

# Knowledge of scope of oral and maxillofacial surgery amongst medical students at a tertiary hospital in Kathmandu, Nepal

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## Abstract

**Background:** Diagnosis and surgical treatment of varieties of traumatic, pathologic, functional, and aesthetic disorders of stomatognathic system are included in the scope of oral and maxillofacial surgery (OMFS). Although this speciality plays a significant part in dentistry and medicine; dental and medical professionals still do not fully comprehend the exact depth.

**Objectives:** To understand the level of knowledge amongst medical students of different levels, to promote the scope of OMFS among health care communities, and establish a fair understanding of the speciality's contribution.

**Methods:** This questionnaire based descriptive, cross-sectional survey was done on purposive sampling technique. Data were collected from 2022 October to 2022 December among medical students and interns of Nepal Medical College via questionnaire after receiving institutional ethical clearance. Data were entered, coded, and edited using Microsoft Excel 2010 and analysed using SPSS v.20. Descriptive statistics are presented in frequency, percentage, and mean.

**Results:** A total of 254 study participants were included of which 149 (58.66%) were male and 105 (41.34%) were female. Of all, 99 (38.98%) were first year medical students, 80 (31.50%) were second year students, and 75 (29.53%) were interns. Mean knowledge score in preclinical students was  $6.27 \pm 1.73$  and  $7.12 \pm 1.85$  in interns. The result shows adequate knowledge for both groups.

**Conclusion:** Findings of this study assesses the level of knowledge of medical students at a tertiary hospital which will help to highlight the need for awareness and education regarding OMFS, promoting its development, contribution, and impact among the health care professionals.

**Key words:** Knowledge; Medical students; Oral and maxillofacial surgery; Scope.

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## INTRODUCTION

Oral and Maxillofacial surgery (OMFS) is among one of the nine branches of dentistry. The speciality derived its identity from its necessary role in management of head and neck trauma during World War I.<sup>1</sup> Some of the procedures of OMFS include simple and surgical extraction of teeth, dentoalveolar surgery, placement of dental implants, intraoral and extraoral bone grafting, cosmetic surgery, management of facial trauma, cleft lip and palate surgery, orthognathic surgery, temporomandibular (TMJ) surgery, head and neck cancer surgery, etc.<sup>2</sup> OMFS is a speciality that lies at the interface of medicine and dentistry.<sup>3</sup> The overlapping areas among different specialists such as OMFS, Otolaryngology (ENT), Plastic and reconstructive surgery, Periodontology



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has created dilemma among medical and dental professional regarding referring the maxillofacial cases and provide required treatment by specifically trained surgeon.<sup>4</sup> Even though, the scope of OMFS is emerging and expanding, it is unfortunate that this field is concised to extraction of teeth and management of mandibular fracture because of lack of knowledge amongst health care professionals.<sup>5</sup> Therefore, having knowledge about the speciality improves overall health condition of the patient. Besides, the patient can make their own decision about the treatment to the concerned specialities.

## METHODOLOGY

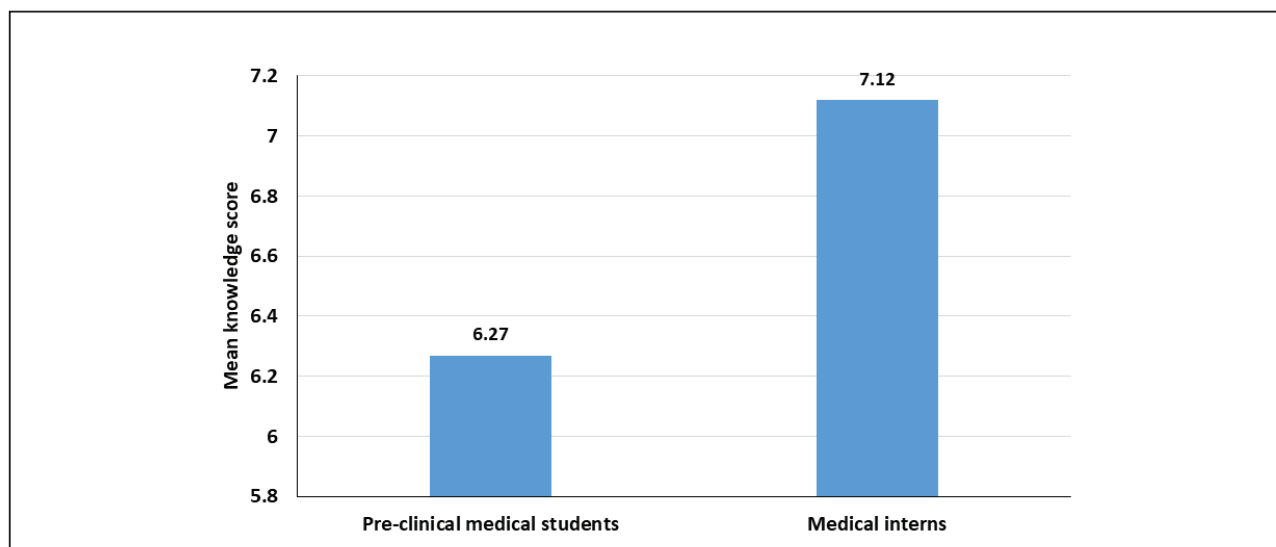
This was a descriptive cross-sectional questionnaire-based survey conducted between 2022 October to 2022 December, among first and second year medical students and interns of Nepal Medical College and Teaching Hospital (NMCTH), Jorpati Nepal. Ethical clearance for the study was obtained from Institutional Review Committee, NMCTH (Ref. 22-079/080222). Informed consent was obtained from the students. Complete enumeration sample was taken. The study questionnaire comprised of 11 questions adapted from validated questionnaire (Table 1).<sup>6</sup> First part of the questionnaire elicited information on the demographic attributes of the students. The second part of the questionnaire included the knowledge related to the scope of oral and maxillofacial surgery<sup>6,7</sup> with dichotomous options 'Yes' or 'No' as well as some multiple choice options. Each 'yes' or correct answer was given a score of 1 and 'No' or incorrect answer was given a score of 0. Total score of <5 was assumed as inadequate knowledge whereas score of

≥5 was assumed as adequate knowledge.<sup>8</sup> Questionnaire was distributed to the first and second year students well as interns of NMCTH in their class and postings respectively and was collected back in 15 minutes after completion in the presence of researcher. Data were entered, coded, and edited using Microsoft Excel 2010 and then exported to IBM SPSS Statistics for Windows, version 20 (IBM Corp., Armonk, N.Y., USA) for further analysis and was presented in the form of frequency, percentage, mean, and standard deviation. All the first year, second year students, and interns of NMCTH who gave consent to participate in the study were included in the study whereas students who did not complete the questionnaire were excluded from the study.

## RESULTS

A total of only 254 study participants out of 300 students were included in the study of which 149 (58.66%) were male and 105 (41.34%) were female. Six students were excluded as they did not meet the study criteria. Of the total, 99 (38.98%) were first year students, 80 (31.50%) were second year medical students, and 75 (29.53%) were medical interns.

Most preclinical medicals students (133, 74.30%) were not familiar with different branches of dentistry (Table 2). However, majority of medical interns (56, 74.67%) were familiar (Table 3). The mean knowledge score in the preclinical medical students was  $6.27 \pm 1.73$  and it was  $7.12 \pm 1.85$  in the medical interns (Figure 1). This shows there is adequate knowledge for both basic science and clinical medical students.



**Figure 1:** Knowledge score in the preclinical medical students and interns

**Table 1: Questionnaire on 'Knowledge of scope of speciality of Oral and Maxillofacial Surgery among medical students at a tertiary hospital in Kathmandu'**

Questions	Choices
1. Which year medical school are you presently enrolled	First year Second year Intern
What is your gender?	Male Female
2. Are you familiar with the different branches of dentistry?	Yes No
3. Have you ever heard of oral and maxillofacial surgery?	Yes No
4. Oral and Maxillofacial Surgery is a speciality of	Medical Dentistry
5. What do you perceive as the most commonly performed procedure by oral and maxillofacial surgeon in practice?	a. Implants b. Wisdom tooth removal c. Facial cosmetic surgery d. Periodontal surgery e. Other procedures
6. Which speciality would you refer a patient for removal of impacted wisdom tooth	a. General dentist b. Periodontist c. Oral and maxillofacial surgeon d. Prosthodontics
7. Who would you refer a patient for treatment of facial fracture?	a. ENT surgeon b. Neuro surgeon c. Oral and maxillofacial surgeon d. Plastic surgeon
8. If you know a child born with a cleft lip and palate deformity, from which speciality would you seek a care?	a. ENT surgeon b. Plastic surgeon c. Neuro surgeon d. Oral and maxillofacial surgeon
9. Who would you refer to a patient for reconstruction of hard tissue deformity of face?	a. Neuro surgeon b. Plastic surgeon c. ENT surgeon d. Oral and maxillofacial surgeon
10. Who will treat temporomandibular joint disorder?	a. Oral and maxillofacial surgeon b. ENT surgeon c. Periodontist d. Oral medicine
11. How do you view the speciality of oral and maxillofacial surgery	a. Poorly: Do not see the need of this speciality b. Highly: Very important dental speciality c. No opinion

**Table 2: Responses of the study participants of preclinical medical students**

Questions	Responses	n (%)
Are you familiar with the different branches of dentistry?	Yes	46 (25.70)
	No	133 (74.30)
Have you ever heard of oral and maxillofacial surgery?	Yes	125 (69.83)
	No	54 (30.17)

Oral and Maxillofacial Surgery is a speciality of	Medical	9 (7.20)
	Dentistry	116 (92.80)
What do you perceive as the most commonly performed procedure by oral and maxillofacial surgeon in practice?	Implants	15 (12.00)
	Wisdom tooth removal	35 (28.00)
	Facial cosmetic surgery	32 (25.60)
	Periodontal surgery	38 (30.40)
	Other procedures	5 (4.00)
Which speciality would you refer a patient for removal of impacted wisdom tooth	General dentist	28 (22.40)
	Periodontist	39 (31.20)
	Oral and maxillofacial surgeon	51 (40.80)
	Prosthodontics	7 (5.60)
Who would you refer a patient for treatment of facial fracture?	ENT surgeon	-
	Neuro surgeon	2 (1.60)
	Oral and maxillofacial surgeon	110 (88.00)
	Plastic surgeon	13 (10.40)
If you know a child born with a cleft lip and palate deformity, from which speciality would you seek a care?	ENT surgeon	4 (3.20)
	Plastic surgeon	16 (12.80)
	Neuro surgeon	4 (3.20)
	Oral and maxillofacial surgeon	101 (80.80)
Who would you refer to a patient for reconstruction of hard tissue deformity of face?	Neuro surgeon	4 (3.20)
	Plastic surgeon	24 (19.20)
	ENT surgeon	3 (2.40)
	Oral and maxillofacial surgeon	94 (75.20)
Who will treat temporomandibular joint disorder?	Oral and maxillofacial surgeon	100 (80.00)
	ENT surgeon	5 (4.00)
	Periodontist	8 (6.40)
How do you view the speciality of oral and maxillofacial surgery	Oral medicine	12 (9.60)
	Poorly: do not see the need of this speciality	1 (0.80)
	Highly: very important dental speciality	94 (75.20)
	No opinion	26 (20.80)

**Table 3: Responses of the study participants of medical interns**

Questions	Responses	n (%)
Are you familiar with the different branches of dentistry?	Yes	56 (74.67)
	No	19 (25.33)
Have you ever heard of oral and maxillofacial surgery?	Yes	68 (90.67)
	No	7 (9.33)
Oral and Maxillofacial Surgery is a speciality of	Medical	3 (4.41)
	Dentistry	65 (95.59)
	Implants	11 (16.42)
What do you perceive as the most commonly performed procedure by oral and maxillofacial surgeon in practice?	Wisdom tooth removal	29 (43.28)
	Facial cosmetic surgery	7 (10.45)
	Periodontal surgery	16 (23.88)
	Other procedures	1 (5.97)

Which speciality would you refer a patient for removal of impacted wisdom tooth	General dentist	7 (10.29)
	Periodontist	26 (38.24)
	Oral and maxillofacial surgeon	32 (47.06)
	Prosthodontics	3 (4.41)
Who would you refer a patient for treatment of facial fracture?	ENT surgeon	10 (14.71)
	Neuro surgeon	3 (4.41)
	Oral and maxillofacial surgeon	54 (79.41)
If you know a child born with a cleft lip and palate deformity, from which speciality would you seek a care?	Plastic surgeon	1 (1.47)
	ENT surgeon	14 (20.89)
	Neuro surgeon	12 (17.91)
	Oral and maxillofacial surgeon	1 (1.49)
Who would you refer to a patient for reconstruction of hard tissue deformity of face?	Oral and maxillofacial surgeon	40 (59.71)
	Neuro surgeon	1 (1.47)
	Plastic surgeon	14 (20.59)
	ENT surgeon	5 (7.35)
Who will treat temporomandibular joint disorder?	Oral and maxillofacial surgeon	48 (70.59)
	ENT surgeon	53 (77.94)
	Periodontist	12 (17.65)
	Oral medicine	1 (1.47)
How do you view the speciality of oral and maxillofacial surgery	Poorly: do not see the need of this speciality	2 (2.94)
	Highly: very important dental speciality	57 (85.07)
	No opinion	8 (11.95)

## DISCUSSION

A speciality known as oral and maxillofacial surgery was created by the individual efforts of surgeons who received training in both medicine and dentistry. Much of the field's early identity came from its crucial role in treating head and neck injuries during World War I.<sup>1</sup> Management of facial trauma, maxillofacial pathology, dentofacial deformities, maxillofacial reconstruction, TMJ surgeries, third molar removal, dental implant placement fall within the domain of this speciality.<sup>6</sup> Furthermore, the management of oral cancerous lesions, head and neck pathology, repositioning osteotomies is a more recent phenomenon with improvements in technology such as three-dimensional planning and reconstructions possible which makes future of OMFS bright.<sup>1</sup>

This speciality is internationally recognised one of the nine surgical disciplines which require bachelor in dental surgery degree to pursue further postgraduate studies. In some countries of the world, such as the United States of America (USA), it is an accepted speciality of dentistry; in others, such as the United Kingdom (UK), it is considered a double major speciality that requires a degree in both

medicine and dentistry.<sup>9</sup> Knowledge about any speciality plays a vital role in its growth and development. The OMFS overlaps heavily with ENT and plastic surgery.<sup>9</sup> Because of its broad scope of practice that overlaps other medical disciplines there is a disparity in referring preferences for OMFS among medical students, health care workers, general public. Referring to the appropriate specialist would ensure maximum benefit of early diagnosis and proper treatment to the patient.

This study aimed to evaluate the awareness of the scope of OMFS among medical students that is, preclinical medical students and interns in one of the medical colleges in Kathmandu, Nepal. This study demonstrated that almost all of the medical students that is, medical students and interns had satisfactory knowledge about speciality of oral and maxillofacial surgery. Having satisfactory knowledge about the speciality, proves that despite OMFS, even though is a recently introduced subject, it has established itself well amongst medical fraternity in Nepal which is similar to the study done by Haron et al.<sup>9</sup>

As each 'yes' or correct answer was given a score of 1 and 'No' or incorrect answer was given a score of 0. In this study as the score was  $\geq 5$  for both medical students and interns which show that they had adequate Knowledge. The methodology used in this study will enable future comparisons of the development of the scope of OMFS over time in the country but can also serve as an instrument for regional and international comparison. In order for patients to receive the optimal treatment of orofacial problems, health care providers need better awareness regarding the scope and skill of Oral and Maxillofacial Surgeon. This in turn ensures better referral patterns, hence patients need are addressed by trained hands.

This study revealed that although recently introduced subject, OMFS is not unknown to Nepali medical community. Also, majority preclinical students and interns believed that OMFS is a dental speciality. Similarly, 38 (30.40%) preclinical students answered periodontal surgery to be the most common procedure performed by OMFS, whereas 29 (43.28%) interns answered wisdom tooth removal. This may be due to less exposure of preclinical students to the speciality and the core knowledge about the procedure performed by OMFS which is similar to the study done by Hunter et al. which shows that although most of medical practitioners have heard of speciality but very small number knows the full extent of it.<sup>5</sup> Furthermore, 51 (40.80%) medical students would refer to OMFS for extraction of wisdom tooth followed by 39 (31.20%) periodontist whereas interns believed that 32 (47.06%) OMFS and 26 (38.24%) periodontist would be appropriate for the same. The reason could be similar as above. This contradicts the study done by Ali et al., which shows that wisdom tooth removal was considered to be the domain of OMFS by most of medical practitioners.<sup>10</sup> In this study 110 (88%) of students and 54 (79.41%) interns answered OMFS as a treating specialist for facial bone fracture which is similar to the study done by Albert and Sekhar in which majority of the participants trusted an OMFS's expertise in performing dental extractions, third molar surgeries, dental implant placement and maxillofacial trauma management.<sup>11</sup> Another reason could be due to incidence of road traffic accidents (RTAs) that leads to maxillofacial trauma which constitutes the bulk of patients in maxillofacial outpatient department and ward. In present study regarding the treatment of congenital deformities of face like cleft lip and palate >80% (101, 80.80%) of students and 40 (59.71%) interns would refer to the OMFS. This study is similar to the one carried on by Rocha et al., which inferred only small percentage (15-24%) of the medical groups were

aware that OMFS treat cleft lip and palate deformities; these groups strongly agreed on plastic surgeons being most appropriate instead.<sup>2</sup> In the present study, for reconstruction of hard tissue deformity of face, students wished to refer (94, 75.20%) OMFS followed by 24 (19.20%) plastic surgeon. Similarly, interns believed (48, 70.59%) OMFS and (14, 20.59%) plastic surgeons treat the same. The overwhelming answers of both groups might be because of multitude of factors that might play a role in influencing the medical students. Development of this speciality is based on time and experience over the years.<sup>12,13</sup> One reason could be due to the advertisement on social media where Plastic surgery has better platform over Maxillofacial surgeons globally. Medical students trained at academic institution where both medical and dental streams co-exist are better exposed hence well aware regarding the scope of OMFS. There are studies which shows that postgraduates from the medical college associated with a dental college made better referrals for patients in need of OMFS compared to the postgraduates from medical college which did not have an associated dental college.<sup>14</sup> However, this contradicts the study done by Kamal et al.<sup>13</sup> This study also shows that for the treatment of TMDs 100 (80%) basic science students and 53 (77.94%) interns would refer to OMFS. This study is consistent with the study done by Safi et al.<sup>15</sup> In contrast, a survey by Vadepally et al. revealed that most of the medical doctors do not know where to refer the patients with TMJ problems. This difference may be due to less well localised symptoms in TMJ problems.<sup>16</sup> Overall, both of the groups viz preclinical as well as interns viewed the speciality of OMFS as very important dental speciality. The liability and responsibility of creating and improving the awareness and perception lies on oral and maxillofacial surgeon. Unified efforts at individual as well as global level will help to achieve this goal. Therefore, there is an opportunity for the oral and maxillofacial academic faculty to better educate students and, ultimately, strengthen our speciality.

The limitations of this study are: As a single institutional based study with unproportionate number of basic science and intern students the study cannot be generalised. This study has not included post-graduates and different specialities from medical fraternity who are more likely to have better awareness and can direct the patients towards OMFS.

## CONCLUSION

In conclusion, knowledge of the scope of OMFS practices is adequate among medical interns, and basic science students; however, this does not negate the need for continuous education and awareness-raising about

OMFS in medical fraternity. Opportunities must be taken to promote the speciality in the workplace and media. A better system of education must be structured for the medical students to improve the referral system. Knowledge and awareness of OMFS will directly improve

its success and timeliness in delivering optimal health care services.

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