



Oral maxillofacial training: Opinions of trainees and specialists in Turkey

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ABSTRACT

Objective: The field of oral maxillofacial surgery (OMS) requires both a medical and a dental background. A full spectrum of OMS may be vague not only for the public, but also for health care workers. The aim of this study to determine the quality and extent of specialty education provided in Turkey. **Materials and Methods:** The opinions of 100 residents and 100 specialists on the specialty training in OMS provided in Turkey were analyzed using a questionnaire. **Results:** Residents stated they felt they had the best training on dentoalveolar surgery; less training on temporomandibular joint surgery, cosmetic procedures, clefts and bone resection for complex pathology. The most desirable procedures by both residents and specialists, but least performed by specialists or those that gave residents the least satisfaction, were orthognathic surgery, distraction osteogenesis, arthroscopy and arthrosynthesis and minimally invasive cosmetic surgery. Nearly half of the respondents hold the opinion that a dental degree should be reinforced by an additional medical degree before enrolling on a training program in OMS. **Conclusions:** One of the striking findings of our study was the fact that although 94% of the residents' choice of OMS as a career was based on passion for the profession, only 23 of them were satisfied with the training they obtained.

KEY WORDS: Oral maxillofacial surgery, specialist, trainee, training

INTRODUCTION

The field of oral maxillofacial surgery (OMS) requires both a medical and a dental background. Yet, the scope of practice as well as the training necessary to legally perform the specialty is ambiguous around the world. A full spectrum of OMS may be vague not only for the public, but also for health care workers [1-3].

There seems to be no dispute on clinicians holding only a dental degree performing minor oral surgery procedures. However, the eligibility to extend the scale of procedures to maxillofacial surgery level for those holding dental degrees depends on the country of practice. Although the scope of OMS among various nations differs, it is recognized as a dental-based specialty in most parts of the world. In North America, candidates of residency training in OMS need to have a dentistry degree; qualification in medicine may be undertaken optionally, but is not mandatory [4]. Likewise, in Far East Asia (like Japan, Korea) single degree oral and maxillofacial surgeons practice the full scope of the specialty [5]. In South and Central America (e.g., Brazil, Argentina) as well as Middle Eastern countries (like Saudi Arabia, Egypt, Iran), only a dental license is sufficient but in most centers limited types of surgery are performed. In Australia, it has been mandatory that all trainees enter dual degree programs [6]. In Europe, most of the countries (such as the United Kingdom, Ireland, Germany, Finland, Switzerland, Netherlands, Belgium, Greece, Hungary) require a medical degree as well as a dental degree prior to qualification for further specialist training as a maxillofacial surgeon. In Denmark and Sweden only a dental degree; in France,

Spain, Austria, and Italy only a medical degree is required to enroll in an OMS program [4,7].

In Turkey, the specialty is called "oral, dental and jaw surgery." It is a dental-based specialty of which training programs take 4-5 years. Halfway through the course trainees undertake a written-plus-oral examination to qualify for competency in theoretical knowledge. In addition to clinical responsibilities, the trainees are required to carry out a research thesis. The specialty had a relatively limited scope in the past; however, over the last couple of years the range of procedures has been expanded considerably. Nevertheless, transition from "oral, dental and jaw surgery" to "OMS" is still in its infancy. Although our professional association is registered under the name of OMS, there is no standardization in the specialty training curriculum and there is a considerable variation in the scope of practice throughout the country. Although the residents are expected to have a detailed theoretical knowledge in all aspects of OMS, in general, the routine practice seems to be limited to minor oral procedures. Only in a few clinics is major maxillofacial surgery performed routinely.

This study was conducted to describe the opinion of the "present trainees-next generation of surgeons" and "past trainees-current surgeons" on the quality and extent of specialty education provided in Turkey. Specific objectives of the study are:

- 1) To compare the perspectives of residents and specialists on the content and quality of education within the field they have been receiving or had received.

- 2) To compare the scope of procedures residents have an opportunity to have hands on experience to that practiced by specialists.
- 3) To determine their opinion on the ideal form of education for a surgeon to practice OMS.

MATERIALS AND METHODS

A set of questionnaires together with a cover letter explaining the purpose of the study and requesting participation was distributed to “oral, dental and jaw surgery” senior residents and practicing surgeons in Turkey by electronic mail. A total of 182 forms were sent to practicing surgeons, and 200 forms were sent to senior residents. The request for participation was repeated over a 3-week period until 100 responses per group were obtained. An online data collection service, Survey Monkey, was used to distribute the surveys and collect individual responses. The contact details of the individuals were retrieved through contacting each specialty program individually and through personal contacts.

The first part of the questionnaire included surgeons’ demographic and background variables (e.g., age, sex, the years of experience in the field, the facilities of the unit they work or train). The second part of the questionnaire sent to residents covered questions on motivations in their choice of “oral, dental and jaw surgery” as a specialty; satisfaction with their training; list of procedures they would like to perform after completion of training. The forms sent to specialists comprised their current practice patterns; satisfaction they get from their scope of surgery; confidence in their surgical skills to perform major surgery. Also included was the participant’s opinion regarding the optimum form of education and training for an oral and maxillofacial surgeon.

The data were imported into SPSS 16.0 (SPSS, Inc, Chicago, IL) for statistical analysis. Descriptive statistics such as frequency distributions, means, and standard deviations were computed on the responses to the questions. The difference between the responses of female participants and male participants were analyzed by Mann–Whitney U test. The Pearson’s Chi-squared test was used in order to analyze whether specialists’ practicing major surgery is dependent on having in-patient facilities, general anesthesia unit, satisfaction with the training they had, satisfaction obtained from the profession, years spent in profession and whether residents’ having opportunities participating in major surgery is dependent on satisfaction gained in their training. A significance level of $P < 0.05$ was assumed to indicate statistical significance.

This study followed the Declaration of Helsinki on medical Protocol and Ethics. This study was reviewed and approved by the Institutional Review Board at the Suleyman Demirel University in 03.07. 2013 (decree no. 162).

RESULTS

Out of 200 email invitations sent to the residents and 182 to the specialists, we obtained 100 responses from each group over a

3-week period. Therefore, a response rate of 50% from the residents and 55% from the specialists was achieved. Resident respondents consisted of 40 females and 60 males; 48 female and 52 male specialists. More than half (56) of the specialists participated in the study were in their first 5-year of practice, 25 spent 6-10 years, 15 spent 11-15 and 4 spent more than 16 years in the specialty.

As opposed to 83 trainees who stated that major surgery was carried out in their institution, 67 specialists stated they perform major surgery. Nearly one-third of respondents (37 trainees and 33 specialists) had in-patient facilities in the dental hospital, and 40 trainees, and 42 specialists had general anesthesia units in their workplace. For operations that required general anesthesia in the main hospital building, the facilities of plastic and reconstructive surgery (stated by 47 trainees and 38 specialists) was the most commonly used, followed by those of otolaryngology (stated by 10 trainees and 11 specialists) and of pediatric surgery (stated by 4 trainees and 7 specialists).

Motivation to Choose the Career

Special interest in surgery emerged as the most common motivational factor (cited by 94%) influencing the decision to pursue OMS as a career. Being the most prestigious field among dental specialties was cited by 40% and being financially most advantageous field was cited by 11%.

Satisfaction with the Training

As a whole, 23 residents were satisfied with the program in which they were currently enrolled. The most commonly cited reason for dissatisfaction was insufficient didactic teaching followed by a narrow spectrum of procedures they had a chance to take part in and too much time spent on “scut” work [Table 1]. Nearly all (96) residents thought that the training they received was adequate for minor surgical procedures. The education received for the major surgical procedure was reported to be adequate only for 14 residents. In general compared to male trainees, female trainees obtained a lower level of satisfaction with training however, the difference was not significant.

Overall, 76 specialists were professionally satisfied with the scope of practice they perform. The education received for minor surgical procedures was reported to be adequate nearly all (99) specialist. Only 25 specialist stated that the training they received was satisfactory to perform major surgical procedures. Of the specialists, 50 agreed that they had sufficient knowledge and dexterity to perform major surgical procedures.

Table 1: Reasons cited by residents for dissatisfaction of their training program

Dissatisfaction Factors	Frequency of quotation
Insufficient didactic teaching/lecturing	73
Too narrow spectrum of procedures	65
Too much time spend on ‘scut’ work	57
Not sufficient research	51
Too much time spent on formal paper-work	24
Too much emphasis placed on research	2
Overloading didactic teaching/lecturing	2

The Scope of the Procedures within the Specialty

Table 2 shows the list of procedures in relation to residents' opinion on how good the practical training they have received is. On a scale from 1 to 5, where 1 represents "completely unsatisfactory" and 5 represents "optimum," the highest scores were obtained on dentoalveolar surgery and removal of simple soft and hard tissue lesions, the lowest were obtained on cleft cases and bone resection for more aggressive pathology. More than 70 residents stated that the training they got on orthognathic surgery, temporomandibular joint (TMJ) open surgery, cosmetic procedures, cleft procedures and bone resection was unsatisfactory or completely unsatisfactory [Table 2].

Table 3 shows a list of procedures in relation to their frequency performed by specialists. Procedures most predominantly performed by specialists were dentoalveolar surgery, removal of simple soft and hard tissue lesions and dental implant and related surgery. More than half of the specialists stated that they had never performed cleft, TMJ open surgery, bone resection and

cosmetic procedures while 40% never performed orthognathic surgery [Table 3].

The resident stated that they would like to get the right skills to perform in their prospective career on dental implant surgery and related bone grafting procedures; simple soft and hard tissue surgery as well as dentoalveolar surgery; orthognathic surgery and distraction osteogenesis. Minimally invasive cosmetic procedures and minimally invasive TMJ procedures were also highly popular [Table 4].

There were no statistical differences between the frequencies of various operations performed by female and male surgeons. Likewise, the homogenous gender distribution was observed in the popularity of procedures.

Trainees having a chance to be a part of the major operations was related to the satisfaction they get from their training ($P < 0.001$), but were independent of the desire to perform major surgery after completion of training.

Table 2: The list of procedures in relation to residents' satisfaction with clinical exposure. The data is presented as percentages and as mean score \pm SD using a scale from 1 to 5 where 1 is completely unsatisfactory, 5 is "optimum"

Type of operation	Completely unsatisfactory	Unsatisfactory	Average	Satisfactory	Optimum	Mean score \pm SD
Removal of impacted teeth	0	0	0	38	62	4.6 \pm 0.5
Simple soft tissue surgery	0	0	6	48	46	4.4 \pm 0.6
Intra-oral biopsy	1	0	10	56	33	4.2 \pm 0.8
Removal of intra-osseous benign pathology	3	2	17	50	28	4.0 \pm 0.9
Space abscess	1	6	29	42	22	3.8 \pm 1.0
Dental implant	22	24	9	24	21	3.0 \pm 1.5
Bone graft procedures for implant	22	24	15	21	18	2.9 \pm 1.4
Mandibular fracture	15	21	25	29	10	3.0 \pm 1.1
Other facial fractures	43	24	19	10	4	2.1 \pm 1.2
Orthognathic surgery	47	26	10	13	4	2.0 \pm 1.2
Distraction osteogenesis	49	30	9	9	3	1.9 \pm 1.0
Arthrolysis or arthroscopy of the TMJ	41	23	14	17	4	2.2 \pm 1.3
TMJ open surgery	57	23	6	11	3	1.8 \pm 1.1
Minimally invasive cosmetic procedures	67	18	5	10	0	1.6 \pm 1.0
Bone resection for pathology	58	18	13	9	2	1.8 \pm 1.1
Cleft lip and palate	65	13	8	12	2	1.7 \pm 1.2

TMJ: Temporomandibular joint, SD: Standard deviation

Table 3: List of procedures in relation to their frequency performed by specialists. The data is presented as percentages and as mean score \pm SD using a scale from 1 to 5 where 1 is 'never,' 5 is "practiced routinely"

Type of operation	Never	Rarely	Sometimes	Frequently	Routine	Mean score \pm SD
Removal of impacted teeth	0	1	1	7	91	4.9 \pm 0.4
Simple soft tissue surgery	1	1	6	20	72	4.6 \pm 0.8
Intra-oral biopsy	0	13	37	21	29	3.7 \pm 1.0
Removal of intra-osseous benign pathology	0	3	16	36	45	4.2 \pm 0.8
Space abscess	1	18	41	20	20	3.4 \pm 1.1
Dental implant	4	1	2	23	70	4.5 \pm 0.9
Bone graft procedures for implant	1	3	13	21	62	4.4 \pm 0.9
Mandibular fracture	1	31	41	12	15	3.1 \pm 1.0
Other facial fractures	33	38	20	6	3	2.1 \pm 1.0
Orthognathic surgery	41	31	14	10	4	2.1 \pm 1.1
Distraction osteogenesis	40	28	28	2	1	2.0 \pm 0.9
Arthrolysis or arthroscopy of the TMJ	15	18	42	15	10	2.9 \pm 1.2
TMJ open surgery	64	20	7	5	3	1.6 \pm 1.0
Minimally invasive cosmetic procedures	52	21	15	7	5	1.9 \pm 1.2
Bone resection for pathology	59	24	13	3	1	1.6 \pm 0.9
Cleft lip and palate	71	16	8	3	2	1.5 \pm 0.9

TMJ: Temporomandibular joint, SD: Standard deviation

For specialists, practicing major surgery was strongly related to having facilities for major surgery (in-patient facilities and general anesthesia unit) ($P = 0.001$ for both) and the satisfaction with the training they had received ($P = 0.013$), but was independent of satisfaction they get from the profession and years spent in profession.

Opinion on the Best form of Education

All of the respondents believed that OMS was a dental specialty. 34 residents and 50 specialist surgeons believe that single-degree rather than double-degree to enroll in an OMS program was sufficient. Half of the trainees and 45 specialists stated that the other best form of training necessary to perform a full scope of OMS was dental, followed by medical qualification and specialist training [Table 5].

DISCUSSION

One of the striking findings of our study was the fact that although 94% of the residents' choice of OMS as a career was based on passion for the profession, only 23 of them were satisfied with the training they obtained. This level of satisfaction is much lower than those achieved by various other surveys conducted in other countries. Rodriguez-Perez

Table 4: The list of procedures in relation to residents' desire to perform after graduation as opposed to specialists' desire to perform in them

Type of operation	Residents	Specialists
Extraction and removal of impacted teeth	84	81
Simple soft tissue surgery	81	79
Intra-oral biopsy	28	42
Removal of intra-osseous benign pathology	91	84
Space abscess	31	32
Dental implant	93	82
Bone graft procedures for implant	88	80
Mandibular fracture	75	68
Other facial fractures	45	47
Orthognathic surgery	88	85
Distraction osteogenesis	81	89
Arthrosynthesis or arthroscopy of the TMJ	79	79
TMJ open surgery	32	34
Minimally invasive cosmetic procedures	78	79
Bone resection and reconstruction for pathology	58	62
Cleft lip and palate	46	50

Table 5: Opinion of the trainee and specialists on the qualifications necessary to perform full scope of OMS

Best form of education	Trainee	Specialist
Dental diploma, followed by OMS specialty training	34	50
Dental diploma, then medical diploma, followed by OMS specialty training	50	45
Medical diploma, then dental diploma, followed by OMS specialty training	11	5
Medical diploma followed by Plastic and Reconstructive Surgery specialty training	0	0
Medical diploma followed by otolaryngology surgery specialty training	0	0

OMS: Oral maxillofacial surgery

et al. [8] reported that postgraduate oral surgery trainees from the Spanish public universities were generally satisfied with the education they received. In the USA, the majority of residents seems to be satisfied with their training program (84%) and was happy with their decision to become an oral and maxillofacial surgeon (96%) [9,10]. In our survey, the two most frequently cited reasons for dissatisfaction with the training were poor theoretical education and lack of opportunity to be exposed to the full spectrum of surgical procedures. Other studies also reported that among the important factors determining satisfaction were the scope of clinical training and the didactic/academic content of the program as well as good relations among residents and between residents and attending [9,10].

Laskin [4] asserted that the minimum scope of practice necessary for all oral and maxillofacial surgeons include oral pathology/oral medicine, dentoalveolar surgery, preprosthetic surgery (including implantology), maxillofacial traumatology, orthognathic surgery, TMJ surgery, and local reconstructive surgery. Those areas with which one must be familiar are cleft lip and palate surgery, regional reconstructive surgery, oncologic surgery, craniofacial surgery, and cosmetic surgery [4]. The two studies conducted in the US showed that the majority of specialists working in OMS practice perform dentoalveolar surgery, implant surgery, orthognathic surgery, TMJ surgery, major pathology, and reconstruction. These studies also demonstrated that the most desired clinical competencies of a potential associate were in dentoalveolar surgery, outpatient anesthesia, implant surgery, hard and soft tissue grafting for an implant and reconstructive surgery, and oral pathology. TMJ, maxillofacial trauma, and orthognathic surgery appeared as intermediate importance category [11,12]. In our survey, the vast majority of participants regard themselves as significantly better prepared in minor oral surgery but only 14% of residents and 25% of specialists felt the specialty training was sufficient for more complex areas. Moreover, half of the specialists that participated in our survey admitted that they were not specialized to perform major surgical procedures. The current practice pattern of the specialists was dominated by dentoalveolar procedures including third molar removal and dental implant surgery. Nonetheless, most of the residents and specialists involved in our survey were keen on extending their clinical range of procedures. It also appears that the specialists are eager to practice up-to-date procedures such as distraction osteogenesis (performed by 31% of specialists at least occasionally), TMJ arthrocentesis and arthroscopy (performed by 67% of specialists at least occasionally) and minimally invasive cosmetic procedures involving soft tissue of the face (performed by 27% of specialists at least occasionally).

In parallel with the rest of the world, the scope of OMS performed by dentally qualified surgeons has been continuously expanding in Turkey. This has created a fervent reaction from the colleagues from other fields of surgery, especially the Plastic Surgeons. Their main argument being that maxillofacial surgery is a medical specialty and should only be dealt by those who hold a medical license. It seems that in future due to both educational and political advantages, transferring to a double qualification licensure should be implemented in Turkey that

requires new legislations and regulations. In support of this, in our survey, although all of the participants believed that OMS was a dental-based specialty, nearly half hold the opinion that a dental degree should be reinforced by an additional medical degree before enrolling a training program in OMS.

A survey conducted in Australia and New Zealand demonstrated that possession of a medical qualification did not necessarily affect the scope of practice [13]. However, Brennan *et al.* [6] reported that Australian surgeons with dual degrees reported practicing higher rates of dental implants, bone graft procedures, and orthognathic surgery compared to those with dental qualifications. In the UK, the post as a senior house officer is a trainee post where dental qualified clinicians are exposed to OMS. Half of the senior house officers participated in a survey did not think that undergraduate dental training was adequate for their post [14]. On the other hand, British specialist OMS registrars (who hold dual degrees) in general were happy with the quality and access to, training in the specialty. They stated that they had near optimum access to trauma, orthognathic surgery, oncology, reconstructive surgery and dentoalveolar surgery and lesser access to cleft, implantology, esthetics and craniofacial [15]. Furthermore, a study from the USA showed that MD integrated residents were significantly more satisfied with the program in which they were currently enrolled than were those residents in the MD optional and 4-year certificate program. Mahmood *et al.* [16] stated that dual training provides oral and maxillofacial surgeons with an unparalleled understanding of the surgical anatomy and pathology of the head and neck. The double qualification also enabled the maxillofacial surgeons to have a much more recognized role in craniofacial and head and neck surgery than in the past. Globally a trend towards doubly-qualified surgeons is gaining acceptance with an increased amount of dual qualified surgeons [6]. On the other hand, it was shown that in the USA, the most valued characteristics of a potential associate by OMF surgeons was board certification while possession of a medical degree was of little importance [11,12].

When the public needs are considered, dentoalveolar surgery including dental implant placement is performed much more frequently than the major operations such as TMJ surgery and management of facial anomalies. While dental-based oral surgeons can continue to carry out “oral surgery” operations, those who desire to practice in the field of “maxillofacial surgery” should be given an option to enroll to a medical program to hold a medical license. In Turkey, entrance to university programs is through undertaking a centrally administered national examination under the Higher Educational Council. This requires preparation for the exam on topics of natural science including physics, chemistry, and mathematics, etc. This, in addition to 6 years of medical education, may extend the training program unnecessarily and may discourage keen young specialists from going for higher training. Therefore, a compact form of the medical degree option should be provided for those who hold a dental-degree. A model implemented in the USA where, while 4-year residency programs in OMS grant a certificate of specialty, 6 years residency programs grant the specialty certificate as well as a medical degree (additional

2 years for acquiring medical degree), this may also be tailored to Turkish education system. The British system where shortened medical degrees, which take 3-4 years are available for holders of a dental degree in the UK may also be the other alternative [17].

Apart from “pre-residency” degrees, the scope, curricula and the total length of the OMS education should also be taken into account in the improvement of our field. It seems that the more major and complex nature of much of the surgery being carried out in the specialty necessitates obtaining a higher surgical training than we now have. The results of our study indicated that the majority of the residents would like to perform more major procedures but had almost no opportunity to have hands-on experience on many of the major surgical procedures. Currently, the “oral, dental and jaw surgery” training programs in Turkey is in the process of being modified in an attempt to comply with the Medical and Dental Directives of the European Union [18]. The new specialist program places more emphasis on formal basic surgical training with a total of 18-month rotation in various surgical specialties including plastic and reconstructive surgery, otolaryngology, general anesthesia, accident and emergency, dermatology. This is a welcome development in ensuring the appropriate standard of care in our specialty.

The results of our study have shed light on the fact that there are fundamental shortcomings in the OMS specialty education in Turkey. Laskin [4] in his outstanding review on our profession in 2008 suggested that each country set what national standards of education and training need to be fulfilled for one to be considered an oral and maxillofacial surgeon. Our opinion is that the education and training in OMS should fulfill a certain standard worldwide with a universal clinical core syllabus in OMS specialty programs. We believe that to reach high standards in our specialty globally, our colleagues from well-established centers have a professional responsibility to lend a hand for the improvement of OMS in countries like Turkey where the profession is still evolving, needs to move forward and to improve recognition. A foundation of a sister alliance between the OMS Societies of various countries will help action to be taken. Through this alliance, invitations of distinguished maxillofacial surgeons to be visiting teachers in undergraduate and postgraduate classes for a defined period of at least 3-6 months can be promoted. Events, courses, and meetings should also be increased to attract OMF surgeons with special areas of expertise from different countries to exchange of information. We also need the support of our colleagues from other dental specialties as Assael [19] stated the importance of the support of the dental school deans for the future success of OMS as a dental specialty.

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