**RANDS 6 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 6 of the Research and Development Survey (RANDS), referred to as RANDS 6 in this documentation.

RANDS is designed to evaluate estimation approaches for health outcomes from recruited panels and quantitative methodologies for measuring error. Similar to previous rounds of RANDS, RANDS 6 was fielded to explore measurement error to guide better questionnaire development. Specifically, RANDS 6 explored different administrations of questions asked on the National Survey of Family Growth (NSFG) through split-sample experiments. 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 6 sample.

To evaluate the question-response pattern as in previous rounds of RANDS, RANDS 6 included probe questions and five specific experiments:

1) Response Options Formatting Experiment: Comparing responses from two types of response options for religions, one with 28 options that list specific Christian denominations individually, and the other one with nine options that group some Christian denominations as "protestants", along with additional explanations or alternative names in parentheses and hovering text for some of the religions.

2) Definition Displaying Experiment: Comparing responses from questions with two presentation formats of explanations on the terms, "religion" and "religious services". One is to display the explanation directly on the question screen, and another one is to display as hovering text over question marks.

3) Question Presentation Experiment: Comparing responses gathered from two question presentation formats for birth control methods. One is to ask the use of 14 distinct contraceptive methods in individual questions, followed by a "select-all-that-apply" question for the respondents to indicate the use of the other 10 contraceptive methods along with an "other method, please specify" option for respondents to write-in a method that is not listed in the options. The other is to present all 24 contraceptive methods along with an "other method, please specify" option in one "select-all-that-apply" question.

4) Open-Ended Probes vs. Close-Ended Probes: Comparing responses from the open-ended question-type versus the question-type with the closed-ended response options. The experiment was for two probe questions on (a) the interpretation of an item about formal education regarding abstinence and (b) the reasons behind perceived acts of discrimination.

5) Question Order Experiment: Comparing responses from two different question orders on questions related to formal sex education. One is to present the follow-up question(s) right after the related main questions, while the other one is to present all the main questions first and all the follow-up questions later in the section.

NORC conducted RANDS 6 from August 10, 2022, to August 29, 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 6, 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 6 was administered in English via either online web surveys or phone interviews. On July 15, 2022, NORC invited a small sample of AmeriSpeak web-mode panelists for a pretest and collected 62 pretest interviews. Following the pre-test, the question format of RELNOW1, the response option list of SVC12MO, and the presentation logic of HELPTEXTUSE were updated.

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 August 10, 2022, followed by an email reminder sent on August 13, 2022. Invitations to the remainder sample were sent via e-mail on August 12, 2022, with a reminder sent on August 15, 2022. Email reminders were sent to the total sample on August 18 and August 23. Text messages were sent to the invited web-mode panelists who agreed to receive text messages on August 21 and August 26.

For the sampled phone-mode panelists, NORC dialed their numbers from August 16, 2022, to August 28, 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 3,135 panelists sampled, 2,312 completed the interviews (2,085 by web mode and 227 by phone mode), resulting in an overall completion rate of 73.7%. The weighted cumulative response rate was 12.9%. An additional 173 respondents were removed from the dataset prior to post-stratification weighting. Among these 173 respondents, 103 started but did not complete the survey and 70 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 70 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 6 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 | 98 | 60 | 61.22% |
| Non-Hispanic All Other | Associate degree/some college or less | 18-34 | Male | ≥$75,000 | 115 | 77 | 66.96% |
| Non-Hispanic All Other | Associate degree/some college or less | 18-34 | Female | <$75,000 | 88 | 60 | 68.18% |
| Non-Hispanic All Other | Associate degree/some college or less | 18-34 | Female | ≥$75,000 | 102 | 64 | 62.75% |
| Non-Hispanic All Other | Bachelor degree or more | 18-34 | Male | <$75,000 | 25 | 17 | 68.00% |
| Non-Hispanic All Other | Bachelor degree or more | 18-34 | Male | ≥$75,000 | 81 | 58 | 71.60% |
| Non-Hispanic All Other | Bachelor degree or more | 18-34 | Female | <$75,000 | 29 | 23 | 79.31% |

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|---|---|---|---|---|---|---|---|
| Non-Hispanic All Other | Bachelor degree or more | 18-34 | Female | ≥$75,000 | 88 | 64 | 72.73% |
| Non-Hispanic All Other | Associate degree/some college or less | 35-49 | Male | <$75,000 | 54 | 42 | 77.78% |
| Non-Hispanic All Other | Associate degree/some college or less | 35-49 | Male | ≥$75,000 | 81 | 65 | 80.25% |
| Non-Hispanic All Other | Associate degree/some college or less | 35-49 | Female | <$75,000 | 49 | 38 | 77.55% |
| Non-Hispanic All Other | Associate degree/some college or less | 35-49 | Female | ≥$75,000 | 63 | 46 | 73.02% |
| Non-Hispanic All Other | Bachelor degree or more | 35-49 | Male | <$75,000 | 15 | 12 | 80.00% |
| Non-Hispanic All Other | Bachelor degree or more | 35-49 | Male | ≥$75,000 | 93 | 75 | 80.65% |
| Non-Hispanic All Other | Bachelor degree or more | 35-49 | Female | <$75,000 | 21 | 16 | 76.19% |
| Non-Hispanic All Other | Bachelor degree or more | 35-49 | Female | ≥$75,000 | 106 | 83 | 78.30% |
| Non-Hispanic All Other | Associate degree/some college or less | 50-64 | Male | <$75,000 | 76 | 59 | 77.63% |
| Non-Hispanic All Other | Associate degree/some college or less | 50-64 | Male | ≥$75,000 | 88 | 72 | 81.82% |
| Non-Hispanic All Other | Associate degree/some college or less | 50-64 | Female | <$75,000 | 78 | 68 | 87.18% |
| Non-Hispanic All Other | Associate degree/some | 50-64 | Female | ≥$75,000 | 79 | 68 | 86.08% |

| | college or less | | | | | | |
|---|---|---|---|---|---|---|---|
| Non-Hispanic All Other | Bachelor degree or more | 50-64 | Male | <$75,000 | 18 | 13 | 72.22% |
| Non-Hispanic All Other | Bachelor degree or more | 50-64 | Male | ≥$75,000 | 82 | 66 | 80.49% |
| Non-Hispanic All Other | Bachelor degree or more | 50-64 | Female | <$75,000 | 24 | 19 | 79.17% |
| Non-Hispanic All Other | Bachelor degree or more | 50-64 | Female | ≥$75,000 | 84 | 66 | 78.57% |
| Non-Hispanic All Other | Associate degree/some college or less | 65+ | Male | <$75,000 | 101 | 69 | 68.32% |
| Non-Hispanic All Other | Associate degree/some college or less | 65+ | Male | ≥$75,000 | 51 | 42 | 82.35% |
| Non-Hispanic All Other | Associate degree/some college or less | 65+ | Female | <$75,000 | 143 | 96 | 67.13% |
| Non-Hispanic All Other | Associate degree/some college or less | 65+ | Female | ≥$75,000 | 56 | 42 | 75.00% |
| Non-Hispanic All Other | Bachelor degree or more | 65+ | Male | <$75,000 | 37 | 34 | 91.89% |
| Non-Hispanic All Other | Bachelor degree or more | 65+ | Male | ≥$75,000 | 58 | 45 | 77.59% |
| Non-Hispanic All Other | Bachelor degree or more | 65+ | Female | <$75,000 | 41 | 35 | 85.37% |
| Non-Hispanic All Other | Bachelor degree or more | 65+ | Female | ≥$75,000 | 45 | 36 | 80.00% |

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|---|---|---|---|---|---|---|---|
| Non-Hispanic Black | Associate degree/some college or less | 18-34 | Male | <$75,000 | 39 | 27 | 69.23% |
| Non-Hispanic Black | Associate degree/some college or less | 18-34 | Male | ≥$75,000 | 10 | 4 | 40.00% |
| Non-Hispanic Black | Associate degree/some college or less | 18-34 | Female | <$75,000 | 45 | 34 | 75.56% |
| Non-Hispanic Black | Associate degree/some college or less | 18-34 | Female | ≥$75,000 | 12 | 6 | 50.00% |
| Non-Hispanic Black | Bachelor degree or more | 18-34 | Male | <$75,000 | 4 | 4 | 100.00% |
| Non-Hispanic Black | Bachelor degree or more | 18-34 | Male | ≥$75,000 | 3 | 2 | 66.67% |
| Non-Hispanic Black | Bachelor degree or more | 18-34 | Female | <$75,000 | 7 | 4 | 57.14% |
| Non-Hispanic Black | Bachelor degree or more | 18-34 | Female | ≥$75,000 | 10 | 7 | 70.00% |
| Non-Hispanic Black | Associate degree/some college or less | 35-49 | Male | <$75,000 | 21 | 15 | 71.43% |
| Non-Hispanic Black | Associate degree/some college or less | 35-49 | Male | ≥$75,000 | 13 | 11 | 84.62% |
| Non-Hispanic Black | Associate degree/some college or less | 35-49 | Female | <$75,000 | 25 | 20 | 80.00% |
| Non-Hispanic Black | Associate degree/some college or less | 35-49 | Female | ≥$75,000 | 11 | 6 | 54.55% |

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|---|---|---|---|---|---|---|---|
| Non-Hispanic Black | Bachelor degree or more | 35-49 | Male | <$75,000 | 3 | 3 | 100.00% |
| Non-Hispanic Black | Bachelor degree or more | 35-49 | Male | ≥$75,000 | 10 | 9 | 90.00% |
| Non-Hispanic Black | Bachelor degree or more | 35-49 | Female | <$75,000 | 7 | 6 | 85.71% |
| Non-Hispanic Black | Bachelor degree or more | 35-49 | Female | ≥$75,000 | 14 | 9 | 64.29% |
| Non-Hispanic Black | Associate degree/some college or less | 50-64 | Male | <$75,000 | 24 | 16 | 66.67% |
| Non-Hispanic Black | Associate degree/some college or less | 50-64 | Male | ≥$75,000 | 12 | 9 | 75.00% |
| Non-Hispanic Black | Associate degree/some college or less | 50-64 | Female | <$75,000 | 26 | 22 | 84.62% |
| Non-Hispanic Black | Associate degree/some college or less | 50-64 | Female | ≥$75,000 | 10 | 10 | 100.00% |
| Non-Hispanic Black | Bachelor degree or more | 50-64 | Male | <$75,000 | 3 | 3 | 100.00% |
| Non-Hispanic Black | Bachelor degree or more | 50-64 | Male | ≥$75,000 | 8 | 7 | 87.50% |
| Non-Hispanic Black | Bachelor degree or more | 50-64 | Female | <$75,000 | 5 | 4 | 80.00% |
| Non-Hispanic Black | Bachelor degree or more | 50-64 | Female | ≥$75,000 | 9 | 8 | 88.89% |
| Non-Hispanic Black | Associate degree/some college or less | 65+ | Male | <$75,000 | 19 | 12 | 63.16% |

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|---|---|---|---|---|---|---|---|
| Non-Hispanic Black | Associate degree/some college or less | 65+ | Male | ≥$75,000 | 6 | 3 | 50.00% |
| Non-Hispanic Black | Associate degree/some college or less | 65+ | Female | <$75,000 | 28 | 17 | 60.71% |
| Non-Hispanic Black | Associate degree/some college or less | 65+ | Female | ≥$75,000 | 7 | 6 | 85.71% |
| Non-Hispanic Black | Bachelor degree or more | 65+ | Male | <$75,000 | 3 | 3 | 100.00% |
| Non-Hispanic Black | Bachelor degree or more | 65+ | Male | ≥$75,000 | 3 | 1 | 33.33% |
| Non-Hispanic Black | Bachelor degree or more | 65+ | Female | <$75,000 | 5 | 4 | 80.00% |
| Non-Hispanic Black | Bachelor degree or more | 65+ | Female | ≥$75,000 | 3 | 2 | 66.67% |
| Hispanic | Associate degree/some college or less | 18-34 | Male | <$75,000 | 61 | 34 | 55.74% |
| Hispanic | Associate degree/some college or less | 18-34 | Male | ≥$75,000 | 28 | 17 | 60.71% |
| Hispanic | Associate degree/some college or less | 18-34 | Female | <$75,000 | 57 | 39 | 68.42% |
| Hispanic | Associate degree/some college or less | 18-34 | Female | ≥$75,000 | 38 | 21 | 55.26% |
| Hispanic | Bachelor degree or more | 18-34 | Male | <$75,000 | 4 | 2 | 50.00% |
| Hispanic | Bachelor degree or more | 18-34 | Male | ≥$75,000 | 11 | 10 | 90.91% |

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|---|---|---|---|---|---|---|---|
| Hispanic | Bachelor degree or more | 18-34 | Female | <$75,000 | 7 | 5 | 71.43% |
| Hispanic | Bachelor degree or more | 18-34 | Female | ≥$75,000 | 14 | 8 | 57.14% |
| Hispanic | Associate degree/some college or less | 35-49 | Male | <$75,000 | 38 | 27 | 71.05% |
| Hispanic | Associate degree/some college or less | 35-49 | Male | ≥$75,000 | 30 | 25 | 83.33% |
| Hispanic | Associate degree/some college or less | 35-49 | Female | <$75,000 | 37 | 27 | 72.97% |
| Hispanic | Associate degree/some college or less | 35-49 | Female | ≥$75,000 | 23 | 12 | 52.17% |
| Hispanic | Bachelor degree or more | 35-49 | Male | <$75,000 | 4 | 4 | 100.00% |
| Hispanic | Bachelor degree or more | 35-49 | Male | ≥$75,000 | 11 | 4 | 36.36% |
| Hispanic | Bachelor degree or more | 35-49 | Female | <$75,000 | 6 | 5 | 83.33% |
| Hispanic | Bachelor degree or more | 35-49 | Female | ≥$75,000 | 12 | 10 | 83.33% |
| Hispanic | Associate degree/some college or less | 50-64 | Male | <$75,000 | 27 | 21 | 77.78% |
| Hispanic | Associate degree/some college or less | 50-64 | Male | ≥$75,000 | 20 | 14 | 70.00% |
| Hispanic | Associate degree/some college or less | 50-64 | Female | <$75,000 | 27 | 20 | 74.07% |

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|---|---|---|---|---|---|---|---|
| Hispanic | Associate degree/some college or less | 50-64 | Female | ≥$75,000 | 20 | 18 | 90.00% |
| Hispanic | Bachelor degree or more | 50-64 | Male | <$75,000 | 3 | 3 | 100.00% |
| Hispanic | Bachelor degree or more | 50-64 | Male | ≥$75,000 | 7 | 5 | 71.43% |
| Hispanic | Bachelor degree or more | 50-64 | Female | <$75,000 | 3 | 2 | 66.67% |
| Hispanic | Bachelor degree or more | 50-64 | Female | ≥$75,000 | 7 | 6 | 85.71% |
| Hispanic | Associate degree/some college or less | 65+ | Male | <$75,000 | 16 | 11 | 68.75% |
| Hispanic | Associate degree/some college or less | 65+ | Male | ≥$75,000 | 8 | 7 | 87.50% |
| Hispanic | Associate degree/some college or less | 65+ | Female | <$75,000 | 24 | 16 | 66.67% |
| Hispanic | Associate degree/some college or less | 65+ | Female | ≥$75,000 | 7 | 6 | 85.71% |
| Hispanic | Bachelor degree or more | 65+ | Male | <$75,000 | 3 | 3 | 100.00% |
| Hispanic | Bachelor degree or more | 65+ | Male | ≥$75,000 | 3 | 1 | 33.33% |
| Hispanic | Bachelor degree or more | 65+ | Female | <$75,000 | 3 | 3 | 100.00% |
| Hispanic | Bachelor degree or more | 65+ | Female | ≥$75,000 | 2 | 2 | 100.00% |

**Sample Weighting**

The final RANDS 6 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 6-specific base sampling weights were derived using a combination of the final panel weights (described above) and the probability of selection into RANDS 6 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_Total) were proportionally adjusted to sum to the total number of RANDS 6 respondents (n=2,312).

The NORC-provided weights were further calibrated by NCHS through a log-linear modeling (raking) approach using information from the 2021 National Health Interview Survey (NHIS) and from the 2017-2019 National Survey of Family Growth (NSFG) for the 18-49 years age group, which overlaps with the population measured in RANDS (18 years and older). In order to correct for potential biases due to differences in the demographic distribution and health statuses

of probability-sampled respondents in the RANDS 6 compared to the 2021 NHIS and 2017-2019 NSFG, the weights were adjusted using log-linear modeling to align the percentage estimates of selected variables to both reference datasets. Note that for the adjustment procedure, the reference distributions for the NSFG 18-49 years age group were scaled to the total weights for the NHIS 18-49 years age group to maintain alignment of the age group totals in RANDS. Calibration variables from the 2021 NHIS included age group, education, race/Hispanic ethnicity, sex by age group, sex by race/Hispanic ethnicity, sex by education, diagnosed asthma, diagnosed hypertension, diagnosed diabetes, and diagnosed high cholesterol. For the 2017-2019 NSFG, estimates among the 18-49 years age group were used to align the distributions of age group by cohabitation outside of marriage and sex by cohabitation outside of marriage for the 18-49 years age group in RANDS 6. The final calibrated weights (WEIGHT_CALIBRATED) were proportionally adjusted to sum to the total number of respondents in the RANDS 6 (n=2,312).

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