

EXPLORING THE RESEARCH JOURNEY: BARRIERS AND FACILITATORS FOR POSTGRADUATE MAXILLOFACIAL TRAINEES

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ABSTRACT

Objective:

To explore the Barriers and Facilitators for research in Postgraduate Maxillofacial Trainees.

Methodology:

Exploratory Qualitative study design (Case study) was adopted. A ten-question questionnaire was developed and piloted to identify the different perceptions of maxillofacial Trainees. Purposive Sampling was used to conduct eight semi-structured interviews. Thematic analysis was undertaken with Triangulation of transcripts.

Results:

Five main themes emerged from the data analyses. Research as a Path to Innovation showed research as a means of pushing boundaries and advancing knowledge. Motivation to Make a Difference outlined that the motivation for conducting research stems from personal passion and external pressures. Hurdles on the Research Path portrays the barriers in the research journey. Fueling Research Success highlights the facilitators in this journey. Nurturing Research Skills for Tomorrow shows the path to improve research skills among trainees.

Conclusion:

Maxillofacial surgery residents face significant barriers in their research journey. Despite these obstacles, their intrinsic motivation and the requirement for academic publishing drive their research efforts. To improve research outcomes, early exposure to research, continuous training, and institutional support are essential.

Keywords:

Perceptions, trainee, maxillofacial, surgeons, postgraduate training, FCPS, research.

INTRODUCTION

Medical research is of great importance in improving healthcare practices, patient outcomes, and growth within the healthcare community. It is also the foundation for constant advancements in medicine. It is important to create novel surgical techniques, evaluate the effectiveness of various therapies, and analyse the evolution of best practices that directly impact the activities of maxillofacial surgeons.¹

Maxillofacial surgery is one of the most demanding surgical fields, given its focus on bone structures and intrinsic facial anatomy. The smallest changes in surgical technique can dramatically influence the outcome of the patient in terms of form, function and quality of life. As a maxillofacial surgeon, there is a need for constant research to bring newer concepts into practice, advance scientific knowledge in the management of complex facial deformities, and improve surgical techniques.^{1,2}

Maxillofacial surgery has a structured postgraduate training program where students are expected to cope with the stressors of the clinic, operation theatre and the lab/ research setting.^{3,4} Although Surgical skills are the main focus of the training, acquisition of knowledge and research are actively engaged in as well. Such involvement equips students with the capacity to incorporate research into their practice and develop sound clinical judgment.⁵

Research participation also makes trainees want to participate in academic discussions and seek feedback from peers and supervisors, which broadens their views and strengthens

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their cooperative abilities.⁶ For maxillofacial trainees, research may assist in career growth in that it promotes the development of critical and evaluative skills, improves publication records and increases chances of obtaining fellowship or leadership positions. In addition, research engagement can stimulate interest apart from conventional clinical duties, allowing the pursuit of pertinent clinical issues and addressing such through novel means.⁷

Although research is a key component of medical education, it is common to discover that maxillofacial trainees encounter various factors that prevent them from fully engaging in research activities.⁸ This study explored the Barriers and Facilitators that maxillofacial trainees encounter during their research.

METHODOLOGY

An exploratory qualitative study design with a case study approach was adopted for this study. An interview guide comprising ten questions was developed and piloted to explore the insights and perspectives of postgraduate maxillofacial trainees about research and the barriers and facilitators they perceive in conducting research during their training period.

Ethical approval No. 2146 dated 12.9.2024 was obtained from the Institutional Review Board of HMC. Purposive Sampling was used based on

the experience and years of training to select participants for the study. Informed written consent was taken from each participant after informing them about the purpose of the study. The participants were assured of their anonymity. Eight semi-structured interviews were conducted with postgraduate maxillofacial trainees at which time the saturation point was achieved. The interviews were recorded and transcribed.

The many aspects of the quality of this qualitative research were ensured. Respondent validation of the interview transcripts was done. Dependability was ensured by keeping the audit trail. Thematic analysis was undertaken with Triangulation of transcripts.

RESULTS

Five main themes emerged from the data analyses. Research as a Path to Innovation showed research as a means of pushing boundaries and advancing knowledge. Motivation to Make a Difference outlined that the motivation for conducting research stems from both personal passion and external pressures. Hurdles on the Research Path portrays the barriers in the research journey. Fueling Research Success highlights the facilitators in this journey. Nurturing Research Skills for Tomorrow shows the path to improve research skills among trainees.



Figure 1: Themes from the transcribed data.

Theme 1 - Research as a Path to Innovation:

The residents consistently view research as a means of pushing boundaries and advancing knowledge. It is seen not just as a pursuit of information but as a critical part of generating new insights and transforming clinical practice into something more evidence-based and effective. Residents recognize research as a fundamental tool for discovering new facts, solving problems, and creating knowledge that can be used in practice. It is an enabler to improve clinical practices, ensuring that treatments are continually refined and based on the latest evidence and continually evolving. The subthemes and their representative quotes are in Table 1.

Theme 2 - Motivation to Make a Difference:

Motivation for conducting research stems from both personal passion and external pressures. For many residents, research is a personal mission. It represents their commitment to advancing medicine and solving clinical challenges. While many residents are intrinsically motivated, external pressures like institutional mandates also play a significant role. These requirements push residents to engage in research, though sometimes leading to stress or viewing it as an obligation. The subthemes and their representative responses are in Table 1.

Table 1: Subthemes and Responses for Theme 1 & 2

Subtheme	Responses
1.1: Unlocking New Knowledge	Research is the seeking out of an answer for a certain problem. Research is important because it enhances knowledge and helps solve problems.
1.2: Driving Clinical Excellence	Research helps verify facts and clears misconceptions regarding patient treatment. It allows us to explore new techniques, improve patient care, and contribute to evidence-based practice.
2.1: Passion for Progress	I want to be a good researcher along with a good clinician.
2.2: External Pressures: Fuel or Friction?	CPSP mandates at least one publication.

Theme 3 - Hurdles on the Research Path:

Maxillofacial surgery residents encounter several significant challenges while trying to engage in research, which can often feel overwhelming amidst their demanding clinical responsibilities. Balancing the rigorous demands of residency with the time-consuming nature of research is a major obstacle. The lack of proper guidance from experienced mentors is another challenge faced by trainees. Financial constraints significantly hinder

research activities, particularly the costs associated with publishing in reputable journals. Residents feel inadequately prepared to navigate the complexities of research methodologies. Even after completing their research, residents face challenges in the publication process. Issues such as high fees and difficulties in navigating the various complex journal requirements hinder the path to sharing their work with the scientific community. The subthemes and their representative responses are in Table 2.

Table 2: Subthemes and Responses for Theme 3

Subtheme	Responses
3.1: The Time Tug-of-War	Residency is very tough, and research requires time.
3.2: Mentorship Void	We need mentors to guide us through data collection, methodology, and publication.
3.3: Financial Struggles in the Research Race	The financial support is a big problem; journals charge a lot. Limited access to resources and software is a challenge.
3.4: Lost in the Research Maze	We lack knowledge in research methodology. We don't have training in tools like SPSS.
3.5: Ethical Roadblocks	Getting ethical approval is a major hurdle. The process (ethical approval) is difficult and time-consuming.
3.6: The Price of Publication	The fees for publication are high, and it's hard to afford on a resident's stipend.

3.7: Journal Jargon and Hurdles Every journal has its own requirements, and it's challenging to meet them.

Theme 4 - Fueling Research Success:

Despite the hurdles, several facilitators are identified by residents that can enhance their ability to conduct meaningful research. Good mentorship is crucial for overcoming barriers and fostering a supportive research environment. Workshops and structured training programs provide residents with the knowledge and tools they need to conduct effective research. Access to essential resources, including research tools and hospital support, is crucial for overcoming research challenges. Proper funding and collaboration between institutions can also fuel successful research outcomes. The subthemes

and their representative responses are in Table 3.

Theme 5 - Nurturing Research Skills for Tomorrow:

To improve research skills among trainees, residents suggested starting training early and providing more frequent workshops. Collaboration and continuous support from mentors and peers were also emphasized as key strategies for enhancing research capacity. Residents called for more workshops throughout their training, not just brief mandatory courses, to help them build their research skills practically and consistently. The subthemes and their representative responses are in Table 3.

Table 3: Subthemes and Responses for Theme 4 & 5

Subtheme	Responses
4.1: Mentors as Catalysts	Good mentorship is the most important facilitator. Supervisors can provide guidance and motivation.
4.2: Building Research Know-How	Workshops on SPSS and research methodology were valuable. There should be more detailed workshops and structured training.
4.3: Resource Power-Ups	Access to research software and resources is important. Good collaboration with the hospital and patients facilitates research.
5.1: Early Research Seeds	We should be taught research in our undergrad level to have a better understanding.
5.2: Lifelong Learning through Workshops	There should be more regular workshops on research and practical guidance.
5.3: Strength in Collaboration	Collaboration with others and proper guidance are essential.

DISCUSSION

Research is one of the tools used in the pursuit of knowledge and the expansion of frontiers. Submitting research is not simply collecting facts but the quest for evidence that can be translated into practice with room for improvement. Our participants described motivation as one of the determinants of being involved in research. Motivation, mentorship and engagement are often caused by the individual's interest in the work.⁹ Both personal interest and external factors drive motives for conducting research. Many of the residents possess a desire to improve the profession and solve the clinical issues at hand.⁹

the barriers reported in our study are also reflected by many studies. The need to juggle clinical and research activities within one's schedule, lack of sponsors, or relationships with mentors and colleagues of suboptimal quality are major detriments to participation in research.¹⁰ They outline the challenge of balancing clinical and academic responsibilities as an important bottleneck in clinical research activity for residents. Residents usually tend to have difficulty achieving the needed time and support to carry out the research.¹¹ The publishing process is confronted with issues such as exorbitant costs and complicated submission guidelines that stymie the publication of research outcomes, hence increasing the load of the research itself. In most cases, these difficulties lead to most researchers becoming discouraged and giving up on their research aspirations.¹²

The key facilitators of research include substantial mentorship, comprehensive programs/training, provision of facilities, and institutional backing.^{10,11} Other positive attributes, such as appropriate funding opportunities and collaborations, also add up to making the research productive.¹⁰ Organized programs which offer these resources can increase the research output of residents. This support is particularly important in surgical fields like maxillofacial surgery because of the imbalance between clinical workload and the research effort expected. Good mentorship can assist residents in the research phase.

An improvement in research skills calls for the imparting of skills at an early age through constant workshops, which have to be initiated and moved by mentors and supported by peers. Such basic and practical knowledge has to be acquired through practical training that is spread over time. As observed, there is always

a conducive atmosphere for the development of skills when well-researched structured training programs are supplemented with mentorship and peer involvement.¹³ Engagement and follow-up are critical in enhancing research skills so that residents are ready for the future.¹⁴

CONCLUSIONS

Maxillofacial surgery residents face significant barriers in their research journey, including time constraints, lack of mentorship, and financial challenges. Despite these obstacles, their intrinsic motivation and the requirement for academic publishing drive their research efforts. Facilitators such as mentorship, structured workshops, and access to resources play a crucial role in overcoming these challenges. To improve research outcomes, early exposure to research, continuous training, and institutional support are essential. Strengthening collaboration and providing adequate guidance can further enhance residents' ability to contribute to evidence-based clinical practices through research.

DECLARATION

No grants or funding was availed by any authors for this research project.

CONFLICT OF INTEREST

The authors don't have any conflict of interest to declare.

AUTHOR CONTRIBUTIONS

Author	Area of contribution
Fahimuddin	Idea conception, Design of the study, Data Collection, Data Analysis and Manuscript Critical Appraisal.
Naveed Afzal Khan	Idea conception, Design of the study, Data Analysis and Drafting the Manuscript.
Muslim Khan	Idea conception, Design of the study and Manuscript Critical Appraisal.
Harmain Kayani	Idea conception, Design of the study, Data Collection and Manuscript Critical Appraisal.
Mushyyada Durrani	Data Analysis, Drafting the Manuscript.

Zakariya	Data Analysis, Manuscript Critical Appraisal.
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