RANDS 9 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 9 of the Research and Development Survey (RANDS), referred to as RANDS 9 in this documentation.

RANDS is designed to evaluate estimation approaches for health outcomes from recruited panels and quantitative methodologies for measuring error. In RANDS 9, the effects of different question or response formats, ordering of questions or response options, and the presence of a prompt statement preceding probe questions 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 9 probability sample. In addition, to gain better understanding about the population of Afro-Caribbeans and Middle Eastern or North Africans (MENA), a non-probability sample with an oversample of Afro-Caribbeans and MENA 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 9.

To evaluate the question-response pattern as in previous rounds of RANDS, RANDS 9 included probe questions and six 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 9 survey. The six experiments embedded in RANDS 9 are:

1) Race-Ethnicity Response Order Experiment: Comparing responses from response options presented in two different orders. One group received the traditional order of response options with "White" listed as the first option, and the other group received response options ordered alphabetically.
2) Probe Prompt Experiment: Comparing responses to probe questions preceded with or without a prompt statement. The experiment was carried out on three probe questions: (1) respondents' definition of intellectual and developmental disability; (2) what respondents were thinking when answering questions related to perceived subjection to discrimination; (3) what respondents were thinking when responding to a statement related to diabetes or obesity stigma.
3) 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 reasons for perceived acts of discrimination.
4) Diabetes and Obesity Stigma Experiment: Comparing responses from four experiment groups that were presented with alternative statements related to diabetes or obesity stigma. Each diabetes or obesity stigma statement was presented to two or three groups.
5) Learning Difficulty Question Order Experiment: Comparing responses from two groups that were presented with learning difficulty questions in two different orders.

6) Intimate Partner Violence Question Format Experiment: Comparing responses from two question formats. One group received a total of two questions for this experiment, with one question soliciting a yes or no response to one of the eight categories of physical violence acts and the other question soliciting a single yes or no response to the other seven categories. The other group received one question containing eight grid items for individual categories of physical violence acts with yes or no response options for each grid item.

NORC conducted RANDS 9 from November 28, 2023, to January 12, 2024. 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 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 9, 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, 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 9 was administered in English via either online web surveys or phone interviews. On October 4, 2023, NORC invited a small sample of AmeriSpeak web-mode panelists for a pretest and collected 143 pretest interviews. One section of the questionnaire was removed following the pretest. Pretest interviews are 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 a sample of web-mode panelists on

November 28, 2023, followed by an email reminder sent on December 1. Invitations to additional sampled panelists were sent via e-mail on December 1, with an email reminder sent to the soft-launch invited and the additionally invited web panelists on December 4 and December 7. The remainder web-mode panelists sampled were invited on December 7, followed by an email reminder sent on December 10. Email reminders were sent to the total sample on December 12, December 15, December 21 and December 27. Text messages were sent to the invited web-mode panelists who agreed to receive text messages on December 18.

For the sampled phone-mode panelists, NORC dialed their numbers from December 1, 2023, to January 11, 2024. Although most panelists took the survey in their preferred mode, two panelists with a web-mode preference completed the survey through a phone interview.

In total, out of 9,829 panelists sampled, 7,055 completed the interviews (6,414 by web mode and 641 by phone mode), resulting in an overall completion rate of 71.8%. The weighted cumulative response rate was 13.9%. An additional 366 AmeriSpeak respondents were removed from the dataset prior to post-stratification weighting. Among these 366 respondents, 108 started but did not complete the survey and 258 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 258 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 9 Response Rates by Sampling Strata

Race/Ethnicity	Education Level	Age Group (Year)	Sex	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	329	183	55.62%
Non-Hispanic All Other	Associate degree/some college or less	18-34	Male	≥$75,000	192	107	55.73%
Non-Hispanic All Other	Associate degree/some	18-34	Female	<$75,000	598	356	59.53%

	college or less						
Non-Hispanic All Other	Associate degree/some college or less	18-34	Female	≥$75,000	241	146	60.58%
Non-Hispanic All Other	Bachelor degree or more	18-34	Male	<$75,000	93	69	74.19%
Non-Hispanic All Other	Bachelor degree or more	18-34	Male	≥$75,000	228	148	64.91%
Non-Hispanic All Other	Bachelor degree or more	18-34	Female	<$75,000	31	21	67.74%
Non-Hispanic All Other	Bachelor degree or more	18-34	Female	≥$75,000	314	227	72.29%
Non-Hispanic All Other	Associate degree/some college or less	35-49	Male	<$75,000	118	97	82.20%
Non-Hispanic All Other	Associate degree/some college or less	35-49	Male	≥$75,000	185	151	81.62%
Non-Hispanic All Other	Associate degree/some college or less	35-49	Female	<$75,000	46	33	71.74%
Non-Hispanic All Other	Associate degree/some college or less	35-49	Female	≥$75,000	246	196	79.67%

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	456	399	87.50%
Non-Hispanic All Other	Bachelor degree or more	35-49	Female	<$75,000	4	2	50.00%
Non-Hispanic All Other	Bachelor degree or more	35-49	Female	≥$75,000	164	123	75.00%
Non-Hispanic All Other	Associate degree/some college or less	50-64	Male	<$75,000	164	122	74.39%
Non-Hispanic All Other	Associate degree/some college or less	50-64	Male	≥$75,000	250	218	87.20%
Non-Hispanic All Other	Associate degree/some college or less	50-64	Female	<$75,000	105	56	53.33%
Non-Hispanic All Other	Associate degree/some college or less	50-64	Female	≥$75,000	323	287	88.85%
Non-Hispanic All Other	Bachelor degree or more	50-64	Male	<$75,000	12	7	58.33%
Non-Hispanic All Other	Bachelor degree or more	50-64	Male	≥$75,000	357	315	88.24%
Non-Hispanic All Other	Bachelor degree or more	50-64	Female	<$75,000	11	8	72.73%

Non-Hispanic All Other	Bachelor degree or more	50-64	Female	≥$75,000	108	94	87.04%
Non-Hispanic All Other	Associate degree/some college or less	65+	Male	<$75,000	369	310	84.01%
Non-Hispanic All Other	Associate degree/some college or less	65+	Male	≥$75,000	221	199	90.05%
Non-Hispanic All Other	Associate degree/some college or less	65+	Female	<$75,000	327	240	73.39%
Non-Hispanic All Other	Associate degree/some college or less	65+	Female	≥$75,000	250	218	87.20%
Non-Hispanic All Other	Bachelor degree or more	65+	Male	<$75,000	39	23	58.97%
Non-Hispanic All Other	Bachelor degree or more	65+	Male	≥$75,000	382	354	92.67%
Non-Hispanic All Other	Bachelor degree or more	65+	Female	<$75,000	71	48	67.61%
Non-Hispanic All Other	Bachelor degree or more	65+	Female	≥$75,000	131	113	86.26%
Non-Hispanic Black	Associate degree/some college or less	18-34	Male	<$75,000	98	51	52.04%

Non-Hispanic Black	Associate degree/some college or less	18-34	Male	≥$75,000	19	3	15.79%
Non-Hispanic Black	Associate degree/some college or less	18-34	Female	<$75,000	253	167	66.01%
Non-Hispanic Black	Associate degree/some college or less	18-34	Female	≥$75,000	26	18	69.23%
Non-Hispanic Black	Bachelor degree or more	18-34	Male	<$75,000	14	11	78.57%
Non-Hispanic Black	Bachelor degree or more	18-34	Male	≥$75,000	11	5	45.45%
Non-Hispanic Black	Bachelor degree or more	18-34	Female	<$75,000	34	20	58.82%
Non-Hispanic Black	Bachelor degree or more	18-34	Female	≥$75,000	23	18	78.26%
Non-Hispanic Black	Associate degree/some college or less	35-49	Male	<$75,000	70	52	74.29%
Non-Hispanic Black	Associate degree/some college or less	35-49	Male	≥$75,000	17	14	82.35%
Non-Hispanic Black	Associate degree/some college or less	35-49	Female	<$75,000	65	46	70.77%

Non-Hispanic Black	Associate degree/some college or less	35-49	Female	≥$75,000	21	14	66.67%
Non-Hispanic Black	Bachelor degree or more	35-49	Male	<$75,000	1	1	100.00%
Non-Hispanic Black	Bachelor degree or more	35-49	Male	≥$75,000	30	28	93.33%
Non-Hispanic Black	Bachelor degree or more	35-49	Female	<$75,000	1	0	0.00%
Non-Hispanic Black	Bachelor degree or more	35-49	Female	≥$75,000	49	45	91.84%
Non-Hispanic Black	Associate degree/some college or less	50-64	Male	<$75,000	70	54	77.14%
Non-Hispanic Black	Associate degree/some college or less	50-64	Male	≥$75,000	15	13	86.67%
Non-Hispanic Black	Associate degree/some college or less	50-64	Female	<$75,000	94	52	55.32%
Non-Hispanic Black	Associate degree/some college or less	50-64	Female	≥$75,000	31	24	77.42%
Non-Hispanic Black	Bachelor degree or more	50-64	Male	<$75,000	2	1	50.00%

Non-Hispanic Black	Bachelor degree or more	50-64	Male	≥$75,000	32	29	90.63%
Non-Hispanic Black	Bachelor degree or more	50-64	Female	<$75,000	9	4	44.44%
Non-Hispanic Black	Bachelor degree or more	50-64	Female	≥$75,000	39	33	84.62%
Non-Hispanic Black	Associate degree/some college or less	65+	Male	<$75,000	87	59	67.82%
Non-Hispanic Black	Associate degree/some college or less	65+	Male	≥$75,000	17	13	76.47%
Non-Hispanic Black	Associate degree/some college or less	65+	Female	<$75,000	155	97	62.58%
Non-Hispanic Black	Associate degree/some college or less	65+	Female	≥$75,000	16	14	87.50%
Non-Hispanic Black	Bachelor degree or more	65+	Male	<$75,000	16	10	62.50%
Non-Hispanic Black	Bachelor degree or more	65+	Male	≥$75,000	27	20	74.07%
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	20	18	90.00%

Hispanic	Associate degree/some college or less	18-34	Male	<$75,000	187	85	45.45%
Hispanic	Associate degree/some college or less	18-34	Male	≥$75,000	61	30	49.18%
Hispanic	Associate degree/some college or less	18-34	Female	<$75,000	301	150	49.83%
Hispanic	Associate degree/some college or less	18-34	Female	≥$75,000	61	40	65.57%
Hispanic	Bachelor degree or more	18-34	Male	<$75,000	38	23	60.53%
Hispanic	Bachelor degree or more	18-34	Male	≥$75,000	28	21	75.00%
Hispanic	Bachelor degree or more	18-34	Female	<$75,000	75	52	69.33%
Hispanic	Bachelor degree or more	18-34	Female	≥$75,000	53	33	62.26%
Hispanic	Associate degree/some college or less	35-49	Male	<$75,000	106	66	62.26%
Hispanic	Associate degree/some college or less	35-49	Male	≥$75,000	60	32	53.33%

Hispanic	Associate degree/some college or less	35-49	Female	<$75,000	232	128	55.17%
Hispanic	Associate degree/some college or less	35-49	Female	≥$75,000	65	40	61.54%
Hispanic	Bachelor degree or more	35-49	Male	<$75,000	10	6	60.00%
Hispanic	Bachelor degree or more	35-49	Male	≥$75,000	72	48	66.67%
Hispanic	Bachelor degree or more	35-49	Female	<$75,000	4	1	25.00%
Hispanic	Bachelor degree or more	35-49	Female	≥$75,000	98	67	68.37%
Hispanic	Associate degree/some college or less	50-64	Male	<$75,000	72	34	47.22%
Hispanic	Associate degree/some college or less	50-64	Male	≥$75,000	40	29	72.50%
Hispanic	Associate degree/some college or less	50-64	Female	<$75,000	123	81	65.85%
Hispanic	Associate degree/some college or less	50-64	Female	≥$75,000	53	40	75.47%

Hispanic	Bachelor degree or more	50-64	Male	<$75,000	6	5	83.33%
Hispanic	Bachelor degree or more	50-64	Male	≥$75,000	53	36	67.92%
Hispanic	Bachelor degree or more	50-64	Female	<$75,000	4	3	75.00%
Hispanic	Bachelor degree or more	50-64	Female	≥$75,000	50	37	74.00%
Hispanic	Associate degree/some college or less	65+	Male	<$75,000	60	40	66.67%
Hispanic	Associate degree/some college or less	65+	Male	≥$75,000	17	12	70.59%
Hispanic	Associate degree/some college or less	65+	Female	<$75,000	75	46	61.33%
Hispanic	Associate degree/some college or less	65+	Female	≥$75,000	18	15	83.33%
Hispanic	Bachelor degree or more	65+	Male	<$75,000	10	8	80.00%
Hispanic	Bachelor degree or more	65+	Male	≥$75,000	22	11	50.00%
Hispanic	Bachelor degree or more	65+	Female	<$75,000	5	2	40.00%

Hispanic	Bachelor degree or more	65+	Female	≥$75,000	19	15	78.95%

Sample Weighting

The final RANDS 9 sample was weighted to account for the sample design and was further weighted to U.S. population compositions, accounting 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 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 demographic subgroups. 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 9-specific base sampling weights were derived using a combination of the final panel weights (described above) and the probability of selection into RANDS 9 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 9 probability-sampled respondents (n=7,055).

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 9 and the 2023 Quarter 2 NHIS, the RANDS weights were adjusted by raking to the percentage estimates of demographic, health, and other variables from the 2023 Quarter 2 NHIS using the early release weights (i.e. age; sex; race/Hispanic ethnicity; education; marital status; household income; employment status; diagnosed asthma; use of health information technology; and difficulty doing errands due to a physical, mental, or emotional condition). 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 9 (n=7,055).

Suggested Citation

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