RANDS 4 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 4 of the Research and Development Survey (RANDS), referred to as RANDS 4 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 4 was fielded to explore measurement error to guide better questionnaire development, and to understand how recruited Web-based panels can be integrated alongside traditional modes of data collection. Additionally, RANDS 4 had an emphasis on disability and the use of opioid pain relievers. The RANDS 4 questionnaire was designed to allow panelists to respond to questions for themselves as well as a proxy for up to two other randomly selected household members. 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 4 sample.

To evaluate the question-response pattern as in previous rounds of RANDS, RANDS 4 included probe questions and four specific experiments:

1) Probe Formatting Experiment: Comparing responses from the "select-all-that-apply" question-type versus the question-type with the forced-choice "yes-no" for each response option in two probe questions related to (a) the knowledge and the use of opioid pain relievers and (b) difficulties with memory and cognitive functions.
2) Commitment Statement Experiment: Testing if the presence of a commitment statement of providing accurate and honest answers at the beginning of the survey would impact the quality of the survey responses.
3) Open-Ended Probes vs. Close-Ended Multi-Punch Probes: Comparing responses from the open-ended question-type versus the question-type with the "select-all-that-apply" style for the close-ended response options. The experiment was for two probe questions on (a) the reasons for having difficulty in doing errands alone and (b) difficulty in learning how to do things most people at their age can learn. Only panelists interviewed via web surveys were involved in the experiment, whereas panelists responding via phone interviews had their responses recorded as close-ended probe items.
4) Question Order Experiment: Comparing responses from questions about prescribed opioid pain medication when presented in two different question orders: (a) the respondent was asked if he/she has ever taken prescribed opioid pain medication in his/her lifetime; for the respondent indicating ever using opioid pain medication in his/her lifetime, the question was followed by the same question but with the timeframe adjusted to the past 12 months; and (b) same questions as in (a) but with the question order reversed. If the respondent in (b) indicated having used the opioid pain medication in the past 12 months, the response to the use of opioid pain medication in his/her lifetime automatically received an "Yes" without presenting the question.

Please note that respondents were assigned to experiment groups prior to the survey for experiments (1)-(3), but the order of the two questions in experiment (4) was assigned at the time of the survey.

NORC conducted RANDS 4 from July 17, 2020 to August 24, 2020. 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 2021, the AmeriSpeak® Panel included more than 40,000 U.S. households and provided sample coverage of 99% of the U.S. household population.

For RANDS 4, 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), and sex (male, female) for a total of 48 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 4 was administered in English via either online web surveys or phone interviews. On March 17, 2020, NORC invited a small sample of AmeriSpeak® web-mode panelists for a pretest and collected 37 pretest interviews. Following the pre-test, the wording of four questions (PART1, PART2, PART3, PART4) and corresponding response options was updated.

For the sampled web-mode panelists, NORC sent e-mail invitations/reminders along with text messages. The soft-launch invitation was sent to some panelists on July 17, 2020, followed by a reminder sent on July 20, 2020. Invitations to additional sampled panelists were sent on July 21, August 7, and August 11. Reminders were sent to the invited panelists who had not completed the survey on July 24, July 30, August 4, August 7, August 10, August 16, August 19, August 20, August 21, and August 23.

For the sampled phone-mode panelists, NORC dialed their numbers throughout the field period. Additionally, starting from August 20, 2020, sampled web-mode panelists who provided phone numbers to NORC previously but had not completed the survey were contacted by phone and were offered the option of completing the survey via phone.

In total, out of 4,914 panelists sampled, 3,442 completed the interviews, resulting in an overall completion rate of 70.0%. The weighted cumulative response rate was 14.0%. An additional 144 respondents were removed from the dataset prior to post-stratification weighting. Among these 144 respondents, 110 started but did not complete the survey and 34 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 34 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. For RANDS 4, NORC offered a higher incentive for phone respondents compared to web respondents. On August 19, 2020, NORC increased the incentive for both web and phone panelists to boost cooperation.

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

Table 1. RANDS 4 Response Rates by Sampling Strata

Race/Ethnicity	Education Level	Age Group (Year)	Gender	Total Sample per Stratum	Completes per Stratum	Response Rate
Non-Hispanic All Other	Associate degree/some college or less	18-34	Male	238	145	60.92%
Non-Hispanic All Other	Associate degree/some college or less	18-34	Female	204	137	67.16%
Non-Hispanic All Other	Bachelor degree or more	18-34	Male	91	64	70.33%
Non-Hispanic All Other	Bachelor degree or more	18-34	Female	111	86	77.48%
Non-Hispanic All Other	Associate degree/some college or less	35-49	Male	155	110	70.97%

Non-Hispanic All Other	Associate degree/some college or less	35-49	Female	155	104	67.10%
Non-Hispanic All Other	Bachelor degree or more	35-49	Male	106	89	83.96%
Non-Hispanic All Other	Bachelor degree or more	35-49	Female	130	99	76.15%
Non-Hispanic All Other	Associate degree/some college or less	50-64	Male	285	193	67.72%
Non-Hispanic All Other	Associate degree/some college or less	50-64	Female	329	242	73.56%
Non-Hispanic All Other	Bachelor degree or more	50-64	Male	114	84	73.68%
Non-Hispanic All Other	Bachelor degree or more	50-64	Female	133	99	74.44%
Non-Hispanic All Other	Associate degree/some college or less	65+	Male	328	235	71.65%
Non-Hispanic All Other	Associate degree/some college or less	65+	Female	572	428	74.83%
Non-Hispanic All Other	Bachelor degree or more	65+	Male	188	149	79.26%
Non-Hispanic All Other	Bachelor degree or more	65+	Female	205	164	80.00%
Non-Hispanic Black	Associate degree/some college or less	18-34	Male	64	37	57.81%
Non-Hispanic Black	Associate degree/some college or less	18-34	Female	65	35	53.85%
Non-Hispanic Black	Bachelor degree or more	18-34	Male	14	8	57.14%

Non-Hispanic Black	Bachelor degree or more	18-34	Female	15	12	80.00%
Non-Hispanic Black	Associate degree/some college or less	35-49	Male	51	33	64.71%
Non-Hispanic Black	Associate degree/some college or less	35-49	Female	62	37	59.68%
Non-Hispanic Black	Bachelor degree or more	35-49	Male	10	9	90.00%
Non-Hispanic Black	Bachelor degree or more	35-49	Female	24	17	70.83%
Non-Hispanic Black	Associate degree/some college or less	50-64	Male	87	52	59.77%
Non-Hispanic Black	Associate degree/some college or less	50-64	Female	161	92	57.14%
Non-Hispanic Black	Bachelor degree or more	50-64	Male	17	11	64.71%
Non-Hispanic Black	Bachelor degree or more	50-64	Female	29	22	75.86%
Non-Hispanic Black	Associate degree/some college or less	65+	Male	74	50	67.57%
Non-Hispanic Black	Associate degree/some college or less	65+	Female	156	102	65.38%
Non-Hispanic Black	Bachelor degree or more	65+	Male	15	11	73.33%
Non-Hispanic Black	Bachelor degree or more	65+	Female	24	17	70.83%
Hispanic	Associate degree/some college or less	18-34	Male	122	73	59.84%

Hispanic	Associate degree/some college or less	18-34	Female	102	64	62.75%
Hispanic	Bachelor degree or more	18-34	Male	14	7	50.00%
Hispanic	Bachelor degree or more	18-34	Female	20	17	85.00%
Hispanic	Associate degree/some college or less	35-49	Male	72	45	62.50%
Hispanic	Associate degree/some college or less	35-49	Female	74	48	64.86%
Hispanic	Bachelor degree or more	35-49	Male	14	10	71.43%
Hispanic	Bachelor degree or more	35-49	Female	21	15	71.43%
Hispanic	Associate degree/some college or less	50-64	Male	58	40	68.97%
Hispanic	Associate degree/some college or less	50-64	Female	68	50	73.53%
Hispanic	Bachelor degree or more	50-64	Male	13	9	69.23%
Hispanic	Bachelor degree or more	50-64	Female	11	11	100%
Hispanic	Associate degree/some college or less	65+	Male	38	28	73.68%
Hispanic	Associate degree/some college or less	65+	Female	56	39	69.64%
Hispanic	Bachelor degree or more	65+	Male	10	6	60.00%

Hispanic	Bachelor degree or more	65+	Female	9	7	77.78%

Sample Weighting

The final RANDS 4 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 4-specific base sampling weights were derived using a combination of the final panel weights (described above) and the probability of selection into RANDS 4 associated with the sampled panel member. The overall survey sampling weights were calculated as the panel weights multiplied by the inverse probability of selection of an AmeriSpeak® Panel member to the RANDS4 sample, where the probability of selection of a panelist within a stratum (defined by race/ethnicity, age, sex and education) 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 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 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, as well as the socio-demographic interactions of the following: age and sex, age and race/Hispanic ethnicity, and sex and race/Hispanic ethnicity. 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 were proportionally adjusted to sum to the total number of RANDS 4 respondents (n=3,442).

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