What Surgical Education the Speciality Offers? Perception of Role of Oral and Maxillofacial Surgery by 1200 Healthcare Professionals, Students and the General Public in Hyderabad, India

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Abstract

Aim To investigate the perception of Oral and maxillofacial surgery by healthcare professionals, students and general public.

Materials and Methods A questionnaire form was created that listed ten clinical situations, and given by hand to 1200 individuals, divided into six groups: group 1, medical professionals; group 2, Specialties of dentistry; group 3, general dentists; group 4, medical students; group 5, dental students; and group 6, general public, each comprising 200 individuals. Respondents were asked to indicate who they would expect to treat them if they had one of the specified conditions listed in the questionnaire. We present the results and current awareness levels of this simple questionnaire. The present study addresses the common issue raised by many authors, ‘What surgical education the speciality offers?’ especially to medical professionals, medical students and general public to enhance an appropriate referral.

Results Most of the respondents in groups 2, 3 and 5 agreed that specific conditions listed in the questionnaire were within the domain of oral and maxillofacial surgery, but such response was not seen in groups 1, 4 and 6 ($p < 0.001$). An overall awareness level of oral and maxillofacial surgery was found to be 50.2%.

Conclusion The onus of creating and improving the awareness and perception of our specialty lies on oral and

maxillofacial surgeon. Unified efforts at individual as well as global level will help achieve this goal.

Keywords Oral and Maxillofacial Surgery · Perception · Healthcare professionals · Students · General public

Introduction

‘Oral and maxillofacial surgery’ (OMFS) is a speciality that continued to evolve and broaden from oral surgery to craniomaxillofacial surgery. It provide procedures that are life saving (e.g. maxillofacial trauma, oral oncology), as well as those that enhance the quality of life by providing better function (reconstructive surgery) and aesthetics (aesthetic facial surgery) in a well-defined anatomical area.

Studies published previously showed either low [1] or only marginal rise [2] in awareness by healthcare professionals and general public. There is scanty evidence relating to education of undergraduates, particularly medical students, but there is rise in dental students pursuing OMFS as a career due to increase in enthusiasm and perception of the OMFS during their training programme over the last decade.

Ologunde and Sykes [3] reviewed oral and maxillofacial surgery journals contribution to undergraduate surgical education addressing the same issue. Hence, a study was designed to investigate the current perception of OMFS by the healthcare professionals, students and the general public. Also, the present study focuses on ‘what surgical education the speciality offers’ particularly to medical professionals, medical students and general public, which directly reflects on future referral pattern and enhances good perception levels.

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Materials and Methods

A prospective randomised study was carried out during the 6-month period January 2016 to June 2016 in Hyderabad, Telangana, India, on 1200 individuals, divided into six groups, each comprising 200 individuals. A simple questionnaire form (Table 1) was created that listed ten specified clinical conditions operated by Oral and maxillofacial surgeon, and given randomly to each group by hand. Respondents were asked to indicate who they would expect to treat them if they had one of the specified conditions, and at the end of session, completed forms were collected. Demographic data of the respondents were noted. The six groups were as follows:

Group 1 (MP)—Medical professionals (General surgeons, Oncologists, Ear, Nose and Throat (ENT) surgeons, Orthopaedicians, Cardiologists, Family physicians, Dermatologists, Endocrinologists, Anaesthetists etc) working in the government and private corporate hospitals.

Group 2 (SD)—Specialities of dentistry (Oral Medicine and Radiologist, Oral pathologist, Community dentist, Periodontist, Prosthodontist, Pedodontist, Orthodontist, Conservative dentistry and Endodontists) working in dental institutes and colleges.

Group 3 (GD)—General dentists working in the city of Hyderabad, having their own private practice, were randomly selected.

Group 4 (MS)—Medical students, and Group 5 (DS)—Dental students, were those in the respective clinical years pursuing their course at Hyderabad in medical and dental colleges.

Group 6 (GP)—General public include individuals working in different fields such as educational institutes, banking sector, software companies, government employees, business sector and engineers.

Healthcare professionals comprise of medical professionals, specialities of dentistry and general dentists. Students comprise of medical and dental.

The aim of the questionnaire was to find out the percentage of individuals in each group opting for an oral and maxillofacial surgeon for specified condition created in the form and to improve surgical education, appropriate referral pattern, access and efficient delivery of the quality service by OMFS based on the awareness levels.

Statistical Analysis

The statistical analysis was performed using SPSS version 14. A p value of < 0.05 was considered statistically significant. Comparison of categorical variables was made using Chi-square test.

Results

The age range was similar in all six groups. The sex distribution showed male were the predominant gender (67–78%) among groups MP, SD, GD and GP but groups MS and DS presented lower percentage (47 and 44%), respectively (Table 2).

All individuals of six groups responded well. A total of 12,000 responses (10 specified conditions $\times$ 6 groups $\times$ 200 respondents in each group) were obtained. From each group, 2000 responses (10 specified conditions $\times$ 200 respondents) were obtained. In decreasing order, awareness levels of the OMFS for specified conditions were DS (91%) $>$ GD (89.7%) $>$ SD (88.9%) $>$ MP (14%) $>$ MS (10.7%) $>$ GP (7%), respectively, as given in Table 1.

Most of the respondents in groups SD, GD and DS agreed that specific conditions listed in the questionnaire were within the domain of OMFS but such response was not seen in groups MP, MS and GP. The awareness levels were statistically significant (Chi-square test, $p < 0.001$) among six groups pertaining to specified conditions listed in the questionnaire and thus, indicating to educate and increase perception of the speciality, particularly in groups MP, MS and GP as given in Table 3.

Number of respondents who preferred other medical speciality in groups MP, MS and GP for specified conditions listed in the questionnaire is shown in Fig. 1. Surprisingly, a more number of the respondents in groups MP (97/200) and MS (79/200) chose OMFS for TMJ disorders, but GP would consult family physician (178/200) for treatment or for opinion whom to refer in such conditions (Fig. 1). An overall awareness level of OMFS for specified conditions listed in the questionnaire was found to be 50.2% (6034/12,000) among all six groups. Thus, the dental field (groups SD, GD and DS) had had greater appreciation and knowledge of the scope of OMFS as shown by their responses when compared to the medical field (groups MP and MS) and general public.

Discussion

The present study demonstrated current awareness levels of the scope of medical professionals and medical students, which still produces some confusion and lack particularly, among general public. However, majority of the specialities of dentistry, general dentists and dental students were aware of surgical field of the OMFS and would refer them for specified condition listed in the questionnaire. This finding was similar to the studies

Table 1 Questionnaire form

Specified condition	Orthopaedic	ENT	Plastic surgeon	Oral and maxill of acial surgeon	General dentist	General Surgeon	Oncologist	Others including family physician
Wisdom tooth removal								
Facial cut injuries								
Facial bone fractures								
Facial deformities								
Cleft lip and palate								
Oral cancer								
Facial space infections								
Sinus problems								
TMJ disorders								
Aesthetic facial surgery								
Total								

Table 2 Age range (years), gender and number (%) of respondents perception of OMFS of specified condition listed in the questionnaire

Group	Age range (years)	Gender	Number (%)
1—Medical professionals	31–50	Male—67% Female—33%	280/2000 (14)
2—Specialities of dentistry	28–50	Male—72% Female—28%	1779/2000 (88.9)
3—General dentists	31–50	Male—75% Female—25%	1795/2000 (89.7)
4—Medical students	21–30	Male—47% Female—53%	215/2000 (10.7)
5—Dental students	21–30	Male—44% Female—56%	1821/2000 (91)
6—General public	31–60	Male—78% Female—22%	144/2000 (07)

conducted by Subramaniam [4] from Pondicherry, India, and Jarosz et al. [5] from New Jersey who demonstrated that for specified conditions related to oral and maxillofacial region being recognised by dental students as within domain of oral and maxillofacial surgeon. Similar findings were observed by Rangarajan et al. [6]. Rocha et al. [7] in Brazil conducted a similar study to investigate the perception of the speciality by healthcare professionals, but found good level of knowledge of the scope of OMFS, and concluded that specialty needs to broaden its horizons in the education of medical and dental students, as well as the general public to ensure the correct referral of all patients.

Ifeacho et al. [2] 10 years later compared their results with those of Ameeraly et al. [1] and found that recognition of OMFS among the general public and health professionals had increased (21–34%), but the specialty had improved only marginally. Compared the results of Ifeacho et al. [2] with those of our results, recognition of the speciality had increased from 34 to 50.2%. Hunter et al. [8] demonstrated that most professionals, dental and medical students have heard of OMFS, but only a few realise the full scope of the specialty. This could be the possible reason for low perception of the specialty.

The results of the present study showed for some specified conditions listed in the questionnaire, medical

Table 3 Number (%) of respondents' perception of OMFS of specified condition listed in the questionnaire

Specified condition	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	P value
Wisdom tooth removal	29 (14.5)	195 (97.5)	197 (98.5)	33 (16.5)	167 (83.5)	22 (11)	< 0.001
Facial cut injuries	37 (18.5)	192 (96)	184 (92)	9 (4.5)	187 (93.5)	13 (6.5)	< 0.001
Facial bone fractures	26 (13)	198 (99)	196 (98)	14 (7)	196 (98)	18 (9)	< 0.001
Facial deformities	8 (4)	197 (98.5)	198 (99)	7 (3.5)	198 (99)	21 (10.5)	< 0.001
Cleft lip and palate	3 (1.5)	137 (68.5)	194 (97)	0 (0)	192 (96)	13 (6.5)	< 0.001
Oral cancer	52 (26)	176 (88)	174 (87)	46 (23)	183 (91.5)	17 (8.5)	< 0.001
Facial space infections and facial pathologies	32 (16)	194 (97)	153 (76.5)	27 (13.5)	172 (86)	19 (9.5)	< 0.001
Sinus problems	0 (0)	167 (83.5)	193 (91.5)	0 (0)	196 (98)	3 (1.5)	< 0.001
TMJ disorders	93 (46.5)	197 (98.5)	194 (97)	79 (39.5)	198 (99)	12 (6)	< 0.001
Aesthetic facial surgery	0 (0)	126 (63)	112 (56)	0 (0)	132 (66)	6 (3)	< 0.001
Total	280 (14)	1779 (88.9)	1795 (89.7)	215 (10.7)	1821 (91)	144 (7)	6034 (50.2)

Fig. 1 Number of respondents who preferred other medical speciality in groups 1, 4 and 6 for specified conditions listed in the questionnaire

professionals, medical students and general public would most likely consult medical specialties as shown in Fig. 1. This is justified primarily by the fact that these specialties are also responsible for treatment and with no specific procedures for each specialty [9].

Our study findings are consistent with previous studies on perceptions of the OMFS by healthcare professionals, students and general public. Thus, these issues are not discussed further. The present study focuses on 'what surgical education the speciality offers' to problems related to oral and maxillofacial region to enhance better patient referral. One of the most common issues consistently discussed by many authors in previously published papers (also seen in the present study) was 'medical students and professionals are not aware of what the specialty offers' [1–4, 6–8]. In response, OMFS offers procedures in the management of simple, complex and diverse problems within a well-defined anatomical area. It includes surgical procedures required to correct specified conditions listed in the questionnaire as

given in Table 1 and also addresses odontogenic and non-odontogenic cysts and tumours (benign and malignant), fibro-osseous lesions, oral submucous fibrosis, salivary gland pathologies, vascular anomalies of maxillofacial region and craniofacial syndromes. Thus, OMFS is responsible for diagnosis, and clinical and surgical treatment of traumatic, congenital and developmental issues in the oral and maxillofacial area. Advances made in the speciality [10] for better patient care and outcome were dental and maxillofacial implants, use of custom-made implants, tissue grafts and vascularised flaps (either pedicled or free), three-dimensional imaging, stereolithographic models, distraction osteogenesis [10], navigation surgery [11], robotic surgery [12], tissue engineering [13], facial allotransplantation [10], piezosurgery [14], laser treatment [15], reconstruction in skull base surgery (access osteotomy) [16], regenerative nanotechnology [17], endoscope-assisted surgery [18], optical diagnostic techniques [19], facial reanimation for facial palsy [20] and surgical correction of craniofacial

syndromes [21]. Some of these procedures would require multidisciplinary approach. Many articles have been published addressing all these procedures and advances in the oral and maxillofacial surgery journals. OMFS, as is a dentistry speciality recognised by the Federal Dentistry Board in the mid-1960s [7], is better in understanding biomechanics of facial harmony and the concept of occlusion compared to any other medical speciality. Also, oral and maxillofacial surgeon for some specified conditions of maxillofacial complex, approach intraorally to deliver scarless treatment. An effort should be made that lead to appropriate referral pattern, access and efficient delivery of the quality service by OMFS concerning advances made in the speciality [2]. Thus, this answers ‘what surgical education the speciality offers’.

Ameerally et al. [1] thought ‘OMFS’ name was the problem and suggested a much simpler name. Laskin et al. [22] showed that name recognition was not a problem only for OMFS. Instead, it indicates that no name alone can ever be completely descriptive. One of the concerns over changing the name was that another speciality might adopt the abandoned [19]. The present study supports this conclusion and feel exiting name should be popularised and made familiar among healthcare professionals, students and general public.

Hunter et al. [8] stated that a lack of publicity in the media along with the fact that OMFS is grounded in dentistry rather than medicine would attribute for low awareness of the speciality. Thus, the speciality ‘oral and maxillofacial surgery’ sometimes presents as dilemma between dental and medical fraternity, even though it is mostly concerned with surgical medical field in a well-defined anatomical area.

Based on the awareness levels, oral and maxillofacial surgeon should take a leading role to raise awareness concerning the specialty. We need to be educating and nurturing our medical practitioners, medical students and general public belonging to various sectors so that patients receive optimum treatment. We have to demonstrate by audit, publications (concerning advances and future implications) or organising public talks or camps regularly [1], continuing dental education programmes, symposiums and poster presentations. Medical and dental schools, hospitals and educational institutions and working staff are the leading lights to promote awareness. This would have an effect on the dynamics of the entire system, not only to the patients or the public, but also to the doctors who provide the treatment. Hence, referral practice to surgical area of the speciality would improve by medical professionals, medical students and public [23].

It should be noted that findings of the present study are limited to Hyderabad, India, and therefore, the results might not be applicable elsewhere. We acknowledge that

this does provide significant bias in the data obtained from our survey.

One should focus on promoting different surgical fields that the speciality offers and improve awareness and referrals by methods described based on the perception levels in their respective areas, which will depend on training, experience and areas of interest.

In conclusion, the onus of creating and improving the awareness and perception of our specialty lies on oral and maxillofacial surgeon. Unified efforts at individual as well as global level will help achieve this goal.

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Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Human and Animal Rights This article does not contain any studies with animals performed by any of the authors.

References

1. Ameerally P, Fordyce AM, Martin IC (1994) So you think they know what we do? The public and professional perception of oral and maxillofacial surgery. *Br J Oral Maxillofac Surg* 32:142–145
2. Ifeacho SN, Malhi GK, James G (2005) Perception by the public and medical profession of oral and maxillofacial surgery—has it changed after 10 years? *Br J Oral Maxillofac Surg* 43:289–293
3. Ologunde R, Sykes M (2014) A review of oral and maxillofacial surgery journals’ contribution to undergraduate surgical education. *Br J Oral Maxillofac Surg* 52:894–900
4. Subhashraj K, Subramaniam B (2008) Awareness of the specialty of oral and maxillofacial surgery among health care professional in Pondicherry, India. *J Oral Maxillofac Surg* 66:2330–2334
5. Jarosz KF, Ziccardi VB, Aziz SR, Sue-Jiang S (2013) Dental student perceptions of oral and maxillofacial surgery as a specialty. *J Oral Maxillofac Surg* 71:965–973
6. Rangarajan S, Kaltman S, Rangarajan T, Lopez E (2008) The general public’s recognition and perception of oral and maxillofacial surgery. *Oral Surg Oral Med Oral Pathol Radiol Endod* 106:15
7. Rocha NS, Laureano Filho JR, Silva ED, Almeida RC (2008) Perception of oral maxillofacial surgery by health-care professionals. *Int J Oral Maxillofac Surg* 37:41–46
8. Hunter MJ, Rubeiz T, Rose L (1996) Recognition of the scope of oral and maxillofacial surgery by the public and health care professionals. *J Oral Maxillofac Surg* 54:1227–1233
9. Sherick DG, Buchman SR, Patel PP (1998) Pediatric facial fractures: analysis of differences in subspecialty care. *Plast Reconstr Surg* 102:28–31

10. Balasundaram I, Al-Hadad I, Parmar S (2012) Recent advances in reconstructive oral and maxillofacial surgery. *Br J Oral Maxillofac Surg* 50:695–705
11. Collyer J (2010) Stereotactic navigation in oral and maxillofacial surgery. *Br J Oral Maxillofac Surg* 48:79–83
12. Borumandi F, Heliotis M, Kerawala C, Bisase B, Cascarini L (2012) Role of robotic surgery in oral and maxillofacial, and head and neck surgery. *Br J Oral Maxillofac Surg* 50:389–393
13. Payne KFB, Balasundaram I, Deb S, Di Silvio L, Fan KF (2014) Tissue engineering technology and its possible applications in oral and maxillofacial surgery. *Br J Oral Maxillofac Surg* 52:7–15
14. Eggers G, Klein J, Blank J, Hassfeld S (2004) Piezosurgery®: an ultrasound device for cutting bone and its use and limitations in maxillofacial surgery. *Br J Oral Maxillofac Surg* 42:451–453
15. Doeuk C, Hersant B, Bosc R, Lange F, SidAhmed-Mezi M, Bouhassira J, Meningaud JP (2015) Current indications for low level laser treatment in maxillofacial surgery: a review. *Br J Oral Maxillofac Surg* 53:309–315
16. Treasure TE, Dean JS, Gear RD Jr (2013) Craniofacial approaches and reconstruction in skull base surgery: techniques for the oral and maxillofacial surgeon. *J Oral Maxillofac Surg* 71:2137–2150
17. Shakib K, Tan A, Soskic V, Seifalian AM (2014) Regenerative nanotechnology in oral and maxillofacial surgery. *Br J Oral Maxillofac Surg* 52:884–893
18. Li B, Zhang L, Zhao Z, Shen G, Wang X (2012) Minimally invasive endoscopic resection of benign tumours of the accessory parotid gland: an updated approach. *Br J Oral Maxillofac Surg* 51:342–346
19. Green B, Cobb AR, Brennan PA, Hopper C (2014) Optical diagnostic techniques for use in lesions of the head and neck: review of the latest developments. *Br J Oral Maxillofac Surg* 52:675–680
20. Coyle M, Godden A, Brennan PA, Cascarini L, Coombes D, Kerawala C, McCaul J, Godden D (2013) Dynamic reanimation for facial palsy: an overview. *Br J Oral Maxillofac Surg* 51:679–683
21. Cobb AR, Green B, Gill D, Ayliffe P, Lloyd TW, Bulstrode N, Dunaway DJ (2014) The surgical management of Treacher Collins syndrome. *Br J Oral Maxillofac Surg* 52:581–589
22. Laskin DM, Ellis JA Jr, Best AM (2002) Public recognition of specialty designations. *J Oral Maxillofac Surg* 60:1182–1185
23. McArdle PJ, Whitnall M (1996) The referral practice of general medical practitioners to the surgical specialties: implications for the future. *Br J Oral Maxillofac Surg* 34:394–399