RANDS 8 Probability Sample 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 8 of the Research and Development Survey (RANDS), referred to as RANDS 8 in this documentation.

RANDS is designed to evaluate estimation approaches for health outcomes from recruited panels and quantitative methodologies for measuring error. In RANDS 8, different question wording, response scales, response formats or administrations of questions related to disability, gender identity, aspects of life, emotional well-being, and the reason behind perceived acts of discrimination were examined 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 8 probability sample. In addition, to gain better understanding about the population of gender minorities, a non-probability opt-in sample with an oversample of gender minority was also recruited and surveyed in web-mode in addition to the probability sample. This technical documentation describes the sampling methodology and weighting for the probability-based panelists in RANDS 8.

To evaluate the question-response pattern as in previous rounds of RANDS, RANDS 8 included probe questions and five types of experiments. For each experiment, panelists were assigned to the version of the question received using a random number generation process. For the probability sample, the randomization was performed at the time the panelists were selected and invited to participate in the RANDS 8 survey.

1) Disability Question Format Experiment: Comparing responses from three different question formats on whether the respondent has a disability condition. One group received separate questions on seeing, hearing, cognition, walking or climbing stairs, dressing or bathing, communications, and doing errands alone, with each question soliciting a yes or no response. The second group received one single question stating, “do you have serious difficulty seeing, hearing, walking, remembering, making decisions, or communicating?”, with yes and no response options. The third group received one question asking, “do you have serious difficulty doing any of the following?”, with separate grid items of hearing, seeing, walking or climbing stairs, cognition, dressing or bathing, doing errands alone, along with yes and no response options for each item.
2) Open-Ended Probe vs. Closed-Ended Probes: Comparing responses from the open-ended question-type versus the question-type with closed-ended response options on the reason behind perceived acts of discrimination.
3) Gender Identity Experiment: Comparing responses from two different administration of questions. One group received a question on the sex assigned at birth, followed by a question on the current gender with three or four closed-ended response options (depending on whether the responding panelist is or is not an American Indian or a Native Alaskan) and an open-ended option for the respondent to make one single selection or to write-in. The other

group received a general self-identification question with three closed-ended gender identity response options for the respondent to make one or more selections, followed by the question on the sex assigned at birth.

4) Aspects of Life Experiment: Comparing responses from three different question wordings. While all groups received an introductory text and a frequency question along with three grid items for respondents to choose a frequency term for each grid item, one group received the introductory text with examples of aspects of life and grid items containing the phrase, "aspects of life", while the second group received the introductory text with examples of aspects of life but grid items not containing the phrase, "aspects of life", and the third group received no examples of aspects of life in the introductory text and grid items not containing the phrase, "aspects of life".
5) Response Scale Experiments: Comparing responses with two different scales. (a) For questions related to emotional well-being, respondents were asked about their certainty or confidence level to carry out certain tasks under emotional stress. For a total of 24 grid items presented in two separate questions, one group responded with four-level response options on the confidence level for each grid item, and the other group responded with a numerical scale from zero to ten for each item. (b) For the question related to aspects of life, respondents were presented with three grid items with response options of five-level frequency indicators or a numerical scale from zero to ten for each grid item.

NORC conducted RANDS 8 from June 8, 2023, to July 24, 2023. This documentation describes the sampling approach, data collection timeline, response rate, and sample weighting for the probability sample of 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 and then contacted by U.S. mail, telephone, and through face-to-face field interviews for recruitment to the Panel (https://amerispeak.norc.org/us/en/amerispeak/about-amerispeak/panel-design.html). 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 8, 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 94 sampling strata. (The AmeriSpeak probability sample for RANDS 8 did not include anyone from two presumed strata: (a) a non-Hispanic Black; Bachelor degree or more; 35-49-

year-old; male; annual household income less than $75,000; (b) Hispanic; Bachelor degree or more; 35-49-year-old; female; annual household income less than $75,000.) Then, NORC performed sampling independently within each stratum, favoring panelists who were not selected in the most recent AmeriSpeak survey. 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 8 was administered in English via either online web surveys or phone interviews. On April 18, 2023, NORC invited a small sample of AmeriSpeak web-mode panelists for a pretest and collected 112 pretest interviews. Several changes were made following the pretest: SAAB_1PNA and SAAB_2PNA questions were added to the questionnaire and DRNK3GE5_INS was created in programming; gender-related questions were moved to the beginning of the questionnaire and PROBE_SAAB_REF was moved before GENDER_CONFIRM; questions-PREGNANT, GESDIB, SYMPTOM_STATUS, VAX_DATE were updated. 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 of the sampled web-mode panelists on June 8, 2023, followed by an email reminder sent on June 11. Invitations to additional sampled panelists were sent via e-mail on June 14, with an email reminder sent to the soft-launch invited and the additionally invited web panelists on June 17. The remainder web-mode panelists sampled were invited on June 20. Email reminders were sent to the total sample on June 23, June 27, July 2, July 8, July 11, and July 15. Text messages were sent to the invited web-mode panelists who agreed to receive text messages on June 29, July 6, and July 13.

For the sampled phone-mode panelists, NORC dialed their numbers from June 13, 2023, to July 23, 2023. Although most panelists took the survey in their preferred mode, three panelists with a web-mode preference completed the survey through a phone interview.

In total, out of 10,014 panelists sampled, 6,857 completed the interviews (6,183 by web mode and 674 by phone mode), resulting in an overall completion rate of 68.5%. The weighted cumulative response rate was 13.1%. An additional 447 AmeriSpeak respondents were removed from the dataset prior to post-stratification weighting. Among these 447 respondents, 190 started but did not complete the survey and 257 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 257 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 8 Response Rates by Sampling Strata

Race/Ethnicity	Education Level	Age Group (Year)	Gender	Income	Total Sample per Stratum	Completes per Stratum	Response Rate
Non-Hispanic All Other	Associate degree/some college or less	18-34	Male	<$75,000	332	166	50.00%
Non-Hispanic All Other	Associate degree/some college or less	18-34	Male	≥$75,000	193	98	50.78%
Non-Hispanic All Other	Associate degree/some college or less	18-34	Female	<$75,000	569	333	58.52%
Non-Hispanic All Other	Associate degree/some college or less	18-34	Female	≥$75,000	205	117	57.07%
Non-Hispanic All Other	Bachelor degree or more	18-34	Male	<$75,000	160	91	56.88%
Non-Hispanic All Other	Bachelor degree or more	18-34	Male	≥$75,000	235	160	68.09%
Non-Hispanic All Other	Bachelor degree or more	18-34	Female	<$75,000	39	30	76.92%
Non-Hispanic All Other	Bachelor degree or more	18-34	Female	≥$75,000	296	206	69.59%
Non-Hispanic All Other	Associate degree/some college or less	35-49	Male	<$75,000	168	133	79.17%
Non-Hispanic All Other	Associate degree/some college or less	35-49	Male	≥$75,000	183	148	80.87%
Non-Hispanic All Other	Associate degree/some	35-49	Female	<$75,000	45	29	64.44%

	college or less						
Non-Hispanic All Other	Associate degree/some college or less	35-49	Female	≥$75,000	212	182	85.85%
Non-Hispanic All Other	Bachelor degree or more	35-49	Male	<$75,000	6	2	33.33%
Non-Hispanic All Other	Bachelor degree or more	35-49	Male	≥$75,000	436	381	87.39%
Non-Hispanic All Other	Bachelor degree or more	35-49	Female	<$75,000	3	1	33.33%
Non-Hispanic All Other	Bachelor degree or more	35-49	Female	≥$75,000	106	82	77.36%
Non-Hispanic All Other	Associate degree/some college or less	50-64	Male	<$75,000	243	183	75.31%
Non-Hispanic All Other	Associate degree/some college or less	50-64	Male	≥$75,000	261	224	85.82%
Non-Hispanic All Other	Associate degree/some college or less	50-64	Female	<$75,000	123	62	50.41%
Non-Hispanic All Other	Associate degree/some college or less	50-64	Female	≥$75,000	327	280	85.63%
Non-Hispanic All Other	Bachelor degree or more	50-64	Male	<$75,000	10	6	60.00%
Non-Hispanic All Other	Bachelor degree or more	50-64	Male	≥$75,000	345	306	88.70%
Non-Hispanic All Other	Bachelor degree or more	50-64	Female	<$75,000	16	9	56.25%

Non-Hispanic All Other	Bachelor degree or more	50-64	Female	≥$75,000	74	65	87.84%
Non-Hispanic All Other	Associate degree/some college or less	65+	Male	<$75,000	449	357	79.51%
Non-Hispanic All Other	Associate degree/some college or less	65+	Male	≥$75,000	214	192	89.72%
Non-Hispanic All Other	Associate degree/some college or less	65+	Female	<$75,000	336	221	65.77%
Non-Hispanic All Other	Associate degree/some college or less	65+	Female	≥$75,000	248	202	81.45%
Non-Hispanic All Other	Bachelor degree or more	65+	Male	<$75,000	43	25	58.14%
Non-Hispanic All Other	Bachelor degree or more	65+	Male	≥$75,000	362	319	88.12%
Non-Hispanic All Other	Bachelor degree or more	65+	Female	<$75,000	74	47	63.51%
Non-Hispanic All Other	Bachelor degree or more	65+	Female	≥$75,000	76	63	82.89%
Non-Hispanic Black	Associate degree/some college or less	18-34	Male	<$75,000	98	35	35.71%
Non-Hispanic Black	Associate degree/some college or less	18-34	Male	≥$75,000	23	4	17.39%
Non-Hispanic Black	Associate degree/some college or less	18-34	Female	<$75,000	245	141	57.55%

Non-Hispanic Black	Associate degree/some college or less	18-34	Female	≥$75,000	29	13	44.83%
Non-Hispanic Black	Bachelor degree or more	18-34	Male	<$75,000	17	9	52.94%
Non-Hispanic Black	Bachelor degree or more	18-34	Male	≥$75,000	13	4	30.77%
Non-Hispanic Black	Bachelor degree or more	18-34	Female	<$75,000	59	37	62.71%
Non-Hispanic Black	Bachelor degree or more	18-34	Female	≥$75,000	27	20	74.07%
Non-Hispanic Black	Associate degree/some college or less	35-49	Male	<$75,000	64	48	75.00%
Non-Hispanic Black	Associate degree/some college or less	35-49	Male	≥$75,000	18	12	66.67%
Non-Hispanic Black	Associate degree/some college or less	35-49	Female	<$75,000	107	72	67.29%
Non-Hispanic Black	Associate degree/some college or less	35-49	Female	≥$75,000	20	15	75.00%
Non-Hispanic Black	Bachelor degree or more	35-49	Male	≥$75,000	23	19	82.61%
Non-Hispanic Black	Bachelor degree or more	35-49	Female	<$75,000	3	0	0.00%
Non-Hispanic Black	Bachelor degree or more	35-49	Female	≥$75,000	51	43	84.31%
Non-Hispanic Black	Associate degree/some	50-64	Male	<$75,000	81	45	55.56%

	college or less						
Non-Hispanic Black	Associate degree/some college or less	50-64	Male	≥$75,000	16	11	68.75%
Non-Hispanic Black	Associate degree/some college or less	50-64	Female	<$75,000	155	102	65.81%
Non-Hispanic Black	Associate degree/some college or less	50-64	Female	≥$75,000	32	24	75.00%
Non-Hispanic Black	Bachelor degree or more	50-64	Male	<$75,000	4	2	50.00%
Non-Hispanic Black	Bachelor degree or more	50-64	Male	≥$75,000	35	29	82.86%
Non-Hispanic Black	Bachelor degree or more	50-64	Female	<$75,000	11	7	63.64%
Non-Hispanic Black	Bachelor degree or more	50-64	Female	≥$75,000	38	34	89.47%
Non-Hispanic Black	Associate degree/some college or less	65+	Male	<$75,000	91	60	65.93%
Non-Hispanic Black	Associate degree/some college or less	65+	Male	≥$75,000	19	15	78.95%
Non-Hispanic Black	Associate degree/some college or less	65+	Female	<$75,000	172	103	59.88%
Non-Hispanic Black	Associate degree/some college or less	65+	Female	≥$75,000	13	9	69.23%

Non-Hispanic Black	Bachelor degree or more	65+	Male	<$75,000	15	10	66.67%
Non-Hispanic Black	Bachelor degree or more	65+	Male	≥$75,000	24	22	91.67%
Non-Hispanic Black	Bachelor degree or more	65+	Female	<$75,000	18	13	72.22%
Non-Hispanic Black	Bachelor degree or more	65+	Female	≥$75,000	21	19	90.48%
Hispanic	Associate degree/some college or less	18-34	Male	<$75,000	171	78	45.61%
Hispanic	Associate degree/some college or less	18-34	Male	≥$75,000	58	23	39.66%
Hispanic	Associate degree/some college or less	18-34	Female	<$75,000	317	158	49.84%
Hispanic	Associate degree/some college or less	18-34	Female	≥$75,000	65	40	61.54%
Hispanic	Bachelor degree or more	18-34	Male	<$75,000	39	20	51.28%
Hispanic	Bachelor degree or more	18-34	Male	≥$75,000	35	22	62.86%
Hispanic	Bachelor degree or more	18-34	Female	<$75,000	73	45	61.64%
Hispanic	Bachelor degree or more	18-34	Female	≥$75,000	53	27	50.94%
Hispanic	Associate degree/some college or less	35-49	Male	<$75,000	109	59	54.13%

Hispanic	Associate degree/some college or less	35-49	Male	≥$75,000	60	30	50.00%
Hispanic	Associate degree/some college or less	35-49	Female	<$75,000	216	125	57.87%
Hispanic	Associate degree/some college or less	35-49	Female	≥$75,000	71	37	52.11%
Hispanic	Bachelor degree or more	35-49	Male	<$75,000	1	1	100.00%
Hispanic	Bachelor degree or more	35-49	Male	≥$75,000	78	45	57.69%
Hispanic	Bachelor degree or more	35-49	Female	≥$75,000	90	61	67.78%
Hispanic	Associate degree/some college or less	50-64	Male	<$75,000	82	38	46.34%
Hispanic	Associate degree/some college or less	50-64	Male	≥$75,000	46	24	52.17%
Hispanic	Associate degree/some college or less	50-64	Female	<$75,000	124	79	63.71%
Hispanic	Associate degree/some college or less	50-64	Female	≥$75,000	56	40	71.43%
Hispanic	Bachelor degree or more	50-64	Male	<$75,000	3	2	66.67%
Hispanic	Bachelor degree or more	50-64	Male	≥$75,000	56	34	60.71%

Hispanic	Bachelor degree or more	50-64	Female	<$75,000	2	1	50.00%
Hispanic	Bachelor degree or more	50-64	Female	≥$75,000	51	33	64.71%
Hispanic	Associate degree/some college or less	65+	Male	<$75,000	51	35	68.63%
Hispanic	Associate degree/some college or less	65+	Male	≥$75,000	23	13	56.52%
Hispanic	Associate degree/some college or less	65+	Female	<$75,000	83	49	59.04%
Hispanic	Associate degree/some college or less	65+	Female	≥$75,000	24	15	62.50%
Hispanic	Bachelor degree or more	65+	Male	<$75,000	2	1	50.00%
Hispanic	Bachelor degree or more	65+	Male	≥$75,000	23	11	47.83%
Hispanic	Bachelor degree or more	65+	Female	<$75,000	3	2	66.67%
Hispanic	Bachelor degree or more	65+	Female	≥$75,000	18	12	66.67%

Sample Weighting

The final RANDS 8 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, using weighting classes defined by some household characteristics, including partisan score, political party identification, the presence of young adult(s), and minority status. 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 8-specific base sampling weights were derived using a combination of the final panel weights (described above) and the probability of selection into RANDS 8 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, 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_AMSP) were proportionally adjusted to sum to the total number of RANDS 8 probability-sampled respondents (n=6,857).

The NORC-provided weights were further calibrated by NCHS through raking using information from the 2023 National Health Interview Survey (NHIS). In order to correct for potential biases due to differences between probability-sampled respondents of RANDS 8 and the 2023 Quarter 1 NHIS, the RANDS weights were adjusted by raking to the percentage estimates of demographic, health, and social variables from the 2023 Quarter 1 NHIS using the early release weights (i.e. age; sex; education; race/Hispanic ethnicity; household income; metropolitan area; diagnosed hypertension; diagnosed prediabetes; difficulty participating in social activities due to physical, mental, or emotional condition; household telephone service; internet at home; and volunteering in the past 12 months). 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 probability-sampled respondents in the RANDS 8 (n=6,857).

Suggested Citation

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