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Examining the Association between Educational Attainment and COVID-19 At-Home Testing Practices in Atlanta's Black Communities

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Bachelor of Science

Georgia State University

2022

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Abstract

Introduction: Racial and ethnic minorities, particularly African Americans, face disproportionate burden of adverse COVID-19 outcomes due to healthcare barriers, socioeconomic factors, and higher prevalence of chronic conditions. COVID-19 testing plays a critical role in mitigating these disparities, with at-home testing emerging as a convenient and empowering solution. However, understanding how educational attainment is associated with at-home testing adoption within African American communities remains a key research gap. This study aims to investigate this relationship in Atlanta, GA, to inform targeted interventions and promote health equity.

Methods: We analyzed baseline survey data from 565 participants of the Represent ATL 2.0 study to evaluate the acceptance and usage of COVID-19 rapid home testing kits. All participants were from Black communities in metro Atlanta. Participants received custom home test kits as part of a pre-post intervention study design. Baseline surveys assessed participant characteristics alongside behaviors, knowledge, attitudes, and testing experiences. Descriptive and logistic regression analyses were conducted to explore relationships between educational attainment and COVID-19 testing attitudes and behaviors.

Results: In bivariate analyses, educational attainment was positively associated with previous use of COVID-19 home testing. Bivariate analyses also revealed a positive association between educational attainment and intent to use home COVID-19 testing. However, there was no statistically significant association between educational attainment and previous use of COVID-19 home tests after controlling for other variables in multivariate analysis. In multivariate analysis, individuals with a bachelor's degree were more likely to intend to use COVID-19 home tests compared to those who had not completed any higher formal education (adjusted odds ratio: 3.0, p-value: 0.037).

Discussion: While education initially showed an association to home test use, adjusted analyses revealed complexity, with education alone not significantly impacting previous testing behavior. Leveraging successful vaccine education strategies may enhance home testing uptake. Targeted outreach and ongoing support for accessible testing options are needed for promoting proactive health behaviors.

Conclusion:
This research examines COVID-19 home testing behavior among Black African Americans in Atlanta, with a specific focus on the association with educational attainment. As more data on COVID-19 home testing becomes available, there will be opportunities to investigate attitudes and behaviors related to these tests.

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Introduction

Health Disparities and COVID-19 Impact on Racial and Ethnic Minorities

Racial and ethnic minorities experience a disproportionate burden of SARS-CoV-2 infection and its negative consequences, including death. [1] Black individuals have experienced mortality at a rate 1.4 times higher than that of white individuals. [2] A systematic review and meta-analysis reveal that African American, Hispanic, and Asian American individuals face elevated risks of COVID-19 positivity and ICU admissions compared to White individuals. [3] The ongoing emergence of novel variants exacerbates the unequal health effects endured by African American communities. Healthcare barriers exacerbate these disparities for African Americans, compounding their challenges in accessing optimal healthcare facilities, obtaining health insurance coverage, and receiving timely medical assistance. [4] Socioeconomic factors further compound the impact of COVID-19 on this demographic, as African Americans contend with heightened levels of poverty, housing insecurity, and a lack of resources critical for pandemic mitigation, such as remote work opportunities and adequate isolation accommodations. [5] Additionally, the increased prevalence of chronic health conditions like hypertension and diabetes among African Americans contributes to the heightened severity of COVID-19 outcomes within this population. These health disparities are often rooted in limited access to nutritious food, elevated stress levels resulting from systemic discrimination, and insufficient access to quality healthcare services. [6]

The Role of COVID-19 Testing in Health Equity

COVID-19 testing is a critical tool for individual diagnosis including linkage to treatment and for helping to assess population-level disease burden.[7] Testing increases health awareness, which encourages proactive health management and early intervention and may lead to adoption

of healthier habits as well as reduced SARS-CoV-2 transmission risk. [7,8] Equitable access to, and usage of, testing is critical for reducing SARS-CoV-2 transmission among African Americans

Education and COVID-19

Various studies have investigated the impact of education levels on COVID-19 vaccination rates and testing behaviors. They have consistently observed an association between lower education levels and reduced willingness to receive the COVID-19 vaccine. [9,10,11,12] Furthermore, a recent investigation into demographic factors affecting delayed COVID-19 testing among healthcare workers highlighted that non-Hispanic Black healthcare workers and those with a high school education or lower were more prone to delaying testing compared to their graduate-level, clinically trained counterparts. [13] These findings highlight the importance of understanding how education level shapes health-related decisions. However, there is limited literature on the relationship between education and home testing specifically. This gap in the research motivated the focus of this analysis.

Empowering Communities Through At-Home COVID-19 Testing

Home testing offers a solution for individuals, including those from vulnerable populations such as Black communities, to monitor their COVID-19 status privately. Since the FDA authorized the first self-administered COVID-19 test in December 2020, the accessibility of at-home testing options has significantly expanded, with over 20 tests authorized as of 2022. [14,15] Conducting tests at home empowers individuals to make informed health decisions and reduces dependency on regular visits to healthcare facilities. This is especially beneficial for high-risk groups, such as individuals with preexisting medical conditions or disabilities, as it offers a convenient and accessible method for knowing COVID-19 status while reducing

potential exposure to additional health risks present in medical settings. Furthermore, research has shown that vulnerable populations, including individuals with lower socio-economic status, often face significant transportation-related obstacles when accessing healthcare. [16] Minoritized communities are frequently located in areas with limited access to public transportation and are distanced from quality healthcare services, a consequence of racial segregation stemming from biased housing policies. [17]Additionally, the financial strain of vehicle ownership exacerbates these challenges, particularly with escalating fuel prices and substantial parking expenses at medical centers. [18] Given these obstacles, home testing emerges as a viable and beneficial option, especially for individuals in Black communities facing transportation issues.

Understanding At-Home Testing Acceptance in African American Communities

Numerous studies have highlighted various barriers that influence African Americans' engagement with medical procedures, including financial constraints, distrust in healthcare institutions, and risk assessments. [19] Medical mistrust has also been shown to impact vaccine uptake rates in this demographic. [20] However, there is limited information on the preferences and acceptance levels of at-home testing for COVID-19 among African Americans. Previous research, particularly studies grounded in the Health Belief Model, has examined African Americans' attitudes toward COVID-19 testing and suggested that increasing access to self-testing at home could boost testing acceptance. [21] Still, there is a gap in understanding how educational attainment influences the adoption of at-home testing within this context. Examining this association is important because education level is often linked to socioeconomic disparities, lower health literacy, and limited access to healthcare information and resources.[22, 23, 24, 25] This study aims to examine the relationship between educational attainment and the acceptability and adoption of at-home testing practices within Black communities in Atlanta, GA. Understanding

the factors that drive or inhibit the use of at-home testing among African Americans is essential for developing targeted interventions to improve COVID-19 testing rates.

The Represent ATL Study: Advancing Equity in COVID-19 Testing

This analysis utilizes data from the Represent ATL 2.0 study. Represent ATL 2.0 is a collaborative effort among researchers from Emory Rollins School of Public Health, Georgia State University, and Morehouse School of Medicine. It is part of the larger RADx-UP initiative, which is sponsored by the National Institutes of Health and created in 2020 to enhance COVID-19 testing accessibility, particularly in vulnerable populations such as Black and African American communities living in Atlanta. By focusing on improving testing access and understanding community challenges, Represent ATL aims to reduce disparities in COVID-19 outcomes.

Methods

Study context

The primary goal of Represent ATL 2.0 is to evaluate the acceptance and usage of novel COVID-19 home testing kits among Black communities in metro Atlanta. At the time of enrollment, participants complete a baseline survey and receive novel home test kits containing a rapid antigen test and materials needed for a self-collected, mail-off PCR test. There are two follow-up surveys assessing experiences with, and attitudes toward, the novel test kit. Baseline and follow-up surveys explore participants' behaviors, knowledge, attitudes, and testing experiences. Primary outcomes include antigen home test usage and mailing a self-collected specimen for the PCR test. This present analysis utilizes baseline survey data, which were

collected using participants' own devices, typically a smart phone. Participants in this study were compensated with a $25 gift card for their participation in baseline activities.

Targeting black communities and intersectionality theory

The research team is focused on Black communities as part of an initiative aimed at addressing health disparities without comparative analysis to other racial groups. The research design is influenced by intersectionality theory, recognizing that motivations and barriers to participating in COVID-19 testing and research can significantly vary based on factors such as gender, age, socio-economic status, and other aspects within Black communities. The survey was reviewed by the community Advisory Board (CAB) prior to data collection. This step ensures that survey questions are clear, easy to understand, and culturally appropriate for all participants. Previous research indicates that Black individuals are more likely to participate in research that actively involves the community and has the support of respected community leaders. [26] The research team recruited and trained graduate research assistants from Georgia State University (GSU) who have a strong background in public health and show proficiency in cultural awareness. These research assistants were responsible for community-based recruitment, delivering the study intervention, and collecting data.

Ethical considerations, and funding acknowledgement

This study was approved by Emory's Institutional Review Board (IRB) under protocol number STUDY00005412. This research was supported by funding from the National Institute on Minority Health and Health Disparities (NIMHD) under grant number 1U01MD018313-01.

Participant recruitment

The research was conducted across metro Atlanta counties, in which diverse Black communities with varying incomes and education levels reside. To be eligible for the study,

participants needed to identify as Black/African American, reside in a metro Atlanta County, speak English, be at least 18 years old, have access to an internet or cell-enabled device, and consent to receiving reminders for follow-up by text or email.

Data standardization and consistency measures

To ensure consistency and facilitate data analysis across RADx-UP studies, Common Data Elements (CDEs) established by the National Institutes of Health (NIH) RADx-UP initiative were included in participant surveys. These CDEs comprise a standardized set of study questions that all RADx-UP projects are required to include in their COVID-19 testing studies.

Data analysis

This analysis focused on two main outcomes. The first outcome assessed was participants' previous COVID-19 home testing behavior. This variable was specifically chosen because it directly measured participants' past experiences with COVID-19 home testing. It was structured as a binary Yes/No question, allowing for a straightforward assessment of whether participants had undergone COVID-19 home testing in the past. This binary approach simplified the measurement of past behavior and provided a clear indicator of testing uptake among the study participants. The analysis also included an assessment of participants' likelihood of taking a COVID-19 home test if they suspected they had COVID-19 infection today. Participants were asked the question, "'If you thought you might have COVID now (today), how likely would you be to take a COVID-19 home test?" This question aimed to capture participants' intentions and attitudes toward future COVID-19 home testing in the event of suspected infection. The analysis then included an assessment of these responses, wherein we combined the responses '"Strongly Likely" and "Likely" into one category, and grouped "Strongly Unlikely" and "Unlikely" responses together.

The exposure variable in this analysis was determined by the responses from participants regarding their highest level of education attained both inside and outside the United States. These responses were then organized into distinct groups representing different educational levels. The reference group, termed “Non-degree education,” comprised individuals without formal degrees, including those who never attended school, those with a 5th grade education or less, individuals who completed 6th to 8th grade, those who reached 9th to 12th grade without a diploma, and those with a high school diploma or GED. Additionally, the analysis considered individuals with higher levels of formal education, including some college level/technical/vocational degrees, bachelor's degrees, and other advanced degrees such as master's or doctoral degrees. Each category represents a level of educational achievement, allowing for a comparative analysis across a spectrum of educational backgrounds.

Descriptive Analysis

First, we descriptively assessed the relationship between demographic characteristics and the main study outcomes. This analysis involved calculating the frequency of each demographic characteristic (such as age, gender identity, income level, education level, employment status, vaccination status, self-reported disability, experienced job loss, etc.) overall and within different categories of the main outcomes, namely “Previous COVID-19 home testing” and “Likelihood of taking a COVID-19 home test if suspected of COVID-19 today”. We determined the percentage of participants who had previously undergone COVID-19 home testing within each demographic group. (Table 1) Furthermore, we explored associations between outcomes and factors such as affordability, trust in testing accuracy, familiarity with testing locations, bioethical concerns, and perceived difficulty of COVID-19 testing. These variables were selected to assess barriers, motivations, factors influencing decisions to test, and willingness to undergo testing

Descriptive analysis served as a valuable tool in exploring possible relationships between demographic characteristics and attitudes/actions regarding COVID-19 home testing. We also assessed the relationship between education level and demographic characteristics, as well as factors potentially related to COVID-19 testing. (Table 3) By including education level in our analysis, we aimed to identify any disparities or patterns that might exist among different educational backgrounds regarding attitudes and actions related to COVID-19 home testing. Throughout analyses, "Prefer not to answer" and "Don't know" response options were treated as missing data, and complete case analyses were conducted. Pearson's Chi-Square tests were used to assess relationships between variables and study outcomes.

Regression Analysis

We used logistic regression (Table 4), to assess the association between education level (the primary exposure variable) and previous use of COVID-19 home tests (the outcome variable) net of confounding variables: family income, vaccination status, affordability, and familiarity with a location to access a home test. These variables were identified as factors statistically associated with both the exposure and outcome. (Tables 1 and 3) Non-Degree Education served as the reference group in this analysis.

We also used logistic regression (Table 5) to assess the association between education level (the exposure variable) and the likelihood of using COVID-19 home testing if suspected of COVID-19 today (the outcome variable). We adjusted for confounding variables, including family income, vaccination status, and familiarity with a location to access a home test which were identified as statistically associated with both the exposure and the outcome (Tables 1 and 3). Non-Degree Education served as the reference group in this analysis.

Results

History of COVID-19 Home Test Use

Among participants who had never used a COVID-19 home test, 11% had an advanced degree education, compared to 25% among those who had used a home test in the past ($p < 0.001$). Of the participants who had never used a COVID-19 home test, 40% reported an income of less than $20,000. In comparison, among those who had used a home test in the past, only 24% reported an income of less than $20,000 ($p < 0.002$). Additionally, vaccination rates differed significantly between the two groups, with 66% of participants who had never used a home test being vaccinated for COVID-19, compared to 83% among those who had used a home test in the past ($p < 0.001$). Among those who had never used a COVID-19 home test, 59% agreed with the statement "I cannot afford to buy a COVID-19 home test," compared to 47% among those who had used a test in the past ($p < 0.038$). Similarly, 49% of participants who had never used a COVID-19 home test agreed with the statement "'I don't know where to get a COVID-19 home test," compared to 29% among those who had used a test in the past ($p < 0.001$) (Table 1).

Intention To Use COVID-10 Home Test Today

17% of participants unlikely to use a COVID-19 home test today had an advanced-degree education, compared to 23% among those likely to use a home test ($p = 0.033$), showing a statistically significant difference. Among participants unlikely to use a COVID-19 home test today, 42% reported an income of less than $20,000, while only 25% reported the same income level among those likely to use a home test ($p = 0.028$). Furthermore, there was a significant difference in vaccination rates between the two groups, with 64% of participants unlikely to use a COVID-19 home test today having received a COVID-19 vaccination, compared to 82%

among those likely to use a home test ($p < 0.001$). Additionally, we observed a marginally associated statistical significance where 42% of participants unlikely to use a home test agreed with the statement "I don't know where to get a COVID-19 home test," compared to 31% among those likely to use a home test today ($p = 0.076$) (Table 2).

Baseline Participant Characteristics and Education Level

Participants with a non-degree education level showed significant differences compared to those with an advanced degree across several measures. Among them, 55% had a family income of less than $20,000, whereas only 12% of those with an advanced degree fell into this income bracket ($p < 0.001$), indicating a statistically significant difference. Moreover, 68% of participants with a non-degree education were vaccinated for COVID-19, contrasting with 90% of those with an advanced degree ($p < 0.001$. Attitudes toward COVID-19 home tests also varied, with 61% of participants with a non-degree education agreeing with "I cannot afford to buy a COVID-19 home test," compared to 35% among those with an advanced degree ($p = 0.002$). Similarly, 41% of participants with a non-degree education level agreed with "I don't know where to get a COVID-19 home test," whereas only 21% of participants with an advanced degree agreed with the statement ($p = 0.013$), showing a statistically significant difference (Table 3).

Logistic Regression

In the first model, after adjusting for family income, vaccination status, affordability, and familiarity with a location to access a home test, no significant differences in testing odds for home testing across education levels were found. Specifically, the odds of previous home test usage among individuals with some college-level/technical/vocational education were 1.28 times as high as the odds of previous home test use among those with a non-degree education (odds

ratio = 1.28, (95% CI (0.56, 1.05), p-value = 0.542)). Similarly, those with a bachelor's degree had odds1.31 times as high (95% CI (-0.64, 1.17) as those with a non-degree education (p-value = 0.563). Individuals with other advanced degrees, such as master's or doctorates, had approximately 2.44 times as high odds (95% CI (-0.27, 2.17)) of previous home test use compared to those with a non-degree education (p-value = 0.148) (Table 4)

In the second model, we assessed how education level is associated with the intention to use a COVID-19 home test, accounting for potential confounding factors such as family income, vaccination status, and familiarity with a location to access a home test. Among individuals with some college-level/technical/vocational education, the odds of testing intention were 1.33 times as high as those in the reference group, although this difference was not statistically significant (95% CI (-0.52, 1.10), p-value: 0.488). Individuals with a bachelor's degree exhibited a statistically significant increase in testing intention, with odds 3.0 times as high as those with a non-degree education (95% CI (-0.086, 2.18), p-value: 0.037). For those with other advanced degrees (Master's, Doctoral), the analysis showed odds 1.83 times as high for increased testing intention compared to those with a non-degree education; however, this difference was not statistically significant (95% CI (-0.44, 1.69), p-value: 0.264), indicating a possible trend towards increased testing but lacking strong statistical evidence in our analysis. (Table 5)

Discussion

Education Level and Testing Behavior: Complex Relationships

Initially, we saw an association between higher education and previous use of COVID-19 home tests, especially among those with advanced degrees like Master's or Doctoral degrees. However, after considering other factors like income, vaccination status, and awareness of

testing locations, this connection became less clear. Adjusted analyses using logistic regression did not show significant differences in home test use based solely on education level. This indicates that although there might be a tendency for higher home test use among individuals with advanced education, this connection is complex and influenced by factors beyond education alone. When examining participants' intention to use COVID-19 home tests, we found that those with a bachelor's degree were significantly more likely to express intention to use a home test compared to those with lower levels of education. Acknowledging that individuals with higher education levels are more likely to use home tests can help tailor communication strategies. A targeted approach in public health campaigns can increase testing adoption across diverse populations. Conducting targeted outreach and education campaigns to raise awareness about the importance of testing, available resources, and where to access affordable or free testing services.

Affordability Challenges in COVID-19 Testing Access

The recent suspension of the Free COVID-19 Test Program raises concerns about testing access, particularly among communities with lower education levels and limited financial resources. Following the conclusion of the COVID-19 public health emergency in May 2023, the government initially halted the rapid test distribution program but later reinstated it on September 25, 2023. [27] Unfortunately, as of March 9, 2024, the Free COVID-19 Test Program has been suspended once again. Such changes may significantly impact the accessibility of testing services for individuals with limited financial resources. A recent study emphasizes the significant role of affordability in COVID-19 testing. The research indicates that consumers prioritize factors such as price, turnaround time, and accuracy when considering at-home COVID tests, with affordability emerging as the most crucial factor. Our own findings are in line with

this, revealing that individuals with higher incomes are more likely to use home tests, while concerns about affordability lead to reduced usage. [28] To improve access to COVID-19 home testing, we suggest advocating for continued funding for testing programs, implementing free-testing initiatives, raising awareness about financial assistance programs, providing reimbursement for testing costs, and implementing measures to prevent price inflation of testing kits.

Vaccination and Testing Behavior

Our findings suggest a shared proactive mindset among individuals with higher education levels, as they are not only more likely to utilize COVID-19 home tests but also to have received vaccinations against the virus. Leveraging successful strategies from vaccine education campaigns for COVID-19 home testing initiatives may be beneficial. By drawing insights from these existing programs, we can develop targeted educational interventions that effectively raise awareness and promote proactive health behaviors. For instance, strategies observed in community leader-led initiatives, emphasizing personal connections and trust between educators and their audience, could be valuable in COVID-19 home testing education efforts. [29]

Limitations

Without comparative analysis to other racial or ethnic groups, the study's ability to assess differences or similarities in testing behavior and attitudes across diverse demographic groups is limited. Additionally, participant recruitment based on specific eligibility criteria, such as access to internet or cell-enabled devices, could introduce selection bias by excluding individuals without such access, potentially impacting the sample's representativeness. Moreover, the reliance on self-reported data may introduce recall bias or social desirability bias, where participants provide responses they deem favorable rather than entirely accurate, affecting the

reliability of certain measures. Although efforts were made to adjust for confounding variables in regression analyses, the potential influence of unmeasured or unknown variables on study outcomes cannot be completely discounted, potentially impacting the observed relationships between education level, testing behavior, and other factors.

Conclusion

This research contributes to the understanding of factors influencing COVID-19 home testing behaviors within Black and African American communities in Atlanta. By examining the association between educational attainment and at-home COVID-19 testing adoption within this demographic, our study adds a nuanced understanding to the existing but limited literature on COVID-19 testing behaviors. While initial analyses suggested a positive association, further investigation revealed that education alone does not significantly impact testing behavior once other variables are considered. Moving forward, it suggest the necessity of strategies that integrate education, prioritize equitable access to testing resources, and address systemic barriers to healthcare. As more data on COVID-19 home testing becomes available, ongoing research efforts are needed to build upon these findings. It is imperative to continue exploring and addressing the attitudes and barriers surrounding COVID-19 home tests.

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Table 1: Characteristics of Baseline Survey Participants and Home Test History

Characteristic	N	Never used a COVID-19 Home Test, N = 143	Previously used a COVID-19 Home Test, N = 418	p-value
Age (years):	561	46 (17)	44 (16)	0.2
Age Group	561			0.4
18-31		37 (26%)	121 (29%)	
32-49		38 (27%)	124 (30%)	
50+		68 (48%)	173 (41%)	
Gender identity	555			0.10
Man		55 (39%)	121 (29%)	
Woman		81 (57%)	277 (67%)	
Non-Cisgender Identities		5 (3.5%)	16 (3.9%)	
Family income	424			0.002
Less than $20,000		41 (40%)	76 (24%)	
$20,000-$34,999		25 (24%)	63 (20%)	
$35,000-74,999		23 (22%)	107 (33%)	
$75,000 and above		14 (14%)	75 (23%)	
Education level	548			<0.001
Non-Degree Education		44 (32%)	75 (18%)	
Some college level/ Technical / Vocational degree		47 (34%)	124 (30%)	
Bachelor's degree		33 (24%)	106 (26%)	
Other advanced degree (Master's, Doctoral degree)		15 (11%)	104 (25%)	
Employment status	546			0.3
Working now		68 (51%)	236 (57%)	
Unemployed/Temporarily laid off/On leave/Other		31 (23%)	79 (19%)	
Retired		20 (15%)	43 (10%)	
Student		15 (11%)	54 (13%)	
Experienced loss of employment	546	49 (36%)	166 (41%)	0.3
Self reported disability	535	19 (14%)	55 (14%)	>0.9
Medical History	561			0.11
None		70 (49%)	196 (47%)	
CVD and/or Hypertension		29 (20%)	94 (22%)	
Immunocompromised condition		8 (5.6%)	30 (7.2%)	
Autoimmune Disease		18 (13%)	26 (6.2%)	
Respiratory Disease		7 (4.9%)	40 (9.6%)	
Mental Health Disorders and Substance Use		11 (7.7%)	32 (7.7%)	
Received a COVID-19 vaccination	520	82 (66%)	330 (83%)	<0.001
I can not afford to buy a COVID-19 home test kit	436			0.038
Disagree		39 (41%)	181 (53%)	
Agree		56 (59%)	160 (47%)	
I don't know where to get a COVID-19 home test kit	491			<0.001
Disagree		55 (51%)	272 (71%)	
Agree		53 (49%)	111 (29%)	
I don't trust the COVID-19 home test results	414			<0.001

Characteristic	N	Never used a COVID-19 Home Test, N = 143	Previously used a COVID-19 Home Test, N = 418	p-value
Disagree		61 (75%)	300 (90%)	
Agree		20 (25%)	33 (9.9%)	
My bodily fluids (nasal fluid or saliva) might be used for something besides the COVID-19 test	388			0.3
Disagree		38 (41%)	140 (47%)	
Agree		54 (59%)	156 (53%)	
I would take a COVID-19 home test if I could still get them for free	481			0.012
Disagree		6 (5.5%)	4 (1.1%)	
Agree		104 (95%)	367 (99%)	
I would be more likely to get tested for COVID-19 if I could get home test kits	469			0.006
Disagree		7 (6.7%)	5 (1.4%)	
Agree		97 (93%)	360 (99%)	
COVID-19 home tests are easy to do	453			<0.001
Disagree		10 (12%)	6 (1.6%)	
Agree		73 (88%)	364 (98%)	

Table 2: Characteristics of Baseline Survey Participants and Willingness to Home Test for COVID-19

Characteristic	N	Unlikely to take COVID-19 At Home Test, N = 86	Likely to take COVID-19 At Home Test, N = 447	p-value
Age (years):	533	46 (15)	44 (17)	0.3
Age Group	533			0.4
18-31		19 (22%)	131 (29%)	
32-49		27 (31%)	127 (28%)	
50+		40 (47%)	189 (42%)	
Gender identity	527			0.6
Man		30 (35%)	136 (31%)	
Woman		52 (60%)	289 (66%)	
Non-Cisgender Identities		4 (4.7%)	16 (3.6%)	
Family income	416			0.028
Less than $20,000		27 (42%)	88 (25%)	
$20,000-$34,999		13 (20%)	71 (20%)	
$35,000-74,999		13 (20%)	115 (33%)	
$75,000 and above		11 (17%)	78 (22%)	
Education level	524			0.033
Non-Degree Education		27 (33%)	84 (19%)	
Some college level/ Technical / Vocational degree		26 (31%)	137 (31%)	
Bachelor's degree		16 (19%)	117 (27%)	
Other advanced degree (Master's, Doctoral degree)		14 (17%)	103 (23%)	
Employment status	523			0.13
Working now		45 (54%)	250 (57%)	
Unemployed/Temporarily laid off/On leave/Other		22 (27%)	84 (19%)	

Characteristic	N	Unlikely to take COVID-19 At Home Test, N = 86	Likely to take COVID-19 At Home Test, N = 447	p-value
Retired		11 (13%)	46 (10%)	
Student		5 (6.0%)	60 (14%)	
Experienced loss of employment	519	35 (43%)	174 (40%)	0.6
Self reported disability	511	10 (13%)	61 (14%)	0.8
Medical History	533			0.3
None		43 (50%)	208 (47%)	
CVD and/or Hypertension		16 (19%)	102 (23%)	
Immunocompromised condition		3 (3.5%)	35 (7.8%)	
Autoimmune Disease		10 (12%)	28 (6.3%)	
Respiratory Disease		8 (9.3%)	38 (8.5%)	
Mental Health Disorders and Substance Use		6 (7.0%)	36 (8.1%)	
I can not afford to buy a COVID-19 home test kit	415			0.2
Disagree		27 (44%)	187 (53%)	
Agree		34 (56%)	167 (47%)	
Received a COVID-19 vaccination	495	46 (64%)	348 (82%)	<0.001
I don't know where to get a COVID-19 home test kit	469			0.076
Disagree		39 (58%)	278 (69%)	
Agree		28 (42%)	124 (31%)	
I don't trust the COVID-19 home test results	397			<0.001
Disagree		31 (65%)	318 (91%)	
Agree		17 (35%)	31 (8.9%)	
My bodily fluids (nasal fluid or saliva) might be used for something besides the COVID-19 test	370			0.007
Disagree		18 (31%)	157 (50%)	
Agree		40 (69%)	155 (50%)	
I would take a COVID-19 home test if I could still get them for free	468			<0.001
Disagree		8 (12%)	2 (0.5%)	
Agree		58 (88%)	400 (100%)	
I would be more likely to get tested for COVID-19 if I could get home test kits	457			<0.001
Disagree		8 (12%)	3 (0.8%)	
Agree		57 (88%)	389 (99%)	
COVID-19 home tests are easy to do	439			<0.001
Disagree		8 (13%)	8 (2.1%)	
Agree		53 (87%)	370 (98%)	

Table 3: Characteristics of Baseline Survey Participants and Education Level

Characteristic	N	Non-degree Education, N = 120	Some college level/ Technical / Vocational degree, N = 171	Bachelor's degree, N = 140	Other advanced degree (Master's, Doctoral degree), N = 119	p-value
Age (years):	550	40 (19)	44 (17)	46 (16)	45 (14)	0.039
Age Group	550					0.004
18-31		49 (41%)	46 (27%)	36 (26%)	25 (21%)	
32-49		23 (19%)	52 (30%)	39 (28%)	47 (39%)	
50+		48 (40%)	73 (43%)	65 (46%)	47 (39%)	
Gender identity	545					
Man		44 (37%)	60 (35%)	42 (30%)	27 (23%)	
Woman		68 (57%)	101 (59%)	93 (67%)	89 (75%)	
Non-Cisgender Identities		7 (5.9%)	9 (5.3%)	3 (2.2%)	2 (1.7%)	
Family income	420					<0.001
Less than $20,000		47 (55%)	40 (31%)	13 (11%)	11 (12%)	
$20,000-$34,999		19 (22%)	36 (27%)	24 (21%)	10 (11%)	
$35,000-74,999		12 (14%)	40 (31%)	44 (39%)	35 (39%)	
$75,000 and above		7 (8.2%)	15 (11%)	33 (29%)	34 (38%)	
Employment status	539					<0.001
Working now		41 (35%)	85 (50%)	86 (64%)	91 (76%)	
Unemployed/Temporarily laid off/On leave/Other		42 (36%)	36 (21%)	24 (18%)	4 (3.4%)	
Retired		10 (8.6%)	25 (15%)	14 (10%)	13 (11%)	
Student		23 (20%)	23 (14%)	11 (8.1%)	11 (9.2%)	
Experienced loss of employment	536	36 (31%)	80 (48%)	56 (41%)	41 (36%)	0.025
Self reported disability	526	23 (20%)	22 (13%)	15 (11%)	11 (9.5%)	0.089
Medical History	550					0.019
None		53 (44%)	80 (47%)	78 (56%)	51 (43%)	
CVD and/or Hypertension		21 (18%)	39 (23%)	25 (18%)	35 (29%)	
Immunocompromised condition		7 (5.8%)	10 (5.8%)	16 (11%)	5 (4.2%)	
Autoimmune Disease		14 (12%)	9 (5.3%)	10 (7.1%)	9 (7.6%)	
Respiratory Disease		11 (9.2%)	18 (11%)	6 (4.3%)	12 (10%)	
Mental Health Disorders and Substance Use		14 (12%)	15 (8.8%)	5 (3.6%)	7 (5.9%)	
Received a COVID-19 vaccination	515	76 (68%)	121 (76%)	110 (83%)	102 (90%)	<0.001
I can not afford to buy a COVID-19 home test kit	429					0.002
Disagree		36 (39%)	62 (46%)	57 (55%)	64 (65%)	
Agree		57 (61%)	72 (54%)	46 (45%)	35 (35%)	
I don't know where to get a COVID-19 home test kit	484					0.013
Disagree		61 (59%)	93 (64%)	83 (66%)	87 (79%)	
Agree		42 (41%)	53 (36%)	42 (34%)	23 (21%)	
I don't trust the COVID-19 home test results	407					>0.9
Disagree		76 (86%)	98 (88%)	95 (89%)	87 (86%)	
Agree		12 (14%)	13 (12%)	12 (11%)	14 (14%)	

Characteristic	N	Non-degree Education, N = 120	Some college level/ Technical / Vocational degree, N = 171	Bachelor's degree, N = 140	Other advanced degree (Master's, Doctoral degree), N = 119	p-value
My bodily fluids (nasal fluid or saliva) might be used for something besides the COVID-19 test	381					0.089
Disagree		34 (43%)	46 (40%)	47 (49%)	51 (57%)	
Agree		45 (57%)	70 (60%)	49 (51%)	39 (43%)	
I would take a COVID-19 home test if I could still get them for free	471					0.5
Disagree		4 (3.9%)	3 (2.0%)	1 (0.9%)	2 (1.9%)	
Agree		98 (96%)	148 (98%)	112 (99%)	103 (98%)	
I would be more likely to get tested for COVID-19 if I could get home test kits	459					0.2
Disagree		6 (5.9%)	3 (2.1%)	1 (0.9%)	2 (2.0%)	
Agree		96 (94%)	141 (98%)	110 (99%)	100 (98%)	
COVID-19 home tests are easy to do	443					0.6
Disagree		5 (5.2%)	4 (3.0%)	4 (3.7%)	2 (1.9%)	
Agree		92 (95%)	129 (97%)	104 (96%)	103 (98%)	

Table 4: Logistic Regression Model: Predicting previous use of COVID-19 home test based on education level, controlling for family income, vaccination status, affordability, and familiarity with a location to access COVID-19 home tests. (alpha = 0.05)

	β	SE	z value	p Value	Odds Ratio	OR%
(Non-degree education)	0.727	0.472	1.540	0.123	2.068	106.84%
Education levelSome college level/ Technical / Vocational degree	0.250	0.410	0.609	0.542	1.284	28.37%
Education levelBachelor's degree	0.267	0.462	0.579	0.563	1.306	30.63%
Education levelOther advanced degree (Master's, Doctoral degree)	0.891	0.615	1.447	0.148	2.437	143.65%
Family income$20,000-$34,999	0.389	0.441	0.881	0.378	1.475	47.52%
Family income$35,000-74,999	0.567	0.422	1.346	0.178	1.763	76.35%
Family income$75,000 and above	0.561	0.527	1.065	0.287	1.753	75.28%
Received a COVID-19 vaccinationYes	0.633	0.348	1.818	0.069	1.883	88.35%
I can not afford to buy a COVID-19 home test kitAgree	-0.250	0.351	-0.713	0.476	0.779	-22.14%
I don't know where to get a COVID-19 home test kitAgree	-0.711	0.338	-2.104	0.035	0.491	-50.86%

Table 5: Logistic Regression Model: Predicting likeliness to use COVID-19 home test based on education level, controlling for family income, vaccination status and familiarity with a location to access COVID-19 home tests. (alpha = 0.05)

	β	SE	z value	p Value	Odds Ratio	OR%
(Non-degree education)	0.872	0.455	1.916	0.055	2.393	139.25%
Education levelSome college level/ Technical / Vocational degree	0.288	0.415	0.693	0.488	1.333	33.35%
Education levelBachelor's degree	1.100	0.528	2.082	0.037	3.003	200.29%
Education levelOther advanced degree (Master's, Doctoral degree)	0.604	0.541	1.116	0.264	1.829	82.92%
Family income$20,000-$34,999	0.254	0.465	0.547	0.585	1.289	28.93%
Family income$35,000-74,999	0.539	0.446	1.208	0.227	1.714	71.39%
Family income$75,000 and above	0.200	0.501	0.399	0.690	1.221	22.12%
Received a COVID-19 vaccinationYes	0.514	0.373	1.377	0.168	1.672	67.16%
I don't know where to get a COVID-19 home test kitAgree	-0.273	0.341	-0.801	0.423	0.761	-23.91%