

Understanding the relevance of surgical specialties in undergraduate medical education: Insights of graduates

Fernando Girón-Luque¹ | Luis-Jaime Téllez-Rodríguez¹ | Jorge Rueda-Gutiérrez¹ | John Vergel²

¹Master in Health Professions Education, Universidad del Rosario and Pontificia Universidad Javeriana, Bogota, Colombia

²Medical and Health Sciences Education Research Group, Universidad del Rosario, Bogota, Colombia

Correspondence

Fernando Girón-Luque, Master in Health Professions Education, Universidad del Rosario and Pontificia Universidad Javeriana, Carrera 24 63c-69, Bogota, Colombia. Email: fernando.giron@urosario.edu.co

Funding information

None.

Abstract

Background: The relevance of training medical students in surgical specialty services has been a matter of debate in contexts where the health care system focuses on primary health care. Some educators argue that medical students should be trained in primary care settings. Other educators assert that rotating in highly complex hospitals strengthens the competencies of future general practitioners. Nonetheless, little attention has been paid to the added value that rotations in surgical specialties have brought to newly graduated doctors' lives. In this study, we explored the perceptions of a group of graduates by focusing on the relevant experiences they had during their surgical specialty rotations in undergraduate medical training and how this training influenced their personal and professional life.

Methods: We conducted a qualitative study using a convenience sampling strategy to recruit a total of seven junior doctors. Data were collected through semi-structured interviews in 2022. Thematic analysis was used to analyse the data until code saturation was reached.

Results: The recurring themes were (1) perception of rotations, (2) valuable learning for medical practice and (3) defining their professional future. Participants felt that their experiences in surgical specialty rotations were beneficial, as they gained confidence to perform professionally and decide on future employment and strengthened their research and primary healthcare competencies.

Conclusion: Although training in primary healthcare centres is crucial in undergraduate medical education, these results suggest that including rotations in surgical specialties may be valuable in enhancing the future careers of junior doctors.

1 | INTRODUCTION

Clinical training is a key component of undergraduate medical education. This learning experience helps students become competent health-care professionals, capable of providing the highest quality care to their patients. In clinical training, students consolidate their clinical knowledge and skills through hands-on experience in the workplace, supported

by mentoring and supervision from clinical and surgical faculty.¹ However, there is little uniformity in undergraduate clinical curricula, which may impair students' learning. Medical schools organise clinical curricula differently for a variety of reasons. These reasons include the length of rotations, the type of hospital service where students rotate, the year of the academic programme in which they can carry out these rotations and whether rotations are elective or mandatory.²

In clinical training, students consolidate their clinical knowledge and skills through hands-on experience in the workplace.

In the case of rotations in surgical specialties (RSSs), there has been an intense academic debate in Colombia on whether training in surgical specialties is relevant to the competencies of medical students. We identified a similar phenomenon in other countries (e.g. India, Brazil, South Africa and others), which, like ours, have health policies focused on primary healthcare. Some authors argue that RSSs should be included in medical curricula as mandatory and even propose their integration from the early stages of student training.^{3,4} Other medical educators assert that clinical training should only emphasise primary healthcare, excluding RSSs.^{5,6} A third group of educators proposes to include RSSs in clinical training but limited to learning the overall knowledge of the pathophysiology of the surgical patient.⁷

There is little and controversial evidence on the relevance of RSSs in the clinical training of undergraduate medical students, as well as their usefulness in the lives of graduates. Some studies have suggested that RSSs help graduates choose (or decline) a residency.^{8–10} Nonetheless, little attention has been paid to exploring the perceptions of junior doctors on the benefit of RSSs to their lives. Therefore, using in-depth interviews, we sought to explore how junior doctors perceive the value of rotations in surgical specialties.

1.1 | Study context

The study was conducted among medical graduates in three cities in Colombia, specifically Bogota, Bucaramanga and Chia. The sample consisted of graduates from two private and one public medical school. It is important to note that undergraduate medical education in this context does not have standardised rotations for surgical subspecialties. Given that a curriculum reform was implemented in 2019, which included elective clinical-surgical rotations from the fifth year onwards, the study focused on doctors graduating from that date onwards.

2 | METHODS

This is an exploratory qualitative case study using a constructivist interpretive paradigm. Seven newly medical graduates (from three Colombian public and private universities) were recruited. The participants underwent RSSs in the fifth or sixth year of medical studies, or

in clerkship. A convenience sampling method was used to select participants who completed their medical studies as of 2019. Data were gathered using in-depth interviews through a semi-structured questionnaire from August to October 2022. The interview was designed to gather information in five key areas. First, we wanted to get a sense of the interviewee's general knowledge and background. Second, we asked about their motivations for choosing specific elective rotations. Third, we asked them to rank the value of each rotation from highest to lowest. Fourth, we explored how these rotations influenced their decisions about their future surgical career. Finally, we discussed how these rotations have served them in their current role as a junior doctor. All participants voluntarily consented to participate in this study after signing the informed consent form. The interviews were verbatim transcribed and analysed using a thematic analysis. The transcripts were independently reviewed and coded by FG (transplant surgeon), LT (thoracic surgeon) and JR (plastic surgeon) until saturation was achieved. All discrepancies were revisited until a consensus was reached among the entire team of researchers.

This is an exploratory qualitative case study using a constructivist interpretive paradigm. Seven newly medical graduates were recruited.

2.1 | Ethics approval

This study was approved by the Ethics Committee at Dexa Diab Colombia (ID: 06-2022).

3 | RESULTS

Three female and four male junior doctors participated in interviews. Three themes emerged after the analysis of the data, namely, perception of undergraduate rotations, valuable learning for clinical practice and definition of future professional life.

3.1 | Perception of undergraduate rotations

Participants described their RSSs experiences at two points in time: during the fifth or sixth year of medical school, as medical students, and in the final year of studies, as clerkship students. At both points in time, the RSSs were defined as clinical and surgical practice supervised by faculty with diverse intrapersonal and interpersonal

skills. RSSs were also characterised as having little curricular standardisation. For instance, the length of the RSSs was different for each participant. In addition, access to the rotation was determined by the availability of hospital slots, which varied at each university, so admission to the rotation depended on the student's previous academic performance. Participants said that RSSs in the fifth or sixth year of studies were less beneficial for learning for two main reasons. First, the rotation was shorter than in clerkship, so the opportunity to learn about the surgical specialty was limited. Second, participants felt they reinforced basic clinical concepts, but without taking advantage of the opportunities provided by the rotation to perform more complex procedures.

Participants felt they reinforced basic clinical concepts, but without taking advantage of the opportunities provided by the rotation to perform more complex procedures.

It's different when you rotate as a medical student than when you rotate as a clerkship student because basically as a medical student you are very focused on learning how to approach patients in general and how to take a correct clinical history, and you may not take advantage of it.

(Junior doctor 2)

One ends up in a rotation and practically did not manage to internalise what the specialty consisted of.

(Junior doctor 1)

The participants stated that the RSSs during the clerkship were elective and longer. They carried out some surgical procedures under supervision, delved more deeply into surgical issues and gained a better overview of the roles of specialists. They also perceived that in the clerkship they had taken more advantage of the rotation because being in the last year of studies they had a better knowledge and skills base to face the challenges of the rotation.

To finish understanding, consolidating, or knowing what I wanted to be. To get to know a little more about the surgical world or the subs, the people in the

hospital, and how to be able to finish consolidating knowledge that may have fallen short in the surgical rotations.

(Junior doctor 3)

Participants chose RSSs for a variety of reasons, both intrapersonal and interpersonal. For example, their academic preferences, passion and expectations for surgical specialty. They also mentioned some interpersonal reasons, such as good relationship and affinity with the RSSs professors. For the participants, the attitude and commitment of the professor influenced their decision to rotate into a surgical specialty.

I think it's great to have the opportunity to delve deeper into the subjects you like because there is no greater motivation than the pleasure or desire to do things. So, when you get into what you like, you learn more.

(Junior doctor 4)

In the clerkship, apart from the passion, it was also the place of rotation and professors, their manners had too much influence.

(Junior doctor 5)

3.2 | Valuable learning for medical practice

Participants perceived multiple lessons learned during their rotations as meaningful to their personal lives and professional roles as junior doctors. By significant, they meant consolidating theoretical and practical knowledge on specific clinical training topics. For example, diagnosing, educating, treating and referring patients with surgical pathologies from primary care centres to high-complexity hospitals. Participants said that this learning gave them confidence during their subsequent professional performance.

Several of these specialties are far from the general practitioner's knowledge. You see them for 2 weeks and no more. So, the fact that I had the experience of using a slit lamp or doing an ocular fundus properly generates a plus for me because I already had clinical experience.

(Junior doctor 4)

Several participants noted that job opportunities are limited for general practitioners, especially in specific roles such as surgical assistant or emergency physician. However, they agreed that rotating in the RSSs helped them to consolidate their professional profile, which helped them to get these types of jobs more easily. They said that in the RSSs, they established professional networks that also helped them to get a job. One of the participants reported that the research

that she published during her RSSs, and the recommendation letter from her professor, helped her to get her current job.

Rotating in the RSSs helped them to consolidate their professional profile, which helped them to get these types of jobs more easily.

Having this internship opportunity enhances the job opportunity for someone who has to work as a surgical assistant.

(Junior doctor 6)

Right now, let's say, because of my background in research and in ophthalmology especially, I'm going to be doing a research internship at NYU. And I have a job offer in Singapore. That generates an absolutely differentiating profile, but it also generates a lot of value.

(Junior doctor 3)

Participants also said that the RSSs helped them prepare for the residency admission exams. Specifically, they said that having contact with the daily work of a specialised department helped them to focus their preparation on key topics for the knowledge exam. In addition, during their rotation, they had contact with professors who would later participate in the selection process during the interviews, which they considered positive, as it would allow them to carry out the interview with more confidence. They also stated that in RSSs, they had access to research groups in their chosen specialty, with the possibility of participating in research work already in progress or initiating new projects during their rotation. They claimed these experiences would also be considered during the selection process and would increase the probability of being admitted to a residency.

Having rotated from an early age in sub-specialties conveys a preference for the specialty, an affinity, skills, and interest. ... Nobody asks you how many procedures you have done, how many points you have passed, but if they say show me your curriculum vitae, how many papers have you published, how many abstracts, how many conferences? Yes, that is valuable. Very important.

(Junior doctor 3)

The participants also highlighted other important aspects of RSSs such as knowing the environment in which the specialist works, the activities of a surgical department, people with whom they interact and the workload. Observing the mood of their professors (and their behaviour with students, colleagues and other workers) was valuable to them. These insights helped them to decide their life project and their professional future.

I think getting to know a little bit closer to the lifestyle. For example, you would see surgeons who had three jobs who would come in angry as hell to take it out on the residents, their physical appearance, the physical appearance of the residents absolutely tired, skinny, and exhausted versus other residents like the ophthalmology residents, coming in at 08:00, sleeping in their bed. Yes. So that, the lifestyle, I think that's something really important.

(Junior doctor 3)

3.3 | Defining their professional future

The participants perceived that the RSSs directly influenced the decision to continue (or not) to a surgical residency. The aspects described that most influenced this decision were the role of their professors in motivating them, the type of pathologies they treated and the passion that the participant developed in each specialty.

The participants perceived that the RSSs directly influenced the decision to continue to a surgical residency.

Professors that show the goodness of their specialty is the best way to motivate and adhere to their students.

(Junior doctor 6)

As such in choosing a specialty, like deciding if what I really liked was a clinical or surgical specialty and deciding the type of patient I wanted to see in the future, deciding if the type of activity and among the surgical specialties, which was the one that most caught my attention.

(Junior doctor 1)

The participants also had some demotivating experiences in RSSs in deciding to pursue surgical residency. For example, the mistreatment of the professors towards the undergraduate and postgraduate students, sometimes described as disrespectful. Other examples included the poor quality of the working and non-working lifestyles of the surgical specialists. Participants described specialists' lifestyle as having an excessive workload, which left them no time for activities other than their profession and affected their intrapersonal (self-confidence and self-motivation) and interpersonal (relationship with other people) relationships.

The training is very tough within the surgical specialty ... the treatment given to the resident to train him as a good surgeon is rude, it's hard.

(Junior doctor 5)

The participants felt that the RSSs allowed them to understand and confirm whether the surgical specialty was what they wanted for their short- and long-term professional future.

Since undergraduate, in the specialties that I wanted, they make me fully know what my life project is

(Junior doctor 4)

4 | DISCUSSION

This study aimed to describe how some junior doctors perceive the value of the RSSs during their undergraduate studies. These insights were needed to understand whether these rotations are relevant (or not) to medical education. In general, rotations were perceived as useful (1) to become more confident in clinical practice, (2) to qualify their curriculum vitae and get a job after graduation and (3) to make decisions about their future work and which residency to enrol in. The findings suggest that the RSSs had a differential influence on the professional trajectories of the participants. For some participants, the RSSs provided an opportunity to obtain valuable information and experience which helped to reinforce their decision to pursue a career in surgery. For others, the RSSs offered an insight into a potential career path and ultimately led them to decide that surgery was not the right fit for them.

Rotations were useful to become confident in clinical practice, to qualify curriculum vitae and to make decisions about their future.

These results are consistent with other studies that have found that learning experiences in RSSs help medical students define their professional future.⁸⁻¹² According to Schmidt,¹³ Al-Nojaidi,¹⁴ Jabaiti et al.¹⁵ and Lee,¹⁶ RSSs provide medical students with a vision of the professional lifestyle of a surgeon and the technical skills required in each surgical specialty. If the vision of a surgical career aligns with the interests of medical students, it can be used as a persuasive argument to encourage them to enrol in a surgical residency. On the other hand, Rivard et al.¹¹ contend that medical students may abandon their pursuit of surgical careers during RSSs due to a variety of reasons, including a surgical culture of sacrifice and sexism.

Our findings also suggest that junior doctors perceive RSSs as a valuable experience for developing clinical confidence. These findings corroborate those of Renduchintala,¹⁷ who posited that surgical rotations are an enriching learning experience that promotes the development of student confidence through the acquisition of knowledge and clinical skills. We also found that participants in RSSs were motivated to strengthen their CVs through research work to increase their chances of accessing a surgical postgraduate degree. This is consistent with the findings of Van den Broek,¹⁸ who found that elective rotations in the final year of medical school are often used as a transition period between undergraduate and postgraduate studies, where students work to align their CV with their preferred specialty.

Despite the reported benefits of RSSs, some medical educators have argued that students' undergraduate clinical training should focus on low-complexity healthcare settings.⁶ These educators argue that developing countries (with serious deficiencies in their healthcare systems) require medical schools to prioritise primary healthcare teaching to improve health outcomes for patients and communities.⁶ This emphasis is especially critical in rural areas facing significant challenges in accessing healthcare services. Primary healthcare is conceptualised in this context as the provision of disease prevention, health promotion, early disease diagnosis and treatment of most diseases at the primary level of the healthcare system. From this perspective, clinical training in highly complex hospitals is discouraged, thereby recommending the exclusion of RSSs from undergraduate medical education. There is a concern that surgical rotations may lead medical students to prioritise patient care over health promotion or disease prevention.

We found no evidence to suggest that participants in this study perceived primary healthcare as being devalued because of their rotations into surgical specialties. Indeed, some participants remarked that these rotations enhanced their primary healthcare competencies, such as the early diagnosis of surgical diseases. That is, the RSSs may have the potential to enhance primary healthcare learning outcomes, rather than undermining them.

4.1 | Limitations

Three authors of this study are specialists in the surgical area, which could influence the justifiability interpretations of the data

collected. Nevertheless, some strategies were followed in the data analysis to ensure the justifiability of interpretations, such as the continuous review of codes and categories by peers. This study is also limited by the small sample size. It is therefore unclear to what extent the experiences of other junior doctors who have rotated through RSSs during their undergraduate training at other universities may be like those reported in this research. Despite these limitations, the results are consistent in general terms with previous studies in other settings. Future studies should be conducted on this issue to explore whether our findings can be applied in other contexts.

5 | CONCLUSION

Although teaching primary healthcare is of key importance in undergraduate clinical training, our findings suggest that including RSSs in the curriculum may enhance students' primary healthcare competencies. Additional benefits of RSSs may include having more confidence to perform clinical practice after graduation, enhancing junior doctors' resume qualifications and gaining a better understanding of surgical specialties (to make informed decisions about which residency programme to enrol in and what kind of life they want to have as medical doctors).

AUTHOR CONTRIBUTIONS

Fernando Girón-Luque conceived the research idea, designed the study and collected and analysed the data. Girón-Luque also authored the manuscript, including writing and editing of drafts, and approved the final submission. Luis-Jaime Téllez-Rodríguez conceived the research idea, designed the study and collected and analysed the data. Téllez-Rodríguez also authored the manuscript, including writing and editing of drafts, and approved the final submission. Jorge Rueda-Gutiérrez conceived the research idea, designed the study and collected and analysed the data. Rueda-Gutiérrez also authored the manuscript, including writing and editing of drafts, and approved the final submission. John Vergel conceived the research idea, designed the study and analysed the data. Vergel also co-authored the manuscript, including writing and editing of drafts, and approved the final submission.

ACKNOWLEDGEMENTS

We thank our tutor and the doctor who participated in the interviews to carry out this research.

CONFLICT OF INTEREST STATEMENT

None.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

ETHICS STATEMENT

Ethical approval was sought from the Dexadiab Ethics Committee CE-CC-01500-05/11/2022. All participants gave signed consent for their interviews data to be used for the purpose of publication.

REFERENCES

1. Fowler MJ, Crook TW, Russell RG, Cutrer WB. Master clinical teachers and personalised learning. *Clin Teach*. 2023;20(2):e13562. <https://doi.org/10.1111/tct.13562>
2. Hicks KE, Doubova M, Winter RM, Seabrook C, Brandys T. Surgical exploration and discovery program: early exposure to surgical subspecialties and its influence on student perceptions of a surgical career. *J Surg Educ*. 2019;76(5):1248–57. <https://doi.org/10.1016/j.jsurg.2019.03.001>
3. Hamaoui K, Sadideen H, Saadeddin M, Onida S, Hoey AW, Rees J. Is it time for integration of surgical skills simulation into the United Kingdom undergraduate medical curriculum? A perspective from King's College London School of Medicine. *J Educ Eval Health Prof*. 2013;10:10.
4. Weber SM, Fergestad J, Lewis B, Tefera G, Chen H. How should medical student surgical rotations be structured to optimize education? *J Surg Res*. 2005;126(2):145–8. <https://doi.org/10.1016/j.jss.2004.12.010>
5. van Weel C, Kidd MR. Why strengthening primary health care is essential to achieving universal health coverage. *CMAJ*. 2018;190(15):E463–6. <https://doi.org/10.1503/cmaj.170784>
6. Quintero GA, Vergel J, Laverde Á, Ortíz LC. Educational strategies to develop and implement a comprehensive health care model focused on primary Care in Colombia. *J Med Educ Curric Dev*. 2020;7:2382120520930260. <https://doi.org/10.1177/2382120520930260>
7. Patiño-Restrepo JF. El papel de la educación quirúrgica en pregrado. *Cir Cir*. 2011;79(1):77–82.
8. Al-Sultan AI, Parashar SK, Al-Ghamdi AA. Electives during medical internship. *Saudi Med J*. 2003;24(9):1006–9.
9. Mihalyuk T, Leung G, Fraser J, Bates J, Snadden D. Free choice and career choice: clerkship electives in medical education. *Med Educ*. 2006;40(11):1065–71. <https://doi.org/10.1111/j.1365-2929.2006.02614.x>
10. Turki MAA, Zargaran A, Murtaza A, Thomas A, Spiers H, Gill M, et al. Vascular surgery: what increases the flow of students to the specialty? *Vascular*. 2019;27(3):338–44. <https://doi.org/10.1177/1708538118809854>
11. Rivard SJ, Kemp MT, Sandhu G, Heximer AC, Hughes T, Byrnes ME. "why would you want to do that?" surgical interns reflect on discouragement from entering surgical fields. *J Surg Educ*. 2022;79(5):1150–8. <https://doi.org/10.1016/j.jsurg.2022.04.014>
12. Kilcoyne MF, Do-Nguyen CC, Han JJ, Coyan GN, Sultan I, Roberts MB, et al. Clinical exposure to cardiothoracic surgery for medical students and general surgery residents. *J Surg Educ*. 2020;77(6):1646–53. <https://doi.org/10.1016/j.jsurg.2020.05.017>
13. Schmidt LE, Cooper CA, Guo WA. Factors influencing US medical students' decision to pursue surgery. *J Surg Res*. 2016;203(1):64–74. <https://doi.org/10.1016/j.jss.2016.03.054>
14. AlNojaidi TF, Alaqil SN, AlQhtani AZ, Alhadlaq AS. What factors during elective rotations influence undergraduates to pursue plastic surgery as a career? *Arch Aesth Plastic Surg*. 2023;29(1):14–9. <https://doi.org/10.14730/aaps.2022.00430>
15. Jabaiti S, Hamdan-Mansour AM, Isleem UN, Altarawneh S, Araggad L, Al Ibraheem G, et al. Impact of plastic surgery medical training on medical students' knowledge, attitudes, preferences, and perceived benefits: comparative study. *J Public Health Res*. 2021;10(3):1927. <https://doi.org/10.4081/jphr.2021.1927>

16. Lee KS, Ng JJ, Choong AM. A scoping review of vascular surgery education in the medical school curriculum. *J Vasc Surg.* 2021;74(4):1362–74. <https://doi.org/10.1016/j.jvs.2021.04.024>
17. Renduchintala K, Liu YW, Vo K, Wang M. The implementation and assessment of a perioperative co-management of surgical services rotation for medical students. *J Surg Educ.* 2022;79(5):1099–102. <https://doi.org/10.1016/j.jsurg.2022.04.013>
18. van den Broek WES, Wijnen-Meijer M, Ten Cate O, van Dijk M. Medical students' preparation for the transition to postgraduate training through final year elective rotations. *GMS J Med Educ.* 2017;34(5):Doc65.

How to cite this article: Girón-Luque F, Téllez-Rodríguez L-J, Rueda-Gutiérrez J, Vergel J. Understanding the relevance of surgical specialties in undergraduate medical education: Insights of graduates. *Clin Teach.* 2023. e13690. <https://doi.org/10.1111/tct.13690>