

# Evaluation of the COVID-19 Vaccination Efforts with Structural Racism and Low Vaccination Rates

## BACKGROUND

- COVID-19 Vaccination in Georgia trails behind the national average i.e., 56% vs. 69% fully vaccinated.
- Historical mistrust and the narrow focus on equality over equity may mask underlying fundamental inequalities perpetuating health disparities.
- Structural racism could be a significant contributor to such disparity where studies have found that racial disparities in COVID-19 vaccination are associated with structural racism.
- The growing evidence of the impact of structural racism as a significant contributor to the differential impacts of COVID-19 raises the question of the effectiveness of vaccination promotion efforts.

## OBJECTIVE

- To evaluate the effectiveness of public health efforts to promote COVID-19 vaccination among minority races and to identify the challenges posed by structural inequalities

## METHODS

- A cross-sectional study design using COVID-19 data from the Georgia Department of Public Health (GDPH), and demographic information from American Community Survey (ACS) 2021 5-year estimates.
- The proportion of COVID-19 vaccination per 100,000 at the county level was the main outcome variable
- Components of the Structural Racism Index (SRI) i.e., Residential Segregation, Education Disparity Index, Economic Disparity Index, Employment Disparity Index, and Incarceration Rate Gap were the main predictors of interest.
- Review of vaccination efforts by Georgia counties, and local health departments on their websites and social media pages.
- A descriptive analysis of the COVID-19 vaccination trend in Georgia by race/ethnicity, county characteristics by the implementation of vaccination efforts, and maps of SRI and its components across Georgia at the county level.
- A linear regression model with the proportion of the vaccinated population per 100,000 at the county level as a function of the components of SRI, adjusted by covariates and date as a fixed effect.

## RESULTS

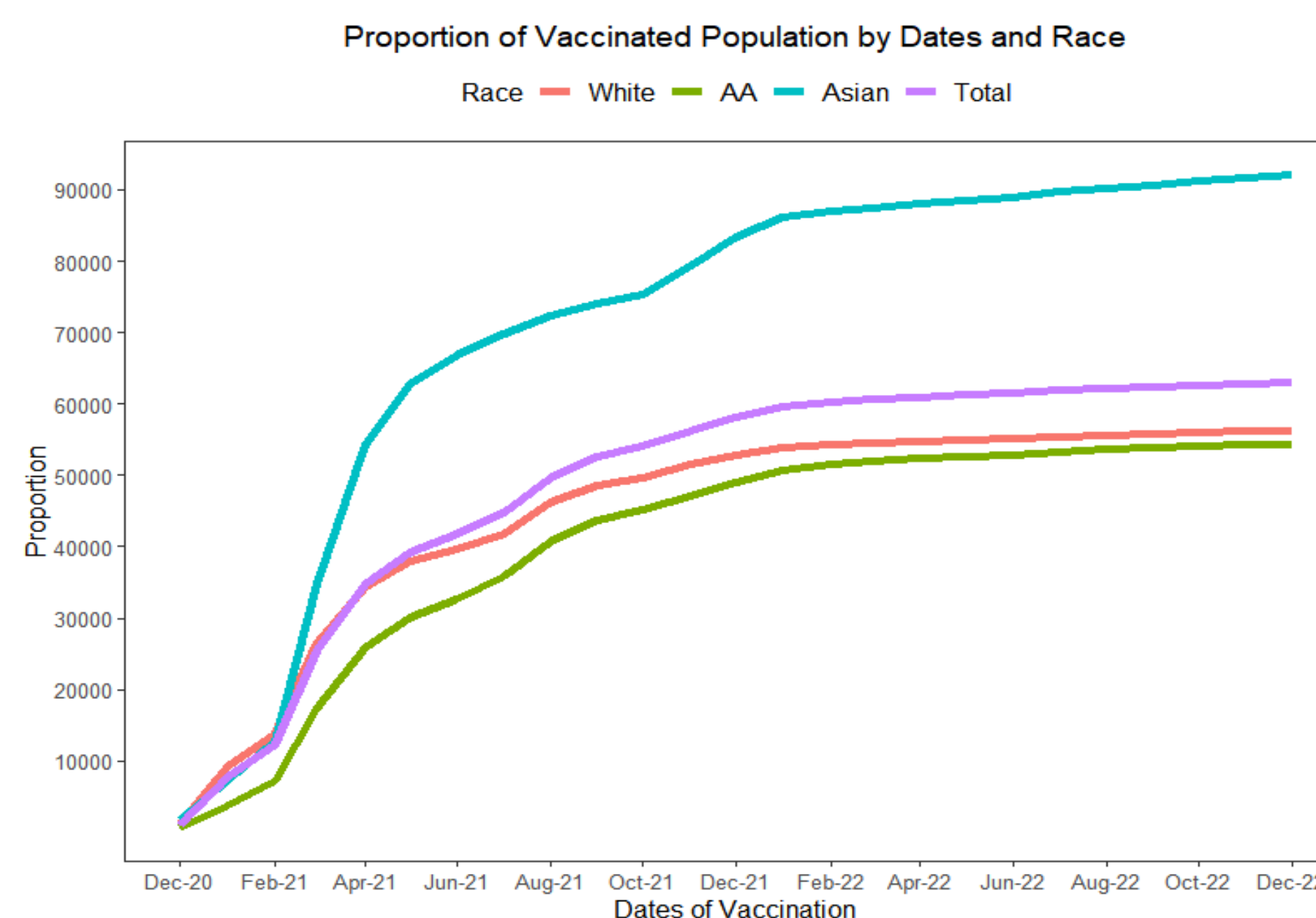


Figure 1: Trend of COVID-19 Vaccination in Georgia by Race through December 2022

Table 1: Vaccination Proportion per 100,000 by Promotional Efforts Implemented, December 2022

Components	Vaccination Program Implementation		
	Yes N = 90	No N = 69	Total N = 159
Total	60637	52910	58101
<b>Race</b>			
White	54372	46587	51344
African American	50529	48738	50080
Asian	79229	77420	78861
<b>Gender</b>			
Male	56857	48584	54120
Female	64048	56930	61731
<b>Age Groups</b>			
5 to 9	21258	13899	18835
10 to 14	38815	27053	34825
15 to 19	53466	42561	49869
20 to 24	56414	47674	53726
25 to 34	59346	48689	56137
35 to 44	66081	55278	62602
45 to 54	71519	61671	68274
55 to 59	76649	70531	74623
60 to 64	81471	73964	78865
65+	90925	86800	89460

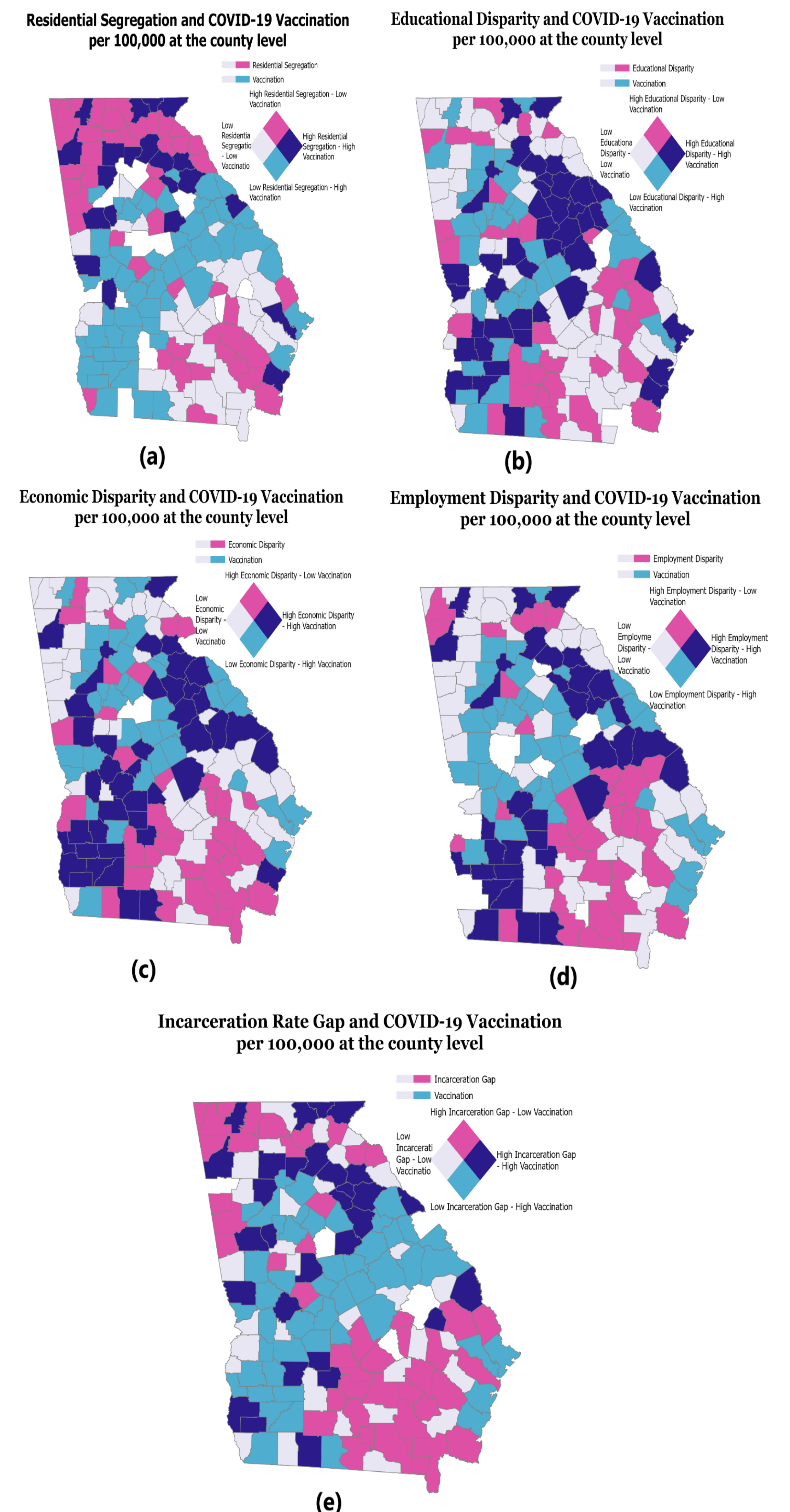


Figure 2: Distribution of SRI components by Vaccination Proportion across Georgia Counties (a) Residential Segregation Index, (b) Education Disparity Index, (c) Economic Disparity Index, (d) Employment Disparity Index, and (e) Incarceration Rate Gap

Table 2: Association between COVID-19 Vaccination and Structural Racism Components across all counties

Measures of SRI	Proportion of Vaccination per 100000			
	Unadjusted		Adjusted	
	Estimate	95% CI	Estimate	95% CI
Residential Segregation	-56.31	-144.38, 31.76	-370.20	-487.60, -252.74
Education Disparity Index	79.52	-11.41, 170.46	262.20	156.36, 367.97
Economic Disparity Index	525.20	429.18, 621.26	428.40	324.71, 532.04
Employment Disparity Index	-181.30	-228.33, -74.25	-272.70	-402.25, -143.22
Incarceration Rate Gap	270.20	184.54, 355.82	433	336.09, 529.89

Note: Adjusted for COVID-19 case proportion, COVID-19 death proportion, poverty rate, unemployment rate, the proportion of the population with bachelor's degree, the proportion of the population with health insurance, Gini Index, and season trend. Date (month and year) as fixed effect.

## CONCLUSION

- Vaccination efforts were implemented in 90 (57%) counties through clinics, mobile clinics, community awareness events, community health fairs, and the provision of financial incentives.
- COVID-19 vaccination efforts are targeting vulnerable communities to improve vaccination as such counties had higher COVID-19 cases, higher levels of structural racism, and poor socio-economic status.
- The current vaccination efforts have been successful in increasing vaccination in areas with higher education, economic, and incarceration disparity whereas, evidence-based innovative approaches are needed to increase the vaccination proportion in areas with higher residential segregation and employment disparity.