofacial services, it was found that a high percentage of patients stated that there was no maxillofacial clinic close to their area of residence, and a significant percentage of patients used a private means of transport to access the clinic, probably due to the fact that their health condition was good. With the particular data, it is undeniable that accessibility in terms of health services becomes more and more difficult not only in Greece¹², but in other countries of the Balkan Peninsula¹³ as well, and this is more evident in rural and semi-urban areas¹⁴. This is also confirmed by the highest percentage of admissions of patients coming from areas where there is no proximity to the OMFS clinic in relation to the lowest percentage of patients residing in shorter distance to the clinic.

Finally, while comparing gender to admission to the OMFS clinic, a statistically significant relationship was found, with men being more frequently admitted to the clinic than women. To some extent, this phenomenon could be explained by the fact that men mostly suffer from fractures, while women are usually diagnosed with masticatory myalgia-TMJ dysfunction¹⁵.

Conclusions

In this paper, we studied the demographic and clinical characteristics, the referral patterns, as well as patients' accessibility to an OMFS Clinic in Northern Greece. The results of the study indicated a delay regarding the final diagnosis of the disease, as well as difficulty in the patients' accessibility in relation to their area of residence, something that could contribute to an increase in morbidity and in costs for managing patients.

As the study was conducted only in one geographical part of the country (Northern Greece), generalisation of the results to the whole Greek population could be risky. Furthermore an update in the data is due, as two years have

passed since the collection of the present data. Further study of the phenomenon in other maxillofacial clinics could help the public authorities to update the health map according to population needs. It could be useful to have frequent, every five years, updates of the health policies in order to improve healthcare services and have a, possible, decrease in costs for the public health system.

References

1. Bonovas S, Nikolopoulos G. High-burden epidemics in Greece in the era of economic crisis. Early signs of a public health tragedy. *J Prev Med Hyg*, 2012; 53:169-171.
2. Laverick S, Siddappa P, Jones DC. Patterns of emergency maxillofacial referrals and provision of services. *Br J Oral Maxillofac Surg*, 2009; 47:99-101.
3. Allen CM. Managed care and its relationship to oral and maxillofacial pathology. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod*, 1996; 81:1996-1996.
4. Haberland CM, Allen CM, Beck FM. Referral patterns, lesion prevalence, and patient care parameters in a clinical oral pathology practice. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod*, 1999; 87:583-588.
5. Falagas ME, Vouloumanou EK, Mavros MN, Karageorgopoulos DE. Economic crises and mortality: a review of the literature. *Int J Clin Pract*, 2009; 63:1128-1135.
6. Kentikelenis A, Karanikolos M, Papanicolas I, Basu S, McKee M, Stuckler D. Health effects of financial crisis: omens of a Greek tragedy. *The Lancet*, 2011; 378:1457-1458.
7. Kentikelenis A, Papanicolas I. Economic crisis, austerity and the Greek public health system. *Eur J Public Health*, 2012;22:4-5.
8. Galanis P. Validity and reliability of questionnaires in epidemiological studies. *Arch Hell Med / Arheia Ellenikes Iatrikes*, 2013; 30:97-110.
9. Antunes JLF, Junqueira SR, Frazão P, Bispo CM, Pegoretti T, Narvai PC. City-level gender differentials in the prevalence of dental caries and restorative dental treatment. *Heal Place*, 2003; 9:231-239.
10. Honorato J, Rebelo MS, Dias FL, Camisasca DR, Faria PA, E Silva GA, et al. Gender differences in prognostic factors for oral cancer. *Int J Oral Maxillofac Surg*, 2015; 44:1205-1211.
11. CDC/NCHS, National Health Interview Survey. Dental visits in the past year, by selected characteristics: United States, selected years 1997–2014. Available at: <http://www.cdc.gov/nchs/hus/contents2014.htm#084>
12. Kondilis E, Giannakopoulos S, Gavana M, Ierodiakonou I, Waitzkin H, Benos A. Economic crisis, restrictive policies, and the population's health and health care: the Greek case. *Am J Public Health*, 2013; 103:973-979.
13. Ursulica TE. The Relationship between Health Care Needs and Accessibility to Health Care Services in Botosani County- Romania. *Procedia Environ Sci*, 2016; 32:300-310.
14. Kontodimopoulos N, Nanos P, Niakas D. Balancing efficiency of health services and equity of access in remote areas in Greece. *Health Policy*, 2006; 76:49-57.
15. Niessen LC, Gibson G, Kinnunen TH. Women's oral health. Why sex and gender matter. *Dental Clinics of North America*, 2013; 57:181-94.

Received on October 5, 2016.

Revised on January 18, 2017.

Accepted on January 20, 2017.

Correspondence:

Veneti Aikaterini

Al. Symeonidi 2, Postcode: 54007, Thessaloniki, Greece

E-mail: kater3st@yahoo.gr