

## MENTORSHIP ROLE IN THE CHOICE OF SURGERY AS A CAREER AMONG MEDICAL STUDENTS IN RWANDA

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### ABSTRACT

**Introduction:** Surgery stands as a popular career choice among medical students in Sub-Saharan Africa, but there are far too few surgeons per capita to treat the population that need care. Positive mentorship relationships during a student's undergraduate medical education may promote the choice of Surgery as a path for post graduate residency training. The primary aim of this study is to discern the relative impact of close relationships between faculty and medical students on future medical career choice in Rwanda.

**Methods:** The survey enrolled 135 final year medical students of the National University of Rwanda between January and May 2013. Medical students who completed their surgical rotation were all included into this study after informed consent. Data were collected, cleaned and analyzed using Microsoft Excel. Descriptive statistics, normal distributed and non-normal distributed analysis, student t-test, and non-parametric tests were used where appropriate.

**Results:** Participants were predominantly male (83.2%) and all respondents had recently completed an 8-week rotation on Surgery. Whereas 41.1% (n=39) of the respondents had interest in a surgical career prior to their last year of internship, only 30.9% (n=29) were likely to pursue a career to surgery as their top choice after completing their clinical rotations. Approximately half of the participants reported having their interest increased as a result of mentorship from surgical attendings / consultants (54.6%, n=52), and surgical residents (47.4%, n= 45). A minority of respondents (35.1%, n=33) reported having less contact with surgeons than with physicians from other specialties prior to their clerkship. Nearly half of the students interested in a career of surgery reported low satisfaction in their surgical clerkship (44.8%, n=13).

**Conclusion:** Surgical consultants and residents exert considerable influence on medical students interested in Surgery as a future career. Whether increasing social interaction and individualized/small groups interactions will actually increase the number of trainees choosing Surgery requires prospective testing.

**Keywords:** Mentorship, Surgery, Career, Medical students, Rwanda

### INTRODUCTION

A positive surgical mentorship program can help in the choice of Surgery as a career after medical school [1]. General surgery training has relied on mentors throughout history as "conduits for the great body of unwritten wisdom that is based on experience" [2].

Surgical attendings and residents pledge to share their knowledge with others, and are expected to help medical students and future surgeons to increase their knowledge and interest in Surgery.

Previous studies have sought to increase understanding of the factors influencing medical students to choose surgery as a future career path. Some of the factors that seem to influence career choice include perceived career opportunities, prestige, work hours during surgical residency and an active relationship with a senior attending before, during and after the their clerkship [3]. In depth studies suggest that many surgical residents chose surgery at least partially due to their exposure to surgery faculty during their pre-clinical and clinical years [4]. Among the criteria previously reported as important include good relationships with faculty and the medical student during the early years of medical training and surgical rotations positively affected the choice of surgical career.

Additionally, medical students have previously reported the general characteristics of the ideal mentor, and the roles that mentors play in their career choices. An ideal surgical role model has been described as able to demonstrate expertise, professional integrity, skills, achievements and verbal recommendations [5]. Unfortunately, many surgical faculty seemingly fail to appreciate their potential influence on medical students, as well as the important role they have in shaping students' career path [6].

Similar studies in sub Saharan Africa have also demonstrated accessibility of faculty as a key factor affecting career choice [7]. The primary aim of this study is to discern the relative impact of close relationships between faculty and students on future career choice in the developing healthcare system of Rwanda.

### METHODS

Surveys were distributed to 135 final year medical students of the National University of Rwanda. Medical students who completed their surgical rotation were all included into this study after consent, and incomplete questionnaires were excluded from the survey.

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The first section of the survey included the demographic characteristics of the medical students (age, sex, years spent in medical school and the time period of surgical clerkship). In the second section, medical students were asked 5 point Likert-scale (Strongly Disagree- Disagree- Neutral- Agree-Strongly agree) questions regarding their perceptions. Respondents were also asked to rank their career preference (top, second and third), and their perceived future careers after medical school. Medical students had to compare the contact they had between medical physicians and surgeons.

In the third section, medical students reported their surgical clerkship time, mainly based on their clinical work, studying (as an individual or as a group), and overall teaching time experiences. Data were collected between January and May 2013; data were cleaned, adapted and analyzed using a statistical software program (Microsoft Excel 2007, Redmond, WA). Descriptive statistics were created for analyses of demographic data. Student's t-tests and chi squares were used to test for differences between groups. Ethical approvals were provided by the Faculty of Medicine at the National University of Rwanda (Rwanda) and the University of Virginia's Institutional Review Board.

Out of the 135 distributed questionnaires only 97 were returned, of which 96 were complete, resulting in an overall response rate of 72%. All the Rwandese students had completed 6 years of medical school and an 8-week Surgery clerkship during their final year. Sixteen (16.4%, n=16) of respondents were female. Nearly one-third (32.3%) of respondents ranked a surgical field (either General Surgery - Orthopedics and Other surgical subspecialties) as their top career choice. However, there was a non-significant gender and age predilection in the choice of surgery as a career (Table 1).

Table 1: Demographics

	Overall Study population	Medical students who report surgical field as their top career choice	Medical students reporting a non-surgical field as their top career choice	P value
Number	96	31*	62*	
Gender	Male: 78 Female: 16	Male: 83.9% (26) Female: 16.1% (5)	Male: 82.2% (51) Female: 17.8% (11)	p<0.05
Age mean	28.4	28.6 years	28.3 years	(NS)

\* 3 students failed to answer the question indicating their field of interest

In response to the question "How important were the following factors in your career interests listed above" question 10), medical students had to rank the reasons for their career preferences on a 5-point Likert scale ("Not important at all" to "Very important"). Students were then grouped according to their career choices (medical students who chose surgery as their top career choice vs. other medical students). Students in both groups stated the option "I find it interesting" as the most important factor of choice (77.4% and 66.6% respectively reporting a value of 4 or 5). Financial rewards also had a considerable place in the reasons for career choice (51.6% and 33.3% respectively in the two groups). (Figure 2).

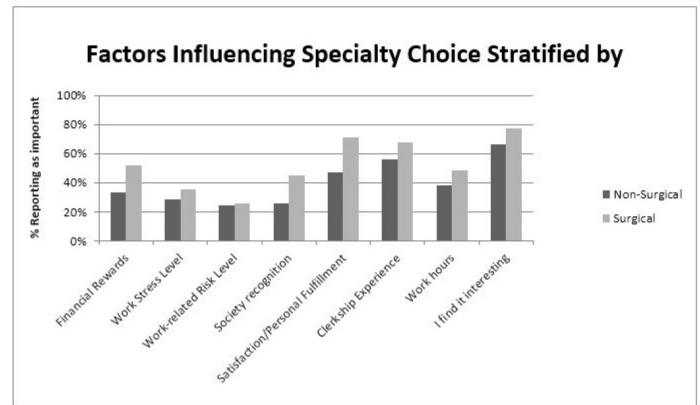


Figure 2: Number of respondents reporting each factor as having influence over their career choice

General Surgery was ranked the third most popular career choice (21.2% of respondents, n=20), after Pediatrics and Internal Medicine, each gathering 23.4 % ( n=22) of the top-choice responses (Figure 1). Thirty-nine students (41.1% of all respondents) chose "strongly agree" on a 5-point Likert scale about being interested in surgery before their surgical clerkship; only 29 (30.9%) stated that they were interested in surgery as a top career choice after their surgical clerkship (p<0.05)(Figure 3).

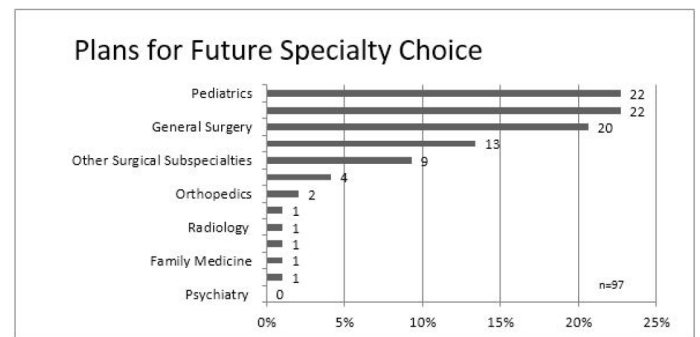


Figure 1: Relative number of respondents reporting each specialty as their top career choice.

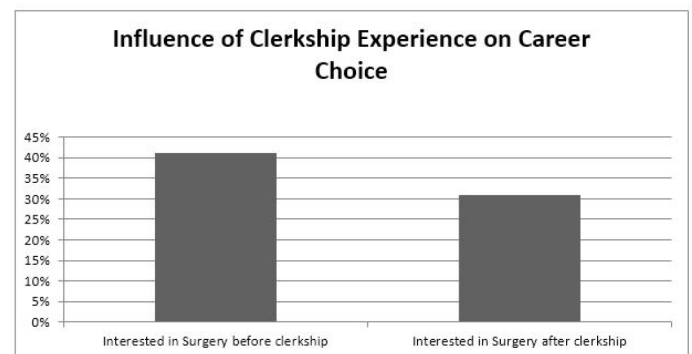


Figure 3: Influence of clerkship experience on career choice

Forty percent of the medical students who demonstrated an interest in a career in surgery had a positive relationship with surgical residents, versus only 34.6% who had a positive relationship with consultants (Figure 4 and 5). Importantly, though, negative relationships with consultants had a greater impact in students' ultimate career choice than negative relationships with surgical residents.

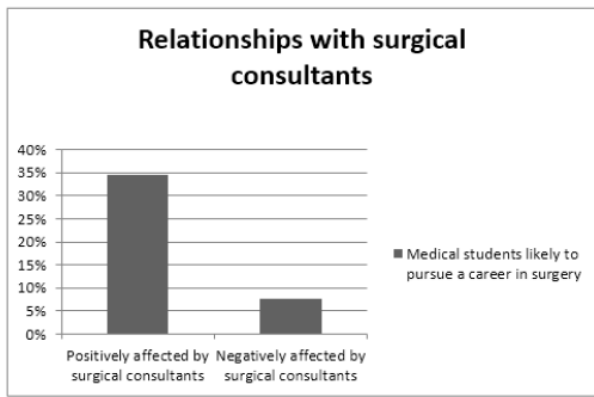


Figure 4: Medical students generally had good experiences with surgical consultants during their clerkship.

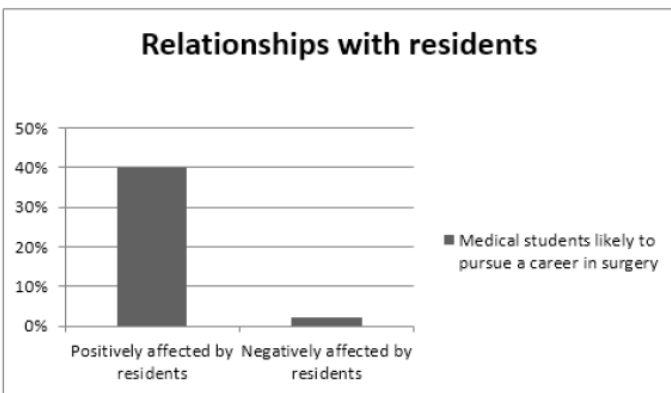


Figure 5: Students who chose a career in surgery had overwhelmingly positive experiences with residents during their clerkship.

A considerable group of medical students reported to never having been affected by their relationships with either residents (38.9%; n=37) or surgical consultants (32.1%; n=25).

We explored whether contact with a non- surgeon (physician or internal medicine doctor) or a surgeon prior to their surgical clerkships made any difference to students' career choices. We found that more prior contact with surgeons seems to increase the number of students who ranked surgery as the top career choice (41.9% Vs 28.5%) (Figure 6).

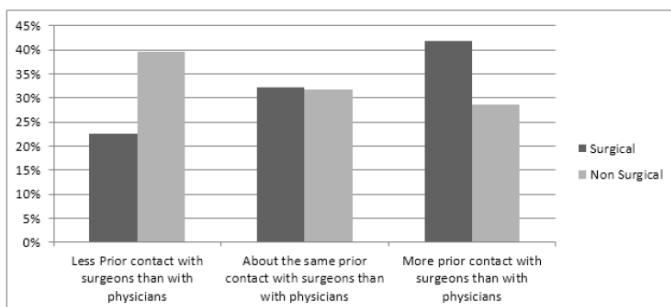


Figure 6: Physicians (Internal Medicine doctors) versus Surgeons mentorship contact with the medical students

**DISCUSSION**

Surgical specialties (General surgery, Orthopedics and other surgical subspecialties) stand as the first field of interest among Rwandese medical students, followed by Medical specialties (Internal Medicine and other medical

subspecialties). The relatively lower rates might be due to a small sample size (97 students). Approximately the same proportion were found in a similar previous study in sub Saharan Africa to show that Surgery is a popular choice of career among medical students in this region, but might be different in other parts of the world [6, 9, 10]. Gender differences were noticed in our study, with only 16.1% of females choosing the surgical career.

This could be explained by the general lower number of females in our study group (16.49%; n=16); further studies should be done in the same sphere, to assess the causes of gender disparities in the surgical career choice.

Similar findings were noticed in a different setting<sup>13</sup>, in which perceived causes of gender disparities among surgical faculty and residents in other settings were heavy work load, lack of role models, gender based negative comments and discrimination [14, 15]. Among the medical students ranking a career in Surgery as their top choice, intellectual interest (77.4% ) and personal satisfaction (66.6% ) are the main criteria of choice of career, which is opposite from previous studies where the perceived quality of lifestyle, contact with patients, scientific challenges and career opportunities seem to be major criteria for career consideration. [2, 8, 9,11] Societal recognition among the potential future surgeons, though not major within our study findings (45.1%), correlates with the findings of a similar study where prestige is among the main criteria of surgical career choice among undergraduates (medical students).<sup>2</sup> Further studies should potentially follow the same group of students to assess whether or not they did, in fact, continue with their noted career interests, a few years after their medical training. We noticed that the number of medical students who stated an interest in a surgical career significantly decreased from 41.1% prior to their clerkship to 30.9% after completing their clerkship (P<0.005). The 8-week clerkship period seems to be very decisive for many medical students, and a poor experience or unmet expectations may be some of the reasons why medical students lose interest in surgery.

These findings are perhaps different from other studies where medical students' post clerkship interest in surgery is higher than in the pre clerkship period. [10, 12] The main factors influencing these changes are clerkship experience, residents' and faculty interactions with the students. This study has shown that surgical residents have an important mentorship role for medical students. This might be due to the fact that the two (medical students and residents) are the primary surgical care providers' before the consultants (for instance, night calls, minor surgical procedures and day to day patients' follow up) in our setting. This was found valid for both interested and not interested in a surgical career groups. This might play an important role as an influencing criterion of future career choice, as it has been shown that medical students who were exposed to highly rated surgical residents were more likely to pursue a surgical career[3, 7].

Negative mentorship attitudes from the consultants were found to greatly impact medical students during their surgical clerkship period. Further studies should be done amongst consultants and residents to understand their attitudes of their current mentorship relationships

with the medical students. One study revealed that consultants seem to ignore their role in shaping students' career choices<sup>5</sup>. This complements the findings in our study, in that not taking the time to cultivate a positive relationship with students has important consequences for their future career choices. Thus, we observed that surgeons had a greater mentorship impact on medical students' choice to pursue surgery as a career, compared to physicians (Internal Medicine Doctors). This could be explained by the interactive, hands-on experience a surgical experience can provide.

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## CONCLUSION

Surgery stands as a considerable career choice among Rwandan medical students despite disparities related to gender. Overall, consultants and residents have an influence on the medical students' future career choices during their various clinical and academic interactions. Besides the direct interpersonal contacts through mentorship, various other factors are found to be of importance while choosing Surgery as a future career. Further studying on the impact of social/small groups interchange in the choice of Surgery as a career is needed.

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