



The Impact of the Physician Letter of Recommendation on Medical School Admissions Demographics

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Abstract

Context: Some ethnic groups are underrepresented in the medical field because they face unique barriers to admission to medical school. These barriers are due to social determinants, as well as the difficulty of the application process itself. One admission requirement that can present a barrier for applicants is the physician letter of recommendation (PLOR).

Objective: To determine if a relationship exists between a PLOR requirement and the proportion of underrepresented minorities (URM's) in medical school.

Methods: A descriptive study was conducted using data published by the American Association of Colleges of Osteopathic Medicine Application Services (AACOMAS) on the race and ethnicity of applicants and matriculants to osteopathic medical schools during the years 2009-2019. Schools were grouped based on whether they required a PLOR. For each group of schools, means were assessed for the following outcomes: number of total applicants, class size, application rate per ethnicity, matriculation rate per ethnicity, number of applicants per ethnicity, number of matriculants per ethnicity, and percentage of matriculants per ethnicity. A Wilcoxon rank-sum test was used to determine the significance of the differences between the group means. A p-value of less than 0.05 was considered significant. 95% confidence intervals were calculated, and overlapping intervals were considered insignificant values.

Results: On average, schools that require a PLOR have 23% less total applicants and have smaller class sizes overall. Black students showed significant reductions ($p < .05$) across all measured outcomes. Most notably, mean number of matriculants and mean matriculation percentage fell by 50%.

Conclusion: PLOR requirements are inversely related to the diversity of medical school student bodies.

Background and Introduction

Despite efforts to increase the number of URM students entering the medical profession, the percentage of medical students who belong to a URM group has not improved significantly in nearly a half century. In **1998-1999** allopathic medical schools were **15.2% URM**. Now, more than **twenty years later...** (see Table 1)

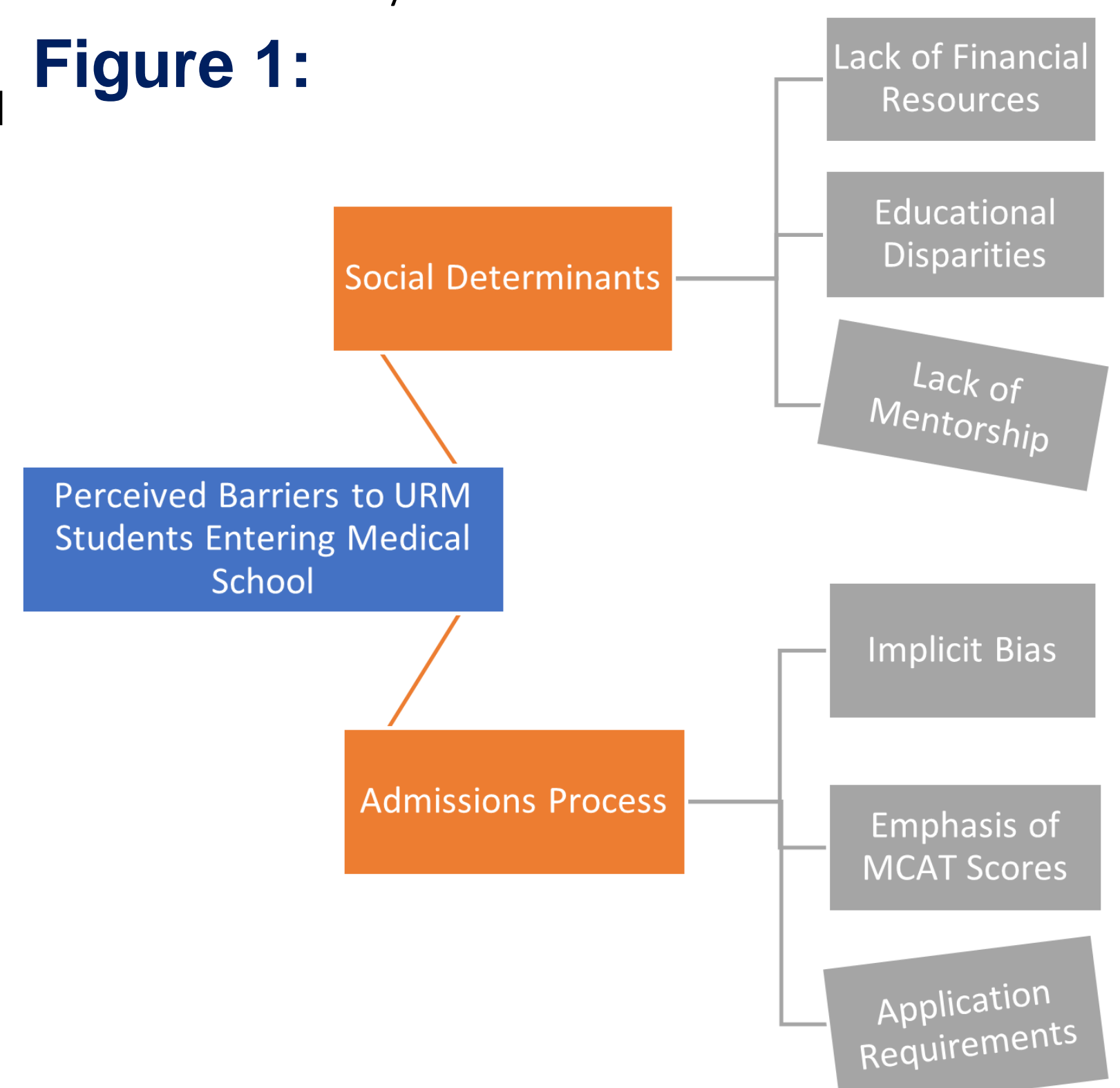
In total, 35 osteopathic schools with 44 campuses were included in the study (two schools were not included in the study because they used an independent application service). Using each school's website, DO and MD schools were grouped based on their letter requirement. We found that:

- **78%**, (29/35) of DO schools required a PLOR
- **4%** (6/155) of MD schools required a PLOR
- The standardization of a PLOR requirement is **unique to DO schools.**

To better understand the unique barriers that URM students face when pursuing a career in medicine, the authors conducted a literature review posing this question. A summary of those findings is graphically displayed in Figure 1.

	United States Census	D.O. Medical School	M.D. Medical School
Black	13.4%	3.3%	7.6%
Hispanic	18.5%	7.6%	6.7%
URM	33.4%	11.1%	14.6%

Figure 1:



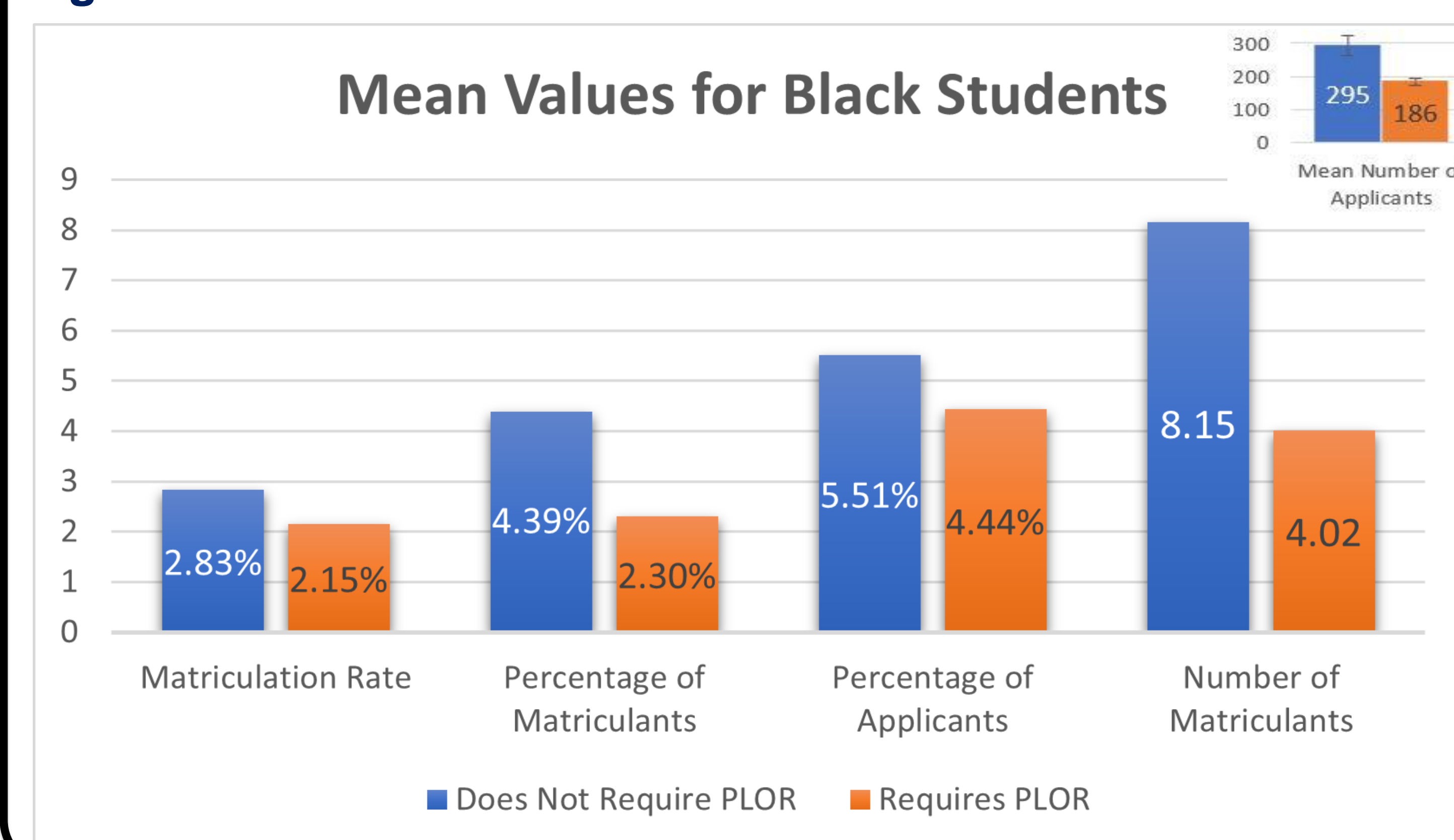
Results

Table 2: Collective Outcomes

Variable	Does Not Require PLOR		Requires PLOR		P-Value
	Mean	(95% CI)	Mean	(95% CI)	
Number of Matriculants					
Total	218.7	(194.3-227.0)	175.8	(168.0-183.5)	<.0001
Hispanic	10.0	(8.9-11.1)	10.5	(9.5-11.5)	0.175
Black	8.2	(6.8-9.5)	4.0	(3.6-4.5)	<.0001
Indigenous	.47	(.30-.64)	0.75	(.58-.92)	0.216
Islander	.12	(.06-.19)	0.17	(.11-.19)	0.642
URM	18.7	(16.8-20.7)	15.4	(14.1-16.7)	<.0001
Percentage of Matriculants					
Hispanic	5.30%	(4.60-6.00)	6.01%	(5.51-6.52)	0.249
Black	4.39%	(3.32-4.41)	2.30%	(2.05-2.55)	<.0001
Indigenous	0.21%	(0.14-0.27)	0.59%	(0.41-0.76)	0.077
Islander	0.05%	(0.02-0.08)	0.09%	(0.07-0.12)	0.486
URM	9.94%	(8.75-11.13)	9.00%	(7.34-9.65)	0.101
Number of Applicants					
Total	5,345	(4960-5730.7)	4164	(4012.5-4316.4)	<.0001
Hispanic	384.4	(344.7-424.1)	321.7	(305-338.4)	0.021
Black	295.1	(265-325.3)	185.5	(174.8-196.2)	<.0001
Indigenous	15.7	(13.7-17.7)	15.9	(14.6-17.1)	0.760
Islander	6.2	(5.5-6.9)	5.5	(5.1-5.8)	0.082
URM	701.5	(634.2-768.9)	528.6	(502.8-554.4)	<.0001
Percentage of Applicants					
Hispanic	7.01%	(6.63-7.40)	7.56%	(7.34-7.77)	0.006
Black	5.51%	(5.07-5.95)	4.40%	(4.25-4.62)	<.0001
Indigenous	0.31%	(0.28-0.37)	0.40%	(0.40-0.49)	0.027
Islander	0.10%	(0.11-0.13)	0.10%	(0.13-0.14)	0.075
URM	12.9%	(12.24-13.69)	12.5%	(12.23-12.91)	0.575
Matriculation Rate					
Total	4.09%	(3.80-4.39)	4.42%	(4.24-4.61)	0.028
Hispanic	2.76%	(2.45-3.07)	3.30%	(3.06-3.52)	0.029
Black	2.82%	(2.39-3.26)	2.15%	(1.92-2.38)	0.002
Indigenous	3.24%	(1.90-4.58)	3.69%	(2.99-4.38)	0.232
Islander	1.97%	(0.78-3.16)	2.62%	(1.78-3.45)	0.624
URM	2.84%	(2.55-3.13)	3.02%	(2.82-3.22)	0.816

Table 2 - This table contains averages of matriculation, application, and rates of acceptance of various demographic groups at osteopathic medical schools. The averages are separated by schools that require a physician letter of recommendation and schools that do not require one. **Bold = significant.**

Figure 2: Outcomes for Black Students



Results

Table 2 shows that there was not a large enough sample size to produce a statically significant result for either the Indigenous or the Islander group of student applicants. It also shows that on average, schools that require a PLOR have 23% less total applicants and have 17% smaller class sizes. When considering URM students as a whole, all means trended toward **increased diversity in the absence of a PLOR requirement**, however the p-values only indicate statistically significant increases in the number of URM applicants and URM matriculants to schools that did not require PLORs. Black students showed significant decreases across all measured outcomes. In contrast to the other race/ethnicities, Hispanic students represented a greater percentage of applicants and matriculated at a higher rate to schools that do require a PLOR. The p-values indicate statistical significance, but the 95% confidence intervals are overlapped by a very slim margin. We cannot state with certainty the significance of this finding. It is clear, however, that Hispanics react differently to PLOR requirements than Black students, and it's likely that they benefit from them.

The results of this study show that obtaining a PLOR is a barrier for medical school applicants of any background. It strongly indicates a relationship between mandatory PLOR's and the number of URM's matriculating. PLORs are associated with decreasing diversity in medical school matriculants, especially amongst black students. Difficulty getting a PLOR can be a consequence of or reflective of the already recognized barriers that URM students confront.

Increasing diversity in medical students would require us to make changes to some of the current processes and procedures to ensure equitable opportunity for all students. A racially and ethnically diverse student body is a critical element in educating physicians to meet the needs of a diverse society.

Conclusions

- 1) The number of black students is significantly reduced ($p < .0001$) across all measured outcomes when a PLOR is required. Notably, mean matriculation percentage fell by 50%.
- 2) On average, schools that do not require a PLOR have more applicants and larger class sizes.
- 3) Student bodies at medical schools with PLOR requirements show lower ethnic diversity than those that do not.
- 4) Creates a justification for further consideration on the need for physician's letter of recommendation in the application process, and if the intended benefits outweigh the evident risks.

Future research should continue to explore this topic by assessing current students' application experiences, how students are obtaining their PLOR, and if PLORs are more difficult for all people of lower socioeconomic status or just those who are URM. The global coronavirus pandemic also offers a rare opportunity to investigate how the diversity of applicants/matriculants at each school was affected by many schools' decision to waive their PLOR requirements due to COVID-19..

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Chart 1: Applicants, first-time applicants, and ... - aamc.org [Internet]. [cited 2021Dec2]. Available from: <https://www.aamc.org/media/9581/download?attachment>

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