

RANDS 7 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 conduct round 7 of the Research and Development Survey (RANDS), referred to as RANDS 7 in this documentation.

RANDS is designed to evaluate estimation approaches for health outcomes from recruited panels and quantitative methodologies for measuring error. In RANDS 7, different administrations of questions related to gender identity, traumatic brain injury and long symptoms of coronavirus disease (COVID-19) were examined through split-sample experiments. In addition to exploring measurement error to guide better questionnaire development as in previous rounds of RANDS, RANDS 7 was fielded for methodological research to inform the development of the Rapid Surveys System. RANDS 7 included questions on firearm safety, chronic health conditions, and health and civic behaviors, along with other topics mentioned above. To increase the scope of potential respondents and to evaluate mode effects in panel surveys, both phone-mode and web-mode panelists were included in the RANDS 7 sample.

To evaluate the question-response pattern as in previous rounds of RANDS, RANDS 7 included probe questions and three specific experiments. For each experiment, panelists were assigned to the version of the question received using a random number generation process. The randomization was performed at the time the panelists were selected and invited to participate in the RANDS 7 survey.

- 1) Long Coronavirus Disease (COVID) Question Wording Experiment: Comparing responses from two different sets of questions regarding experiencing long COVID symptoms. One is to ask having any symptoms lasting 3 months or longer that were not present prior to having COVID-19 with examples of long-term symptoms in the question, followed by a question on whether having any symptoms now. The other one is to ask whether sampled panelists would describe themselves as having “long COVID”, with the definition of “long COVID” explained in the question, followed by a question on whether the long COVID reduces their ability to carry out day-to-day activities compared with the time before having COVID-19.
- 2) Gender Identity Experiment: Comparing responses from two different questions on gender identity with different presentation orders to a question on the sex assigned at birth. One is to ask the sex assigned at birth prior to asking what the current gender is. The other one is to ask a general question first on the self-identification with response options for gender identity, followed by the question on the sex assigned at birth.
- 3) Traumatic Brain Injury Response Options Experiment: Comparing responses gathered from a question asking the cause of traumatic brain injury with two different numbers of response options. One is to list eight possible causes with an “other, please specify” option, and the other one is to list only five possible causes with an “other, please specify” option.

NORC conducted RANDS 7 from November 3, 2022, to December 12, 2022. 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/>). 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 2022, the AmeriSpeak Panel included more than 40,000 U.S. households and provided sample coverage of approximately 97% of the U.S. household population.

For RANDS 7, 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.

Summary of Field Work

RANDS 7 was administered in English via either online web surveys or phone interviews. On October 13, 2022, NORC invited a small sample of AmeriSpeak web-mode panelists for a pretest and collected 121 pretest interviews. No changes were made to the questionnaire following the pretest. Pretest interviews were not included in the final data.

For the sampled web-mode panelists, NORC sent e-mail invitations/reminders along with text messages. The soft-launch invitation email was sent to some panelists on November 3, 2022, followed by an email reminder sent on November 6 and November 15. Invitations to additional sampled panelists were sent via e-mail on November 10, with an email reminder sent on November 13. The remainder web-preference sample was invited on November 15, followed by an email reminder sent on November 18. Email reminders were sent to the total sample on November 22, November 27, December 1, and December 6. Text messages were sent to the invited web-mode panelists who agreed to receive text messages on December 3.

For the sampled phone-mode panelists, NORC dialed their numbers from November 11, 2022, to December 11, 2022. Although most panelists took the survey in their preferred mode, one panelist with a web-mode preference completed the survey through a phone interview.

In total, out of 10,320 panelists sampled, 6,821 completed the interviews (6,191 by web mode and 630 by phone mode), resulting in an overall completion rate of 66.1%. The weighted cumulative response rate was 12.5%. An additional 306 respondents were removed from the dataset prior to post-stratification weighting. Among these 306 respondents, 162 started but did not complete the survey and 144 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). All 144 respondents completing the survey quickly or with high refusal/skipping rates were panelists responding through online web surveys.

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 7 Response Rates by Sampling Strata

| Race/Ethnicity | Education Level | Age Group (Year) | Sex | 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 | 408 | 204 | 50.00% |
| Non-Hispanic All Other | Associate degree/some college or less | 18-34 | Male | ≥\$75,000 | 233 | 115 | 49.36% |
| Non-Hispanic All Other | Associate degree/some college or less | 18-34 | Female | <\$75,000 | 332 | 196 | 59.04% |
| Non-Hispanic All Other | Associate degree/some college or less | 18-34 | Female | ≥\$75,000 | 260 | 156 | 60.00% |
| Non-Hispanic All Other | Bachelor degree or more | 18-34 | Male | <\$75,000 | 77 | 46 | 59.74% |
| Non-Hispanic All Other | Bachelor degree or more | 18-34 | Male | ≥\$75,000 | 287 | 194 | 67.60% |
| Non-Hispanic All Other | Bachelor degree or more | 18-34 | Female | <\$75,000 | 58 | 36 | 62.07% |

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|---------------------------|--|-------|--------|-----------|-----|-----|--------|
| Non-Hispanic All Other | Bachelor degree or more | 18-34 | Female | ≥\$75,000 | 302 | 201 | 66.56% |
| Non-Hispanic All Other | Associate degree/some college or less | 35-49 | Male | <\$75,000 | 165 | 127 | 76.97% |
| Non-Hispanic All Other | Associate degree/some college or less | 35-49 | Male | ≥\$75,000 | 194 | 160 | 82.47% |
| Non-Hispanic All Other | Associate degree/some college or less | 35-49 | Female | <\$75,000 | 104 | 73 | 70.19% |
| Non-Hispanic All Other | Associate degree/some college or less | 35-49 | Female | ≥\$75,000 | 223 | 192 | 86.10% |
| Non-Hispanic All Other | Bachelor degree or more | 35-49 | Male | <\$75,000 | 27 | 20 | 74.07% |
| Non-Hispanic All Other | Bachelor degree or more | 35-49 | Male | ≥\$75,000 | 261 | 230 | 88.12% |
| Non-Hispanic All Other | Bachelor degree or more | 35-49 | Female | <\$75,000 | 22 | 18 | 81.82% |
| Non-Hispanic All Other | Bachelor degree or more | 35-49 | Female | ≥\$75,000 | 197 | 172 | 87.31% |
| Non-Hispanic All Other | Associate degree/some college or less | 50-64 | Male | <\$75,000 | 275 | 207 | 75.27% |
| Non-Hispanic All Other | Associate degree/some college or less | 50-64 | Male | ≥\$75,000 | 258 | 234 | 90.70% |
| Non-Hispanic All Other | Associate degree/some college or less | 50-64 | Female | <\$75,000 | 242 | 156 | 64.46% |
| Non-Hispanic All Other | Associate degree/some | 50-64 | Female | ≥\$75,000 | 271 | 240 | 88.56% |

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|---------------------------|---------------------------------------|-------|--------|-----------|-----|-----|--------|
| | college or less | | | | | | |
| Non-Hispanic All Other | Bachelor degree or more | 50-64 | Male | <\$75,000 | 35 | 31 | 88.57% |
| Non-Hispanic All Other | Bachelor degree or more | 50-64 | Male | ≥\$75,000 | 235 | 209 | 88.94% |
| Non-Hispanic All Other | Bachelor degree or more | 50-64 | Female | <\$75,000 | 44 | 30 | 68.18% |
| Non-Hispanic All Other | Bachelor degree or more | 50-64 | Female | ≥\$75,000 | 160 | 145 | 90.63% |
| Non-Hispanic All Other | Associate degree/some college or less | 65+ | Male | <\$75,000 | 413 | 321 | 77.72% |
| Non-Hispanic All Other | Associate degree/some college or less | 65+ | Male | ≥\$75,000 | 209 | 177 | 84.69% |
| Non-Hispanic All Other | Associate degree/some college or less | 65+ | Female | <\$75,000 | 520 | 352 | 67.69% |
| Non-Hispanic All Other | Associate degree/some college or less | 65+ | Female | ≥\$75,000 | 226 | 193 | 85.40% |
| Non-Hispanic All Other | Bachelor degree or more | 65+ | Male | <\$75,000 | 110 | 78 | 70.91% |
| Non-Hispanic All Other | Bachelor degree or more | 65+ | Male | ≥\$75,000 | 208 | 181 | 87.02% |
| Non-Hispanic All Other | Bachelor degree or more | 65+ | Female | <\$75,000 | 127 | 81 | 63.78% |
| Non-Hispanic All Other | Bachelor degree or more | 65+ | Female | ≥\$75,000 | 113 | 95 | 84.07% |

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|--------------------|---------------------------------------|-------|--------|-----------|-----|-----|--------|
| Non-Hispanic Black | Associate degree/some college or less | 18-34 | Male | <\$75,000 | 133 | 45 | 33.83% |
| Non-Hispanic Black | Associate degree/some college or less | 18-34 | Male | ≥\$75,000 | 29 | 5 | 17.24% |
| Non-Hispanic Black | Associate degree/some college or less | 18-34 | Female | <\$75,000 | 281 | 132 | 46.98% |
| Non-Hispanic Black | Associate degree/some college or less | 18-34 | Female | ≥\$75,000 | 37 | 14 | 37.84% |
| Non-Hispanic Black | Bachelor degree or more | 18-34 | Male | <\$75,000 | 21 | 7 | 33.33% |
| Non-Hispanic Black | Bachelor degree or more | 18-34 | Male | ≥\$75,000 | 14 | 5 | 35.71% |
| Non-Hispanic Black | Bachelor degree or more | 18-34 | Female | <\$75,000 | 22 | 15 | 68.18% |
| Non-Hispanic Black | Bachelor degree or more | 18-34 | Female | ≥\$75,000 | 33 | 20 | 60.61% |
| Non-Hispanic Black | Associate degree/some college or less | 35-49 | Male | <\$75,000 | 72 | 55 | 76.39% |
| Non-Hispanic Black | Associate degree/some college or less | 35-49 | Male | ≥\$75,000 | 17 | 15 | 88.24% |
| Non-Hispanic Black | Associate degree/some college or less | 35-49 | Female | <\$75,000 | 79 | 51 | 64.56% |
| Non-Hispanic Black | Associate degree/some college or less | 35-49 | Female | ≥\$75,000 | 16 | 12 | 75.00% |

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|--------------------|---------------------------------------|-------|--------|-----------|-----|----|--------|
| Non-Hispanic Black | Bachelor degree or more | 35-49 | Male | <\$75,000 | 6 | 5 | 83.33% |
| Non-Hispanic Black | Bachelor degree or more | 35-49 | Male | ≥\$75,000 | 27 | 25 | 92.59% |
| Non-Hispanic Black | Bachelor degree or more | 35-49 | Female | <\$75,000 | 12 | 9 | 75.00% |
| Non-Hispanic Black | Bachelor degree or more | 35-49 | Female | ≥\$75,000 | 34 | 31 | 91.18% |
| Non-Hispanic Black | Associate degree/some college or less | 50-64 | Male | <\$75,000 | 93 | 45 | 48.39% |
| Non-Hispanic Black | Associate degree/some college or less | 50-64 | Male | ≥\$75,000 | 18 | 12 | 66.67% |
| Non-Hispanic Black | Associate degree/some college or less | 50-64 | Female | <\$75,000 | 145 | 71 | 48.97% |
| Non-Hispanic Black | Associate degree/some college or less | 50-64 | Female | ≥\$75,000 | 29 | 23 | 79.31% |
| Non-Hispanic Black | Bachelor degree or more | 50-64 | Male | <\$75,000 | 12 | 6 | 50.00% |
| Non-Hispanic Black | Bachelor degree or more | 50-64 | Male | ≥\$75,000 | 28 | 24 | 85.71% |
| Non-Hispanic Black | Bachelor degree or more | 50-64 | Female | <\$75,000 | 23 | 10 | 43.48% |
| Non-Hispanic Black | Bachelor degree or more | 50-64 | Female | ≥\$75,000 | 29 | 25 | 86.21% |
| Non-Hispanic Black | Associate degree/some college or less | 65+ | Male | <\$75,000 | 91 | 52 | 57.14% |

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|--------------------|---------------------------------------|-------|--------|-----------|-----|-----|--------|
| Non-Hispanic Black | Associate degree/some college or less | 65+ | Male | ≥\$75,000 | 22 | 16 | 72.73% |
| Non-Hispanic Black | Associate degree/some college or less | 65+ | Female | <\$75,000 | 178 | 87 | 48.88% |
| Non-Hispanic Black | Associate degree/some college or less | 65+ | Female | ≥\$75,000 | 12 | 10 | 83.33% |
| Non-Hispanic Black | Bachelor degree or more | 65+ | Male | <\$75,000 | 19 | 15 | 78.95% |
| Non-Hispanic Black | Bachelor degree or more | 65+ | Male | ≥\$75,000 | 18 | 12 | 66.67% |
| Non-Hispanic Black | Bachelor degree or more | 65+ | Female | <\$75,000 | 27 | 19 | 70.37% |
| Non-Hispanic Black | Bachelor degree or more | 65+ | Female | ≥\$75,000 | 12 | 9 | 75.00% |
| Hispanic | Associate degree/some college or less | 18-34 | Male | <\$75,000 | 232 | 88 | 37.93% |
| Hispanic | Associate degree/some college or less | 18-34 | Male | ≥\$75,000 | 64 | 25 | 39.06% |
| Hispanic | Associate degree/some college or less | 18-34 | Female | <\$75,000 | 368 | 164 | 44.57% |
| Hispanic | Associate degree/some college or less | 18-34 | Female | ≥\$75,000 | 78 | 36 | 46.15% |
| Hispanic | Bachelor degree or more | 18-34 | Male | <\$75,000 | 20 | 13 | 65.00% |
| Hispanic | Bachelor degree or more | 18-34 | Male | ≥\$75,000 | 45 | 24 | 53.33% |

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|----------|---------------------------------------|-------|--------|-----------|-----|----|--------|
| Hispanic | Bachelor degree or more | 18-34 | Female | <\$75,000 | 23 | 13 | 56.52% |
| Hispanic | Bachelor degree or more | 18-34 | Female | ≥\$75,000 | 74 | 42 | 56.76% |
| Hispanic | Associate degree/some college or less | 35-49 | Male | <\$75,000 | 131 | 74 | 56.49% |
| Hispanic | Associate degree/some college or less | 35-49 | Male | ≥\$75,000 | 70 | 36 | 51.43% |
| Hispanic | Associate degree/some college or less | 35-49 | Female | <\$75,000 | 149 | 84 | 56.38% |
| Hispanic | Associate degree/some college or less | 35-49 | Female | ≥\$75,000 | 87 | 44 | 50.57% |
| Hispanic | Bachelor degree or more | 35-49 | Male | <\$75,000 | 15 | 6 | 40.00% |
| Hispanic | Bachelor degree or more | 35-49 | Male | ≥\$75,000 | 61 | 38 | 62.30% |
| Hispanic | Bachelor degree or more | 35-49 | Female | <\$75,000 | 11 | 6 | 54.55% |
| Hispanic | Bachelor degree or more | 35-49 | Female | ≥\$75,000 | 47 | 28 | 59.57% |
| Hispanic | Associate degree/some college or less | 50-64 | Male | <\$75,000 | 106 | 43 | 40.57% |
| Hispanic | Associate degree/some college or less | 50-64 | Male | ≥\$75,000 | 50 | 27 | 54.00% |
| Hispanic | Associate degree/some college or less | 50-64 | Female | <\$75,000 | 127 | 70 | 55.12% |

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|----------|---------------------------------------|-------|--------|-----------|----|----|--------|
| Hispanic | Associate degree/some college or less | 50-64 | Female | ≥\$75,000 | 62 | 37 | 59.68% |
| Hispanic | Bachelor degree or more | 50-64 | Male | <\$75,000 | 10 | 8 | 80.00% |
| Hispanic | Bachelor degree or more | 50-64 | Male | ≥\$75,000 | 48 | 18 | 37.50% |
| Hispanic | Bachelor degree or more | 50-64 | Female | <\$75,000 | 8 | 6 | 75.00% |
| Hispanic | Bachelor degree or more | 50-64 | Female | ≥\$75,000 | 23 | 15 | 65.22% |
| Hispanic | Associate degree/some college or less | 65+ | Male | <\$75,000 | 57 | 32 | 56.14% |
| Hispanic | Associate degree/some college or less | 65+ | Male | ≥\$75,000 | 23 | 11 | 47.83% |
| Hispanic | Associate degree/some college or less | 65+ | Female | <\$75,000 | 81 | 40 | 49.38% |
| Hispanic | Associate degree/some college or less | 65+ | Female | ≥\$75,000 | 21 | 13 | 61.90% |
| Hispanic | Bachelor degree or more | 65+ | Male | <\$75,000 | 9 | 6 | 66.67% |
| Hispanic | Bachelor degree or more | 65+ | Male | ≥\$75,000 | 18 | 10 | 55.56% |
| Hispanic | Bachelor degree or more | 65+ | Female | <\$75,000 | 9 | 5 | 55.56% |
| Hispanic | Bachelor degree or more | 65+ | Female | ≥\$75,000 | 8 | 7 | 87.50% |

Sample Weighting

The final RANDS 7 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 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 per census division 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, household telephone status, and Census Division using information obtained from the CPS to obtain the final panel weights.

The RANDS 7-specific base sampling weights were derived using a combination of the final panel weights (described above) and the probability of selection into RANDS 7 associated with the sampled panel member. 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 survey. The nonresponse-adjusted survey weights for the study were calculated first by a weighting class method, with the weighting classes defined by age, race/Hispanic ethnicity, sex, annual household income, and education, followed 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 RANDS 7 respondents (n=6,821).

The NORC-provided weights were further calibrated by NCHS through raking using information from the 2022 National Health Interview Survey (NHIS). In order to correct for potential biases due to differences between probability-sampled respondents of RANDS 7 and the 2022 Quarter 3 NHIS, the RANDS weights were adjusted by raking to the percentage estimates of demographic, health, and social variables from the 2022 Quarter 3 NHIS using the early release

weights (i.e. age; sex; education; race/Hispanic ethnicity; Census region; household income; marital status; home ownership; diagnosed high cholesterol; difficulty participating in social activities due to physical, mental, or emotional condition; and civic engagement including volunteering in the past 12 months, attending a public meeting in the past 12 months, or voting in the last local elections). The NHIS early release weights are calibrated to population control totals using iterative proportional raking but do not include nonresponse adjustments for faster processing (<https://www.cdc.gov/nchs/nhis/releases.htm>). The final calibrated weights (WEIGHT_CALIBRATED) were proportionally adjusted to sum to the total number of respondents in the RANDS 7 (n=6,821).

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