

KNOWLEDGE OF ORAL AND MAXILLOFACIAL SURGERY AMONG STUDENTS AND PRACTITIONERS IN MEDICINE AND DENTISTRY: A MOROCCAN NATIONAL SURVEY.

A. Guerrouani¹, A. Eabdenbitsen^{1,2}, J. Hamama², B. Abir³, L. Khalfi⁴, K. El Khatib³.

¹Al Farabi Hospital – Regional Hospital of the Oriental, Oujda, Morocco

²Oral and Maxillofacial Surgery Dep¹, Mohammed VIth Teaching Hospital, Mohammed Ist University, Oujda, Morocco

³Dep¹ of Plastic and Maxillofacial Surgery, Avicenna Teaching Military Hospital, Marrakech, Morocco.

⁴Mohammed Vth Teaching Military Hospital, Rabat, Morocco.

ABSTRACT

Introduction: This study aims to establish the knowledge of the Moroccan Medical and Dental audience regarding Oral and Maxillofacial Surgery OMFS.

Methods: A form was randomly sent to more than 5000 doctors, dentists and students in Medicine and Dentistry.

Results: The authors retained 416 filled forms. 98% of the participants declared they know what OMFS is. Less than half of them have received theoretical training in OMFS and less than a quarter have received practical training. Three quarters of the respondents who are involved in patients' daily care don't feel confident in managing OMFS emergencies. Comparison made between groups of trained versus non-trained respondents showed that the participants who received theoretical plus practical training were the most confident in their abilities, whereas there was no difference between the respondents who received no training at all and those who received a practical training only.

Conclusion: OMFS specialists have to deploy efforts in promoting their specialty and in increasing the awareness among Medical and Dental professionals and students who clearly identify a lack of training in this field. The way we teach OMFS to Medicine and Dentistry students has to change.

Keywords: Survey; Oral and Maxillofacial Surgery; Knowledge; Medical Students; Dental Students; Health Personnel.

Corresponding Author:

Dr. Alae Guerrouani, MD.

Address: Al Farabi Hospital – Regional Hospital of the Oriental. 1, Idriss Al Akbar Street, Oujda 60000, Morocco

E-mail: alaeguerrouani@hotmail.com

Copyright © 2012- 2017 Dr A. Guerrouani and al. This is an open access article published under **Creative Commons Attribution -Non Commercial- No Derives 4.0 International Public License (CC BY-NC-ND)**. This license allows others to download the articles and share them with others as long as they credit you, but they can't change them in any way or use them commercially.

Abbreviations:

OMFS: Oral and Maxillofacial Surgery

OMFs: Oral and Maxillofacial Surgeon(s)

GP: General practitioner(s)

ENT: Ear-Nose-Throat

INTRODUCTION

It is not unusual for Oral and Maxillofacial Surgeons (OMFs) around the world to be questioned regarding their scope. People can anatomically localize the oral cavity and the face but are usually not able to recognize the full scope of Oral and Maxillofacial Surgery (OMFS). In some countries, things may be worsened by the low educational level of the population and the use of the word Stomatology – difficult to understand – instead of Oral Surgery. The fact that during the last 3

decades many authors [1 -12] in many countries conducted surveys on the topic means that it is a general issue faced by Oral and Maxillofacial surgeons (OMFs) all over the world. As wonderfully expressed by Ameerally et al, [1] the crucial point is: "If patients are to receive the optimal treatment for oral and facial problems, the general public and medical and dental practitioners need to have a better understanding of what our specialty has to offer."

Whereas some authors chose to measure the knowledge, the awareness or the perception of OMFS

by the public or by the public and the healthcare professionals, we chose to focus on the Medical and Dental care providers and students. Our aim is to establish the level of knowledge of the Moroccan physicians; surgeons; dentists; residents and students in Medicine and Dentistry schools regarding OMFS.

METHODS:

For our purpose, we used an online form (Google forms) whose link was sent via e-mail to more than 5000 physicians, surgeons, dentists, residents and students in Medicine and Dentistry all over the country. An introduction letter was also sent to explain the subject of the survey. The e-mails were randomly sent by the Moroccan Medical board; the professional representatives; the main unions; the faculties and students' groups. To avoid bias due to subjectivity, the answers to almost all questions were designed as multiple choice check boxes with one or more possible answers. Data were collected between March 7, 2016 and April 6, 2016.

The questionnaire was divided in 4 isolated parts. The respondents had to fill and validate each part before heading to the next one. Answering to all the questions was compulsory except for the suggestions and remarks' part at the end of the form and for some questions that depend on previous answers.

The first part was dedicated to the general status of the participants: Age, sex, civilian/military status, field of competence for the practitioners and type of practice (public health, private practice, non-profit organization, health care administration, research...), study level for the students, location and training university.

The second part was dedicated to the general knowledge of the participants regarding OMFS. The participants were questioned on whether they know OMFS and how do they know it; whether OMFS was practiced in their city/region; whether they received any theoretical or practical training (internship) in OMFS during their education; whether they have to deal sometimes with some OMFS emergencies and whether they feel confident and efficient in managing them.

The third part aimed to assess the needs in training and education by questioning the respondents on three usual OMFS emergencies: fracture of the lower jaw, facial cellulitis and post- extraction hemorrhage. The respondents had to give their opinion - based on their own practice - on the frequency (rare, moderately frequent or very frequent) and the seriousness (harmless, moderately serious or very serious) of these three conditions. They also had to quantify the amount of problems (no problem, moderate problems or big problems) they think they will run into when managing them. For more accuracy, problems were spread over the three components of competence: theoretical

knowledge, technical skills (know-how) and attitude (know-how-to-be: management of the stress, management of the team and communication with the patient and his family members).

The participants were divided in four groups:

- G 1: The participants who received neither theoretical nor practical training (internship)
- G 2: The participants who received both theoretical and practical training
- G 3: The participants who received practical training only
- G 4: The participants who received theoretical training only

To emphasize the levels of difficulties faced by each group of participants, the authors used a scoring system inspired from the model of D'Ivernois, [13] which was adjusted for the purpose of the study. A score from 0 to 2 was given to each component of the competence for every participant in each one of the three situations (fracture of the jaw, facial cellulitis, post- extraction hemorrhage):

- 0 = no problem
- 1= moderate problems
- 2= big problems

To make a global comparison between the different groups, a mean score was calculated for each of them in every component of the competence based on the cumulated scores in the three emergencies cited above (mean score = Total of scores for the three emergencies in one component of the competence in a group / by the number of the participants in this group). The higher was the mean score the bigger were the difficulties.

The last part aimed to assess the respondents' knowledge regarding the scope of OMFS including: jaws' deformities, facial and dento-alveolar traumas, jaw tumors or cysts, oro-facial and salivary gland tumors, cleft lips and palates, implants, wisdom teeth removal, temporo- mandibular joint (TMJ) problems and facial cosmetic surgery. The respondents were asked to refer each of these conditions to one of the following specialists: plastic surgeons, Ear-Nose-Throat (ENT) specialists, general Dental practitioners, OMFs or to other specialists. At last, they were asked to add their suggestions or remarks as an optional free text.

Once the form has been anonymously fulfilled and validated, the respondents had just to click to submit their answers that were immediately and automatically recorded in a spreadsheet linked to the web platform.

RESULTS:

1-Inclusions and exclusions:

Among more than 5000 questionnaires sent, we received 428 anonymous responses. The questionnaires were analyzed one by one by the first author. 416 responses were retained after the exclusion of responses from non-healthcare professionals and healthcare providers other than physicians, surgeons, dentists, residents and students in Medicine and Dentistry. To avoid bias, OMFS specialists and residents were excluded from the study.

2-General data

The sex ratio of the retained respondents was of 237 females (56.3%) vs. 184 males (43.7%). Two thirds of them were aged 35 years old and under. Among the participants 391 (94%) were civilians and 25 (6%) belonged to the health care units of the armed forces. Medical senior practitioners were 245 (59%). Among them 73 were GP and 8 were emergency specialists (**Table I**). Dental senior practitioners were 29 (6.9%) divided in 21 general dental practitioners, 4 periodontists, 3 oral surgeons and one pedodontist. The figure 1 shows the distribution of the respondents according to their occupational status. Among the 274 medical and dental senior practitioners, 151 were practicing in an urban or a rural primary public health care unit or a private practice (level of care 1) whereas 109 were practicing in a public hospital or a private clinic (level of care 2 and 3) and 14 in an administrative position. Among the 32 residents, 8 were doing their dental residency whereas 24 were in the medical field. Seven undergraduates (preclinical level) were among the 92 students.

- Senior Medical practitioners ■ Senior Dental practitioners
- Medical and Dental residents ■ Medicine students
- Dentistry students

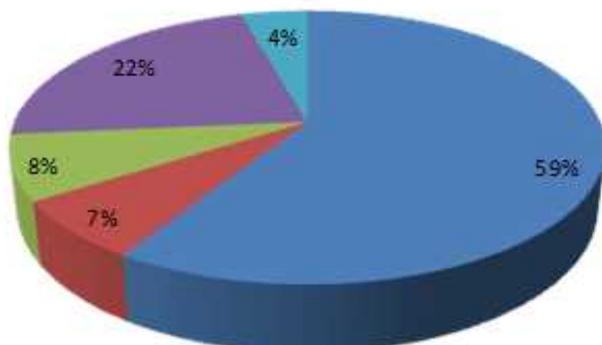


Figure 1: The respondents' distribution according to their occupational status.

Table I: The distribution of the 245 Medical practitioners (MD) amongst specialties

Anesthesiologists-resuscitators	10	Occupational physicians	7
Cardiologists	6	Oncologists	9
Cardiovascular surgeons	1	Ophthalmologists	7
Dermatologists	5	Paediatric surgeons	1
Ear-Nose-Throat specialists	2	Paediatricians	8
Emergency specialists	8	Physical Medicine and Rehabilitation specialists (MD)	2
Endocrinologists	3	Plastic surgeons	9
Gastroenterologists	3	Psychiatrists	4
General practitioners	73	Public Health care specialists	9
Gynecologists	11	Pulmonologists	3
Haematologists	1	Radiologists	4
Health care Informatics specialist	1	Radiotherapists	7
Intensive Care specialists	2	Rheumatologists	3
Internal Medicine specialists	2	Sport physicians	3
Medical biologists	8	Thoracic surgeons	4
Nephrologists	5	Trauma surgeons/Orthopedists	6
Neurologists	4	Urologists	4
Neurosurgeons	3	Vascular surgeons	1
Nuclear Medicine specialists	1	Visceral surgeons	5

3-General knowledge of OMFS

408 (98%) participants declared they know OMFS: 62.7% of them have known it from their courses in the faculty, 41.2% from their practice, 6.1% from a meeting, 12.7% from the medias and 42% because they know someone who practice it. 371 (89.1%) declared that OMFS is practiced in their city or region.

4-Education and training in OMFS:

Among the 409 graduates students, residents and senior practitioners respondents (preclinical students excluded), 194 (47.4%) declared they received, during their formal education, theoretical training in OMFS whereas 92 (22.5%) said they have received practical training.

5- Perception by the respondents of their ability to manage OMFS emergencies:

A/ Perception by the respondents who are engaged in regular patients' care (senior practitioners, residents and juniors):

Among the 358 senior practitioners, residents and juniors (6th and 7th year students in fulltime internship and emergency rotation), 202 (56,4%) declare having faced a situation of OMFS emergency at least once. When questioned on their insight regarding their ability to manage OMFS emergencies, 150 (74.2%) of them confessed they don't have enough skills to correctly manage these situations, one respondent preferred not to answer and 51 respondents (25.2%) feel confident in their ability of managing emergencies in OMFS. (Question X (compulsory): Have you ever been in a situation of managing an OMFS emergency? Question X-a (optional): If yes, do you feel confident in your ability of managing it?)

Among the group of 51 respondents who feel confident in their ability to manage emergency situations in OMFS, 41 (80.4%) have received theoretical education in OMFS and 23 (45%) have had practical training. Among the group of 150 respondents who are not confident in their skills in managing OMFS emergencies, 62 (41.3%) have had theoretical training and 31 (20.6%) have had practical training.

B/ Perception of self-confidence in the management of OMFS emergencies by the different groups depending on their training (students in preclinical levels were excluded = 409):

G 1: The participants who received neither theoretical nor practical training (=189): 8% of the members of this group feel they are confident in their ability in managing OMFS emergencies

G 2: The participants who received both theoretical and practical training (= 66): 48.5% of the participants who have already benefited academic training and internship in OMFS are confident in their capacity in managing OMFS emergencies

G 3: The participants who received practical training only (=26): 7.7% of the 26 respondents who have had practical training only feel confident in managing an OMFS emergency

G 4: The participants who received theoretical training only (=128): 23.4% among the 128 respondents who have already had theoretical education in OMFS feel like they can manage correctly an OMFS emergency.

6-Frequency, seriousness and problems regarding OMFS emergencies:

The **table II** provides a general view on the perception by the graduate students, the residents and the senior practitioners (=409) of the frequency, the level of seriousness and the amount of problems they may face regarding the management of three emergencies: fracture of the lower jaw, facial cellulitis and post-extraction hemorrhage.

When comparing the mean scores (MS) of each group, the lowest scores were seen in G2. Mean scores were between 3.1 and 3.3 in all the three components of competence. Regarding the theoretical knowledge, G4 had a lower MS than G1 and G3 (3.5 vs. 4.1 and 4.3, respectively). In technical skills, G3 had the highest mean score (MS = 4.9), followed by G1 (MS =4.5) and G4 (MS = 4). Regarding attitude, scores were slightly similar for G1 (MS = 3.9) and G3 (MS = 3.8). G4 had a MS of 3.4.

Table II: Perception by the graduates, residents and senior practitioners (n=409) of the frequency, the seriousness and the problems they face regarding to three OMS emergencies: Fracture of the lower jaw, facial cellulitis and post- extraction hemorrhage

		Fracture of the lower jaw	Facial cellulitis	Post-extraction hemorrhage
Frequency	rare	238 (58.2%)	195 (46.6%)	247 (60.4%)
	moderately frequent	129 (31.5%)	154 (37.6%)	120 (29.3%)
	very frequent	42 (10.2%)	60 (16.7%)	42 (10.2%)
Seriousness of the condition	harmless	24 (5.8%)	25 (6.1%)	48 (11.7%)
	moderately serious	229 (56%)	72 (17.6%)	257 (62.8%)
	very serious	156 (38.1%)	312 (76.3%)	104 (25.4%)
Problems of knowledge	no problem	43 (10.5%)	92 (22.5%)	92 (22.5%)
	moderate problems	116 (28.3%)	151 (36.9%)	172 (42%)
	big problems	250 (61.1%)	166 (40.6%)	145 (35.4%)
Problems of know-how	no problem	26 (6.3%)	80 (19.5%)	74 (18.1%)
	moderate problems	100 (24.4%)	129 (31.5%)	156 (38.1%)
	big problems	283 (69.2%)	200 (48.9%)	179 (43.8%)
Problems of know-how-to-be	no problem	62 (15.1%)	92 (22.5%)	85 (20.8%)
	moderate problems	164 (40.1%)	149 (36.4%)	171 (41.8%)
	big problems	183 (44.7%)	168 (41.1%)	153 (37.4%)

7-Perception of the scope of OMFS (Figure 2)

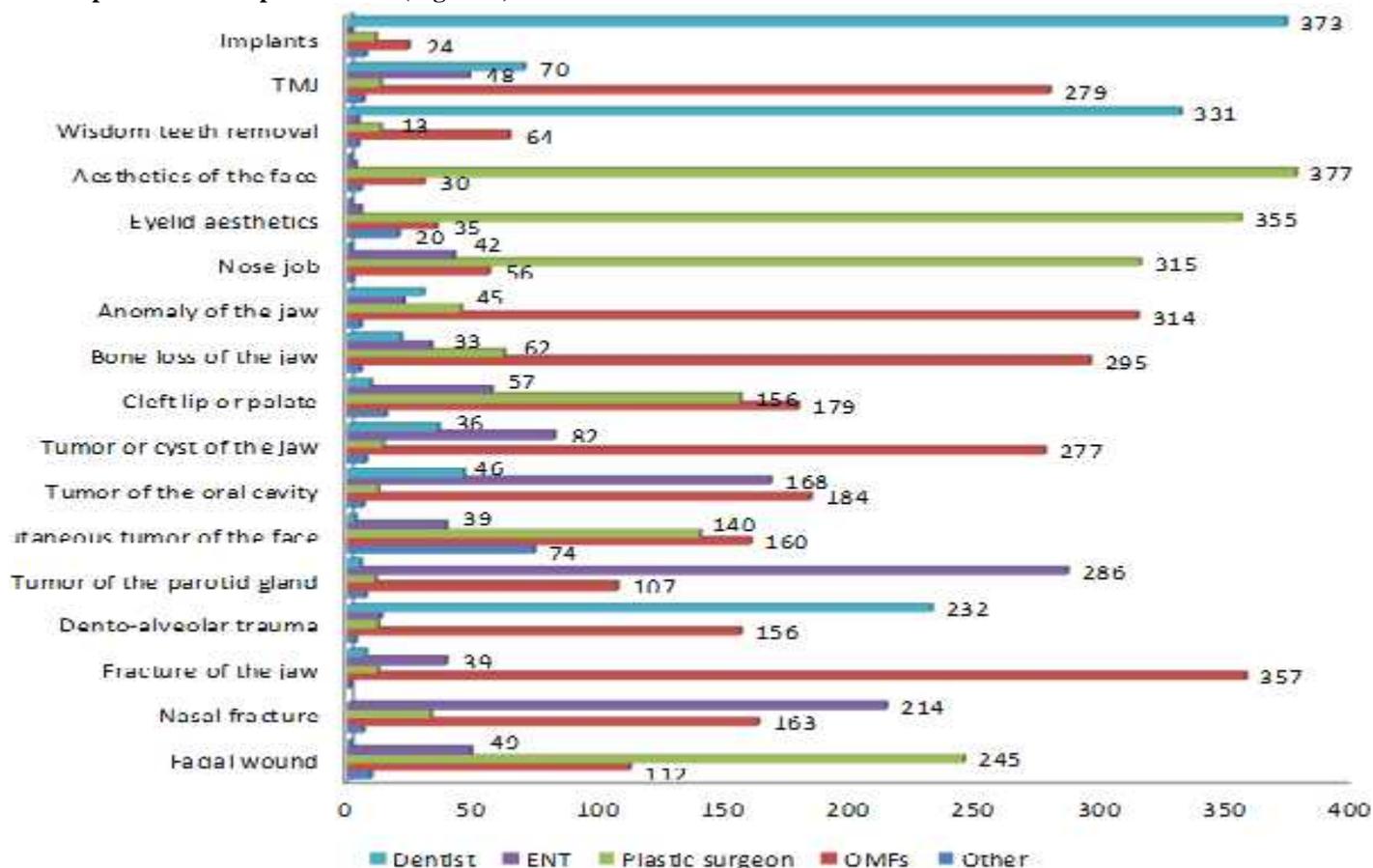


Figure 2: the distribution of the 416 respondents' preferences when referring their patients

A - Traumas:

Priority was given to the plastic surgeons for soft tissues traumas by 250 (60%) respondents vs. 119 (28.6%) for the OMFs whereas 219 (52.6%) of the respondents referred nasal fractures to the ENT specialists first vs. 170 (40.8%) for the OMFs. Dento-alveolar traumas were referred to the dentists (GP) first by 234 (56.2%) of the participants whereas 166 (39.9%) referred them to the OMFs. Broken jaws were referred to the OMFs by 368 respondents (88.4%) vs. 40 (9.6%) for the ENT specialists.

Table III: The calculated score according to the perception of the problems by the 409 graduates, residents and senior practitioners who participated to the survey

	G1	G2	G3	G4
Problems of theoretical knowledge	4,1	3,1	4,3	3,5
Problems of technical skills and know-how	4,5	3,3	4,9	4
Problems of attitude and know-how-to-be	3,9	3,3	3,8	3,4

G1: The participants who have had neither theoretical nor practical training (=189); G2: The participants who have had both theoretical and practical training (= 66); G3: The participants who have had practical training only (=26); G4: The participants who have had theoretical training only (=128)

B - Tumors:

Salivary gland tumors were first referred to the ENT specialists in 293 (70.4%) vs. 112 (26.9%) for the OMFs. Facial skin tumors were spread between the OMFs (= 170 – 40.8%) and the plastic surgeons (= 142 – 34.1%). They were referred to other specialists (dermatologists) by 74 (17.8%) respondents. In a similar fashion, tumors of the oral cavity were divided between the OMFs (= 192 – 46.1%) and the ENT specialists (= 170 – 40.8%). Jaws tumors and cysts were sent to the OMFs by 286 (68.7%) respondents followed by the ENT specialists (= 83 – 19.9%) and the general dental practitioners (= 38 – 9.1%).

C - Clefts, jaw defects and deformities

Preference was given to the OMFs by 188 (45.2%) respondents and to the plastic surgeons by 158 (38%). ENT specialists come in the third place (= 58 – 13.9%). The other specialists (paediatric surgeons) were requested by 15 (3.6%) of the participants. Bone loss and bone reconstruction of the jaws were sent to the OMFs by 306 (73.5%) of the respondents. Jaws deformities and orthognatic surgery cases were referred by 326 (78.3%) of the participants to the OMFs.

D - Cosmetics

Plastic surgeons came far ahead in the area of aesthetic surgery. The respondents preferred them in 319 (76.7%) cases for nose jobs, in 359 (86.3%) cases for blepharoplasty and in 382 (91.8%) cases for facial aesthetics.

E- Oral surgery

Dentists (GP) were preferred for wisdom teeth removal by 337 (81%) respondents vs. 70 (16.8%) for the OMFs. In a similar fashion, implants were referred to the dentists by 380 (91.3%) respondents vs. 29 (7%) for the OMFs.

F- Temporomandibular joint (TMJ):

TMJ problems were referred to the OMFs by 289 (69.4%) respondents ahead of the dentists (= 72 – 17.3%) and ENT specialists (= 48 – 11.5%).

8-Suggestions and remarks:

One hundred eleven participants left their suggestions regarding training in OMFS. Five major complaints were listed:

- There is a lack of training in OMFS in medical and dental curricula
- There is a need of continuing education in OMFS emergencies
- The participants are not able to make the distinction between OMFS and ENT
- OMFS is too specialized !
- National scholarly societies are absent: no meetings, no workshops, no good practicing guidelines and no commitment in neither formal nor continuing education.

DISCUSSION

Context: OMFS is a well recognized and independent specialty in the armed forces hospitals in Morocco since the early 1980'. Nonetheless, it is still considered as a new specialty in the civilian hospitals where it is usually annexed to ENT departments. Amongst the five civilian university hospitals in Morocco, only two of them have an independent OMFS department, a third one is in its way to become independent.

The name used for OMFS in Morocco is "Stomatology and Maxillofacial Surgery" or "Stomato" as colloquially called. Because of the historical and cultural tight relationships that Morocco maintains with France, OMFS residency follows almost completely the French fashion. [14] To do residency in OMFS, a 7-year-curriculum medical degree after graduating high school is compulsory. It is dispatched as follows: 2 years of preclinical studies, 3 years of clinical studies

and part-time practical training and 2 years of fulltime internship. A dental degree is not needed to become an OMFS. Dentists are not allowed to get into an OMFS residency which is hosted in medical schools. Dentists can specialize in Oral Surgery. Although they are different specialties, both share a wide overlap.

The number of OMFS is very low compared to other specialties, ENT for instance. Similarly, academic positions in OMFS and hours in medical schools are very limited compared to ENT. Most of undergraduate and graduate medical students only have contact with OMFS – if they have any contact with it in ENT departments under the supervision of ENT professors, in a monopoly position. The dental students may receive academic education in OMFS but rarely practical training. However, because of their field of practice, dental students and dentists have more contact with OMFS than their medical colleagues.

The choice of the participants:

While some authors have chosen to head their survey towards the general public, we preferred to focus on the healthcare providers and medical and dental students mainly because of the disproportional level of education between people in Morocco. The gap may be very wide. The results of a survey about knowledge of OMFS among the general public are unlikely to be exploitable. Moreover, because of the context as exposed above, we assumed that Medical and Dental students and practitioners neither know the scope of OMFS nor can distinguish between OMFS and other overlapping specialties like ENT. According to their experience in India, Subhashraj and Subramaniam, [8] made this statement: “Understanding the attitude and perception of our medical and dental colleagues was found to be more vital than assessing the knowledge of the public”. We can’t agree more, since they’re the ones who refer their patients to us. Should we educate first our medical and dental colleagues or the public? - Our colleagues first, definitely.

The methodology:

Thanks to internet, more than 5000 forms were sent to physicians, surgeons, dentists, medical and dental students and residents around the country. The use of a form application on internet was very handy for us and for the participants. In a few clicks on check boxes, all data needed were collected in a spreadsheet. This manner allowed us to collect data with a high level of accuracy, efficiency and to avoid subjectivity. We could then use 416 complete anonymous responses, which is a remarkable randomized sample for this type of surveys. This methodology may have one important limitation: It may have set aside some rural practitioners who don’t have a direct access to internet.

General data:

60.3% of the respondents were aged between 22 years old and 35 years old which fits to students, residents and young graduated practitioners. The sex ratio was as actually seen in the medical and dental fields in Morocco, with a progressive feminine predominance since 2 decades. Civilian/military proportion is compatible with the distribution seen in Morocco. The territorial distribution of the respondents shows that 63.2% of the respondents are located in the axis between Rabat (capital city) and Casablanca (economical capital) which is very close to the reality of the medical and dental healthcare providers and students’ distribution in Morocco.

Knowledge of OMFS:

Almost all the respondents declare they know OMFS, but do they know what we really do? - We are not sure. Jarosz et al, [12] noticed that there is confusion among medical and dental professionals regarding the following overlapping specialties: ENT, Plastic Surgery, OMFS and Periodontics. Hunter et al, [6] in a survey involving the students and the practitioners in Dentistry and Medicine and the public in Boston area, concluded that even if almost all medical and dental students and practitioners had heard of the specialty of OMFS, only some of them are aware of the large scope of the specialty.

Is the long complex Latin name of “Oral and Maxillofacial Surgery” a millstone around our necks? Ameerally et al, [1] and Hunter et al, [6] after them, suggest that we should change the name of the specialty to something more comprehensible. According to Van Gijn, [15] this is not the point! However, when we consider that in some countries like France, Morocco and Belgium “Oral Surgery” is called “Stomatology” - which is neither understood nor easily pronounced -, and that some important scholarly societies and their affiliated journals are so called, isn’t it obvious that unifying our specialty name in “Oral and Maxillofacial Surgery” or “Oral and Facial Surgery” will have an interesting impact on both exposure and comprehension?

Training in OMFS

Less than the half of the overall respondents have received theoretical education in OMFS semiotics and less than a quarter declare they received practical training. As we are familiar with the situation on the ground, we know for sure that among those respondents there are many who were taught ENT semiotics and/or had received practical training in ENT and cannot distinguish between the two specialties. That being said, some others could have received good

academic and/or practical training in an independent OMFS department or sometimes in an ENT department under the supervision of an OMFs, which can add more to the confusion.

A review of the literature data shows that rates of exposure and training in OMFS among medical students and practitioners are generally low. According to Mahalingam et al, [16] and Goodson et al, [11] 72 to 76% of the medical students in UK reported no exposure to OMFS. Trivedy et al, [10] found that among 103 Emergency physicians included in their survey, nearly 76% received no formal training in managing dentofacial emergencies.

Confidence in managing OMFS emergencies

More than the half of the juniors (fulltime internship), residents and senior practitioners had to manage an OMFS emergency in their practice, at least once. Three quarters of them don't feel confident in their ability to manage OMFS emergencies correctly. The rates of trained people (theoretically and/or practically) are two times higher in the group of respondents that feel confident in their ability to manage OMFS emergencies than in the other group, although they are still low. According to Trivedy et al, [10] emergency physicians lack knowledge and confidence in the management of some common dento-facial emergencies, which is the likely result of lack of exposure and training. Samaei et al, [17] in a survey on the levels of knowledge and confidence among Australasian emergency physicians in managing dental emergencies, stated that confidence and knowledge are correlated.

In our survey, more than the half (51.5%) of the participants who received both theoretical and practical training (G2 =66) don't feel confident in their ability to manage OMFS emergencies. The rate was higher and reached more than three quarters (76.6%) among the participants who received theoretical training only (=128). Surprisingly, there was no difference between the participants who received practical training only and those who received neither theoretical nor practical training. They both have very low proportions of people who are confident in their ability to manage OMFS emergencies. A bias may be induced because of the small sample of the group of participants who had practical training only (= 26). However, according to the high rates of respondents who received training in theoretical and/or practical fields and who are not confident in their ability in managing OMFS emergencies, we are entitled to ask whether the training offered was adequate, especially the hands-on training.

Perception of frequency and seriousness of three OMFS emergencies: fractures of the lower jaw, facial cellulitis and post extraction hemorrhages

Nearly 40% of the respondents think that fractures of the lower jaw and post extraction hemorrhages are moderately or very frequent whereas more than the half think that facial cellulitis is moderately or very frequent. More than the half think that a fracture of the jaw is a moderately serious condition and 38% think it is very serious. More than three quarters think facial cellulitis is a very serious condition whereas 62% think that post- extraction hemorrhage is moderately serious and 25% very serious. Obviously, Moroccan medical and dental students and practitioners are aware that emergencies in the oro-facial area are not that infrequent and may be very serious. In their survey among emergency physicians in UK, Trivedy et al, [10] found that, in general, emergency doctors agree that dental abscesses, postoperative dental complications, facial trauma and lacerations and avulsed teeth are genuine emergencies and appropriate for a presentation in emergency departments.

Problems regarding the management of: fractures of the lower jaw, facial cellulitis and post- extraction hemorrhage

Problems in theoretical knowledge, technical skills and attitude were less reported among the group of students, residents and practitioners who received both theoretical and practical training whereas the highest amount of problems related to technical skills was paradoxically seen in the group of participants who received practical training only, followed by the group who received neither theoretical nor practical training. Problems in theoretical knowledge and attitude were almost similar for both groups. It remains obvious that practical training as offered in ENT departments is not likely to offer a sufficient background of knowledge in OMFS, especially in managing emergencies.

Perception of the scope of OMFS

The participants recognized that OMFs were the most qualified for treating all TMJ conditions, bone trauma, tumors and anomalies of the jaws whereas cosmetic surgery was by far the preserve of the plastic surgeons. Plastic surgeons were also preferred for cuts in the face. The participants had a preference for dentists (GP) regarding dental surgery and implants. Cleft lips and palates and cutaneous tumors of the face are divided between OMFs and plastic surgeons with a slight preference for the OMFs. Surprisingly, nasal fractures were more referred to ENT specialists than to OMFs. Salivary glands were also largely sent to ENT whereas the tumors of the oral cavity were divided between OMFs and ENT specialists. These results aren't very dissimilar than the ones of the literature (Table IV) with some local specificities.

Table IV: Literature data regarding the general trend of medical and dental students and practitioners in referring patients entering in the scope of OMFS*

		Amerally et al, ¹ (Sunderland - UK, 1994)	Hunter et al, ⁶ (Boston - USA, 1996)	Herlin et al, ⁴ (France, 2008)	Rocha et al, ⁷ (Brazil, 2008)	Subhashraj et al, ⁸ (Pondicherry - India, 2008)	Haron et al, ³ (Kuwait, 2013)	Goodson et al, ¹¹ (Medical students in UK, 2013)	Jarosz et al, ¹² (Dental students in New Jersey, 2013)	Shah et al, ⁹ (Bangladesh, 2013)	Current study (Morocco, 2016)
Trauma	Cut on the face	OMFs/ Plastic surg	Plastic surg	Plastic surg		Plastic surg/ OMFs	Plastic surg/General surg/OMFs	OMFs/ Plastic surg (item: facial trauma)		Plastic surg/OMFs	Plastic surg/OMFs
	Nose fracture			OMFs (item: facial bone trauma)	OMFs/Plastic surg/ENT		ENT				ENT/OMFS
	Broken jaw	OMFs	OMFs		OMFs	OMFs	OMFs		OMFs	OMFs	OMFs
	Dento-alveolar fracture				OMFs	OMFs (item: tooth fracture)	OMFs/Others (item: trauma of the teeth)			OMFs (item : fractured tooth)	Dentists/OMFs
Tumors and Salivary glands	Salivary gland removal		OMFs/ENT	ENT/OMFs	H&N surg/OMFs	OMFs/ENT	OMFs/General surg	OMFs/ENT		OMFs/ENT	ENT/OMFS
	Facial skin tumor	Plastic surg/OMFs	Plastic surg	Plastic surg/Others			Plastic surg/OMFs/General surg	Plastic surg/OMFs			OMFs/Plastic surg
	Tumor of the oral cavity	OMFs/ENT	OMFs/ENT	OMFs/ENT	H&N surg/OMFs	ENT/OMFs (item: cancer of the tongue)	OMFs/General surg	OMFs/ENT		OMFs/ENT (item : cancer of tongue)	OMFs/ENT
	jaw tumor/cyst				OMFs/H&N surg	ENT/OMFs (item: cancer of the cheeks)		OMFs			OMFs
Reconstructive surgery	Cleft lip/palate	OMFs/Plastic surg	OMFs/Plastic surg	OMFs	Plastic surg/OMFs	Plastic surg/OMFs	OMFs/Plastic surg	OMFs/Plastic surg	OMFs	OMFs/Plastic surg	OMFs/Plastic surg
	Jaw bone loss/reconstruction				OMFs		OMFs/Plastic surg				OMFs
	Jaw deformity (excess/deficiency/orthognatics)		OMFs/Plastic surg	OMFs	OMFs/Plastic surg	Plastic surg/OMFs	OMFs			Plastic surg/OMFs (item : facial deformity and asymmetry)	OMFs
Aesthetic	Nose cosmetic surgery		Plastic surg	Plastic surg	Plastic surg	Plastic surg	Plastic surg			Plastic surg	Plastic surg

Surgery	Eyelid cosmetic surgery										Plastic surg
	Appearance of the face	Plastic surg	Plastic surg	Plastic surg	Plastic surg		Plastic surg/OMFs				Plastic surg
TMJ and Dental Surgery	Wisdom teeth removal				OMFs	OMFs	OMFs/Others	OMFs	OMFs	OMFs	Dentists
	TMJ		OMFs	OMFs	OMFs	OMFs/ENT/Others	OMFs			OMFs	OMFs/Dentists
	Implants		OMFs/Periodontists	OMFs (and Oral surg)	OMFs/Others	OMFs	OMFs/Others		Periodontists/OMFs	OMFs	Dentists

H&N surg: Head and neck surgeons

Gen surg: General surgeons

ENT: Ear-nose-throat specialists

Plastic surg: Plastic surgeons

OMFs: Oral and maxillofacial surgeons

*We only focused on data regarding medical and dental students and practitioners, even if some of these studies involved more people: public, paramedical staff.

Suggestions and remarks

More than the quarter (26.7%) of the respondents filled the suggestions and remarks parts (optional). Obviously, there is a lack of training during the formal education in both theory and practice, especially regarding the OMFS emergencies. There is a need in training expressed by the major part of the respondents (n = 111) for academic courses and internship. Dental and medical practitioners expressed their need for continuing education especially in managing OMFS emergencies. They also expressed the need of meetings, panel discussions, workshops and hands-on training in oro-facial emergencies. Moroccan OMFs have thus the opportunity to enhance healthcare professionals' comprehension of the scope of OMFS. A process of reflexion on the best ways for our specialty to take advantage on the situation should be lead in the very short term. Haron et al, [3] when reporting their experience in Kuwait, stated that teaching undergraduate students at Faculty of Dentistry and giving courses to the society by the academic staff in OMFS are important factors for increasing awareness. By varying innovative methods of teaching that emphasizes the practical skills by using anatomical models, ex-vivo porcine models and involving the students in the operating theatre, Bauer et al, [18] were able to promote OMFS among 40 German medical students. Eight of them chose OMFS as an elective subject for their final year in medical school. Templer et al, [19] believe that it is important to prepare junior doctors to recognize and manage OMFS emergencies, particularly where departments do not have direct referrals to OMFS within the same hospital, which is mostly the case in the Moroccan context. They suggest two types of actions to address the lack of training and experience of junior doctors at emergency departments: Firstly, increasing the emphasis on the acute management of maxillofacial trauma and dental pathology for undergraduates, and secondly, setting-up one-day courses dedicated to the presentation and the management of common OMFS injuries for medical students and junior doctors.

"Each of us as individuals must take every available opportunity to promote the specialty in the workplace and in the media" Ameerally et al,[1] said.

It is of the utmost importance that OMFs in Morocco unify their efforts to promote effective education in OMFS for medical and dental students. It should start by realizing that it is the most effective way to increase the awareness of the healthcare providers and the general public regarding the scope of OMFS. Scholarly societies and academics have a big share of responsibility in lobbying for increasing exposure and awareness of our specialty, so it can achieve its due.

CONCLUSION

Increasing knowledge and awareness regarding the scope of OMFS among medical and dental professionals will help them make the right decision in referring patients. This implies that OMFs should maintain continuous effort in fostering education in medical and dental schools and boost continuing education for practitioners.

Acknowledgment:

The authors express their deep gratefulness to Mr **Mourad Guerrouani**, senior economist and statistician whose help was valuable in the study conception and data analysis, to Dr **Khalid Nessati** from the independent union of Doctors of the public sector, to Dr **Jamal Oujidi** from the Moroccan Medical Board and to Professor **Ahmed Zahidi**, researcher in Pharmacology and Faculty member in the School of Medicine of Rabat for helping in the spread of the forms. All authors have viewed and agreed to the submission of this paper.

Conflict of interest

Authors declare no competing interest of any kind. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

REFERENCES:

- 1 Ameerally P, Fordyce AM, Martin IC. So you think they know what we do? The public and professional perception of oral and maxillofacial surgery. *Br J Oral Maxillofac Surg.* 1994 Jun;32(3):142-5.
- 2 Farook SA, Rihal K, Abdullakutty A, Coombes D. Lost tribe? Awareness of oral and maxillofacial surgery (OMFS) among the general public. *Br J Oral Maxillofac Surg.* 2013 Jan;51(1):e4-5. doi: 10.1016/j.bjoms.2012.01.006. Epub 2012 Feb 4.
- 3 Haron IM, Sabti MY, Andersson L, Sharma PN. Perception of oral and maxillofacial surgery by medical and dental health care professionals in Kuwait. *Journal of Oral and Maxillofacial Surgery, Medicine, and Pathology* 25 (2013) 5–11
- 4 Herlin C, Delaval C, Jammet P, Goudot P, Yachouh J. [Perception of maxillofacial surgery and stomatology in France]. *Rev Stomatol Chir Maxillofac.* 2008 Feb;109(1):20-7. doi: 10.1016/j.stomax.2007.10.002. Epub 2008 Jan 9. (Article in French)
- 5 Ifeacho SN, Malhi GK, James G. Perception by the public and medical profession of oral and maxillofacial surgery--has it changed after 10years? *Br J Oral Maxillofac Surg.* 2005 Aug;43(4):289-93.
- 6 Hunter MJ, Rubeiz T, Rose L. Recognition of the scope of oral and maxillofacial surgery by the public and health care professionals. *J Oral Maxillofac Surg.* 1996 Oct;54(10):1227-32; discussion 1233.
- 7 Rocha NS, Laureano Filho JR, Silva ED, Almeida RC. Perception of oral maxillofacial surgery by health-care professionals. *Int J Oral Maxillofac Surg.* 2008 Jan;37(1):41-6. Epub 2007 Sep 18.

- 8 Subhashraj K, Subramaniam B . Awareness of the specialty of oral and maxillofacial surgery among health care professionals in Pondicherry, India. *J Oral Maxillofac Surg.* 2008 Nov;66(11):2330-4. doi: 10.1016/j.joms.2007.04.025.
- 9 Shah N, Patel N, Mahajan A, Shah R. Knowledge, attitude and awareness of speciality of oral and maxillofacial surgery among medical consultants of Vadodra district in Gujarat state. *J Maxillofac Oral Surg.* 2015 Mar;14(1):51-6. doi: 10.1007/s12663-013-0592-6. Epub 2013 Oct 12.
- 10 Trivedy C, Kodate N, Ross A, et al. The attitudes and awareness of emergency department (ED) physicians towards the management of common dentofacial emergencies. *Dent Traumatol* 2012;28:121–6.2.
- 11 Goodson AM, Payne KF, Tahim A, Cabot L, Fan K. Awareness of oral and maxillofacial surgery as a specialty and potential career pathway amongst UK medical undergraduates. *Surgeon.* 2013 Apr;11(2):92-5. doi: 10.1016/j.surge.2012.09.001. Epub 2012 Oct 10.
- 12 Jarosz KF, Ziccardi VB, Aziz SR, Sue-Jiang S. Dental student perceptions of oral and maxillofacial surgery as a specialty. *J Oral Maxillofac Surg.* 2013 May;71(5):965-73. doi: 10.1016/j.joms.2011.05.014. Epub 2011 Aug 6.
- 13 D'Ivernois JF. Un instrument pour l'évaluation des besoins de formation en matière de FMC. *Bulletin de l'ASFORMED* 1978;n° 8. In: *Concours Médicale* 1978 ;100:7383-87.6.
- 14 Herlin C, Goudot P, Jammet P, Delaval C, Yachouh J. Oral and Maxillofacial Surgery: What are the French specificities?. *J Oral Maxillofac Surg* 69:1525-1530, 2011
- 15 Van Gijn DR. Oral and maxillofacial surgery – a case of mistaken identity?. *British Dental Journal* 2011; 210: 9–11.
- 16 Mahalingam S, Kalia P, Mugilan S. Oral and maxillofacial surgery in medical schools in the United Kingdom. *Br J Oral Maxillofac Surg.* 2015 Mar;53(3):295-7. doi: 10.1016/j.bjoms.2014.12.012. Epub 2015 Jan 14.
- 17 Samaei H1, Weiland TJ2, Dilley S3, Jelinek GA. Knowledge and confidence of a convenience sample of Australasian emergency doctors in managing dental emergencies: results of a survey. *Emerg Med Int.* 2015;2015:148384. doi: 10.1155/2015/148384. Epub 2015 Mar 4
- 18 Bauer F, Rommel N, Rohleder N, Koerdt S, Wolff KD, Mitchell DA et al. Special training in maxillofacial surgery for medical students-- economic burden or investment in the future? *Br J Oral Maxillofac Surg.* 2015 Dec;53(10):1012-4. doi: 10.1016/j.bjoms.2015.10.004. Epub 2015 Oct 28.
- 19 Templer B, Amin K, Ahmed N, Fan K. Oral and maxillofacial surgery: the importance of undergraduate training for junior doctors in accident and emergency. *Emerg Med J.* 2012 Jul;29(7):602-3. doi: 10.1136/emered-2012-201370. Epub 2012 Apr 25.