

Introduction

What pre-matriculation factors influence specialty choice? This research investigates whether taking anatomy courses prior to medical school affects medical student academic success and residency choice in anatomy-heavy specialties. This would be illuminating information for the many shareholders in this process, including students, pre medical advisors, medical school admissions committees, and residency directors seeking strategies to increase interest by under-represented groups in their specialty. In one previous study, it has been found that prior anatomy studies do have a positive impact on medical school anatomy and histology grades.¹ However very little other research has been done on this topic, especially where it relates to under-represented groups in these fields.²

Aims and Objectives

Aim 1: to investigate the effect of anatomy courses prior to medical school on medical school anatomy grades. To meet this aim, students will be asked whether they took anatomy prior to medical school, and what their preclinical anatomy grades were.

Aim 2: to investigate whether students who took anatomy courses prior to medical school are more likely to be interested in a surgery or radiology career. Within this aim is the goal of determining whether there is an effect on the career goals of under-represented minorities within these fields. To meet this aim, students will be asked what specialties they plan to apply for, as well as whether they consider themselves to have an under-represented identity.

Methods

A retrospective model was used in which a survey was sent to fourth year medical students at Oakland University William Beaumont School of Medicine (OUWB-SOM) in two consecutive years (Winter semesters 2021 and 2022 prior to the Match. A primary concern was to protect the identity of respondents. Given the small number of MS4's in one class, they were not asked to identify with a specific ethnic, gender, or sexual minority; rather, they were presented with all the categories that are encompassed by the term 'minority' and asked a binary yes-no question on whether they identify with at least one category. Students were asked whether they took an anatomy course prior to medical school. Students were then asked to self-report what percentile grade ranges they got in Anatomical Foundations of Clinical Practice (AFCP) 1 and 2. Participants then self-reported their STEP 1 score and STEP 2 score, also within a percentile range to remove STEP performance as a potential confound for perceived competitiveness in applications. To investigate the aim of whether students who took anatomy are more likely to be interested in a surgery or radiology career, students were asked to report interest in these fields using a Likert scale and whether they applied to these fields.

Results

Aim 1: do pre-matriculation anatomy courses effect medical school anatomy grades?

There were no statistically significant effect of having taken anatomy on medical school anatomy grades or on STEP 1 score or STEP 2 CK score.

Aim 2: do pre-matriculation anatomy courses effect residency choice, particularly for underrepresented minorities?

Findings were that STEP 1 and STEP 2 CK scores had a statistically significant effect on the likelihood to apply to a surgical or surgery subspecialty. However, having taken anatomy prior to medical school had no effect on whether students applied to surgery or radiology specialties. This included students who identified themselves as an under-represented minority.

One other notable finding of this study was that among this sample there was no statistically significant effect of underrepresented population status on a student's likelihood of applying to a surgical residency. It could be that this particular sample was not representative of the total pool of surgical residency applicants. It is therefore possible that repeating this study with a larger sample could result in different effect sizes for the variables considered, especially the interaction of underrepresented status and having had an anatomy class prior to medical school.

Conclusions

Analysis of first-year medical school anatomy and STEP 1 and 2 CK scores showed that students who took anatomy prior to medical school had no improved performance over those who did not take anatomy prior to medical school. Of the measures taken in this study, only STEP 1 and 2 CK scores had a statistically significant effect on the choice of residency specialty among all students. Thus, an anatomy requirement or recommendation prior to medical school will not be an efficacious intervention for increasing medical school grades, STEP scores, student interest in surgery and radiology, or underrepresented minority interest in these fields. For the stakeholders in these outcomes, it will be important to investigate other avenues of intervention. Previous literature has shown some interventions in medical school can be taken,³ but further attention could be paid to student characteristics prior to matriculation. Further research should also be conducted on the recruitment of underrepresented minority students to increase representation in surgical fields and in radiology.

References

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Table 1: Anatomy exposure and surgery residency application

	Did you apply to a residency in surgery or a surgical subspecialty?		P-value
	Yes (N=15)	No (N=28)	
Did you take anatomy prior to medical school?, n (%)			1.0000 ¹
Yes	7 (46.7%)	13 (46.4%)	
No	8 (53.3%)	15 (53.6%)	
Anatomy class prior to medical school?, n (%)			0.5696 ¹
No prior anatomy	8 (53.3%)	15 (53.6%)	
Required to take anatomy	4 (26.7%)	4 (14.3%)	
Wanted to take anatomy	3 (20.0%)	9 (32.1%)	
Do you identify as an under-represented minority in medicine (this could be a gender or sexual minority, and/or a racial or ethnic minority)?, n (%)			1.0000 ¹
Yes	4 (26.7%)	9 (32.1%)	
No	11 (73.3%)	19 (67.9%)	

¹ Fisher Exact p-value