

A National Survey in Morocco on Maxillofacial Surgery Residents' Satisfaction: Opportunities and Obstacles

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Abstract

Original Research Article

This study aims to assess maxillofacial surgery training programs in Morocco by surveying residents and specialists, identifying current strengths and weaknesses and proposing concrete recommendations to improve the curriculum. This study is a cross-sectional, descriptive, and analytical survey. It involved residents and specialists from major university hospitals in Marrakesh, Casablanca, Rabat, Fez and Oujda. Data collection focused on demographics, objective evaluation of the training, and participants' suggestions for improvement. Sixty residents responded. Most chose the specialty out of passion and surgical interest. Supervision and procedural training were the most valued methods. Clinical exposure received favorable evaluations from trainees. Academic satisfaction was moderate for 60%, with many aiming to publish more. Main challenges included workload, limited surgical access, and inconsistent supervision. While 72% valued feedback, concerns about its subjectivity rose. Despite difficulties, residents expressed a clear drive for structured improvement. Morocco's maxillofacial surgery training aligns structurally with European models, but resident feedback reveals gaps in mentorship, surgical exposure, and research integration. Structured feedback, simulation, and individualized learning are key improvement areas. Ongoing reforms propose a competency-based curriculum with progressive autonomy and stronger institutional support to meet evolving educational and professional needs. This study highlights efforts to modernize maxillofacial surgery training in Morocco by integrating clinical, academic, and pedagogical skills within a coherent and evolving framework.

Keywords: Maxillofacial Surgery, Medical Training, Resident Satisfaction, Morocco.

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INTRODUCTION

The human face is the visible manifestation of individual identity. Maxillofacial surgeons must possess not only technical expertise, but also strong empathy and excellent team management skills. In Morocco, it is undergoing rapid development. In the context of evolving professional and academic expectations, this study aims to analyse maxillofacial surgery training programs in the country by gathering perceptions of both residents and specialists. The findings will help highlight strengths and weaknesses and offer concrete recommendations to optimize the curriculum and better meet the needs of future generations.

MATERIALS AND METHODS

This is a cross-sectional, descriptive, and analytical study focusing on various aspects of maxillofacial surgery residency training in Morocco. Survey participants included current residents from

university hospitals in Marrakesh, Casablanca, Rabat, Fes and Oujda, as well as practicing specialists. The survey was conducted anonymously to encourage participation and obtain honest, unbiased responses. Data were collected via an anonymous online form created using Google Forms, structured into three main sections: personal and professional data; objective evaluation of the training program; and subjective evaluation with suggestions for improvement, for a total of 43 questions. Launched on November 1st, 2024, the survey remained open for four and a half months. To maximize participation, the form was shared via multiple channels, including WhatsApp, email with a call-to-action to professors, specialists, and residents), social media (medical groups on Facebook), and in-person distribution within CHUs. The collected data were exported to Microsoft Excel and analysed using JAMOV software for descriptive statistical analysis.

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RESULTS

Among the participants, 52 were Moroccan, 8 were non-Moroccan. Gender distribution was nearly

balanced with 29 female and 31 males. Additional demographic characteristics are provided in Table 1.

TABLE 1: Sample demographics

Variable	Category	Number
Total		60
Nationality	Moroccan	52
	Foreign	8
Gender	Female	29
	Male	31
Marital Status	Single	30
	Married	29
	Divorced	1
Parental Status	No children	42
	Have children	18
Age	Mean ($\pm$ SD)	31.1 $\pm$ 4.21
Residency Location	Marrakesh	45
	Casablanca	11
	Fez	2
	Oujda	1
	Rabat	1
Professional Status	Resident	42
	Specialist	18
Specialist Experience	< 5 years	8
	5–10 years	3
	Just passed specialization exam	7
Year of Residency	1st year	9
	2nd year	7
	3rd year	9
	4th year	8
	5th year	9

Drivers of Specialty Selection

The main reasons for choosing maxillofacial surgery included personal passion, influence of mentors, academic performance, manual skills alignment, impact

on patients' lives, research opportunities, contractual conditions, financial prospects, personal experiences, and interest in trauma. (Table 2).

TABLE 2: Motivations leading to choosing the specialty

Motivation	Number of Respondents
Passion for the Specialty	47
Academic Performance	6
Influence of Professors/Mentors	24
Manual Skill Alignment	19
Impact on Patient Quality of Life	29
Opportunities for Research/Innovation	18
Contractual Conditions	16
Financial Prospects	10
Personal experiences in surroundings	11
Interest in Trauma	1

Feedback on Teaching Tools

Medical staff supervision and mentorship were the most highly rated, with over 55% of respondents evaluating them as excellent. Procedural training and

seminars received favorable ratings. In contrast, newer methods such as flipped classrooms, simulation, and clinical reasoning showed critical evaluations. (Table 3).

TABLE 3: Trainees' perceptions of educational modalities

Teaching Tool	Excellent	Good	Average	Insufficient	Poor
Medical Staff Supervision	57%	25%	17%	3%	2%
Mentorship	55%	28%	13%	5%	2%
Procedural Training	47%	35%	15%	2%	2%
Seminars/Conferences	45%	28%	15%	12%	0%
Flipped Classroom	30%	35%	22%	7%	8%
Simulation	30%	23%	25%	10%	12%
Clinical Reasoning	23%	32%	20%	15%	10%

Impact of Clinical Exposure on Training Quality

The evaluation of the impact of treated clinical cases and the number of procedures performed on the quality of training revealed the following proportions: 36 respondents rated the impact as "excellent," stating that it enriched their practice and boosted their confidence. In contrast, 23 respondents considered the impact to be "average". Only one respondent rated the impact as "poor," indicating that it limited the development of their competencies.

Satisfaction with Academic Achievements

The level of respondent satisfaction regarding their academic achievements showed that 8% were disappointed, having obtained neither degrees nor publications, while 32% were extremely satisfied. The majority, 60%, expressed moderate satisfaction. A p-

value <0.001 confirms a statistically significant difference between these levels of satisfaction.

Identified Obstacles

The most frequently reported challenge was intense workload and stress, cited by 28% of respondents. This was followed by difficulty balancing professional and personal life (25%), limited access to surgical procedures (30%), and an excessive number of residents in training (32%). Additionally, 20% of respondents highlighted insufficient supervision during their residency. Authoritarian communication styles (7%), inadequate educational resources (15%), and rivalries among residents affecting collaboration (18%). Notably, gender discrimination was reported by only two individuals (3%). No cases of religious discrimination were mentioned. (Table 4).

TABLE 4: Perceived obstacles

Obstacle	Respondents (%)
Workload & Stress	28%
Work-life Imbalance	25%
Limited Surgical Access	30%
Excessive Number of Residents	32%
Limited Supervision	20%
Authoritarian Communication	7%
Limited Educational Resources	15%
Rivalry Among Residents	18%
Gender Discrimination	3%
Religious Discrimination	0%

Perception of Feedback and Evaluation

Regarding clinical performance evaluations and feedback from supervisors, 72% of respondents felt that these evaluations helped them identify both strengths and areas for improvement. Half of the participants found

positive feedback encouraging for their learning. However, 18% considered some criteria too subjective, and expected more support or guidance. A smaller portion (10%) experienced inconsistency in the usefulness of the feedback they received. (Table 5).

TABLE 5: Feedback's impact on skill development

Feedback Perception	Respondents (%)
Helped Identify Strengths/Weaknesses	72%
Motivated Learning	50%
Too Subjective	18%
Lacked Support/Guidance	13%
Mixed Relevance	10%

Satisfaction with Learning Experience

When asked to assess their overall learning experience, 68% reported that the challenges they faced

contributed positively to their personal and professional growth. In contrast, 50% described their journey as mixed, with both enriching and frustrating moments. A

minority of 10% expressed dissatisfaction, feeling that persistent difficulties hindered their progress and motivation.

Suggested Improvements to Training and Well-being

Respondents identified several priorities to improve their residency experience. These include improvements in educational tools, simulation-based training prior to clinical interventions was widely endorsed, enhanced supervision from senior staff. Residents emphasized the need for a more structured mentoring system offering personalized follow-up and regular feedback. They also requested comprehensive training on research methodology, article writing, clinical trial participation, and private practice management. Regarding complementary training, they expressed strong interest in sessions focused on team management, patient communication, and conflict resolution skills.

Participants called for better organization of rotations to balance training and rest periods, fairer distribution of responsibilities among residents, and equal training opportunities without discrimination.

Alongside educational improvements, residents underscored the importance of initiatives to enhance their well-being. These included achieving better work-life balance, implementing stress management workshops, and providing dedicated relaxation spaces. Additional suggestions included organizing regular group activities to promote team cohesion, establishing systems to recognize individual and collective achievements, and implementing regular workload monitoring to prevent excessive pressure on residents.

DISCUSSION

Our analysis highlights both the strengths and challenges of maxillofacial surgery training in Morocco. Structurally, the national curriculum aligns with European [1] and UK frameworks [2], progressing from foundational oral surgery to complex procedures in oncology, orthognathics, aesthetics, and reconstruction. However, trainees expressed mixed satisfaction with how well learning objectives and supervision supported their professional development. This echoes with international findings, which underline similar gaps in didactic teaching, mentorship, and surgical exposure.

A modern surgical training program must go beyond observational learning. Locally, the SOS Face Marrakech program [3] illustrates this integrated model, combining lectures, simulations, and field missions enhancing both diagnostic precision and operative skills. Senior surgeons also play a pivotal role in passing on expertise and shaping future leaders, reinforcing continuity in academic programs.

Surgical exposure remains central to confidence building. Fillmore *et al.*, [4] demonstrated that lead operator experience significantly improves perceived competence. Our findings are consistent: most residents associate increased case volume with higher confidence. Yet, unequal access to certain procedures may hinder skill acquisition in low-frequency or complex surgeries.

Research in Training

Despite a clear desire among residents to publish and improve their academic profiles, actual engagement in research remains limited. This gap is reflected in our study, where moderately satisfied residents still aspire to more publications. Glowacki [5] stresses the role of research in developing critical thinking, but the low average score (38%) in biostatistics suggests poor integration of research methodology in current training. Enhancing research training is therefore essential for fostering academic growth.

Challenges and Well-Being

The difficulties identified: heavy workload, limited operative access, and inconsistent supervision; mirror those reported internationally. For example, Pabst *et al.*, [6] and Zeller *et al.*, [7] found that German residents prioritize not only professional qualification but also work-life balance and family compatibility. Aziz *et al.*, [8] and Boerjan *et al.*, [9] further highlight how the professional environment impacts mental health, retention, and performance. Similarly, our findings suggest that Moroccan residents view well-being as a key component of training quality. The implementation of institutional policies for psychological support and quality of life should therefore be a strategic priority.

Feedback and Mentorship

Constructive feedback is a cornerstone of surgical education. While 72% of our respondents found performance feedback useful, concerns were raised about its subjectivity and irregularity. This aligns with studies by Hupp [10], Assael [11], and Drew [12], who argue that effective mentorship and supportive criticism enhance both performance and morale. Training environments must foster a culture where feedback is not just evaluative but also motivational and developmental.

Residents' Expectations and Improvement Proposals

Respondents suggested actionable improvements, including better mentoring, structured feedback, simulation integration, and a more personalized training pathway. These proposals resonate with Assael's [11] recommendation for individualized progression based on residents' interests and capabilities. For such a model to succeed, institutions must invest in trust-based supervision and flexible educational resources.

Toward a Modernized Curriculum

Looking ahead, Morocco's specialty training must evolve to address current gaps and meet

international benchmarks. Recommendations include renaming the specialty to reflect its broader scope, shifting from traditional apprenticeship to competency-based learning, and segmenting training into foundational and advanced rotations. This would allow theoretical knowledge to be closely tied to simulation and clinical exposure, enabling progressive autonomy and skill refinement.

LIMITATIONS

This study provides valuable insights but has certain limitations. Unequal representation across CHUs may have introduced institutional bias. Voluntary participation and recruitment via local coordinators may have led to selection and non-response bias, potentially excluding residents in external rotations or on leave. The reliance on self-assessment adds subjectivity, as perceptions vary with personal factors. Moreover, the absence of qualitative data limits the depth of interpretation, and the cross-sectional design captures views at a single point without tracking their evolution. Lastly, the lack of comparison with other specialties or national standards narrows contextual relevance.

CONCLUSION

This comparative analysis confirms that the challenges encountered locally reflect universal issues. It also shows that the levers for improvement are known and validated in the literature. Overall, the goal is to modernize training by integrating clinical, scientific, and pedagogical competencies while fostering continuous improvement. Implementation depends on official approval but marks a promising step toward enhancing the quality and coherence of specialized training in Morocco.

What is already known on this topic

Maxillofacial surgery training programs are generally structured and align with international curricula, but studies consistently report gaps in surgical exposure, supervision, and research integration, along with concerns about resident well-being.

What this study adds on this topic

This study provides the first national overview in Morocco, identifying key local challenges limited operative access and inconsistent supervision while highlighting residents' demand for structured mentorship, simulation, and improved research training.

COMPETING INTERESTS

Authors declared they have no conflicts of interest

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AUTHORS CONTRIBUTIONS

Study conception: Zakaria Aziz and Ichrak Elabsi.

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Data analysis and interpretation: Ichrak Elabsi and Zakaria Hakkou.

Manuscript drafting: Ichrak Elabsi and Hasna Ajbabdi, Critical revision of the manuscript: Zakaria Aziz and Nadia Mansouri.

Supervision: Zakaria Aziz and Nadia Mansouri.

All authors have read and approved the final version of the manuscript.

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