

## RANDS 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 conduct round 3 of the Research and Development Survey (RANDS), referred to as RANDS 3 in this documentation. RANDS is designed to evaluate estimation approaches for health outcomes from recruited panels and quantitative methodologies for measuring error. RANDS is collected for methodological research purposes and is not designed to produce nationally representative estimates. Similar to RANDS 1 and 2 (RANDS 1 Technical Documentation 2020, RANDS 2 Technical Documentation 2020) RANDS 3 was fielded to explore measurement error to guide better questionnaire development, to understand how recruited Web-based panels can be integrated alongside traditional modes of data collection, and to conduct three specific experiments:

- 1) Web probe formatting experiment: testing the effects of select-all-that-apply question type versus force-choice “yes-no” questions for each response option for three web probe questions
- 2) Question element split sample experiment: Evaluating differences in responses to two versions of a question including a) testing different versions of the self-rated health question, b) examining the effects of different reference periods on the response to set of pain questions, c) evaluating the effect of the inclusion or exclusion of introductory text when asking about e-cigarette use
- 3) Opioid use item design experiment: Testing two-distinct item design differences among the National Health Interview Survey (NHIS) and the National Survey on Drug Use and Health (NSDUH) by asking a) yes/no items about all opioid use with a list of opioids as examples (similar to NHIS 2019) versus a set of items that ask about each opioid type use (similar to NSDUH), b) opioid names versus both opioid names and images within the NSDUH opioid use items

NORC conducted RANDS 3 from April 11, 2019 to April 24, 2019. 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 are 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, overnight express mailers, and through face-to-face field interviews for recruitment to the Panel. As of 2019, the AmeriSpeak Panel included more than 35,000 U.S. households and provided sample coverage of approximately 97% of the U.S. household population.

For RANDS 3, NORC collaborated with NCHS’ DRM on a stratified sample design to obtain a random, representative sample of U.S. adults aged 18 and over, stratifying the target population by age (18-34, 35-49, 50-64, 65+), race/Hispanic ethnicity (Non-Hispanic All Other, Non-Hispanic Black, Hispanic), education (Associate’s degree/some college or less, Bachelor’s degree or more), and gender (Male, Female) for a total of 48 sampling strata. First, the sampled respondents obtained in the AmeriSpeak Panel were stratified according to the NCHS specifications provided above. Then, NORC performed sampling independently within each stratum using simple random sampling. The sampling ratios varied by stratum to account for differential non-response to ensure a representative sample of the target population. NORC conducted the survey in English via web-only administration. AmeriSpeak panelists who preferred to respond by telephone were excluded from the study.

### Summary of Field Work

NORC invited 68 AmeriSpeak web-mode panelists to complete a pretest on March 21. No changes were made before fielding the main survey.

NORC sent 4,255 randomly selected web-mode panelists invitations to RANDES 3 on April 11. Panelists who had not yet completed the survey also received reminders on April 14 and April 16. NORC ended the response collection on April 24. At the completion of the study, NORC had collected 2,646 completed interviews for an overall completion rate of 62.2 percent. An additional 123 respondents started but did not complete the survey. NCHS did not provide an incentive for participation in RANDES, although NORC offers a non-cash, point-based incentive for responding to surveys such as RANDES which can be traded for gift cards or other non-cash prizes.

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

**Table 1. RANDES 3 Response Rates by Sampling Strata**

<b>Race/Ethnicity</b>	<b>Education Level</b>	<b>Age Group</b>	<b>Gender</b>	<b>Total Sample per Stratum</b>	<b>Completes per Stratum</b>	<b>Response Rate</b>
Non-Hispanic All Other	Associate degree/some college or less	18-34	Male	279	155	55.56%
Non-Hispanic All Other	Associate degree/some college or less	18-34	Female	264	144	54.55%
Non-Hispanic All Other	Associate degree/some college or less	35-49	Male	206	127	61.65%
Non-Hispanic All Other	Associate degree/some college or less	35-49	Female	186	115	61.83%
Non-Hispanic All Other	Associate degree/some college or less	50-64	Male	251	180	71.71%
Non-Hispanic All Other	Associate degree/some college or less	50-64	Female	256	171	66.80%
Non-Hispanic All Other	Associate degree/some college or less	65+	Male	212	161	75.94%
Non-Hispanic All Other	Associate degree/some college or less	65+	Female	279	198	70.97%
Non-Hispanic All Other	Bachelor degree or more	18-34	Male	126	83	65.87%
Non-Hispanic All Other	Bachelor degree or more	18-34	Female	139	87	62.59%
Non-Hispanic All Other	Bachelor degree or more	35-49	Male	147	101	68.71%

Non-Hispanic All Other	Bachelor degree or more	35-49	Female	156	102	65.38%
Non-Hispanic All Other	Bachelor degree or more	50-64	Male	132	96	72.73%
Non-Hispanic All Other	Bachelor degree or more	50-64	Female	136	90	66.18%
Non-Hispanic All Other	Bachelor degree or more	65+	Male	114	83	72.81%
Non-Hispanic All Other	Bachelor degree or more	65+	Female	95	63	66.32%
Non-Hispanic Black	Associate degree/some college or less	18-34	Male	82	36	43.90%
Non-Hispanic Black	Associate degree/some college or less	18-34	Female	78	35	44.87%
Non-Hispanic Black	Associate degree/some college or less	35-49	Male	54	29	53.70%
Non-Hispanic Black	Associate degree/some college or less	35-49	Female	49	20	40.82%
Non-Hispanic Black	Associate degree/some college or less	50-64	Male	54	26	48.15%
Non-Hispanic Black	Associate degree/some college or less	50-64	Female	54	29	53.70%
Non-Hispanic Black	Associate degree/some college or less	65+	Male	20	14	70.00%
Non-Hispanic Black	Associate degree/some college or less	65+	Female	40	22	55.00%
Non-Hispanic Black	Bachelor degree or more	18-34	Male	14	8	57.14%
Non-Hispanic Black	Bachelor degree or more	18-34	Female	18	7	38.89%
Non-Hispanic Black	Bachelor degree or more	35-49	Male	16	12	75.00%
Non-Hispanic Black	Bachelor degree or more	35-49	Female	21	11	52.38%
Non-Hispanic Black	Bachelor degree or more	50-64	Male	11	8	72.73%
Non-Hispanic Black	Bachelor degree or more	50-64	Female	17	10	58.82%
Non-Hispanic Black	Bachelor degree or more	65+	Male	8	2	25.00%

Non-Hispanic Black	Bachelor degree or more	65+	Female	9	4	44.44%
Hispanic	Associate degree/some college or less	18-34	Male	140	74	52.86%
Hispanic	Associate degree/some college or less	18-34	Female	135	66	48.89%
Hispanic	Associate degree/some college or less	35-49	Male	68	42	61.76%
Hispanic	Associate degree/some college or less	35-49	Female	104	65	62.50%
Hispanic	Associate degree/some college or less	50-64	Male	38	23	60.53%
Hispanic	Associate degree/some college or less	50-64	Female	63	36	57.14%
Hispanic	Associate degree/some college or less	65+	Male	23	16	69.57%
Hispanic	Associate degree/some college or less	65+	Female	24	15	62.50%
Hispanic	Bachelor degree or more	18-34	Male	23	14	60.87%
Hispanic	Bachelor degree or more	18-34	Female	27	12	44.44%
Hispanic	Bachelor degree or more	35-49	Male	22	14	63.64%
Hispanic	Bachelor degree or more	35-49	Female	26	14	53.85%
Hispanic	Bachelor degree or more	50-64	Male	13	11	84.62%
Hispanic	Bachelor degree or more	50-64	Female	14	7	50.00%
Hispanic	Bachelor degree or more	65+	Male	5	3	60.00%
Hispanic	Bachelor degree or more	65+	Female	7	5	71.43%

### Sample Weighting

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

Derivation of statistical weights first starts 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. NORC adjusts their panel sampling weights for non-response and undercoverage. The sample design and recruitment protocol for the AmeriSpeak Panel involves subsampling initial non-respondent housing units for an in-person follow up. The subsample of housing units that are selected for non-response follow-up (NRFU) have their panel base sampling weights inflated by the inverse of the sampling rate. The base sampling weights are further adjusted to account for unknown eligibility and nonresponse among eligible housing units. The household-level nonresponse adjusted weights are then post-stratified to external counts of the number of households obtained by the U.S. Census Bureau Current Population Survey (CPS). Furthermore, a person-level nonresponse adjustment accounts for nonresponding adults within a recruited household. These panel weights are adjusted by raking to external population totals associated with age, sex, education, race/Hispanic ethnicity, housing tenure, telephone status, and Census Division obtained from the CPS to obtain the final panel weights.

The RANDS survey-specific base sampling weights are derived using a combination of the final panel weight (described above) and the probability of selection into RANDS associated with the sampled panel member. The overall survey sampling weight was calculated as the panel base sampling weight multiplied by the inverse probability of selection of an AmeriSpeak Panel member in RANDS where the probability of selection of a panelist within a stratum (defined by race/ethnicity, age, education, and gender) 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 respond to the survey interview, an adjustment is needed to account for and adjust for survey non-respondents. This adjustment decreases potential nonresponse bias associated with sampled panel members who did not complete the RANDS 3 survey. The non-response adjusted survey weights for the study are adjusted by raking to general population totals associated with the following socio-demographic characteristics: age, sex, education, race/Hispanic ethnicity, housing tenure, telephone status, and Census Division.

The weights adjusted to the external population totals are the final study weights. At the final stage of weighting, any extreme weights were trimmed based on a criterion of minimizing the mean squared error associated with key survey estimates and then weights are re-raked to the same population totals. Once weighting adjustment achieved the goal of matching the CPS population post-stratum totals, the final weights were proportionally adjusted to sum to the total number of RANDS 3 respondents ( $n=2,646$ ).

## **References**

National Center for Health Statistics. RANDS 1 Technical Documentation. Hyattsville, Maryland. 2020.

National Center for Health Statistics. RANDS 2 Technical Documentation. Hyattsville, Maryland. 2020.

## **Suggested Citation**

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