The Association between Undergraduate HBCU Training and US Medical Students' Intention to Practice in Underserved Communities

Abstract

This study explores the association between undergraduate attendance at Historically Black Colleges and Universities (HBCUs) and the intention of U.S. medical students to practice in medically underserved areas (MUAs). Despite comprising only 9% of the U.S. physician workforce, rural communities, particularly those defined as MUAs, face significant healthcare access barriers.[1,2] Existing research suggests that physician race and ethnicity are crucial factors influencing medical practice in underserved communities.[6] This study investigates whether attending an HBCU influences medical students' intent to work in these areas, especially among Black and African American students, who are underrepresented in the medical profession. Utilizing data from the Association of American Medical Colleges, this research analyzes responses from 115,297 medical students who completed both the Matriculating Student Questionnaire and the Graduation Questionnaire from 2015 to 2022. Descriptive statistics, chi-square tests, and logistic regression models were used to examine the relationship between HBCU attendance and intention to practice in MUAs while adjusting for demographic and academic variables. The results indicate that HBCU graduates had significantly higher odds of intending to work in underserved areas, with Black/African American students showing a stronger intention to practice in MUAs than their non-HBCU counterparts. These findings underscore the role of HBCUs in shaping medical students' career intentions and suggest that targeted policies supporting HBCUs could help address physician shortages in underserved regions. Further research is needed to investigate the long-term career outcomes of HBCU graduates and the role of medical education in fostering workforce diversity.

Introduction

In the United States, individuals living in rural areas often have limited access to primary care and face significant barriers to receiving safe and equitable healthcare.[1] Even though approximately 20% of the U.S. population resides in rural communities, only 9% of physicians practice in these regions, leading to a shortage of healthcare professionals.[2] These communities that experience limited healthcare access due to socioeconomic disadvantages are defined as medically underserved areas (MUAs).[3] Compared to urban areas, rural MUAs face challenges such as higher rates of preventable diseases and poorer health outcomes (1). They are also non homogeneous as about 22% of the rural U.S. population identifies as racial or ethnic minorities.[4] This demographic diversity highlights the need for having a representative physician workforce and begs the question of who actually serves these medically underserved communities.

According to the Association of American Medical Colleges (AAMC), as of 2018, only 23.1% of individuals who completed their residency between 2008 and 2017 were practicing in MUAs.[5] Many factors contributed to this small margin including physician characteristics, financial factors, medical school curricula/programs, and graduate medical education programs.[6] One of the most impactful characteristics of these was physician race and ethnicity.[6] A study by Bach et al. found that Black physicians treating Black patients were significantly more likely than white physicians to be practicing in lower-income neighborhoods.[6] Additionally, visits by Black patients were far more likely to be with Black physicians compared to visits by white patients.[6] This reinforces the importance of physician diversity in addressing healthcare inequities in underserved communities. To strengthen this workforce, one targeted approach is to examine the educational pipeline of how medical training shapes physicians' early intentions to serve in these areas.

A key stage in the educational pipeline is at the undergraduate level and for many Black students, that means attending a Historically Black College or University (HBCU). According to the U.S. Department of Education and The Higher Education Act of 1965, HBCUs are defined as "…any historically black college or university that was established prior to 1964, whose principal mission was and is, the education of Black Americans…"[7] HBCUs play an important role in reducing the underrepresentation of African American students, particularly in science-related professions.[8] In fact, the National Science Foundation found that African American science majors graduating from HBCUs are more likely to pursue and complete doctoral degrees than their counterparts from non-HBCU institutions.[8] With generations of families attending these institutions, African American students at HBCUs are constantly surrounded by success, which enhances their retention and persistence in higher education and professional fields.[9] This relationship between undergraduate HBCU training and the production of Black doctors suggests that these institutions may foster a deeper motivation to pursue medicine and serve underserved communities.

Lastly, in considering demographic characteristics, members of racial and ethnic minorities are more likely to reside in rural areas compared to the White population.[10] As a result, Black and Hispanic physicians are more likely to serve in underserved urban and rural areas with higher populations of individuals from their own racial or ethnic backgrounds.[11] Even at the student level, Black or African American students had higher odds for intent to practice in an underserved area compared to other races and ethnicities including American Indian or Alaska Native, Hispanic, Latino, or of Spanish origin, and Native Hawaiina or Other Pacific Islander.[12] Given these associations between race and practicing in underserved areas, as well as connections between HBCU training and general medical school interest, more analysis is

needed to investigate how HBCU undergraduate training can influence intention to practice in MUAs after medical school.

The goal of this study is to examine the association between undergraduate HBCU attendance and the intention to practice in medically underserved areas among U.S. medical students, both overall and specifically among those who identify as Black or African American. It is hypothesized that U.S. medical students, especially those who identify as Black or African American, who attended HBCUs will demonstrate a higher intention to work in underserved areas compared to those from non-HBCUs. Statistical analysis will be conducted using data from the AAMC Matriculating Student Questionnaire and Graduation Questionnaire to assess this relationship, adjusting for demographic characteristics including sex, self-identification as Black or African American, cumulative undergraduate GPA, and total MCAT score.

Methods

Study Design and Data Source

The dataset used in this study was provided by the AAMC containing data from the Graduate Questionnaire (GQ) and the Matriculating Student Questionnaire (MSQ) spanning from 1980 to 2022. The GQ, administered annually by the AAMC since 1978, collects self-reported data from graduating medical students on their education, experiences, financial aid, mistreatment, and career intentions, including plans to practice in MUAs.[13] The MSQ, administered to anyone who has been accepted to at least one M.D.-granting medical school in the U.S., provides information about their pre-medical experiences, academic backgrounds, and career aspirations.[14] Individual data were linked between both surveys using a unique de-identified variable based on their AAMC_ID. The merged dataset enables longitudinal analyses linking students' pre-medical characteristics with their medical school experiences and career intentions.

As the MCAT was significantly revised in April 2015, the study focuses on data from 2015 onward. Additionally, GQ participant eligibility and response inclusion criteria were modified in 2012 which affected data structure and availability. Given these considerations, 2015 was selected as the starting point for a consistent analysis.

Study Sample

The study sample consists of medical students who completed both the AAMC MSQ upon matriculation and the GQ upon graduation between 2015 and 2022. This allows for an analysis of longitudinal trends in career intentions. Data from students who reported attending an HBCU for their undergraduate education were compared with those from non-HBCU institutions. The primary outcome of interest was students' intention to practice in medically underserved areas, as reported in their MSQ questionnaire.

Key demographic characteristics of sex, self-identification as Black or African American, cumulative undergraduate GPA, and MCAT score were included in the analysis. These variables were selected based on their relevance in prior research on medical education and workforce diversity.[5-12]

Variables

- **Independent Variable:** HBCU attendance, categorized as HBCU or non-HBCU.
- **Dependent Variable:** Intention to practice in an underserved area, categorized as "Yes," "No," or "Undecided." For logistic regression analysis, "No" and "Undecided" were grouped together.

- **Covariates:**
    - **Sex:** Male (M) or Female (F).
    - **Respondents Self-Identify as Black or African American:** Yes(1) or No (0).
    - **GPA:** Cumulative undergraduate GPA (ranging from 0.0 to 4.0) at the time of medical school application.
    - **MCAT Score:** Total MCAT score (ranging from 472 to 528) using the post-2015 scoring system.

Data Preparation and Cleaning

The dataset was provided in Stata (.dta) format and imported into SAS for analysis. Several preprocessing steps were performed to ensure the dataset was suitable for analysis:

- Filtering by Year: Only records from 2015 onward were retained due to changes in MCAT scoring and survey methodology in 2015
- Handling Missing Data:
    - Missing Values for Key Variables: Records with missing values for intention to practice in underserved areas, HBCU attendance, and self-identification as Black/African American were excluded.
    - Invalid Values for Demographic Variables: Records with invalid values for sex (having a "Z" code representing unknown gender identity instead of "M" or "F" code) were removed.
- Recoding Variables:
    - Race Categories: Race data were coded into more interpretable categories based on the identification of specific racial or ethnic groups. Categories included Asian, Black, Hispanic, American Indian/Alaska Native, Pacific Islander, and White. Any records that did not match these categories were classified as "Other."
    - Intention to Practice in Underserved Areas: The intention to practice in underserved areas was coded into two categories for logistic regression analysis.

Statistical Analysis

Descriptive statistics were computed to summarize the characteristics of the study sample (N = 115,297). Frequency distributions were calculated for categorical variables, including race, sex, HBCU attendance, intention to practice in underserved areas, and preferred work setting. For continuous variables, summary statistics such as mean and standard deviation were computed for GPA and MCAT scores.

A chi-square test was conducted to examine the association between HBCU attendance and students' intention to practice in underserved areas. Cross-tabulations of these variables were presented to illustrate the distribution of responses.

Unadjusted logistic regression models were employed to evaluate the relationship between intention to practice in underserved areas and individual predictors, including HBCU attendance, sex, Black/African American racial identity, cumulative GPA, and MCAT score. Odds ratios with 95% confidence intervals were reported for each model. Fully adjusted logistic regression models were also constructed to evaluate whether HBCU attendance remained a significant predictor after adjusting for relevant covariates. These models were run separately for all U.S. medical students and then only students who identified as Black/African American.

All statistical analyses were performed using SAS software (version 9.4)[15], with a significance level of 0.05.

Results

Sample Size

Out of the 1,717,951 respondents in the initial dataset, 1,602,654 were excluded due to missing or ineligible data. This resulted in a final analytic sample of 115,297 participants.

Table 1. *Descriptive Statistics Table by Frequency (%) for Students Intending to Practice in MUAs (N = 37313) vs. Students Undecided or not Intending to Practice in MUAs (N = 77984)*

Variable	Frequency (%)	
	Yes Intention	**No/Undecided Intention**
Race		
White	19,419 (*52.04%*)	50,640 (*64.94%*)
Asian	6685 (*17.92%*)	18,269 (*23.43%*)
Black	5701 (*15.28%*)	3239 (*4.15%*)
Hispanic	4345 (*11.64%*)	4199 (*5.38%*)
American Indian/Alaska Native	238 (*0.64%*)	147 (*0.19%*)
Pacific Islander	143 (*0.38%*)	132 (*0.17%*)
Other	782 (*2.10%*)	1358 (*1.74%*)
Sex		
Male	14,282 (*38.28%*)	39,211 (*50.28%*)
Female	23,031 (61.72%)	38,773 (49.72%)
Does the applicant self-identify as Black or African American?		
Yes	6401 (*17.15%*)	3936 (*5.05%*)
No	30,912 (*82.85%*)	74048 (*94.95%*)
Did the applicant attend an undergraduate HBCU?		
Yes	800 (*2.14%*)	287 (*0.37%*)
No	13,800 (*97.86%*)	77,697 (*99.63%*)
Preferred Work Setting		
Metropolitan City (Pop.	2599 (*36.98%*)	26,229 (*33.63%*)

500,000+)		
Suburban Area (Large City)	5939 (*6.97%*)	13,381 (*17.16%*)
Urban Area (Pop. 50,000-500,000)	1429 (*15.92%*)	17,102 (*21.93%*)
Suburban Area (Medium City)	2703 (*3.83%*)	5598 (*7.18%*)
Small Urban Area (Pop. 10,000-50,000)	2703(*7.24%*)	2607 (*3.34%*)
Town Area (Pop. 2,500-10,000)	1759 (*4.71%*)	740 (*0.95%*)
Small Town Area (Pop. <2,500)	1029 (*2.76%*)	164 (*0.21%*)
Rural/Agricultural Region	2036 (*5.46%*)	143 (*0.18%*)
No Decision/Unstated Preference	6019 (*16.13%*)	12,020 (*15.41%*)

Table 1 presents descriptive statistics comparing students who indicated an intention to practice in MUAs to those who were either undecided or not intending to do so. Among students intending to practice in MUAs, the proportion of Black students (15.28%) was nearly four times that of students without this intention (4.15%). Similarly, Hispanic students were more represented among the intending group (11.64%) compared to those undecided or not intending to serve in MUAs (5.38%). In contrast, White and Asian students made up a larger proportion of those without intentions to work in underserved areas (64.94% and 23.43%, respectively) than those with such intentions (52.04% and 17.92%).

Self-identification as Black or African American was notably higher among students intending to work in MUAs (17.15%) compared to their counterparts (5.05%). Additionally, students with intentions to serve in MUAs were more likely to have attended an HBCU (2.14%) than those without this intention (0.37%). Gender differences were also apparent as females constituted a larger share of students intending to work in underserved areas (61.72%) compared to those not intending or undecided (49.72%). Conversely, males were more prevalent in the no/undecided group (50.28%) than in the intending group (38.28%).

Regarding preferred work settings, students intending to work in MUAs were more likely to favor rural and lower-population areas. For example, 5.46% of intending students preferred rural/agricultural regions while only 0.18% of those without such intentions preferred the same work setting. Similarly, a larger share of intending students preferred town areas (populations under 10,000) with 4.71% favoring towns of 2,500–10,000 and 2.76% favoring populations under 2,500. This was compared to 0.95% favoring towns of 2,500–10,000 and 0.21% favoring populations under 2,500 among those not intending or undecided. In contrast, students not intending or undecided were more likely to prefer suburban and urban settings. This included

large suburban areas (17.16% with intentions vs. 6.97% without intentions) and mid-sized urban areas (21.93% with intentions vs. 15.92% without intentions).

Overall, the data suggests that students who intended to work in underserved areas tended to come from more racially diverse backgrounds, were more likely to be female, and were more open to working in rural or smaller communities.

Table 2. *Summary Statistics Table by Mean (SD) for Students Intending to Practice in MUAs (N = 37313) vs. Students Undecided or not Intending to Practice in MUAs (N = 77984)*

Variable	**Mean (SD)**	
	Yes Intention	**No/Undecided Intention**
Cumulative Undergraduate GPA (0.0 to 4.0)	3.66 (*0.283*)	3.73 (*0.242*)
Total MCAT Score (472 to 528)	508 (7)	511 (7)

Table 2 provides summary statistics for cumulative undergraduate GPA and total MCAT scores, comparing students who intended to practice in MUAs with those who were undecided or did not intend to do so. On average, students without an intention to practice in MUAs had slightly higher GPAs (3.73) than those with such intentions (3.66). A similar pattern was observed in MCAT scores, where the mean total MCAT score was higher among students without MUA intentions (511) compared to those with intentions to serve in underserved areas (508).

Table 3. *Cross Tabulation of HBCU Attendance vs. Intention To Practice In An Underserved Area by Row Frequency (%) (N = 115297)*

		Intention to Practice In An Underserved Area			
		Yes	Undecided	No	Total
HBCU Attendance	No	36,513 (*31.97%*)	61,784 (*54.10%*)	15,913 (*13.93%*)	114,210 (*99.06%*)
	Yes	800 (*73.60%*)	271 (*24.93%*)	16 (*1.47%*)	1087 (*0.94%*)
	Total	37,313 (*32.36%*)	62,055 (*53.82%*)	15,929 (*13.82%*)	115,297 (*100.00%*)

Table 3 shows the cross tabulation between HBCU attendance and the intention to practice in an underserved area. Among HBCU attendees, 73.60% planned to work in an underserved area, compared to only 31.97% of non-HBCU attendees. Additionally, a smaller proportion of HBCU attendees were undecided (24.93%) compared to non-HBCU attendees (54.10%), and an even smaller percentage explicitly did not plan to work in underserved areas

(1.47% vs. 13.93%). Although HBCU attendees made up less than 1% of the total sample, their significantly higher commitment to underserved communities is evident.

The association between attending an HBCU and intending to practice in a medically underserved area was statistically significant, as indicated by the chi-square test ($\chi^2(2) = 867.73$, $p < 0.0001$). This result suggests a strong relationship between undergraduate institution type and intention to work in underserved communities. Specifically, students who attended an HBCU were significantly more likely to indicate plans to practice in underserved areas compared to those who did not attend an HBCU.

Figure 1. *Bar Chart of Students Who Attended an HBCU vs. Intention to Practice in Underserved Areas (N = 1087)*

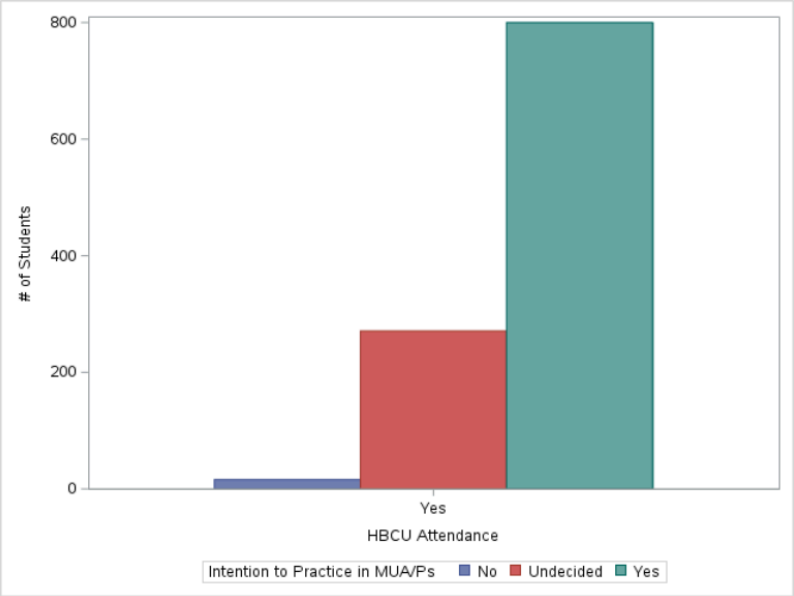
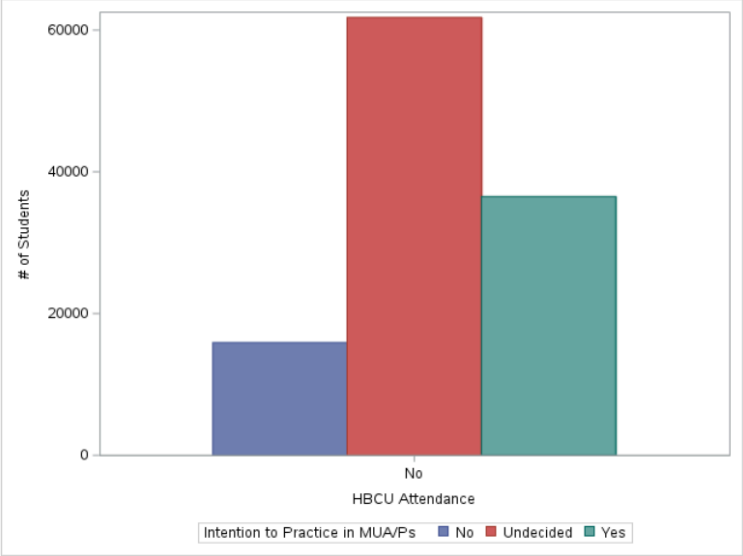


Figure 2. *Bar Chart of Students Who Didn't Attend an HBCU vs. Intention to Practice in Underserved Areas (N = 91497)*



The bar charts above illustrate the distribution of intention to practice in an underserved area among students who attended an HBCU (Figure 1) and those who did not (Figure 2). Notably, a significantly larger proportion of HBCU graduates expressed an intention to work in underserved areas. In Figure 1, the majority of HBCU attendees reported having plans to practice in underserved areas with fewer individuals undecided or indicating no such intention. In contrast, Figure 2 shows that among non-HBCU graduates, a greater proportion remained undecided while a sizable group still explicitly stated they do not plan to work in underserved areas.

This visual representation aligns with the cross-tabulation results that HBCU graduates were more likely to pursue careers in underserved areas. However, the disparity in sample sizes is evident as non-HBCU graduates far outnumber HBCU graduates. This discrepancy highlights the relatively small percentage of students in the dataset who attended an HBCU but underscores their stronger commitment to serving high-need communities.

Table 4. *Unadjusted & Adjusted Logistic Regression Models for Intention to Practice in Underserved Areas Among All Students (N = 115,297)*

Predictor		OR (95% CI)	
		Unadjusted	**Adjusted**
HBCU Attendance			
	No	1 [Reference]	1 [Reference]
	Yes	5.931 (5.18, 6.79)	1.846 (1.59, 2.15)
Sex			
	Male	1 [Reference]	1 [Reference]
	Female	1.631 (1.59, 1.67)	1.515 (1.47, 1.56)
Self Identifying as Black/African American			
	No	1 [Reference]	1 [Reference]
	Yes	3.896 (3.74, 4.06)	2.505 (2.39, 2.63)
Cumulative GPA		0.341 (0.33, 0.36)	0.562 (0.53, 0.59)
Total MCAT Score		0.943 (0.94, 0.95)	0.963 (0.96, 0.97)

Table 4 shows the results of unadjusted and adjusted logistic regression models examining predictors of the intention to practice in underserved areas among all students. In the unadjusted model, HBCU attendees had nearly six times the odds of intention to work in underserved areas (OR = 5.931, 95% CI: [5.18, 6.79]) compared to non-HBCU attendees. After adjusting for other covariates, the effect size decreased but remains significant (OR = 1.846, 95%

CI: [1.59, 2.15]). This indicates that while other factors contributed to intention to practice in underserved areas, HBCU attendance still played a meaningful role.

Sex was also a significant predictor in intention to practice in underserved areas as females had 1.5 times higher odds than males to express this intention in the adjusted model (95% CI: [1.47, 1.56]). Additionally, self-identifying as Black or African American was another strong predictor, with those identifying as Black having 2.5 times higher odds of intending to practice in underserved areas in the adjusted model (95% CI: [2.39, 2.63]). On the other hand, cumulative GPA and total MCAT score were negatively associated with this intention to practice in underserved areas. Higher values of GPA and MCAT corresponded to lower odds of planning to work in underserved areas among both the adjusted and unadjusted model. Specifically in the adjusted model, for each 1 point increase in GPA, students would have 0.56 times the odds of intending to practice in underserved areas (95% CI: [0.53, 0.59]). Additionally, in the same model, for each 1 point increase in MCAT score, students would have 0.96 times the odds of intending to practice (95% CI: [0.96, 0.97]). This suggests that academic performance is inversely related to intention to practice in underserved areas but may be influenced by other student characteristics.

Table 5. *Unadjusted & Adjusted Logistic Regression Models for Intention to Practice in Underserved Areas Among Students Identifying as Black/African American (N = 10337)*

Predictor		OR (95% CI)	
		Unadjusted	**Adjusted**
HBCU Attendance			
	No	1 [Reference]	1 [Reference]
	Yes	2.029 (1.75, 2.36)	1.849 (1.57, 2.18)
Sex			
	Male	1 [Reference]	1 [Reference]
	Female	1.827 (1.68, 1.98)	1.809 (1.66, 1.98)
Cumulative GPA		0.487 (0.43, 0.56)	0.511 (0.44, 0.59)
Total MCAT Score		0.954 (0.95, 0.96)	0.968 (0.96, 0.97)

Table 5 presents unadjusted and adjusted logistic regression results examining predictors of intentions to practice in underserved areas among Black/African American students. Based on both models, Black/African American students who attended an HBCU still had higher odds of planning to work in underserved areas compared to those who did not. Specifically, HBCU attendees had about 1.8 times higher odds in the adjusted model (95% CI: [1.57, 2.18]). Female students also had higher odds of intending to work in underserved areas compared to male students. Specifically, females showed 1.8 times higher odds of intention to practice in both the unadjusted (95% CI: [1.68, 1.98]) and adjusted (95% CI: [1.66, 1.98]) model compared to males.

In contrast, higher cumulative GPA and MCAT scores were again associated with lower odds of planning to work in underserved areas. Specifically, for each 1 point increase in GPA, Black/African American students had 0.49 times the odds of intending to practice in underserved areas in the unadjusted model (95% CI: [0.43, 0.56]) and 0.51 times the odds in the adjusted model (95% CI: [0.44, 0.59]). Similarly, for each 1 point increase in MCAT score, Black/African American students had 0.95 times the odds of planning to work in underserved areas in the unadjusted model (95% CI: [0.95, 0.96]) and 0.97 times the odds in the adjusted model (95% CI: [0.96, 0.97]).

These results suggest that attending an HBCU and being female increased the odds of intending to practice in underserved areas, while higher academic performance (GPA and MCAT) slightly reduced these odds among students who self-identified as Black or African American.

Discussion

Findings from this study highlight a significant relationship between undergraduate HBCU attendance and U.S. medical students' intention to practice in underserved communities. Among all students, HBCU graduates had nearly six times higher odds of intending to work in underserved areas compared to their non-HBCU peers. Within students who identified solely as Black/African American, those who attended an HBCU had twice the odds of planning to serve these communities. Even after adjusting for factors such as sex, Black/African American identity, GPA, and MCAT scores, HBCU attendance remained a strong independent predictor of this career intention.

These results are consistent with existing research emphasizing the role of HBCUs in producing physicians committed to addressing health disparities.[16] Historically, HBCUs have fostered academic and social environments that nurture a sense of responsibility toward underserved communities.[17] They achieve this through mission-driven curricula, mentorship programs, and strong faculty-student relationships that contribute to community empowerment.[17] Additionally, studies show that HBCUs disproportionately enroll students from racial and ethnic backgrounds underrepresented in medicine.[18] As a result, many of these students bring personal or familial experiences with healthcare inequities that impact their career choices.[18]

Another notable finding in this study was that female students had higher odds of intending to work in underserved areas compared to male students. This pattern was seen both across all students and within the Black/African American student group. It aligns with previous research showing that medical students who are more likely to work with underserved populations are often female.[12] A systematic review by Leaune et al. found that positive attitudes toward working with these communities were significantly associated with female gender.[19] This could be linked to a stronger sense of social responsibility among women in medicine which encourages them to focus on reducing healthcare disparities. Furthermore, community-level service-learning also plays a role, with gender influencing how students engage with these experiences and the career paths they ultimately follow.[20]

Beyond gender, racial background also played a key role in shaping students' intentions to work in underserved areas.. Black students had nearly four times higher odds of preference for working in underserved areas compared to non-Black students among all students. This supports previous studies showing that underrepresented minority (URM) physicians are more likely to care for underserved communities including racial and ethnic minorities, the uninsured, and patients on Medicaid.[11] One explanation for this trend is that URM physicians are more likely to

have grown up in similar environments or experienced firsthand the impact of healthcare disparities, which strengthens their commitment to serving these populations.[11]

Lastly, higher academic performance, measured by GPA and MCAT scores, was negatively associated with the intention to work in underserved areas across all groups. This raises important questions about medical school admissions and whether an emphasis on academic metrics may discourage mission-driven students who might not have top standardized test scores. Some scholars argue that holistic review models, which weigh community service and leadership alongside academic performance, can help identify applicants more likely to work in underserved communities.[21]

Limitations

Despite the important findings made in this study, several limitations must be acknowledged. First, the study relies on self-reported career intentions which may not necessarily translate into actual practice choices. Longitudinal studies tracking medical students into residency and early career stages would provide stronger evidence regarding the impact of HBCU attendance on workforce distribution. Second, while key demographic and academic variables were controlled for, other unmeasured factors such as student debt burden or family obligations could also influence career decisions. Future research should incorporate qualitative methods such as interviews or focus groups to gain deeper insights into the motivations behind students' career preferences.

Additionally, the sample size of HBCU graduates utilized in this study was relatively small which reflects the overall underrepresentation of HBCU alumni in medical school enrollment. This limits the generalizability of findings and suggests the need for larger, more representative datasets. Lastly, the study did not account for medical school characteristics such as mission statements or community-based training opportunities, which may also shape students' intentions to work in underserved areas. Future studies should explore how medical school experiences interact with undergraduate training to influence career trajectories.

Conclusion

Overall, the strong association between HBCU attendance and the intention to practice in MUAs found in this study can have significant implications for medical education and workforce development. It highlights the need for continued investment in these institutions as a strategy to address physician shortages in high-need communities. Policymakers should consider expanding funding for HBCUs and increasing scholarship opportunities to help students committed to underserved practice. Medical school admissions committees should also reflect on how they evaluate applicants by ensuring that selection criteria do not disproportionately hinder students who are more inclined to serve in MUAs. Lastly, expanding holistic review practices to place a greater emphasis on service experience and leadership in community health may help recruit a physician workforce that's better aligned with national health equity goals.

Future research is needed to examine the pathways that lead students from diverse backgrounds into service-oriented careers. Investigating the long-term career trajectories of HBCU graduates and the role of mentorship in shaping physician outcomes will provide insight into how best to combat healthcare disparities. Broader systemic efforts are necessary to ensure that all medical students, regardless of background, are supported in addressing health inequities.

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