



# Effects of Education, Income, Gender, and Age on Intention to Get the COVID-19 Vaccine

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## Background

- Blacks are more likely to contract and die from COVID-19 compared to other racial and ethnic groups.<sup>1</sup>
- Previous studies, which looked at adults of multiple racial groups, have shown that those with higher education and income and those that are older are more accepting of the COVID-19 vaccine.<sup>2,3</sup>
- This study will look at the association between education, income, and age with intention to get vaccinated against COVID-19 among Black adults

## Hypothesis

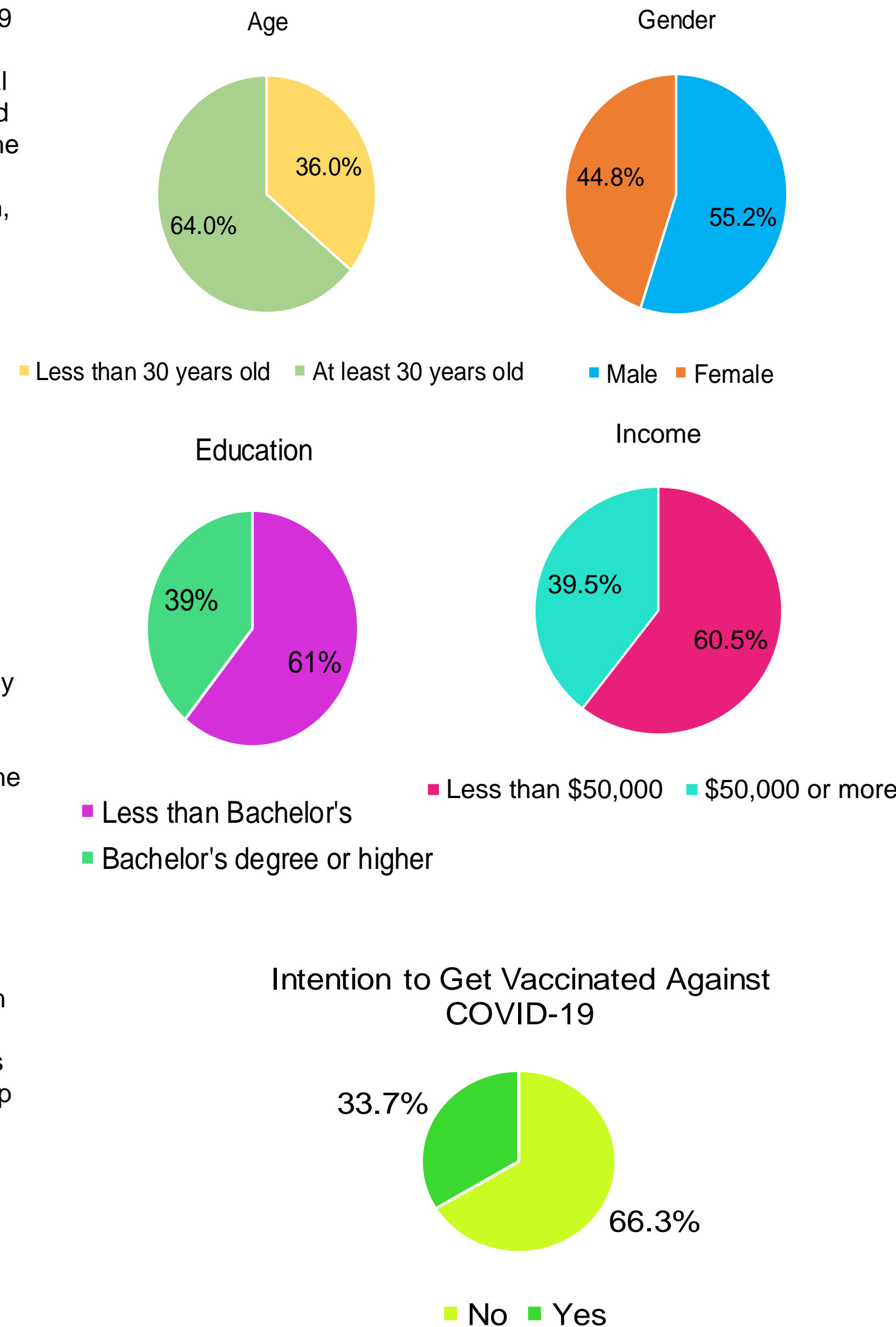
Blacks with higher education, income, and age will report greater intention to get vaccinated against COVID-19 than Blacks with lower education, income, and age.

## Methods

### Sample

This study used data from the CEAL study, which stands for Community Engagement Alliance Against COVID-19 Disparities. CEAL included a web-based pre- and post-survey to explore COVID-19 vaccine hesitancy among Blacks and Hispanics in the local community.<sup>4</sup> The pre-survey included self-reported demographics.<sup>4</sup> Subjects were recruited from the community with the help of an existing community advisory board.<sup>4</sup> Study subjects were Black, aged 18 or older, and did not receive any COVID-19 vaccine.<sup>4</sup> There were 1064 subjects in this study.<sup>4</sup> The primary outcome is intention to receive a COVID-19 vaccine within the next 30 days.<sup>4</sup> Frequencies and descriptive statistics were used to describe participant characteristics. The association between intention to get the COVID-19 vaccine and predictors were examined by a series of logistic regression models. Unadjusted models were performed for each predictor to access their relationship with the outcome in univariate logistic regression analyses. Finally, multiple logistic regression was used to include all significant predictors in the model. All analyses were performed using SAS v.9.4 (SAS Institute, Cary, NC).

## Results



## Results (continued)

Table 1. Association between age, gender, education, income and intention to get vaccinated among African American adults\*

Independent variables	Odds Ratio (95% CI)	P-values
<b>Age</b>		
At least 30 years old	2.00 (1.51 - 2.64)	< 0.001
Less than 30 years old	Reference	
<b>Gender</b>		
Female	0.90 (0.69 - 1.16)	0.410
Male	Reference	
<b>Education</b>		
Bachelor's degree or higher	3.84 (2.94 - 5.02)	< 0.001
Less than Bachelor's degree	Reference	
<b>Annual household income</b>		
\$50,000 or more	2.41 (1.85 - 3.12)	< 0.001
Less than \$50,000	Reference	

\* Results from unadjusted logistic regression models with each single independent variable

Table 2. Logistic regression model with multiple predictors on intention to get vaccinated among African American adults\*

Independent variables	Odds Ratio (95% CI)	P-values
<b>Age</b>		
At least 30 years old	2.00 (1.49 - 2.69)	< 0.001
Less than 30 years old	Reference	
<b>Education</b>		
Bachelor's degree or higher	3.27 (2.45 - 4.38)	< 0.001
Less than Bachelor's degree	Reference	
<b>Annual household income</b>		
\$50,000 or more	1.55 (1.16 - 2.08)	0.003
Less than \$50,000	Reference	

\* Only significant independent variables from unadjusted models will be included in this model

Age, education and annual income were all significantly associated with intention to get vaccinated against COVID-19 in the next 30 days among Blacks. Gender was not significantly associated with intention to get vaccinated in the next 30 days.

## Results (continued)

Education had the greatest association with intention to get vaccinated; those with a Bachelor's degree or higher were more than three times as likely to report intention to get vaccinated in the next 30 days than those with less than a Bachelor's degree. Those who were at least 30 years old were two times more likely to say they intended to get vaccinated in the next 30 days than those who were younger than 30. Lastly, those who made at least \$50,000 annually were one and a half times more likely to have intentions to get vaccinated in the next 30 days than those who made less than that.

## Discussion

Blacks of higher age and with higher income and education display greater intention to get vaccinated against COVID-19 in the next 30 days than those of younger age and with lower income and education. In order to continue to make progress towards herd immunity against COVID-19, it is important that public health officials, healthcare workers, and policy makers remain aware of this disparity amongst Blacks. Creating and distributing COVID-19 education materials for lower literacy levels is one way this disparity could possibly be addressed. In addition, COVID-19 education materials could be distributed at low-income work sites to reach the individuals that work there. Furthermore, it may be beneficial to find unique ways to approach the young Black population to address vaccine hesitancy among this age group. For example, a social media dance challenge that incorporates the latest popular music along with informational COVID-19 messages could be created and widely distributed.

## References

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