

RANDS During COVID-19 Round 3 Technical Documentation

Overview

The National Center for Health Statistics (NCHS) Division of Research and Methodology (DRM) contracted NORC at the University of Chicago (NORC) to collect timely information on COVID-19-related health outcomes from U.S. adults as a special iteration of the Research and Development Survey (RANDS). This special iteration of RANDS, referred to as RANDS during COVID-19, was conducted using both a probability-based panel and an opt-in commercial survey panel. RANDS during COVID-19 is a three-round survey, with a longitudinal design in Round 1 and Round 2 for the probability-based panel. This technical documentation describes the sampling methodology and weighting for the third round of RANDS during COVID-19 (RANDS during COVID-19 Round 3), which included only panelists sampled from the probability-based panel.

While RANDS has previously been collected for methodological research purposes, RANDS during COVID-19 was designed to collect and report timely information on COVID-19-related health measures. RANDS during COVID-19 was used to produce a set of experimental estimates for selected topics, including loss of work due to illness with COVID-19, telemedicine access and use, and health care access. The estimates are considered experimental as research is underway to improve the calibration method (see Sample Weighting below) and understand potential sources of measurement error. Experimental national and subnational estimates for the selected outcomes are published online (<https://www.cdc.gov/nchs/covid19/rands.htm>); remaining variables were collected for research purposes.

To evaluate the question-response pattern as in previous rounds of RANDS, RANDS during COVID-19 Round 3 included probe questions and six specific experiments:

- 1) Life Satisfaction Response Scale Experiment: The experiment compared responses for life satisfaction question with a numeric scale ranging from 0 to 10 or with a set of four-level satisfaction response options that included “very satisfied”, “satisfied”, “dissatisfied”, and “very dissatisfied”.
- 2) Life Satisfaction Probe with an Open-Ended Response Option Experiment: The life satisfaction probe examined respondents’ thinking constructs when answering the life satisfaction question. This experiment compared the responses collected with an open-ended option, “Something else, please specify:” along with other close-ended statements versus only with close-ended statements.
- 3) Vaccination Probe with an Open-Ended Response Option Experiment: The vaccination probe question examined the respondents’ thinking constructs when answering questions on receiving a COVID-19 vaccine. The experiment compared the responses collected with an open-ended option, “Something else, please specify:” along with other close-ended statements versus only with close-ended statements.
- 4) Telemedicine Question Experiment: The experiment compared two approaches for asking about telemedicine availability. One group received the question used in Rounds 1 and 2 of RANDS during COVID-19 (and used to produce experimental estimates of telemedicine access released by NCHS), while the other group received an alternative wording.

- 5) Probe formatting experiment: This experiment compared probe formatting by providing one group a close-ended probe question with “select-all-that-apply” formatting, while the other received a probe formatted as a series of forced-choice questions.
- 6) Anxiety and Depression Probes with Open-Ended Response Options Experiment: The participants were divided into two groups to examine how an open-ended response option affected the responses when describing their feelings of being anxious or depressed. One group received the open-ended option, “I would describe them some other way, please specify:” along with close-ended options for anxiety but only received close-ended options for depression. The other group received the open-ended option, “I would describe them some other way, please specify:” along with close-ended options for depression but only received close-ended options for anxiety.

NORC conducted RANDS during COVID-19 Round 3 from May 17, 2021 to June 30, 2021. Panelists responded to either online web surveys or telephone interviews. This documentation describes the sampling approach, data collection timeline, response rate, and sample weighting for the survey.

Sampling

The target population for this study consisted of the general population of the United States aged 18 and older. The source of the sample for this study was NORC’s AmeriSpeak® Panel (<http://amerispeak.norc.org/>), with an oversample of panelists preferring phone interviews. Funded and operated by NORC at the University of Chicago, AmeriSpeak® is a probability-based panel designed to be representative of the U.S. household population. Randomly selected U.S. households were sampled from the NORC National Sample Frame (<https://www.norc.org/Research/Projects/Pages/2010-national-sample-frame.aspx>) and then contacted by U.S. mail, telephone, and through face-to-face field interviews for recruitment to the Panel. As of early 2021, the AmeriSpeak® Panel included more than 40,000 U.S. households and provided sample coverage of 99% of the U.S. household population.

For RANDS during COVID-19 Round 3, NORC collaborated with NCHS’ Division of Research and Methodology on a stratified sample design to obtain a random and representative sample of U.S. adults aged 18 and over from the AmeriSpeak® Panel. The target population was stratified by age (18-34, 35-49, 50-64, 65+), race/Hispanic ethnicity (Hispanic, Non-Hispanic Black, Non-Hispanic All Other), education (Associate’s degree/some college or less, Bachelor’s degree or above), sex (male, female) and annual household income (less than \$75,000, greater than or equal to \$75,000) for a total of 96 sampling strata. Then, NORC performed sampling independently within each stratum using simple random sampling. The sampling ratios varied by stratum to account for differential nonresponse for each stratum to ensure a representative sample of the target population. If more than one panelist were available in one household, random within-household sampling was carried out to ensure only one adult from the household was eligible for sampling. Moreover, in an effort to improve the cumulative response rate without introducing bias into the estimates, NORC excluded certain panelists from sampling, such as panelists added to AmeriSpeak® Panel from other probability samples and panelists with a past-year history of low completion rate. To meet the target number of completed surveys, RANDS during COVID-19 Round 3 included panelists recruited to the AmeriSpeak® Panel in 2019 and 2020, who were not

included in rounds 1 and 2 of RANDS during COVID-19 (RANDS during COVID-19 Round 1 Probability Sample Technical Documentation, 2022).

Summary of Field Work

The RANDS during COVID-19 Round 3 survey was administered in English via either online web surveys or phone interviews. On April 12, 2021, NORC invited a small sample of AmeriSpeak® web-mode panelists for a pretest and collected 89 pretest interviews. No changes were made to the survey following the pretest.

For the sampled panelists, NORC sent e-mail invitations to web-preference panelists and phone dialed phone-preference panelists in two batches. The soft-launch invitation was sent to some web-preference panelists on May 17, 2021. On May 18, phone dialing began for some phone-preference panelists. On May 20, email invitations were sent to all the remainder of web-preference sample and a reminder was sent to the soft-launch sample. On May 21, phone-dialing began for the remainder of phone-preference panelists. Additional email reminders were sent to invited web-preference panelists on May 23, May 26, June 1, June 5, June 11 and June 13, and a Short Message Service (SMS) text message was sent to web-preference panelists on June 3. For phone-preference panelists, NORC dialed their phone numbers throughout the field period. On June 10, a custom email reminder was sent to the phone-preference sample. On June 14 and June 25, additional sampled panelists with a mix of web- and phone-preference panelists were invited to participate by phone to increase the number of phone respondents.

In total, out of 7,852 panelists sampled, 5,458 completed the interviews with 4,181 by web-mode and 1,277 via phone. The overall completion rate was 69.5% and the weighted cumulative response rate was 11.8%. An additional 250 respondents were removed from the dataset prior to post-stratification weighting. Among these 250 respondents, 94 started but did not complete the survey and 156 respondents either completed the survey in less than one third of the median duration and/or had high refusal/skipping rates (defined as refused/skipped more than 50% of eligible questions).

NCHS did not provide an incentive for participation in RANDS, although NORC offered a non-cash, point-based incentive for responding to surveys such as RANDS, which can be traded for gift cards or other non-cash prizes.

Table 1 reports the sample sizes and response rates by sampling strata.

Table 1. RANDS during COVID-19 Round 3 Response Rates by Sampling Strata

Race/Ethnicity	Education Level	Age Group (Year)	Gender	Income Group	Total Sample per Stratum	Completes per Stratum	Response Rate
Non-Hispanic All Other	Associate degree/some college or less	18-34	Male	<\$75,000	274	160	58.39%

Non-Hispanic All Other	Associate degree/some college or less	18-34	Male	\geq \$75,000	91	50	54.95%
Non-Hispanic All Other	Associate degree/some college or less	18-34	Female	$<$ \$75,000	219	132	60.27%
Non-Hispanic All Other	Associate degree/some college or less	18-34	Female	\geq \$75,000	154	105	68.18%
Non-Hispanic All Other	Bachelor degree or more	18-34	Male	$<$ \$75,000	48	33	68.75%
Non-Hispanic All Other	Bachelor degree or more	18-34	Male	\geq \$75,000	148	107	72.30%
Non-Hispanic All Other	Bachelor degree or more	18-34	Female	$<$ \$75,000	58	37	63.79%
Non-Hispanic All Other	Bachelor degree or more	18-34	Female	\geq \$75,000	246	179	72.76%
Non-Hispanic All Other	Associate degree/some college or less	35-49	Male	$<$ \$75,000	128	86	67.19%
Non-Hispanic All Other	Associate degree/some college or less	35-49	Male	\geq \$75,000	191	140	73.30%
Non-Hispanic All Other	Associate degree/some college or less	35-49	Female	$<$ \$75,000	115	75	65.22%
Non-Hispanic All Other	Associate degree/some college or less	35-49	Female	\geq \$75,000	208	145	69.71%
Non-Hispanic All Other	Bachelor degree or more	35-49	Male	$<$ \$75,000	19	15	78.95%
Non-Hispanic All Other	Bachelor degree or more	35-49	Male	\geq \$75,000	135	98	72.59%

Non-Hispanic All Other	Bachelor degree or more	35-49	Female	<\$75,000	25	15	60.00%
Non-Hispanic All Other	Bachelor degree or more	35-49	Female	≥\$75,000	122	83	68.03%
Non-Hispanic All Other	Associate degree/some college or less	50-64	Male	<\$75,000	208	155	74.52%
Non-Hispanic All Other	Associate degree/some college or less	50-64	Male	≥\$75,000	259	208	80.31%
Non-Hispanic All Other	Associate degree/some college or less	50-64	Female	<\$75,000	257	187	72.76%
Non-Hispanic All Other	Associate degree/some college or less	50-64	Female	≥\$75,000	245	193	78.78%
Non-Hispanic All Other	Bachelor degree or more	50-64	Male	<\$75,000	40	30	75.00%
Non-Hispanic All Other	Bachelor degree or more	50-64	Male	≥\$75,000	120	97	80.83%
Non-Hispanic All Other	Bachelor degree or more	50-64	Female	<\$75,000	50	34	68.00%
Non-Hispanic All Other	Bachelor degree or more	50-64	Female	≥\$75,000	121	93	76.86%
Non-Hispanic All Other	Associate degree/some college or less	65+	Male	<\$75,000	356	279	78.37%
Non-Hispanic All Other	Associate degree/some college or less	65+	Male	≥\$75,000	184	158	85.87%
Non-Hispanic All Other	Associate degree/some college or less	65+	Female	<\$75,000	525	409	77.90%

Non-Hispanic All Other	Associate degree/some college or less	65+	Female	\geq \$75,000	210	188	89.52%
Non-Hispanic All Other	Bachelor degree or more	65+	Male	$<$ \$75,000	117	88	75.21%
Non-Hispanic All Other	Bachelor degree or more	65+	Male	\geq \$75,000	155	120	77.42%
Non-Hispanic All Other	Bachelor degree or more	65+	Female	$<$ \$75,000	151	118	78.15%
Non-Hispanic All Other	Bachelor degree or more	65+	Female	\geq \$75,000	89	57	64.04%
Non-Hispanic Black	Associate degree/some college or less	18-34	Male	$<$ \$75,000	70	32	45.71%
Non-Hispanic Black	Associate degree/some college or less	18-34	Male	\geq \$75,000	10	3	30.00%
Non-Hispanic Black	Associate degree/some college or less	18-34	Female	$<$ \$75,000	163	81	49.69%
Non-Hispanic Black	Associate degree/some college or less	18-34	Female	\geq \$75,000	19	8	42.11%
Non-Hispanic Black	Bachelor degree or more	18-34	Male	$<$ \$75,000	13	8	61.54%
Non-Hispanic Black	Bachelor degree or more	18-34	Male	\geq \$75,000	6	2	33.33%
Non-Hispanic Black	Bachelor degree or more	18-34	Female	$<$ \$75,000	19	13	68.42%
Non-Hispanic Black	Bachelor degree or more	18-34	Female	\geq \$75,000	15	11	73.33%

Non-Hispanic Black	Associate degree/some college or less	35-49	Male	<\$75,000	61	39	63.93%
Non-Hispanic Black	Associate degree/some college or less	35-49	Male	≥\$75,000	15	11	73.33%
Non-Hispanic Black	Associate degree/some college or less	35-49	Female	<\$75,000	83	55	66.27%
Non-Hispanic Black	Associate degree/some college or less	35-49	Female	≥\$75,000	25	12	48.00%
Non-Hispanic Black	Bachelor degree or more	35-49	Male	<\$75,000	5	3	60.00%
Non-Hispanic Black	Bachelor degree or more	35-49	Male	≥\$75,000	22	16	72.73%
Non-Hispanic Black	Bachelor degree or more	35-49	Female	<\$75,000	17	10	58.82%
Non-Hispanic Black	Bachelor degree or more	35-49	Female	≥\$75,000	36	20	55.56%
Non-Hispanic Black	Associate degree/some college or less	50-64	Male	<\$75,000	90	52	57.78%
Non-Hispanic Black	Associate degree/some college or less	50-64	Male	≥\$75,000	21	15	71.43%
Non-Hispanic Black	Associate degree/some college or less	50-64	Female	<\$75,000	136	81	59.56%
Non-Hispanic Black	Associate degree/some college or less	50-64	Female	≥\$75,000	35	23	65.71%

Non-Hispanic Black	Bachelor degree or more	50-64	Male	<\$75,000	10	5	50.00%
Non-Hispanic Black	Bachelor degree or more	50-64	Male	≥\$75,000	23	14	60.87%
Non-Hispanic Black	Bachelor degree or more	50-64	Female	<\$75,000	20	17	85.00%
Non-Hispanic Black	Bachelor degree or more	50-64	Female	≥\$75,000	24	19	79.17%
Non-Hispanic Black	Associate degree/some college or less	65+	Male	<\$75,000	83	59	71.08%
Non-Hispanic Black	Associate degree/some college or less	65+	Male	≥\$75,000	12	9	75.00%
Non-Hispanic Black	Associate degree/some college or less	65+	Female	<\$75,000	158	97	61.39%
Non-Hispanic Black	Associate degree/some college or less	65+	Female	≥\$75,000	15	9	60.00%
Non-Hispanic Black	Bachelor degree or more	65+	Male	<\$75,000	11	7	63.64%
Non-Hispanic Black	Bachelor degree or more	65+	Male	≥\$75,000	16	8	50.00%
Non-Hispanic Black	Bachelor degree or more	65+	Female	<\$75,000	24	16	66.67%
Non-Hispanic Black	Bachelor degree or more	65+	Female	≥\$75,000	9	8	88.89%
Hispanic	Associate degree/some college or less	18-34	Male	<\$75,000	148	73	49.32%

Hispanic	Associate degree/some college or less	18-34	Male	\geq \$75,000	29	15	51.72%
Hispanic	Associate degree/some college or less	18-34	Female	$<$ \$75,000	242	125	51.65%
Hispanic	Associate degree/some college or less	18-34	Female	\geq \$75,000	38	18	47.37%
Hispanic	Bachelor degree or more	18-34	Male	$<$ \$75,000	19	9	47.37%
Hispanic	Bachelor degree or more	18-34	Male	\geq \$75,000	20	13	65.00%
Hispanic	Bachelor degree or more	18-34	Female	$<$ \$75,000	24	14	58.33%
Hispanic	Bachelor degree or more	18-34	Female	\geq \$75,000	38	21	55.26%
Hispanic	Associate degree/some college or less	35-49	Male	$<$ \$75,000	69	51	73.91%
Hispanic	Associate degree/some college or less	35-49	Male	\geq \$75,000	38	23	60.53%
Hispanic	Associate degree/some college or less	35-49	Female	$<$ \$75,000	95	61	64.21%
Hispanic	Associate degree/some college or less	35-49	Female	\geq \$75,000	41	27	65.85%
Hispanic	Bachelor degree or more	35-49	Male	$<$ \$75,000	10	7	70.00%
Hispanic	Bachelor degree or more	35-49	Male	\geq \$75,000	45	35	77.78%

Hispanic	Bachelor degree or more	35-49	Female	<\$75,000	7	3	42.86%
Hispanic	Bachelor degree or more	35-49	Female	≥\$75,000	42	32	76.19%
Hispanic	Associate degree/some college or less	50-64	Male	<\$75,000	52	34	65.38%
Hispanic	Associate degree/some college or less	50-64	Male	≥\$75,000	24	16	66.67%
Hispanic	Associate degree/some college or less	50-64	Female	<\$75,000	80	49	61.25%
Hispanic	Associate degree/some college or less	50-64	Female	≥\$75,000	46	35	76.09%
Hispanic	Bachelor degree or more	50-64	Male	<\$75,000	10	9	90.00%
Hispanic	Bachelor degree or more	50-64	Male	≥\$75,000	25	16	64.00%
Hispanic	Bachelor degree or more	50-64	Female	<\$75,000	5	4	80.00%
Hispanic	Bachelor degree or more	50-64	Female	≥\$75,000	24	16	66.67%
Hispanic	Associate degree/some college or less	65+	Male	<\$75,000	35	28	80.00%
Hispanic	Associate degree/some college or less	65+	Male	≥\$75,000	11	9	81.82%
Hispanic	Associate degree/some college or less	65+	Female	<\$75,000	53	35	66.04%

Hispanic	Associate degree/some college or less	65+	Female	≥\$75,000	12	9	75.00%
Hispanic	Bachelor degree or more	65+	Male	<\$75,000	9	9	100.00%
Hispanic	Bachelor degree or more	65+	Male	≥\$75,000	12	10	83.33%
Hispanic	Bachelor degree or more	65+	Female	<\$75,000	7	7	100.00%
Hispanic	Bachelor degree or more	65+	Female	≥\$75,000	8	8	100.00%

Sample Weighting

The final RANDS during COVID-19 Round 3 Sample was weighted to account for the sample design and was further weighted to U.S. population counts to account for differential nonresponse and under-coverage of some groups on the sample frame. Sample weights and survey design information must be used in the analysis of these data in order to produce results with meaningful population representativeness.

Derivation of statistical weights first started with panel base sampling weights. Since the AmeriSpeak® Panel is a probability panel, the panel base sampling weights were computed as the inverse probability of selection from the NORC National Sample Frame or other address-based sample frames for the supplemental panel samples. NORC adjusted the panel sampling weights for nonresponse and under-coverage. The sample design and recruitment protocol for the AmeriSpeak® Panel involved subsampling initial non-respondent housing units for an in-person follow up. The subsample of housing units that were selected for nonresponse follow-up (NRFU) had their panel base sampling weights inflated by the inverse of the subsampling rate. The base sampling weights were further adjusted to account for unknown eligibility and nonresponse among eligible housing units. The household-level nonresponse-adjusted weights were then post-stratified to external counts of the number of households obtained from the U.S. Census Bureau Current Population Survey (CPS). Final household weights were assigned to each eligible adult in the recruited household, with weight adjustment carried out at the person-level to account for non-responding adults within the household. Furthermore, the person-level panel weights were adjusted by raking to external population totals associated with age, sex, education, race/Hispanic ethnicity, housing tenure, telephone status, and Census Division using information obtained from the CPS to obtain the final panel weights.

The RANDS during COVID-19 Round 3 survey-specific base sampling weights were derived using a combination of the final panel weights (described above) and the probability of selection into RANDS associated with the sampled panel member. The overall survey sampling

weights were calculated as the panel weights multiplied by the inverse probability of selection of an AmeriSpeak® Panel member into the RANDS during COVID-19 Round 3 Sample, where the probability of selection of a panelist within a stratum (defined by race/ethnicity, age, sex, education, and household income) was n_h/N_h , the ratio of the number of panelists sampled (n_h) and the total number of panelists available (N_h) in that stratum (h).

Since not all sampled panel members responded to the survey interview, an adjustment is needed to account for non-respondents. This adjustment decreases potential nonresponse bias associated with probability-sampled panel members who did not complete the RANDS during COVID-19 Round 3 survey. The nonresponse-adjusted survey weights for the study were calculated by raking the overall survey sampling weights to general population totals associated with the following socio-demographic characteristics: age, sex, education, race/Hispanic ethnicity and Census Division. Any extreme weight was trimmed based on a criterion of minimizing the mean squared error associated with key survey estimates and then weights were re-raked to the same population totals. Once weighting adjustment achieved the goal of matching the CPS population post-stratum totals, the weights provided by NORC (WEIGHT) were proportionally adjusted to sum to the total number of respondents in the RANDS during COVID-19 Round 3 Sample (n=5,458).

The NORC-provided weights were further calibrated by NCHS to produce experimental estimates for selected COVID-19-related outcomes through raking using information from the 2019 National Health Interview Survey (NHIS). In order to correct for potential biases due to differences in demographic distribution and health statuses of probability-sampled respondents to RANDS during COVID-19 Round 3 and the 2019 NHIS, the weights were adjusted by raking to the percentage estimates of demographic and health variables from the 2019 NHIS (i.e. age, sex, education, race/Hispanic ethnicity, Census region, household income, marital status, metropolitan status, phone service, diagnosed asthma, diagnosed hypertension, diagnosed diabetes, and diagnosed high cholesterol). The final calibrated weights (WEIGHT_CALIBRATED) were proportionally adjusted to sum to the total number of respondents in the RANDS during COVID-19 Round 3 (n=5,458).

Reference

National Center for Health Statistics. RANDS during COVID-19 Round 1 Probability Sample Technical Documentation. Hyattsville, Maryland. 2022.

Suggested Citation

National Center for Health Statistics. RANDS during COVID-19 Round 3 Technical Documentation. Hyattsville, Maryland. 2022.