

“Pre-med is hard”:

**An Evaluation of the Pre-Medical Experience for
First-Generation and Low-Income Students**

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Table of Contents

ACKNOWLEDGEMENTS	1
INTRODUCTION	1
LITERATURE REVIEW	2
<i>The Pre-Medical Pathway as a Discriminatory Process</i>	2
<i>Financial Capital</i>	3
<i>Social and Cultural Capital</i>	4
<i>(Extra)curricular Capital</i>	5
<i>Institutional Resources for Students</i>	6
<i>Advising</i>	6
<i>Student Success Initiatives</i>	7
<i>Mentorship and Representation</i>	8
METHODS	9
<i>Selection of Study Participants</i>	9
<i>Semi-Structured Interviews</i>	9
<i>Qualitative Analysis</i>	9
FINDINGS	11
<i>Confusion and Anticipatory Stress</i>	11
<i>Capital Influences Social and Academic Support</i>	13
<i>Insufficient Academic Resources for FGLI Students</i>	15
DISCUSSION	17
CONCLUSION	20
REFERENCES	21

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INTRODUCTION

Undergraduate institutions across the country are experiencing an influx of First-Generation (FG) college students. However, much of the literature regarding pre-medical students overlooks the nuanced challenges that FG students face in pre-medical and medical coursework while understanding the hidden curriculum embedded in the premedical pipeline (PMP). Much of the literature also lacks intersectional analyses of FG and low-income (LI) identities and how students in both categories are more likely to succumb to the discriminatory design of the PMP.

The Association of American Medical Colleges (AAMC) defines FG applicants as their most educated parent not having a college degree from the United States. The AAMC did not collect data on FG applicants until the 2020 to 2021 application cycle. FG applicants made up,

on average, 14.3% of applicants from 2020 to 2024. The number of FG matriculants is smaller at an average of 11.58% (AAMC First Generation, 2023-2024). By way of contrast, since 2020, an average of 60.25% of applicants and 67.6% of matriculants have parents who obtained a bachelor's degree or higher (AAMC SES, 2023-2024).

The current study aims to address the gaps in the literature about FGLI students pursuing medicine and how they navigate the discriminatory design of the PMP. The barriers FGLI students face surround disparities in anticipatory stress towards the medical school application process, social and academic support, and available institutional resources. These findings will be used to recommend improvements for undergraduate institutions to implement to increase FGLI matriculation.

LITERATURE REVIEW

The scholarship of pre-medical students primarily focuses on coursework, academic culture, and stress, among other topics. While there is growing data on students historically underrepresented in medicine, there is limited knowledge on FGLI pre-medical students specifically. This review will focus on the PMP as a discriminatory process due to capital disparities and current models of institutional resources.

The Pre-Medical Pathway as a Discriminatory Process

Medical schools have attempted to make the admissions process more equitable by engaging in a holistic review of applicants or quantifying their hardships through "distance traveled." The AAMC defines holistic review as considering an applicant's experiences, attributes, and metrics and how they will contribute value as a medical student and future physician in the context of their life circumstances. However, each institution decides how to

implement it, if at all. The AAMC offers rudimentary guidelines, but ultimately, institutions view applicants through a unique lens. "Distance traveled" refers to obstacles an applicant has faced and successfully overcome to assist admissions committees in viewing their journey and how it aligns with the school's mission. Like the holistic review, these ideas are only a mere suggestion, and there is no requirement for schools to comply (Association of American Medical Colleges, 2021a).

Despite the steps taken to achieve diverse student bodies, the PMP still maintains its discriminatory design – its structure discriminates against those with less financial, social, cultural, and (extra)curricular capital.

Financial Capital

The lack of economic diversity in medical schools perpetuates the narrative that becoming a physician is only for the wealthy. In 2023, 29.5% of matriculants reported a parental income of less than \$100,000, with the median income being \$150,000. 29.1% of matriculants reported a parental income of \$250,000 or more. 70.5% also reported having no outstanding educational loans from pre-medical education (AAMC MSQ, 2023). With most students coming from high-income households, economic capital plays a vital role in a student's ability to complete pre-medical coursework and matriculate into medical school.

Two considerable financial commitments of the PMP are the Medical College Admission Test (MCAT) and application fees. The test costs \$335, but there are extra fees for changing test dates or locations. Rescheduling the test can cost anywhere from \$50 to \$200, and most students misjudge the time needed to prepare (Association of American Medical Colleges, 2021a; Michalec & Hafferty, 2023). MCAT preparation materials are another cost-prohibitive barrier. Students can buy practice tests, question banks, review books, or even 1-on-1 tutoring sessions.

Practice tests are typically \$40 per exam, books can cost \$120 to \$250, question banks \$50 to \$70 a month, and private tutoring is \$2,000 or more (Michalec & Hafferty, 2023).

The AAMC will charge \$175 for the first school and \$45 for each subsequent school during the 2024 to 2025 admissions cycle. That cost does not include secondary applications, which vary by institution. Matriculants in 2023 sent a median of 19 secondary applications and spent \$1,500 (AAMC MSQ, 2023). Thus, in the application process alone, students can expect to allocate \$3,000 or more. These costs disproportionately impact FGLI students by controlling how many schools they can apply to and whether they accumulate debt or take extra gap years.

Some students are eligible for the Fee Assistance Program (FAP), which provides financial assistance to low-income applicants. The FAP reduces MCAT costs, waives primary application fees for up to 20 schools, and offers free MCAT study materials. Unfortunately, the FAP is not a fix-all – there are still students who do not qualify that cannot afford the costly application cycle. Applying to the FAP requires W-2s, college financial aid information, housing and food assistance information, and parental tax documents. Many students refrain from applying due to its complexity or that having FAP status can cost them their candidacy (Millo et al., 2019). Making low-income applicants jump through additional hoops does not level the playing field; instead, it reemphasizes the discriminatory design and message that medical education is reserved for the wealthy.

Social and Cultural Capital

Pre-meds with higher social and cultural capital (i.e., doctors in the family, wide social networks) can navigate capital-related "costs" better than their peers. Understanding the hidden curriculum – lessons, values, and influences learned that are not explicitly taught, and using social contacts for advice, information, and emotional support is vital to checking the boxes on

the PMP (Hafferty, 1998). Tailoring applications to each medical school's mission and deciphering what they value in an applicant is an inherited, nuanced skill. This gatekeeping results in "information-based disparities," influencing whether students can land opportunities like shadowing or research and ultimately stay on the PMP (Michalec & Hafferty, 2023).

Higher education institutions struggle to retain FGLI trainees on the PMP. The culture of medicine does not value FGLI experiences; therefore, there is limited representation and mentorship for younger trainees to take advantage of (Cha et al., 2023). FGLI students have low expectations forced upon them before beginning college – othering them. For pre-meds, involuntary social disconnection normalizes and enhances information-based disparities (Means & Pyne, 2017; Sims et al., 2023). FGLI pre-meds are more likely to face class-based discrimination and career dissuasion from professors or advisors (Grace, 2017). In contrast, pre-meds with positive relationships with professors or mentors had a higher sense of social belonging (Means & Pyne, 2017).

Another form of social struggle is balancing pre-medical culture with intersecting social identities and what values come with each one. Many FGLI students reject the all-consuming nature of the pre-med social landscape because of the cultural mismatch between academia and their beliefs (Sims et al., 2023). FGLI students' backgrounds alter their ability to comfortably engage in pre-med social circles where social and cultural capital exchanges occur. Thus, FGLI students take a solitary approach when applying to medical school.

(Extra)curricular Capital

Michalec and Hafferty introduce a new form of capital specific to the PMP: extra(curricular) capital. Extra(curricular) capital refers to particular majors or minors, research experience, shadowing, or volunteering experiences carrying more "worth" in the eyes of

medical school admissions committees. They argue that having extra(curricular) capital requires decoding what medical schools *actually* want and acquiring said attributes (Michalec & Hafferty, 2023).

The struggles are not immune to outside-of-class experiences. FGLI medical school applicants were more likely to work non-clinical, paid jobs. Working through school is not a new phenomenon; however, balancing that on top of academics, MCAT studying, shadowing, research, and volunteering is a lofty ask. Many students must sacrifice extracurriculars or studying to ensure they can eat and pay rent. Applicants who worked non-clinical jobs had lower MCAT scores and less research experience and, therefore, were less likely to be accepted to medical school (Mason et al., 2022). Admissions committees are sending a message that FGLI experiences are not valuable, highlighting the discriminatory design.

Institutional Resources for Students

Universities obligate themselves to supply their students with resources such as advising, help with coursework, and mentorship opportunities. These resources are crucial for students to succeed through the pre-medical era of their coursework.

Advising

Bynum coins pre-medical advisors (PMAs) as "admissions powerbrokers" because they influence a student's decision to apply to medical school. The study also found that PMAs triggered shame and destabilization, more so in FGLI students. Shame can come from performance-based self-esteem, past traumas, or negative experiences as a minoritized student. During advising sessions, students reported feeling alienated or that their intelligence was not up to par since PMAs focused so heavily on grades and singular metrics. Despite the AAMC promoting the holistic review, it has not trickled down to undergraduate advising. FG students

were more likely to be dissuaded by PMAs with phrases like "you're wasting your time" or "no first-gen makes it this far" (Bynum et al., 2023). PMAs reinforce negative experiences FGLI students have inside or outside the classroom instead of helping them redirect or find solutions to promote success. Such adverse experiences with PMAs lead to less resource utilization by FGLI students and increased attrition (Barr et al., 2008).

Student Success Initiatives

It is routine across all universities to have programs specifically dedicated to helping students with coursework. FGLI pre-meds are at higher risks of attrition and achievement gaps during their undergraduate coursework. Students are more likely to "lose interest" in medicine after taking weed-out courses like chemistry or biology (Barr et al., 2008). The intimidating nature of large lecture classrooms impairs academic performance and reduces self-esteem, especially when students feel unprepared by their high school education. The assumption from undergraduate institutions that all first years come with similar levels of knowledge further others FGLI students, so they are more hesitant to utilize resources like office hours or peer tutoring services (Harackiewicz et al., 2014; Means & Pyne, 2017).

When students withdraw from or fail a course, it makes them doubt whether medicine is a feasible career for them. Weed-out success is not equitably distributed and favors students who can use their social and cultural capital to ask for help (Barr et al., 2010). Culture mediates whether a student will utilize out-of-class resources. Historically Black Colleges and Universities (HBCUs) have found success in peer-led student tutoring and professor-led drill sessions. Students with similar cultural and social standings feel more comfortable seeking help from their peers. The same can be said for professors as well; students seeing themselves represented in an

academic setting signals that they are capable and a worthy audience to support (Gasman et al., 2017).

Mentorship and Representation

HBCUs have a significant reputation for successfully producing doctors. Cultural concordance promotes mentorship and a supportive academic environment, preventing the predominant reasons for Black pre-medical attrition. The HBCU Medical School Effect explains HBCU's impact on the growing number of Black chairs, faculty, and medical students (Gasman et al., 2017). Students are more likely to seek advice and ask for help when both parties are on the same cultural standing and can empathize with each other's experiences. Some parent medical schools have partnered with their undergraduate institution in the White Coat for Black Lives Mentorship Program. Students are paired with race-concordant mentors and attend skills-building seminars with an antiracist framework. Students also received individualized advising for their medical school application. Before the program, students were most concerned about MCAT scores, lack of faculty mentorship, and financial constraints. Most improvements were in personal statement writing, peer mentorship, and medical school application process knowledge. Mentors also performed a needs assessment to understand better what students were struggling with and actively participated in program improvements. Racial concordance and shared experiences were essential to the program's success and students' increase in confidence (Rinderknecht, 2023).

METHODS

Selection of Study Participants

The current study focuses on first-year pre-medical students at a public, predominately White research institution in the Northeast that will be referred to as East Coast College. Students were e-mailed through a list from the institution's pre-medical advising office. The initial study population included 213 first-year students. The study sample included 15 first-year students who desire to pursue an MD or DO degree post-baccalaureate. The descriptive statistics of the study participants are in Table 1. The sample was predominantly female (86.7%) and Asian (46.7%). About 20% of participants identified as White, 20% as Black, and 13.3% as Latinx. 46.7% of participants identified as a First-Generation college student.

Semi-Structured Interviews

Participants completed semi-structured interviews lasting 25-40 minutes concerning their current understanding of the pre-medical track, institutional resources available to them, the medical school application process, and how their identities present challenges to their desired careers. Interviewees signed consent forms, agreed to be recorded, and were given a \$20 Amazon gift card for their participation.

Qualitative Analysis

The transcripts were analyzed with Dedoose Software and coded to note reoccurring themes. Demographic data were collected before each interview.

Table 1. Summary of Descriptive Statistics**N = 15**

Demographic Variable	Count
Gender	
Male	2
Female	13
Race	
White	3
Black	3
Asian	7
Latinx	2
Parental Income	
<\$54,999	1
\$55,000-89,999	6
\$90,000-148,000	6
>\$148,999	2
Highest Level of Parental Education	
Middle School	1
High School	2
Some College	2
College	3
Masters, PhD, or Professional School	7
First Generation Student	
Yes	7
No	8

FINDINGS

There are three main findings surrounding anticipatory stress, social support, and institutional resources. First, FGLI students had increased anticipatory stress and confusion about completing pre-medical coursework and the medical school application process. Second, a student's capital affected how much social and informational support they garnered from friends and family. FGLI students lacked social and cultural capital valued by medical schools and, therefore, had less social and informational support. Lastly, East Coast College does not provide sufficient academic and social resources to prevent FGLI from attrition.

Confusion and Anticipatory Stress

All students interviewed exhibited some form of stress – but the stress was not equally distributed. Students' proximity to higher education and status influenced their attitudes about the PMP. For example, Kate is a high-income continuing generation (CG) student; when asked what concerns her the most about becoming a doctor:

Honestly, grades. I'm worried about that because my mom has a PhD, but hers is in sociology or something, so not medical-related...I'm nervous about the family life balance because I do want to have a family pretty young and I don't want to wait until I'm in my late 30s or early 40s to have family, but I know it's really hard to do that.

Kate does not linger on any stresses about being pre-med and focuses on what she might experience once she is a fully-fledged doctor. Even though her mother's degree is not medically related, her closeness and knowledge of academia put her at an advantage.

Conversely, Miranda, a middle-income FG student, has other concerns:

[I'm concerned about] the whole MCAT situation. The grades, the overall process to apply to medical school is a little nerve wracking because right now my transition into college was a little rough. So, I wish there were more resources that would ease those concerns at a freshman and sophomore level because right now I feel like all the

resources are very helpful towards the juniors and seniors who are going through the process. Well, freshmen and sophomores were just completely confused.

Miranda is much more preoccupied with succeeding in the short term and doubts her ability to ever be in the position to apply to medical school. Several students across all classes and generational statuses echoed her wish for more underclassmen-focused resources. Being the first in her family to go to college left her needing guidance on becoming a pre-med student. Her multi-faceted stress about the unknown shows that East Coast College is not equitably distributing information and resources. This contradicts the information from a PMA at East Coast College, which claims that first-year advisors reach students early to establish relationships and answer questions. Some students will always slip through the cracks, but at the time of the interview, most students had not attended an advising session or utilized any resources.

Similarly, Brianna, a FGLI student, shares many of the same sentiments as Miranda:

Oh my gosh, not getting into med school, crazy! Again, I'm super grateful that my experience with academics, at least, I don't think I've ever been anything lower than top 15 ever, and I don't think I've ever had a B ever until I hit college. Now that I'm at a school, that's somewhat competitive, it's people who are me times 10,000. So, it's kind of hard to deal with multiple versions of myself basically is what it is.

Brianna is suffering from imposter syndrome. Students across all statuses will eventually tackle imposter syndrome, but FGLI students are more likely to doubt their abilities and belongingness (Barr et al., 2010; Cha et al., 2023). Despite the disparities in information and resources that are out of her control, she still places lofty expectations of herself.

Non-FGLI students were worried about the long-term rather than the immediate future.

Aaron, a high-income CG student, said:

I would say it's just accurately diagnosing some people is probably what I'm most concerned about right now. Hopefully, this won't be a big concern when I am a pediatrician or when I am a physician, but right now just providing accurate information,

but also being able to convey that information to the best of my ability [is the biggest concern right now].

Aaron's concerns bypass any pre-med woes and jump straight to thinking like a physician.

Among high SES and CG pre-meds, students with "doctor mindsets" were more prevalent. They have no doubt their abilities will lead them to success, and struggling to afford education-related costs is not on their radar. These findings point to stress disparities based on a student's FGLI status.

Capital Influences Social and Academic Support

Like stress, academic and social support was not equally distributed among students. Students with social connections to medicine were more versed in understanding the hidden curriculum and confident about the application process. Take Beth (non-FGLI student), for example; she was asked who she goes to when she needs support or advice about the PMP:

I guess, my uncle he's a pediatric cardiologist...So I've been talking to him a little bit more and then I'll probably end up talking to my older cousin who just became a pediatrician, and people in the family.

Beth's family connections give her an advantage. She has direct access to shadowing opportunities, personalized advice, and other doctors that her cousin and uncle know. Her nonchalant attitude signals confidence in pursuing medicine.

In contrast, Brianna gives more insight into the origin of her high expectations: My parents have put so much effort and emphasis on education because I'm already the first one, I can't afford to lose. I can't afford to settle. Literally, I can't afford to lose. And that's why I think I feel so much pressure doing pre-med. Because it's like, "Well, if I drop out and then I do something else, did I just lose all that time and effort and money and respect?" It's my pride.

The stakes are high for FGLI students. Most FGLI students interviewed had immigrant parents who came to America to give their children better educational and career opportunities. They are straddling between two cultures and feel pressured to commit to both. Many first-generation

American students had similar sentiments about feeling pressure to become high earners as an homage to their parents' sacrifices. Despite the high stakes, Brianna has no connections to anyone in the medical field, and it is up to her to build up her skills and connections from scratch. The pressure weighs heavily on her shoulders as she ends with: "I'm probably going to be crying every day though, for the next eight years."

CG and high-income students were excited to see how the PMP would push their intellectual limits. Sarah shares her excitement about chemistry despite its weed-out reputation:

Everyone complains about certain things in chem. I'm like, "Well, I love it." Everyone's complaining about orgo. I'm like, "Well, maybe there'll be something I like there." I'm so excited to do higher level chem and that just comes easy to me.

It is no secret that organic chemistry is the bane of every pre-medical student's coursework.

Sarah's enthusiasm evades any concern about what could happen if organic chemistry does not go according to plan or if she decides medicine is not for her. She is not pressured to have a certain income or occupation but is encouraged to explore intellectual endeavors.

Richard, an FGLI student, explains how he does not "come from a family that's very, very into the medical field":

My father was a high school teacher and my mother was a nurse, but back in Japan, so she couldn't really take her skills to America. So, I wasn't really raised with a medical background. My family was reasonably, being a doctor is a very, very hard thing. Not everyone makes it, so they were just, reasonably, that logically, by statistics, that's not likely.

Like Brianna, Richard's story is influenced by his mother's immigration to America. Medicine is undoubtedly a risky career for FGLI students; with slim acceptance rates, inevitable debt, and prolonged training periods, it is understandable parents have reservations. Richard and his parents know that not having family in the medical field is a setback that hurts his chances of matriculation. He is still determined to try his best while navigating the unknown. He later

describes how he and other FG pre-meds banded together to gather information and help each other succeed. Most FGLI students reported relying on other peers or upper-level students for informational and social support.

Insufficient Academic Resources for FGLI Students

Academic resources, like advising, are vital to help students reach their full potential. Pre-medical students rely on PMAs for guidance and to vouch for their candidacy—students' experiences with East Coast College's pre-medical advising varied by their income and generational status.

As aforementioned, most interviewees had yet to connect with a PMA, but Olivia doubts her advisor's credibility:

[I would say] making sure that I am going to be advised correctly. There's many cases where advisement is recommended, like, "Oh, go to your advisor. Make sure that you discuss your requirements for graduation." I feel like also that's you, that you should be following your requirements, but I feel like one kind of trusts them in the sense of like, "Oh, what do you think I should do this?" Like a second opinion. People make mistakes and everything, but I'm definitely scared that I'm doing everything right and then at the end of the day, my last semester, I'm missing certain classes.

Olivia is an FGLI student and credits her Hispanic heritage as the motivation for pursuing medicine. She does not mention that she is an FG student in her advising sessions because "I feel like if I were to mention it, some things do change." Knowing there is little Hispanic physician representation, "[I feel like sometimes] I do have to hold that back because there's this sense of like, oh, you can't do that. You can't reach that opportunity because you're first generation." This rhetoric from advising devastates FGLI students' confidence and makes them less likely to utilize institutional resources (Barr et al., 2008; Bynum et al., 2023).

First-year students at East Coast College enroll in a First-Year Seminar class during their Fall semester. Students are organized by their college or program, which helps orient them to

campus. Learning objectives include planning class schedules, resume building, and more. Stella, an FGLI student, answers where she learns what she needs for a successful medical school application:

I mean, I guess somewhat the seminar, but I feel like not enough from it. I feel like a lot of it is more like what I research on my own or using, we have flow charts on our first year advising Canvas page ... I follow someone on YouTube and she just explains her pre-med, well, she is a resident now, but she talks about her pre-med experience... So I first use her, and then I really just go under, I Google a lot of stuff and I just literally, I will read and compare every source that I can find just to figure out what's overlapping, make sure everything seems right. I don't know.

Stella does not feel confident in the information from her seminar class. The class raises more questions than answers, and she is unsure what her next steps should be. Several other students cited forum websites like Reddit or Student Doctor Network to get information and “med influencers” on YouTube or Instagram. PMAs are powerbrokers as well as gatekeepers of information. The rise in pre-med-related social media content has made such information more accessible and authentic. Most PMAs have not applied to medical schools, so “med influencers” show what is *actually* happening behind the scenes.

East Coast College’s website for pre-medical advising does not mention specific resources or mentorship opportunities for FG or low-income pre-med students. The information on their website and Canvas page pushes the responsibility of seeking opportunities onto students, which can be overwhelming and confusing. There is also no mention of how to cold email professors or doctors, what specific experiences medical schools are looking for, or how many volunteer hours make a competitive candidate. Richard recounts his disappointing interaction with a PMA:

[East Coast College pre-medical advising] actually was really sucky, I thought. At least I've been told first year [advising] is, because they don't know who's going to make it. But they also just, instead of weeding people out, they just burn the whole field. They really don't seem like they trust you. So, it was really devastating for me to just go to the

person. They were like, very, very basic rudimentary information that you could Google. And then they were like, "Oh yeah, just come talk to me next semester." I just felt like that was pretty useless... I hate to say, anyone could tell you this. If you talked to a pre-med for five minutes, you'd have all the information they gave me in 30...It sounded like talking to a government agent who couldn't disclose information. I would get to somewhere where I'd kind of feel like I'd cornered them and they just give me a blank answer with no reasonable rebuttal. As I said, the volunteering hours, they were like, oh yeah, you go figure it out...But I figured, I'm coming to you because you're qualified. You should know this.

Richard's experience is a prime example of a PMA gatekeeping information. East Coast College's advising uses an equality instead of an equity approach. Treating all students the same inevitably overlooks FGLI students and their unique needs. Having specific advising and opportunities for FGLI students is not an exclusionary measure; instead, it evens the playing field. Every student should have the right to good quality advising. However, this neoliberal-esque "figure it out yourself" or "Google is your best friend!" approach exacerbates information and capital disparities.

DISCUSSION

After hearing students' stories, I realized there are three areas in which the university can improve: advising, mentoring, and student success in coursework. Implementing an equity instead of equality mindset into pre-medial advising will better support FGLI students. Tailoring advising sessions to integrate students' identities and cultures can help address pre-medical attrition at the root (Selzer 2014). Many interviewees had extremely disappointing interactions with East Coast College's pre-medical advising. As informed by Bynum's work, PMAs triggered shame and destabilization when students attempted to establish a connection and sought advice on rudimentary pre-med knowledge. PMAs also perpetuated the discriminatory design of the PMP by gatekeeping information or suggesting Google answer all their questions. The current structure of East Coast College's pre-medical advising allocates one advisor per class (e.g., first-

year advisor, second-year advisor, etc.), which is not sustainable. This model favors students with greater cultural capital who *know* the importance of establishing a relationship with their PMA and the implications it will have for their medical school candidacy. Investing in more advisors will alleviate the current scheduling restraints and lead to more thorough, customized advising. Many future physicians have very personal and vulnerable reasons for pursuing their careers; a better relationship and understanding of a student's story will foster a trustworthy environment and depict PMAs as allies, not opponents.

East Coast College lacks any mentorship programs with its affiliated medical school. The literature regarding such programs overwhelmingly reiterates the positive impacts on students' self-esteem, confidence in navigating the PMP, and security in minoritized folks pursuing medicine (Rinderknecht, 2023; Romero et al., 2020). East Coast College boasts its increasingly diverse student body but neglects to ensure they can succeed once admitted. The College is missing out on an excellent opportunity for medical and pre-medical students by not taking advantage of their proximity. Racial and class representation plays a vital role in FGLI students' belief that they are capable and worthy of becoming doctors. The College's biology department's teaching faculty consists of a majority of White and East Asian men with minimal women overall, none Black or Hispanic. Increasing faculty diversity will help develop identity-concordant mentorship and push more FGLI students into medicine.

As aforementioned, FGLI students are more susceptible to achievement gaps when transitioning from high school to college. East Coast College is no exception, and many interviewees cited their transition as an area of stress, making them doubt their intellectual capabilities. Gasman retells how HBCUs' reputation for producing doctors is tied to their novel approaches to student success in and out of the classroom. Xavier University of Louisiana uses a

peer and instructor-led drill system specifically for general and organic chemistry that helps retain pre-med students from being “weeded out.” Prairie View A&M University improved pre-med retention through the Premedical Concepts Institute – a ten-week summer program for incoming first-year students interested in pursuing medical careers. The program prepares students for upcoming coursework and connects them to mentors, research professors, and physicians. East Coast College has peer teaching assistants for large introductory classes to help students struggling with class content. The College lacks formal programs *specifically* for challenging introductory classes that prey on unprepared first-years.

Undergraduate and medical education institutes have made some progress with diversity initiatives to promote health equity for minoritized patients. Studies quantitatively comparing FGLI patient outcomes are lacking. Still, public health experts suggest that a diverse workforce would improve the overall quality of care by increasing patient satisfaction, improving patient-provider relationships through enhanced cultural competency, expanding minoritized folks' access to healthcare, and increasing utilization (LaVeist & Pierre, 2014). Doctors from minoritized backgrounds have better cultural competency skills, and their patients report increased communication and positive perceptions of the care they or their family members receive (Romero et al., 2020). According to medical institutions, the most important rationales for prioritizing diversity are service commitments (underserved serving the underserved), patient-provider relationships, and the educational benefit to *all* learners (Kelly-Blake et al., 2018).

Many of the rationales mentioned risk perpetuating the "minority tax" – burdening already disadvantaged folks with representing a social group while educating others (Cha et al., 2023). In his case study of an FGLI, Indigenous, and Latinx medical student wanting to pursue a

competitive specialty, Michalec found that FGLI students have an unfair set of expectations to serve their communities. The student's friends assumed she would work with underserved populations because of her cultural competency skills and passion for social justice. FGLI trainees have taken the responsibility of caring for the underserved or "returning home" to strengthen healthcare resources in their community. He calls these students "indentured activists," where they can only repay their debt by meeting the gender, ethnic, racial, or class stereotypes. In turn, the burden of expectation limits trainees in what specialties they can pursue and their self-determination (Michalec et al., 2017).

CONCLUSION

The analysis of FGLI students' experiences confirms that undergraduate institutions perpetuate the PMP's discriminatory design at their expense. Universities should implement changes to advising, identity-concordant mentorship programs, and resources to mitigate achievement gaps in introductory science courses. These changes will strengthen FGLI students' chances of matriculation and ultimately diversify the physician population. Medical education institutions should ensure that diversity initiatives and expectations of marginalized trainees do not further burden them.

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