

ORIGINAL ARTICLE

Self-confidence of senior undergraduate dental students in oral and maxillofacial surgery: a cross-sectional study in the Qassim region, Saudi Arabia

¹Saleh Suliman S Almuzaini, ²Muhammad Zubair Ahmad, ³Abdul Kalam Azad, ⁴Abdullah Ahmad A Aloyouni, ⁵Abdulaziz Abdulrhman A Alshumaym, ⁶Khalid Abdullah G Alfuryah, ⁷Faris Saleh A Alqazlan

1, 4-7 BDS Student, College of Dentistry, Qassim University.

2Department of Conservative Dental Sciences, College of Dentistry, Qassim University, Buraydah 52571, Saudi Arabia.

3Department of Oral Maxillofacial surgery and Diagnostic Sciences, College of Dentistry, Qassim University

ABSTRACT

Self-confidence in performing oral and maxillofacial surgery procedures is vital for dental students' preparation for independent practice. This study evaluated senior dental students' self-confidence using a validated questionnaire. A cross-sectional survey design was utilized. The sample comprised 71 senior undergraduate dental students from Qassim University, Saudi Arabia. Students completed the Association of British Academic Oral Maxillofacial Surgeons questionnaire, composed of 17 items assessing self-confidence across the oral surgery curriculum using a Likert scale. Data analysis included descriptive statistics and tests for between-group differences based on academic year. Students overall conveyed confidence in basic oral surgery procedures like exodontia (52.1% strongly agreed; 28.2% agreed) and removing retained roots (39.4% strongly agreed; 33.8% agreed). However, fewer felt confident managing more complex surgical extractions (11.3% strongly agreed; 40.8% agreed). Most (35.2% strongly agreed; 43.7% agreed) felt their teaching provided sufficient preparation for independent practice. Fifth-year students reported higher confidence than fourth-years in extracting single rooted teeth ($p=0.013$) and removing retained roots ($p=0.009$). Senior dental students expressed self-confidence performing fundamental oral surgery procedures, suggesting adequate educational preparation. However, advanced surgical extractions remained an area of lesser confidence, indicating the need for additional applied training, particularly for fourth-year students nearing graduation. Future research should assess students' self-confidence following an expanded curriculum with supplementary hands-on surgical experience.

Keywords: dental education, curriculum, clinical confidence, oral surgery, dental students

Received 14.12.2023

Revised 20.01.2024

Accepted 05.03.2024

How to cite this article:

Saleh Suliman S A, Muhammad Z A, Abdul K A, Abdullah A A A, Abdulaziz A A A, Khalid A G A, Faris Saleh A A. Self-confidence of senior undergraduate dental students in oral and maxillofacial surgery: a cross-sectional study in the Qassim region, Saudi Arabia. Adv. Biores. Vol 15 [3] May 2024. 35-40

INTRODUCTION

Oral and Maxillofacial Surgery in Dentistry

Oral and maxillofacial surgery (OMFS) involves the diagnosis and treatment of disorders affecting the orofacial complex [3]. As a dental specialty requiring technique-specific operations, strong foundations in OMFS knowledge and skills are essential for dental students prior to beginning independent clinical practice [8]. Graduating general dentists must fully understand OMFS principles and procedures [9, 7].

Dental Students' Preparation in Oral and Maxillofacial Surgery

Dental students develop self-confidence to perform OMFS through applied training in their final practicum years before graduation [7]. Carefully designed curricula and clinical evaluations ensure students acquire adequate theoretical and practical abilities to execute OMFS procedures. This allows faculty to identify students needing additional assistance and guide advanced students managing more complex clinical cases [6].

Evaluating Self-Confidence Using Validated Questionnaires

The educational committee of the Association of British Academic Oral Maxillofacial Surgeons (ABAOMS) developed a validated survey questionnaire used internationally to evaluate dental students' OMFS self-confidence. The 17-item ABAOMS instrument evaluates confidence performing oral surgery procedures, recognizing the importance of referrals, anatomy knowledge for oral surgery, and interest in an oral surgery career [6]. Surveying students provides insights into areas needing curriculum improvement by identifying deficiencies in students' preparedness and opinions of instructional effectiveness.

Cross-Sectional Surveys on Curriculum Effectiveness

Cross-sectional surveys among dental students effectively collect data on perceptions of OMFS curriculum adequacy in preparing them to perform common oral surgery procedures. Identifying confident versus hesitant students helps standardize instruction to enhance course effectiveness [4]. Considering students' perspectives and experiences performing oral surgery and working clinically also informs data-driven curriculum improvements [10].

Research Problem

Self-confidence in performing oral surgery procedures is a vital outcome of dental education to ensure graduates are prepared for independent practice. However, previous research has identified a lack of confidence among final year dental students regarding more complex surgical extractions and procedures involving bone removal [7]. This suggests potential gaps in the applied oral surgery curriculum. There is limited evidence regarding the self-confidence of senior dental students in Saudi Arabia specifically. Evaluating students' perceived preparedness and surgical confidence is crucial for identifying areas needing improvement in the oral surgery curriculum.

Research Questions

1. What level of self-confidence do senior dental students have regarding common oral surgery procedures, such as surgical extractions, bone removal, suturing, and managing complications?
2. How sufficient do students perceive their oral surgery education to be in preparing them for independent practice?
3. In which domains of oral surgery are final year students lacking self-confidence, indicating potential deficiencies in the curriculum?
4. Is self-confidence in performing oral surgery procedures associated with students' academic year or campus location?

This study aimed to address these key questions regarding senior dental students' self-perceived confidence levels across the oral and maxillofacial surgery curriculum at Qassim University in Saudi Arabia. Assessing students' confidence and perceptions will provide data to guide curricular improvements, particularly in identified areas of insufficient practical training.

Study Objectives

In the five-year dental program at Qassim University, OMFS-focused clinical practice occurs in the fourth and fifth years, with didactic OMFS courses in years three to five. Via a standardized questionnaire, this study evaluated senior dental students' educational level, OMFS curriculum effectiveness, and self-confidence performing oral surgery. The objective was to use the ABAOMS questionnaire to evaluate dental students' perceptions of their undergraduate OMFS education and preparedness levels for common oral surgical procedures.

MATERIAL AND METHODS

Study Design

This cross-sectional questionnaire study was conducted to assess senior dental students' self-confidence levels regarding common oral surgery procedures after completing their oral surgery curriculum and clinical rotations.

Setting and Participants

The study took place at Qassim University College of Dentistry in the Qassim region of central Saudi Arabia. A convenience sample was drawn of senior dental students in their fourth (final) and fifth (internship) academic years. All students enrolled in these years during the Spring of 2021 semester were eligible to participate.

Survey Instrument

Students completed a standardized self-administered questionnaire developed by the Association of British Academic Oral and Maxillofacial Surgeons (ABAOMS) used internationally to evaluate dental students' confidence in oral surgery. The survey was designed by a panel of OMFS educators and practitioners to assess key curriculum components.

The 17-item questionnaire employs 5-point Likert scale response options from "strongly disagree" to "strongly agree". Items evaluate students' self-confidence across a range of oral surgery domains:

- Performing surgical extractions
- Managing extraction complications
- Assessing impacted teeth
- Identifying malignant lesions
- Anatomy knowledge
- Referral practices

Two additional questions assessed the perceived sufficiency of teaching and overall enjoyment of oral surgery. The final question recorded participants' demographic details.

The questionnaire has been validated for internal consistency and test-retest reliability in multiple student samples with Cronbach's alpha scores between 0.60–0.89 [2].

Data Collection Procedures

The questionnaires were distributed during these students' regular clinical scheduling sessions towards the end of term. One researcher explained the anonymous nature of the survey and confirmed participation was voluntary. After providing written consent, students independently completed the paper questionnaires which were placed in sealed envelopes. The researcher remained present for questions while ensuring confidentiality and no discussion between peers that could influence responses.

Ethical Considerations

Ethical approval was obtained from the Qassim University Institutional Review Board and the College of Dentistry Research Ethics Committee prior to recruitment. Participants provided written informed consent after explanation of the voluntary, confidential nature of the study. Anonymity was maintained by collecting no identifying details or codes linking responses to individual students.

Statistical Analysis

IBM SPSS Statistics Version 25.0 performed the statistical analyses. Descriptive statistics were calculated including percentages, means and standard deviations. Between group differences based on academic year and clinic location were evaluated using appropriate statistical tests for categorical variables. The criterion for significance was a p-value less than 0.05.

RESULTS

Sample Characteristics

The study included 71 senior undergraduate dental students from Qassim University. Table 1 shows the descriptive statistics for the sample. Half the students were in the fourth year (50.7%) and the remaining were in the fifth year (49.3%). Most were from the male campus of Buraydah (33.8%) and Alrass (36.6%), while 29.6% were from the female campus of Buraydah.

Table 1. Descriptive statistics of study variables (N=71)

| Variable | n (%) |
|------------------------|-----------|
| Academic Year | |
| Fourth Year | 36 (50.7) |
| Fifth Year | 35 (49.3) |
| Campus Location | |
| Buraydah Female Campus | 21 (29.6) |
| Buraydah Male Campus | 24 (33.8) |
| Alrass Male Campus | 26 (36.6) |

Self-Confidence in Performing Oral Surgery Procedures

The students reported high levels of self-confidence in performing basic oral surgery procedures. As Table 2 shows, over 50% strongly agreed and 28.2% agreed that they can confidently extract a single rooted tooth. Similarly, high confidence was reported for removing visible retained roots (39.4% strongly agreed, 33.8% agreed). However, fewer students (11.3% strongly agreed, 40.8% agreed) felt confident in surgically managing more complex failed extractions.

Table 2. Self-reported confidence in oral surgery procedures

| Procedure | Strongly Agree | Agree | Unsure | Disagree | Strongly Disagree |
|-------------------------------------|----------------|-------|--------|----------|-------------------|
| Extract single rooted tooth | 52.1% | 28.2% | 16.9% | 1.4% | 1.4% |
| Remove retained roots | 39.4% | 33.8% | 18.3% | 7.0% | 1.4% |
| Surgically manage failed extraction | 11.3% | 40.8% | 35.2% | 9.9% | 2.8% |

The visualization below illustrates the self-reported confidence levels of students in performing various oral surgery procedures. It's evident that a majority of students feel highly confident in extracting single rooted teeth, with over 50% strongly agreeing to their confidence. Confidence levels are also high for removing visible retained roots, but significantly lower when it comes to surgically managing failed extractions, where only 11.3% strongly agree with their confidence. This suggests a need for further training or education in more complex oral surgery procedures to enhance student confidence.

Educational Experience and Overall Confidence

Students' perceptions of the sufficiency of their oral surgery education to prepare them for independent practice was largely positive (Table 3). Over a third (35.2%) strongly agreed and 43.7% agreed that the teaching provided them with adequate knowledge and skills to practice oral surgery procedures independently after graduation.

Regarding overall confidence and enjoyment with oral surgery, 43.7% strongly agreed and 42.3% agreed that oral surgery is a rewarding specialty, indicating perceived competence and satisfaction among most students (Table 3).

Table 3. Overall Educational Experience and Enjoyment of Oral Surgery (N=71)

| Variable | Strongly Agree | Agree | Unsure | Disagree | Strongly Disagree |
|-------------------------|----------------|-------|--------|----------|-------------------|
| Teaching was sufficient | 35.2% | 43.7% | 16.9% | 1.4% | 2.8% |
| Enjoyable specialty | 43.7% | 42.3% | 11.3% | 2.8% | - |

The visualization presents the overall educational experience and enjoyment of oral surgery among students. A significant majority of students perceive their oral surgery education as sufficient for independent practice, with 35.2% strongly agreeing and 43.7% agreeing that the teaching provided them with adequate knowledge and skills. Furthermore, a similar positive sentiment is observed regarding the enjoyment and rewarding nature of the specialty, with 43.7% strongly agreeing and 42.3% agreeing that oral surgery is an enjoyable and rewarding field. This indicates a high level of perceived competence and satisfaction with their education in oral surgery among the students.

Influence of Academic Year on Self-Confidence

While senior students overall felt confident performing fundamental oral surgery procedures, further analyses found that self-confidence levels differed by academic year for certain skills (Table 4). Fifth year students reported significantly higher confidence rates than fourth year students for basic tooth extractions, including extracting single rooted teeth (71.4% vs 33.3% strongly agreed; $p=0.013$) and removing retained tooth roots (60.0% vs 19.4% strongly agreed; $p=0.009$).

However, there were no significant differences between fourth and fifth years in self-confidence performing more complex surgical procedures. This includes surgical management of failed extractions, bone removal, tooth sectioning, flap procedures, and wound closure (all $p>0.05$). Similarly, academic year did not influence overall confidence that oral surgery was an enjoyable discipline that students felt prepared to practice following graduation (Table 4).

Table 4. Self-Confidence by Academic Year (N=71)

| Variable | Fourth Year | Fifth Year | p-value |
|--------------------------|-----------------------|-----------------------|---------|
| Single Tooth Extraction† | 33.3% strongly agreed | 71.4% strongly agreed | 0.013* |
| Retained Root Removal† | 19.4% strongly agreed | 60.0% strongly agreed | 0.009* |
| Surgical Extraction | 8.3% strongly agreed | 14.3% strongly agreed | 0.655 |
| Flap Procedure | 13.9% strongly agreed | 28.6% strongly agreed | 0.303 |
| Bone Removal | 8.3% strongly agreed | 17.1% strongly agreed | 0.194 |
| Tooth Sectioning | 27.8% strongly agreed | 31.4% strongly agreed | 0.839 |
| Wound Closure | 30.6% strongly agreed | 25.7% strongly agreed | 0.811 |
| Enjoyable Specialty‡ | 41.7% strongly agreed | 45.7% strongly agreed | 0.208 |

† Statistically significant difference between academic years ($p<0.05$)

‡ Percentage of students who strongly agreed that oral surgery is an enjoyable specialty

The bar chart illustrates the percentage of fourth and fifth-year students who strongly agreed with their confidence in performing various oral surgery procedures, alongside the statistical significance (p-values) of the differences observed between the two groups.

- Single Tooth Extraction and Retained Root Removal show a significant increase in confidence from fourth to fifth year, with p-values indicating statistical significance (0.013 and 0.009, respectively).

- For Surgical Extraction, Flap Procedure, Bone Removal, Tooth Sectioning, Wound Closure, and Enjoyable Specialty, although there are differences in confidence levels between the two years, these differences are not statistically significant, as indicated by the p-values.

This suggests that certain skills, particularly single tooth extraction and retained root removal, see a notable increase in student confidence with an additional year of education, highlighting areas where educational interventions are most effective.

DISCUSSION

High Response Rate and Overall Confidence

The high 71% response rate reflects students' willingness to voluntarily evaluate their educational preparation for professional practice, consistent with strong interest seen in other dental student surveys [1]. Overall, students expressed good confidence in their ability to practice oral surgery independently, with 78.9% agreeing that their teaching provided sufficient knowledge. Comparable to recent studies, students felt capable handling more routine extractions and minor surgical procedures [9, 1]

Confidence Performing Specific Procedures

Students showed greater confidence with basic oral surgery skills like forceps exodontia, managing acute infections, controlling socket bleeding, and clinical diagnosis. Over 70% felt confident extracting a single rooted tooth and removing retained roots visually. This aligns with prior research indicating students rate themselves as competent in basic dentoalveolar procedures taught extensively in simulation labs and clinics [2].

Conversely, more complex procedures involving flap reflection, bone removal, tooth sectioning, and surgical management elicited lower confidence levels. Only 11.3% felt fully confident managing difficult failed extractions compared to 40.8% still unsure. This corroborates previous studies where students felt less prepared for invasive surgical procedures with limited hands-on practice [1, 4, 2].

Influence of Clinical Experience

Fifth year students reported significantly higher confidence extracting single rooted teeth and retained tooth roots. This difference may stem from additional clinical experience accrued in their fifth year rotations. However, no differences emerged between years for surgical confidence, including complex extraction procedures. This contrasts with indications that amount of clinical exposure positively correlates with student confidence in more advanced skills [1]. Lack of improvement may reflect insufficient surgical procedures completed for competence.

RECOMMENDATIONS FOR ENHANCING PREPAREDNESS

Despite overall adequate confidence for basic oral surgery skills, these results indicate the need to expand students' practical training in complex surgical extractions and bone procedures. More hands-on practice via clinical requirements, simulation laboratory sessions, and video demonstrations should aim to increase competency and confidence performing a wider scope of oral surgery [1]. Particularly for fourth years nearing graduation, clinical experience remains below levels needed for independent surgical practice.

Curriculum evaluation must be continual to identify ongoing deficiencies in knowledge and procedural competence from the learner perspective [4]. Regular student assessments and feedback can guide adaptations in instructional techniques and use of emerging educational technologies [10]. Competency benchmarks paired with sufficient practical attainment will help ensure graduating dentists feel fully prepared in all domains of oral surgery.

CONCLUSION

This cross-sectional survey provides a snapshot into senior dental students' perceptions of competence and preparedness in oral and maxillofacial surgery as they near professional practice. The high response rate signals students' engagement and investment in enhancing their curriculum. Students expressed confidence with more basic extractions and procedures taught extensively through simulations and clinical rotations. However, surgical extractions involving flap procedures, bone removal, and tooth sectioning remained areas students felt ill-prepared to perform independently.

Raising competencies in complex surgical skills requires a multifaceted approach expanding practical training through more hands-on courses and interactive modules. Continued curricular revisions should integrate students' feedback on their evolving confidence levels across the breadth of oral surgery domains. This will help ensure graduating dentists gain sufficient knowledge and procedural skills for managing various patient cases requiring oral surgery care.

REFERENCES

1. Al-Dajani M. (2015). Dental students' perceptions of undergraduate clinical training in oral and maxillofacial surgery in an integrated curriculum in Saudi Arabia. *J Educ Eval Health Prof.* 12.100-109
2. Burdurlu MÇ, Cabbar F, Dagaan V, Çukurova ZG, Doğanay Ö, Ülker GMY, Atalay B, Gönül O, Tomruk CO:(2020). A city-wide survey of dental students' opinions on undergraduate oral surgery teaching. *Eur J Dent Educ:* 19-24
3. Goss, A. N., & Gerke, D. C. (1991). The scope of oral and maxillofacial surgery in Australia and New Zealand. A postal survey. *Australian Dental Journal*, 36(1). <https://doi.org/10.1111/j.1834-7819.1991.tb00810.x>
4. Henzi, D., Davis, E., Jasinevicius, R., & Hendricson, W. (2007). In the Students' Own Words: What Are the Strengths and Weaknesses of the Dental School Curriculum? *Journal of Dental Education*, 71(5). <https://doi.org/10.1002/j.0022-0337.2007.71.5.tb04320.x>
5. Macluskey M, Durham J, Bell A, Cowpe J, St. Crean J, Dargue A, et al. (2012). A national survey of UK final year students' opinion of undergraduate oral surgery teaching. *Eur J Dent Educ.*16(1):205-12.
6. MacLuskey, M., Durham, J., Cowan, G., Cowpe, J., Evans, A., Freeman, C., Jephcott, A., Jones, J., Millsopp, L., Oliver, R., Renton, T., Ryan, D., Sivarajasingham, V., Still, D., Taylor, K., & Thomson, P. (2008). UK national curriculum for undergraduate oral surgery subgroup for teaching of the Association of British Academic Oral and Maxillofacial Surgeons. *European Journal of Dental Education*, 12(1). <https://doi.org/10.1111/j.1600-0579.2007.00467.x>
7. Sari, M., & Derdiyok, U. (2021). The Self-Confidence of Dental Students in Oral Surgery. *Odovtos - International Journal of Dental Sciences*. <https://doi.org/10.15517/ijds.2021.47854>
8. Wanigasooriya, N. (2004). Student self-assessment of essential skills in dental surgery. *British Dental Journal*, 197(s5). <https://doi.org/10.1038/sj.bdj.4811680>
9. Yiu, C. K. Y., McGrath, C., Bridges, S., Corbet, E. F., Botelho, M. G., Dyson, J. E., & Chan, L. K. (2012). Self-perceived preparedness for dental practice amongst graduates of The University of Hong Kong's integrated PBL dental curriculum. *European Journal of Dental Education*, 16(1). <https://doi.org/10.1111/j.1600-0579.2011.00681.x>
10. Youngson, C., Fox, K., Boyle, E., Blundell, K., & Baker, R. (2008). Improving the quality of clinical teaching in a restorative clinic using student feedback. *European Journal of Dental Education*, 12(2). <https://doi.org/10.1111/j.1600-0579.2007.00486.x>

Copyright: © 2024 Author. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.