Home-Based Testing and COVID-19 Isolation Recommendations, United States

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Using a nationally representative panel survey, we examined isolation behaviors among persons in the United States who had positive SARS-CoV-2 test results during January 2021–March 2022. Compared with persons who received provider-administered results, persons with home-based results had 29% (95% CI 5%–47%) lower odds of following isolation recommendations.

Self-administered home-based tests are increasingly used as the primary method to detect SARS-CoV-2, the virus that causes COVID-19 (*1*). In contrast to tests performed at a public health department, laboratory, or other healthcare setting and administered by a provider, home-based tests require little or no interaction with the healthcare system (*2*,*3*). The Centers for Disease Control and Prevention (CDC) recommends isolation for persons who test positive for SARS-CoV-2 (*4*); however, it is unclear if test administration type is associated with following isolation recommendations. We used data from a nationally representative survey of persons in the United States with COVID-19 (*5*) to explore differences in proportions among those who isolated, followed contemporary isolation recommendations, and self-notified contacts by test administration type.

The Study

We conducted a probability-based, web-based panel survey that provided a representative sampling frame, weighted to demographically represent all noninstitutionalized adults >18 years of age residing in the United States during January 2020–March 2022 (Appendix, https://wwwnc.cdc.gov/EID/article/29/9/23-0494-App1.pdf). For persons with multiple SARS-CoV-2 test results, isolation behaviors and self-notification of contacts corresponded to the first episode only. Because home tests were approved in late 2020 (*6*) and the recommended length of isolation duration evolved over time, we restricted survey respondents to persons with COVID-19 diagnoses that occurred during January 1, 2021–March 31, 2022, and categorized participants by whether they achieved the minimum number of days recommended for isolation on the basis of CDC-recommended contemporary isolation policies. During January 1–December 31, 2021, the minimum recommended isolation period was 10 days; during January 1–March 31, 2022 (the end date of the survey), the minimum recommended isolation period was 5 days (*7*).

We developed survey-weighted multivariable logistic models to examine the association between test administration type and 1) any isolation, 2) adherence to contemporary guidelines among those who isolated, and 3) self-reporting to contacts. We also developed a survey-weighted multivariable linear regression model to examine the association between test administration type and days of isolation. In multivariable models we controlled for age, sex, race/ethnicity, US state of residence, household size, household income, and urbanicity (i.e., urban, suburban, and rural). We transformed logistic models to compute adjusted odds ratios (aORs) and accompanying 95% CI, considering CIs that did not contain the null to be statistically significant.

Using population-weighted survey responses, we estimated 48,518,190 adults in the United States had ≥1 positive SARS-CoV-2 test result during the 15-month analytic period. Among those, 11,468,111

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(24%) adults had results exclusively from home-based tests and 37,050,079 (76%) had results exclusively from provider-administered tests.

After we adjusted for potential confounders, persons who received results from home-based tests were significantly less likely to isolate for any duration compared with those who received provider-administered tests (78% vs. 84%; aOR 0.72 [95% CI 0.57–0.89]) (Figure). Similarly, among those who did isolate, the odds that their isolation met contemporary guidelines were significantly lower among persons who received results from home-based tests than among those with provider-administered tests (64% vs, 73%; aOR 0.71 [95% CI 0.53–0.95]). The adjusted mean duration of isolation was 2 (95% CI 1.59–2.45) days shorter among persons with results from home-based tests than those with provider-administered tests ($p<0.001$). Participants who home tested also had decreased odds of self-notifying their contacts; however, that association was not statistically significant (78% vs. 84%; aOR 0.79 [95% CI 0.53–1.18]) (Figure).

Conclusions

Using a nationally representative survey of persons with COVID-19, we found that persons in the United States who exclusively used SARS-CoV-2 home-based tests were significantly less likely to isolate or follow contemporary isolation recommendations and, on average, isolated for fewer days than those who exclusively used provider-administered tests. This analysis adds to a limited number of reports that investigated the actual behaviors of persons after they received a positive SARS-CoV-2 result. A randomized trial by Woloshin et al. (*8*) demonstrated that persons who used home-based tests might not follow CDC guidelines. Those findings suggest that persons who test at home may be unaware of or misinformed about the need for, or duration of, recommended isolation and indicates that health providers may potentially influence isolation behaviors and reinforce contemporary recommendations. Ritchey et al. (*9*) found that, despite the increased availability of home-based tests, only a small fraction of persons in the United States self-reported home-based test results to a public health surveillance system. Those findings have potential implications for initiating important public health activities, such as formal case investigation for surveillance and contract tracing to interrupt ongoing transmission. Oeltmann et al. (*5*) reported that most persons with any positive test results self-notified contacts irrespective of whether they participated in formal case investigation and contact tracing. In

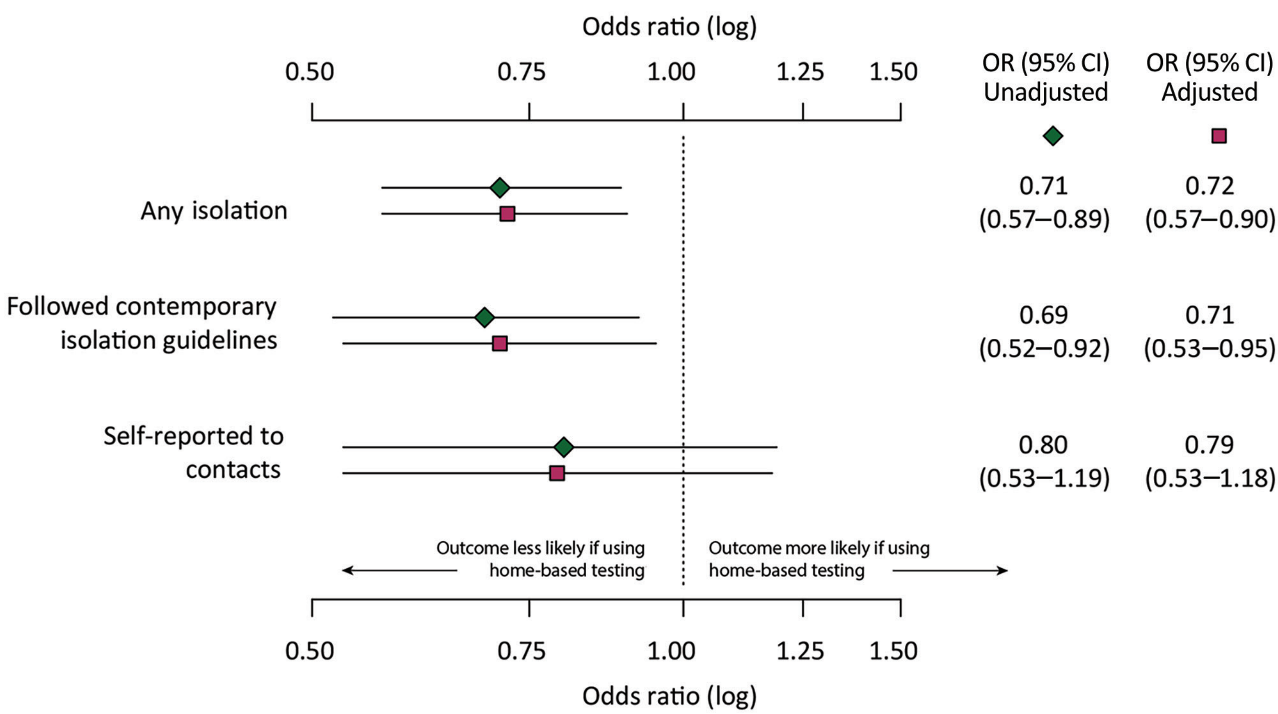

Figure. Crude and adjusted odds ratios and 95% CIs comparing COVID-19 isolation, isolation duration, and self-notification of contacts by SARS-CoV-2 test administration type, United States, January 2021–March 2022. Multivariable models included population-weighted individual survey responses controlled for age, sex, race/ethnicity, US state of residence, household size, household income, and urbanicity (i.e., urban, suburban, or rural). Isolation and notification likelihood of home-based testing is in comparison to provider-administered tests. Vertical dashed line indicates the null or no statistical association. OR, odds ratio.

addition, Bien-Gund et al. found that persons who tested positive were motivated to distribute test kits to potential contacts (*10*), suggesting that persons with positive results might engage in constructive health behaviors without formal public health interactions.

The first limitation of our study is that responses were self-reported, meaning those who agreed to participate in the survey might be more health conscious and, thus, have a higher propensity to follow public health guidelines. We did not include those too ill to respond (e.g., hospitalized persons) or persons experiencing homelessness, and we only administered the survey to participants proficient in English or Spanish. Conversely, persons with mild or asymptomatic disease were plausibly less motivated to test and, thus, may have been unaware of a potential COVID-19 diagnosis, resulting in a potential misclassification in the survey. The pace of home-based testing availability and use in the study population might not reflect the true practice in the United States over time. Finally, the survey was limited to questions describing the first episode of COVID-19. For persons with multiple episodes or test results, isolation behaviors and self-notification of contacts might have changed over time.

Rapid, home-based tests for SARS-CoV-2 have both individual and public health benefits (*9*). Home-based tests greatly expanded access to COVID-19 diagnosis, especially among those without primary healthcare providers and those without stable medical benefits. However, although home-based tests increase convenience and may hasten the time to diagnosis (*2*–*4*), home-based tests eliminate the opportunity for providers to offer health education, reinforce complex and often rapidly evolving COVID-19 recommendations, and emphasize the importance of behavior change to mitigate ongoing transmission. Clear public health messaging about when and how to test, and the efficacy of each type of test, may help to ensure that persons are testing at the appropriate time, even if they do not experience any symptoms (*11*).

In our study, a notable proportion of persons with home-based test results (64%) and provider-administered test results (73%) followed contemporary isolation recommendations. Because the proportion of individuals using home-based tests has increased over time, there is a need to better integrate these results into tangible public health actions. Developing mechanisms that encourage self-report of positive home-based tests results to health departments will likely improve COVID-19 surveillance, formal case investigation, and contact tracing efforts, but also offer opportunities for additional clinical, educational, and emotional support that may further reinforce contemporary COVID-19 recommendations. Examining specific individual-level or community-level behavioral factors associated with self-reporting and other public health actions may extend these findings and deepen our understanding of optimal strategies to mitigate future pandemics with rapid widespread transmission.

Study participation was voluntary; all participants had privacy and confidentiality protections. US Centers for Disease Control and Prevention reviewed this study and deemed it not to be research as defined in 45 CFR 46.102(l) (U.S. Department of Health and Human Services, Title 45 Code of Federal Regulations 46, Protection of Human Subjects).

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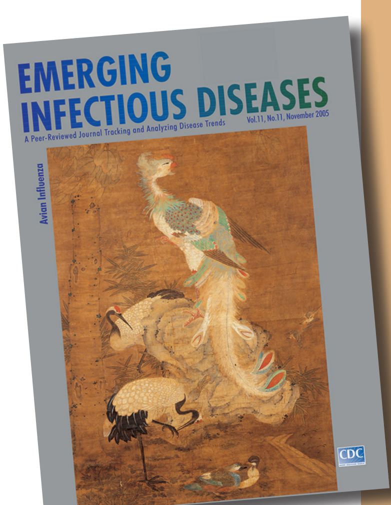

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Tularemia

[t-lə-rē-mē-ə]

An infectious, plaguelike, zoonotic disease caused by the bacillus *Francisella tularensis*. The agent was named after Tulare County, California, where the agent was first isolated in 1910, and Edward Francis, an Officer of the US Public Health Service, who investigatedthe disease. Dr. Francis first contracted deer fly fever from a patient he visited in Utah in the early 1900s. He kept a careful record of his 3-month illness and later discovered that a single attack confers permanent immunity. He was exposed to the bacterium for 16 years and even deliberately reinfected himself 4 times.

Tularemia occurs throughout North America, many parts of Europe, the former Soviet Union, the Peoples Republic of China, and Japan, primarily in rabbits, rodents, and humans. The disease is transmitted by the bites of deerflies, fleas, and ticks; by contact with contaminated animals; and by ingestion of contaminated food or water.

Clinical manifestations vary depending on the route of introduction and the virulence of the agent. Most often, an ulcer is exhibited at the site of introduction, together with swelling of the regional lymph nodes and abrupt onset of fever, chills, weakness, headache, backache, and malaise.

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Appendix

Methods

Ipsos KnowledgePanel

We drew the sample from the Ipsos KnowledgePanel, a probability-based, web-based panel that provides a representative sampling frame for all noninstitutionalized adults (aged 18 years and older) residing in the United States (*1*). Ipsos uses an address-based sampling (ABS) recruitment method based on the U.S. Postal Service's Delivery Sequence File. ABS may improve population coverage, and also provides a more effective means for recruiting hard-to-reach individuals, such as cellphone-only households, non-internet households, young adults, and persons of color. Households without an internet connection are provided with a web-enabled device and free internet service.

For this study, a sample of 22,514 panelists were selected and invited to complete the survey. A total of 15,923 responded to the survey invitation and completed the survey, resulting in a study completion rate of 71%. In total, 3,500 respondents self-reported a positive SARS-CoV-2 test result (cases), 5,369 respondents self-reported exposure to a person with COVID-19 (contacts) and 6,654 were neither a case nor a contact (controls) (*2*).

Sampling and Administration

Stratified random sampling and weighing ensures that the geodemographic composition is comparable with that of the adult U.S. population (Supplement Table). Adults from sampled households are invited to join KnowledgePanel through ABS using a series of mailings, including an initial invitation letter, a reminder postcard, and a subsequent follow-up letter. Moreover, telephone refusal-conversion calls are made to nonresponding households for which a telephone number could be matched to a physical address.

To increase the representativeness of U.S. Hispanics in KnowledgePanel, Hispanic members recruited through Ipsos' traditional ABS sampling methodology described above are supplemented with recruitment using a custom dual-frame random-digit dialing sampling methodology targeting telephone exchanges associated with census blocks that have a 65% or greater Latino population density of the U.S. Hispanic population. Moreover, cellular numbers from rates centers with high concentration of Hispanics are also used to improve the representation of samples. With this telephone recruitment, households are screened in the Spanish language to only recruit those homes where Spanish is spoken at least half the time.

Once panel members are recruited and profiled by completing the Core Profile Survey, they are considered "active members" and become eligible for selection for specific surveys. Typically, specific survey samples are based on an equal probability selection method (EPSEM) for general population surveys. For selection of general population samples from KnowledgePanel, a patented methodology has been developed such that samples from the panel behave as EPSEM samples. Briefly, this methodology starts by weighting the pool of active members to the geodemographic benchmarks secured from a combination of the U.S. Census Bureau's American Community Survey (ACS) and the latest March supplement of the U.S. Census Bureau's Current Population Survey (CPS) along several dimensions. Using the resulting weights as measures of size (calculated at the person level), a probability-proportional-to-size (PPS) procedure is used to select study specific samples. The primary sampling unit is the individual person. It is the application of this PPS methodology with the imposed size measures that produces demographically balanced and representative samples that behave as EPSEM. Once assigned to a survey, members receive a notification email letting them know there is a new survey available for them to complete. Typically, after 3 days, automatic email reminders are sent to all non-responding panel members in the sample. Additional email reminders are sent and custom reminder schedules are set up as needed.

Study-Specific Weights

For this study, our weighting process included the following steps:

1. In the first step, design weights for all KnowledgePanel (KP) assignees were computed to reflect their selection probabilities.
2. The above design weights for KP respondents, regardless of qualification status to our survey, were adjusted to represent all persons aged 18 years and over in the U.S. population for the following geodemographic variables and categories using an iterative proportional fitting (raking) procedure. The needed benchmarks were

obtained from the 2021 March Supplement of the Current Population Survey, except language proficiency, which is not available, was obtained from the 2019 American Community Survey. Because race/ethnicity is an important analytical variable, we included some adjustments within race/ethnicity categories. Samples sizes were sufficient to support these nested adjustments (Supplement Table).

a. Age (18–29, 30–44, 45–59, 60+) by Gender (Male, Female) by Race-Ethnicity (Non-Hispanic White, Non-Hispanic Black, Non-Hispanic Other/2+ Races, Hispanic)

b. Education (Less than High School, High School, Some College, Bachelor or Higher) by Race-Ethnicity (Non-Hispanic White, Non-Hispanic Black, Non-Hispanic Other/2+ Races, Hispanic)

c. Household Income (Under $25,000 $25,000–$49,999, $50,000–$74,999, $75,000–$99,999, $100,000–$149,999, $150,000 and over) by Race-Ethnicity (Non-Hispanic White, Non-Hispanic Black, Non-Hispanic Other/2+ Races, Hispanic)

d. Census Region (Northeast, Midwest, South, and West) by Race-Ethnicity (Non-Hispanic White, Non-Hispanic Black, Non-Hispanic Other/2+ Races, Hispanic)

e. Metropolitan Status (Metro, Non-Metro) by Race-Ethnicity (Non-Hispanic White, Non-Hispanic Black, Non-Hispanic Other/2+ Races, Hispanic)

f. Race-Ethnicity (Non-Hispanic White, Non-Hispanic Black, Non-Hispanic American Indian or Alaska Native, Non-Hispanic Asian, Native Hawaiian, Pacific Islander, Non-Hispanic Other Race/2+ Races, Hispanic)

g. Hispanic Origin (Non-Hispanic, Mexican Hispanic, Puerto Rican Hispanic, Cuban Hispanic, Other Hispanic Origins)

h. Language Proficiency within Hispanic (English Proficient Hispanic, Bilingual Hispanic, Spanish Proficient Hispanic, Non-Hispanic)

3. In the final step, the resulting weights were trimmed as needed and scaled to sum to the 18 and over U.S. population size.

Nonresponse Bias Analysis

In all survey-only based studies, final estimates are based solely on the survey's respondents. Errors may arise in the estimates resulting from nonresponse if there are systematic differences between persons who respond to a survey and those who do not. Nonresponse-adjusted weights attempt to account for these differences by identifying characteristics available for both respondents and nonrespondents that are associated both with the likelihood of responding and key outcomes. This is done by adjusting the weights of the respondents to compensate for the nonrespondents using these characteristics. In studies where these adjustments can successfully account for differences between nonrespondents and respondents, the survey estimates would have minimal potential for nonresponse bias.

The nonresponse adjustments applied to the sampling weights in the National Survey of Health in America, 2022 appear to have effectively accounted for differences between respondents and nonrespondents, thereby minimizing the potential for nonresponse bias. The study team cannot directly measure nonresponse bias without knowing how nonrespondents would have answered survey items; however, we can examine variables available for both respondents and nonrespondents that we believe are correlated with responses to survey items.

Our analysis indicates that the nonresponse adjustment alleviated differences observed between respondents and nonrespondents in the sample for the variables that we had at our disposal. The largest relative differences that did exist occurred with age by sex by race/ethnicity, education by race/ethnicity, income by race/ethnicity, Metropolitan Statistical Areas (MSA) by race/ethnicity, and race/ethnicity.

Results

We used the initial weights to compare the distributions of the variables across the frame and the total sample. We also compared the distributions of variables between the respondents and nonrespondents, to establish how respondents and nonrespondents differed. We then compared estimates using respondents only (using nonresponse-adjusted weights) and the Current Population Survey (CPS) estimates reported in the Supplement Table. We used SAS survey procedures to calculate standard errors to properly account for unequal weights. The sample statistics consist of proportions with an attribute (presented as percentages). The variables have trivial numbers of missing, and in each case, the proportions with each attribute that were used in the following analyses were calculated among cases without missing data. The values are percentages for each level of the categorical variables, with the associated standard errors (*se*).

Comparison of Entire Sample with Frame

Before conducting a nonresponse analysis, the first step is to check whether the sample distribution adequately matches the frame distribution on important variables that may not have been controlled for in the sampling process. This is necessary to ascertain whether the estimates using the sampling weights produce estimates that are consistent with population values. Statistics estimated from the entire sample (using the initial sampling weight) among all adults are close to those computed with the full frame but are not exact. The sample somewhat underrepresents young, black men (18–29 Male Non-Hispanic Black) and overrepresents young, non-Hispanic women (18–29 Female Non-Hispanic White). The sample also somewhat overrepresents lower income whites (Under $24,999, Non-Hispanic White, $25,000–$49,999 Non-Hispanic White) and underrepresents high income adults regardless of race/ethnicity (income $150,000 and over) (not shown).

Assessment of Differences between Respondents and Nonrespondents before Nonresponse Adjustment

We then compared respondents and nonrespondents. We calculated the *t*-statistic by calculating the differences between the proportions within the levels of each demographic covariate and creating an estimate of the variance of the difference by combining the standard error estimates obtained from the SAS survey procedure. Respondents were different from nonrespondents for most variables we examined. The drivers of nonresponse appear to be that (1) age is very highly correlated with response, with the highest response rate among adults over 60, and (2) response among blacks and Hispanics is low relative to all other groups. Respondents were also more likely to be higher educated (bachelor's degree or higher) (not shown).

Nonresponse Adjustment

Nonresponse adjustments made to initial weights seek to reduce the potential for bias that might result from differential nonresponse based on a set of variables. These variables should be available for both respondents and nonrespondents, be related to the likelihood of responding, and be correlated with key survey outcomes. The sampling design weights for survey respondents —including all who answered the screener questions regardless of case or contact status — were adjusted to represent all adults in the U.S. population for the geodemographic variables and categories using an iterative proportional fitting (raking) procedure. The needed benchmarks were obtained from the 2021 March Supplement of the CPS, except language proficiency, which is not available from CPS and was obtained from the 2019 American Community Survey.

Age (18–29, 30–44, 45–59, 60+) by Gender (Male, Female) by Race-Ethnicity (Non-Hispanic White, Non-Hispanic Black, Non-Hispanic Other/2+ Races, Hispanic)

Education (Less than High School, High School, Some College, Bachelor or Higher) by Race-Ethnicity (Non-Hispanic White, Non-Hispanic Black, Non-Hispanic Other/2+ Races, Hispanic)

Household Income (Under $24,999, $25,000–$49,999, $50,000–$74,999, $75,000–$99,999, $100,000–$149,999, $150,000 and over) by Race-Ethnicity (Non-Hispanic White, Non-Hispanic Black, Non-Hispanic Other/2+ Races, Hispanic)

Census Region (Northeast, Midwest, South, and West) by Race-Ethnicity (Non-Hispanic White, Non-Hispanic Black, Non-Hispanic Other/2+ Races, Hispanic)

Metropolitan Status (Metro, Non-Metro) by Race-Ethnicity (Non-Hispanic White, Non-Hispanic Black, Non-Hispanic Other/2+ Races, Hispanic)

Race-Ethnicity (Non-Hispanic White, Non-Hispanic Black, Non-Hispanic American Indian or Alaska Native, Non-Hispanic Asian, Native Hawaiian, Pacific Islander, Non-Hispanic Other Race/2+ Races, Hispanic)

Hispanic Origin (Non-Hispanic, Mexican Hispanic, Puerto Rican Hispanic, Cuban Hispanic, Other Hispanic Origins)

Language Proficiency within Hispanic (English Proficient Hispanic, Bilingual Hispanic, Spanish Proficient Hispanic, Non-Hispanic)

In the final step, the resulting weights were trimmed and scaled to sum to all adults in U.S. population census. Comparison of respondents and ineligibles to the sampling frame after nonresponse adjustment. The purpose of nonresponse adjustments is to account for any differences between respondents and nonrespondents, to make respondents look like the original sample as much as possible.

In this section, we evaluate how well the nonresponse adjustments accounted for those differences. Below, we included percentages from the CPS, estimated percentages from the entire sample (using initial sampling weights), and nonresponse-adjusted weighted estimated percentages among respondents. We compare estimates using nonresponse-adjusted weights to the CPS because the survey panel distribution should match the CPS distributions. The nonresponse adjustments to the sampling weights alleviated most of the differences observed between respondents and nonrespondents (Appendix Table). When compared to CPS there are no differences. As described above, the weights are adjusted to CPS distributions and the final nonresponse adjustments result in no differences between the weighted estimates and CPS distributions.

Summary and Implications for Analyses

Our analysis has shown that the selected sample for the National Survey of Health in America, 2022 was representative of the populations of interest among variables used for selection. Because we did not achieve an 80% response rate, the main purpose of this nonresponse bias analysis was to determine if systematic differences between respondents and nonrespondents were alleviated by nonresponse adjustments to the weights, or if the potential for nonresponse bias was still likely in the weighted estimates.

We found that the nonresponse adjustments alleviated most of the differences observed between respondents and nonrespondents. In addition, it does not appear that the nonresponse adjustments created new biases.

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Appendix Table. Percentages and standard errors of various demographic attributes comparing Current Population Survey estimates with final weighted estimate using nonresponse-adjusted weights

Variable	CPS percent	Entire sample percent using initial weights: Percent	*se*	Number of respondents with attribute	Respondent-based weighted percent using nonresponse-adjusted weights: Percent	*se*
Age, y, Sex, Race/Ethnicity						
18–29 Male, Non-Hispanic White	5.5	5.4	0.16	601	5.5	0.22
18–29 Female, Non-Hispanic White	5.3	6.9	0.18	734	5.3	0.20
30–44 Male, Non-Hispanic White	7.2	7.4	0.18	1139	7.3	0.21
30–44 Female, Non-Hispanic White	7.2	6.7	0.18	977	7.2	0.23
45–59 Male, Non-Hispanic White	7.3	7.4	0.18	1358	7.3	0.20
45–59 Female, Non-Hispanic White	7.6	6.8	0.17	1200	7.6	0.22
60+ Male, Non-Hispanic White	10.5	11.0	0.21	2346	10.5	0.22
60+ Female, Non-Hispanic White	11.9	11.0	0.21	2210	12.0	0.25
18–29 Male, Non-Hispanic Black	1.4	0.8	0.06	80	1.3	0.16
18–29 Female, Non-Hispanic Black	1.4	1.4	0.08	112	1.4	0.15
30–44 Male, Non-Hispanic Black	1.5	1.3	0.08	197	1.6	0.12
30–44 Female, Non-Hispanic Black	1.7	2.0	0.09	260	1.8	0.11
45–59 Male, Non-Hispanic Black	1.3	1.4	0.07	249	1.3	0.09
45–59 Female, Non-Hispanic Black	1.6	1.7	0.08	306	1.6	0.10
60+ Male Non-Hispanic Black	1.3	1.5	0.08	314	1.3	0.08
60+ Female Non-Hispanic Black	1.8	1.9	0.09	401	1.8	0.10
18–29 Male, Non-Hispanic Other/2+ Races	1.0	0.8	0.07	76	1.0	0.13
18–29 Female, Non-Hispanic Other/2+ Races	1.0	1.0	0.07	82	0.9	0.13
30–44 Male Non-Hispanic Other/2+ Races	1.2	1.3	0.08	192	1.2	0.11
30–44 Female, Non-Hispanic Other/2+ Races	1.4	1.5	0.08	205	1.4	0.13
45–59 Male, Non-Hispanic Other/2+ Races	0.9	1.2	0.07	189	0.9	0.09
45–59 Female, Non-Hispanic Other/2+ Races	1.1	1.0	0.07	173	1.1	0.11
60+ Male Non-Hispanic Other/2+ Races	0.8	0.9	0.06	177	0.8	0.09
60+ Female Non-Hispanic Other/2+ Races	1.1	1.0	0.07	186	1.1	0.12
18–29 Male, Hispanic	2.4	1.8	0.09	162	2.3	0.21
18–29 Female, Hispanic	2.3	2.3	0.10	232	2.3	0.16
30–44 Male, Hispanic	2.7	2.6	0.11	363	2.7	0.16
30–44 Female, Hispanic	2.6	2.8	0.11	332	2.6	0.16
45–59 Male, Hispanic	2.0	2.2	0.10	371	2.0	0.12
45–59 Female, Hispanic	2.0	2.2	0.10	360	2.0	0.12
60+ Male, Hispanic	1.3	1.6	0.08	327	1.3	0.08
60+ Female, Hispanic	1.6	1.4	0.08	256	1.6	0.11
Education, Race/Ethnicity						
Less than High School, Non-Hispanic White	3.6	4.3	0.16	469	3.6	0.17
High School, Non-Hispanic White	16.9	17.7	0.28	2434	17.0	0.33
Some College, Non-Hispanic White	17.4	16.8	0.25	2971	17.4	0.31
Bachelor or Higher, Non-Hispanic White	24.6	23.8	0.28	4691	24.7	0.34
Less than High School, Non-Hispanic Black	1.2	1.1	0.08	123	1.2	0.12
High School, Non-Hispanic Black	4.1	3.6	0.13	460	4.1	0.22
Some College, Non-Hispanic Black	3.6	3.9	0.12	667	3.6	0.16
Bachelor or Higher, Non-Hispanic Black	3.1	3.4	0.11	669	3.1	0.13
Less than High School, Non-Hispanic Other/2+ Races	0.7	0.5	0.05	41	0.6	0.12
High School, Non-Hispanic Other/2+ Races	1.8	1.6	0.10	172	1.7	0.16
Some College, Non-Hispanic Other/2+ Races	1.9	2.1	0.10	299	1.9	0.16
Bachelor or Higher, Non-Hispanic Other/2+ Races	4.2	4.5	0.14	768	4.3	0.19
Less than High School, Hispanic	4.1	3.7	0.14	406	4.1	0.23
High School, Hispanic	5.5	5.4	0.16	645	5.5	0.24
Some College, Hispanic	4.2	4.3	0.13	716	4.2	0.18
Bachelor or Higher, Hispanic	3.1	3.4	0.11	636	3.1	0.14
Income, Race/Ethnicity						
Under $24,999, Non-Hispanic White	6.9	8.4	0.20	1135	6.9	0.21
$25,000–$49,999, Non-Hispanic White	9.7	10.6	0.21	1674	9.8	0.24
$50,000–$74,999, Non-Hispanic White	9.7	10.1	0.21	1643	9.7	0.24
$75,000–$99,999, Non-Hispanic White	8.4	8.8	0.19	1518	8.4	0.22
$100,000–$149,999, Non-Hispanic White	11.9	11.4	0.21	2033	11.9	0.26
$150,000 or more, Non-Hispanic White	16.0	13.2	0.22	2562	16.1	0.31
Under $24,999, Non-Hispanic Black	2.6	3.4	0.12	429	2.6	0.15
$25,000–$49,999 Non-Hispanic Black	2.5	2.5	0.10	396	2.5	0.15
$50,000–$74,999 Non-Hispanic Black	2.2	2.1	0.09	351	2.2	0.15
$75,000–$99,999 Non-Hispanic Black	1.4	1.4	0.07	264	1.4	0.10
$100,000–$149,999 Non-Hispanic Black	1.7	1.5	0.08	274	1.7	0.12
$150,000 or more Non-Hispanic Black	1.6	1.1	0.07	205	1.6	0.13
Under $24,999, Non-Hispanic Other/2+ Races	0.9	1.2	0.08	132	0.9	0.11

Variable	CPS percent	Entire sample percent using initial weights		Number of respondents with attribute	Respondent-based weighted percent using nonresponse-adjusted weights	
		Percent	*se*		Percent	*se*
$25,000–$49,999, Non-Hispanic Other/2+ Races	1.1	1.3	0.08	174	1.1	0.12
$50,000–$74,999, Non-Hispanic Other/2+ Races	1.2	1.4	0.08	202	1.2	0.12
$75,000–$99,999, Non-Hispanic Other/2+ Races	1.0	1.2	0.08	200	1.0	0.11
$100,000–$149,999, Non-Hispanic Other/2+ Races	1.6	1.5	0.08	256	1.5	0.12
$150,000 and more, Non-Hispanic Other/2+ Races	2.8	1.9	0.09	316	2.7	0.18
Under $24,999, Hispanic	2.4	3.7	0.13	401	2.4	0.14
$25,000–$49,999, Hispanic	3.7	4.4	0.14	560	3.7	0.18
$50,000–$74,999, Hispanic	3.2	3.1	0.12	456	3.2	0.18
$75,000–$99,999, Hispanic	2.4	2.0	0.09	314	2.4	0.16
$100,000–$149,999, Hispanic	2.8	2.1	0.09	387	2.8	0.16
$150,000–Over Hispanic	2.4	1.6	0.08	285	2.4	0.17
Geographic Region, Race/Ethnicity						
Northeast, Non-Hispanic White	11.6	12.0	0.23	1959	11.7	0.26
Midwest, Non-Hispanic White	16.1	16.0	0.25	2794	16.1	0.30
South, Non-Hispanic White	22.3	22.0	0.28	3617	22.3	0.35
West, Non-Hispanic White	12.6	12.6	0.23	2195	12.6	0.27
Northeast, Non-Hispanic Black	1.8	1.8	0.09	280	1.8	0.13
Midwest, Non-Hispanic Black	2.0	2.1	0.09	336	2.0	0.13
South, Non-Hispanic Black	7.0	6.9	0.17	1117	7.0	0.24
West, Non-Hispanic Black	1.1	1.1	0.07	186	1.1	0.10
Northeast, Non-Hispanic Other/2+ Races	1.5	1.4	0.08	196	1.5	0.14
Midwest, Non-Hispanic Other/2+ Races	1.1	1.3	0.08	202	1.1	0.11
South, Non-Hispanic Other/2+ Races	2.4	2.6	0.11	379	2.3	0.16
West, Non-Hispanic Other/2+ Races	3.6	3.3	0.12	503	3.5	0.20
Northeast, Hispanic	2.2	2.0	0.09	287	2.2	0.15
Midwest, Hispanic	1.4	1.3	0.07	192	1.4	0.12
South, Hispanic	6.6	6.7	0.16	956	6.6	0.25
West, Hispanic	6.6	6.9	0.17	968	6.6	0.24
MSA Category, Race/Ethnicity						
Non-Metro, Non-Hispanic White	10.8	11.2	0.22	1732	10.8	0.26
Metro, Non-Hispanic White	51.8	51.4	0.34	8833	51.9	0.45
Non-Metro, Non-Hispanic Black	1.0	1.0	0.07	143	1.0	0.10
Metro, Non-Hispanic Black	11.0	11.0	0.20	1776	11.0	0.29
Non-Metro, Non-Hispanic Other/2+ Races	0.7	0.8	0.06	118	0.7	0.09
Metro, Non-Hispanic Other/2+ Races	8.0	7.8	0.19	1162	7.8	0.29
Non-Metro, Hispanic	1.0	0.9	0.07	130	1.0	0.10
Metro, Hispanic	15.9	15.9	0.24	2273	15.9	0.36
Race/Ethnicity						
Non-Hispanic White	62.5	62.5	0.33	10565	62.7	0.45
Non-Hispanic Black	12.0	12.0	0.21	1919	12.0	0.31
Non-Hispanic Asian, Native Hawaiian, Pacific Islander	6.4	4.0	0.13	628	6.3	0.28
Hispanic	16.9	16.9	0.25	2403	16.9	0.37
Non-Hispanic Other Race/2+ Races	2.2	4.6	0.15	652	2.2	0.13
Hispanic/Latino Origin						
Non-Hispanic	83.1	83.1	0.25	13764	83.1	0.37
Mexican, Hispanic	10.2	10.2	0.20	1397	10.2	0.30
Puerto Rican, Hispanic	1.5	1.6	0.08	246	1.5	0.11
Cuban, Hispanic	0.8	0.8	0.06	140	0.8	0.09
Other, Hispanic Origin	4.3	4.3	0.13	620	4.3	0.21

*CPS, Current Population Survey; se, standard error