

UNIVERSITY OF MINNESOTA

National Couples' Health and Time Study (NCHAT) Wave 3 Methodology Report

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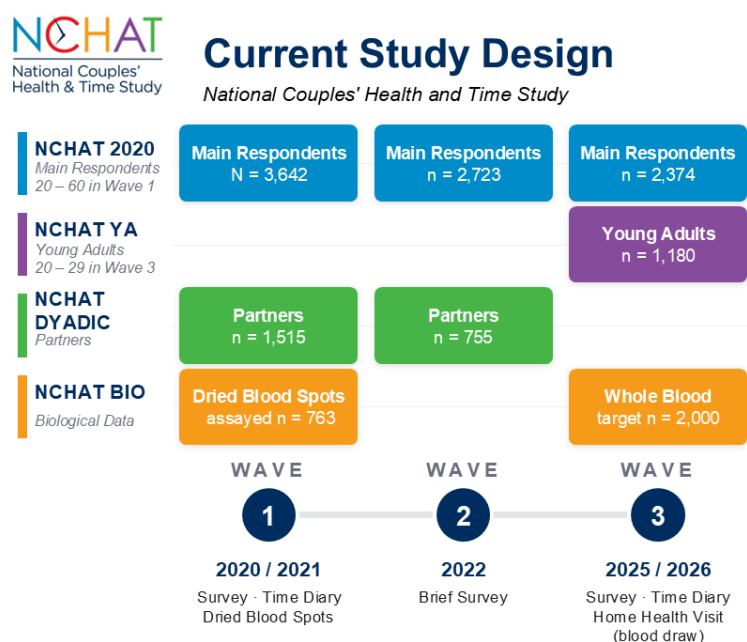
Overview

Gallup fielded Wave 3 of the National Couples' Health and Time Study (NCHAT) from June 17, 2025, to February 14, 2026.

The Wave 1 National Couples' Health and Time Study (NCHAT) survey, fielded in 2020 and 2021, covered adults between the ages of 20 and 60 who were cohabiting with or married to same- and different-gender partners (See Marlar et al. 2022). Wave 1 included primary respondents and their partners. Wave 2 constitutes all respondents and partners who completed a brief interview in 2022 (Marlar et al. 2023). All primary respondents who completed the Wave 1 NCHAT study were invited to participate in the Wave 3 Returning Sample NCHAT Study, hereafter referred to as returning respondent. Respondents were asked to complete a 25-minute survey (which we will refer to as the "main survey"). The final cleaned data set includes 2,457 respondents who completed the returning respondent main survey.

In addition, a new sample of married or cohabiting 20-29 year olds were invited to participate in Wave 3, hereafter referred to as the Refreshment Sample. The NCHAT team calls this sample the NCHAT Young Adult Study, or NCHAT-YA. These respondents were asked to complete a 45-minute survey. The final cleaned dataset includes 1,180 respondents who completed the Refreshment Sample main survey.

An overview of the NCHAT study is seen below.



All respondents who completed the returning or the refreshment main surveys were asked to complete a time diary. There were 3030 respondents who completed the time diary but as of this writing, the time diary data are still being cleaned thus the final sample size and methodology report information are not available.

As shown in Figure 1, NCHAT also includes the NCHAT Stress Biology Study (NCHAT-BIO). NCHAT-BIO is a study of stress biology led by Drs. Lisa Christian and Claire Kamp Dush (Christian et al., 2026). There are two sources of biomarker data that constitute NCHAT-BIO. At Wave 1, dried blood spot data was collected from 950 of the Wave 1 main respondents and partners. Assays were conducted on 787 respondents for interleukin-6, C-reactive protein, and Epstein Barr Virus antibodies; assays will be made publicly available in Fall 2026. We are in the process of conducting home health visits and collecting whole blood data from 2,000 respondents in 2026/2027.

All survey materials were translated into English and Spanish. Additional details about the survey procedures are provided in the sections below.

Sampling

Returning Sample

All participants who completed the Wave 1 NCHAT study (N = 3,642) were invited to participate in Wave 3 of NCHAT, and are referred to in this report as the “returning” sample. All returning NCHAT respondents were between the ages of 20 and 60 and married or cohabiting with a partner at the time they completed the Wave 1 survey. All returning respondents were eligible to complete the Wave 3 survey, regardless of current relationship status and age.

Forty-three of the returning respondents had requested placement on Gallup’s “do not contact” list and were therefore excluded from Wave 3 returning sample recruitment efforts, resulting in a final invited sample of 3,599 respondents.

The returning sample includes respondents who are part of the Gallup Panel and respondents who are part of the Gallup recontact sample. Gallup Panel respondents are participants who have agreed to complete surveys on regular basis. Their expectation is to receive regular survey invitations and communications from Gallup. Respondents from the Gallup recontact sample consented to receive survey requests from Gallup, but they do not receive regular communication or expect regular survey requests from Gallup. We will refer to this group as the “non-panel” sample. For most non-panel respondents, their last communication from Gallup was at the time of the NCHAT Wave 1 survey.

Additional details on the Wave 1 sampling methodology, including the Gallup Panel, are provided in the Wave 1 NCHAT Methodology Report¹.

Refreshment Sample

Respondents were sampled from the Gallup Panel, a probability-based panel of U.S. adults. For more information about the Gallup Panel, please reference the Wave 1 NCHAT methodology report (Marlar et al., 2022).

An initial Refreshment sample (n=1,656) was selected from the Gallup Panel and restricted to panelists ages 20-29 who reported being married or living with a partner, and who were not included in the Returning sample.

A second sample of panel members was selected (n=1,096) and included individuals who were between the ages of 20 and 29, who identified as LGBT, who were single/never married, and who were not already sampled. The vast majority of this sample was expected to be ineligible for the survey but was added in an effort to screen all possible LGBT respondents. All respondents completed screening questions at the beginning of the survey to confirm eligibility (married or cohabiting with a partner). Panelists who were invited to Wave 1 but did not complete the survey remained eligible for inclusion.

¹ Marlar, Jenny, Claire M. Kamp Dush, Wendy D. Manning, Miranda N. Berrigan, Alexandra M. VanBergen, Dato Tsabutashvili, Manas Chattopadhyay and Angelina Theodorou. 2022. "National Couples' Health and Time Study (NCHAT) Methodology Report." Vol. Minneapolis, MN.

Survey Design and Administration

Overview

The main survey instruments cover a range of topics related to family functioning, including a household roster, partner history, physical and mental wellbeing, health behaviors, discrimination, and demographics. Many of the survey questions are identical to questions asked in the Wave 1 NCHAT study. (For details about the Wave 1 NCHAT questionnaire, please reference the Wave 1 NCHAT methodology report). Returning sample respondents received a questionnaire that contained a subset of the Wave 1 survey questions, collected updated information about their relationship status, and included new questions. The refreshment sample respondents received a questionnaire that was similar to the Wave 1 baseline survey. However, some questions, such as questions about COVID, were removed, and new Wave 3 questions were added. The new items that were added were based on the NCHAT Open Panel competition whereby scholars submitted potential items for inclusion, and those items chosen were included for free (chosen items can be seen [here](#)).

All survey materials were translated into Spanish. Respondents previously identified as primarily Spanish-speaking received Spanish-language invitations and reminders and were directed to complete a Spanish-translated survey version. All respondents could choose whether to complete the survey in English or Spanish. Gallup works with a professional translation provider for the Spanish language translations. Gallup has partnered with this translation service for more than a decade, and they are familiar with the unique needs of survey instruments and providing translations for survey questions. The translation process begins with the lead translator, who is fluent in English and a native speaker of the target language (in this case, Spanish). A second translator, fluent in both English and the target language, reviews the entire translation for editing (changes to words) and proofing (typos). The two translators resolve any recommended edits.

Once the respondent completed the main survey, the survey system sent the respondent the incentive (see the section on incentives). Completing the survey also triggered an invitation to the time-diary (see the section on the Time Diary survey).

Returning Sample Survey

This section describes the returning sample survey, including survey invitations and reminders. Information about the refreshment sample survey can be found in the following section.

Contact Information Survey

A brief contact information update survey was fielded from April 23, 2025, to May 9, 2025. This survey functioned as a prenotification for the upcoming Wave 3 survey and an opportunity to collect updated contact information. Invitations were sent to 3,069 Gallup Panelists and 530 non-panel respondents who had completed the Wave 1 NCHAT study.

Respondents were asked to complete a short (<5 min) survey, which collected updated contact information (preferred email address, mailing address, and phone number) for use in subsequent survey communications. The survey also included an optional consent item for receiving SMS (text message) communications. Completion of the contact information survey was not required for participation in the main Wave 3 survey.

Web invitations for the contact information survey were sent via email on April 23, 2025, and included a \$5 prepaid incentive. Follow-up email reminders were sent on April 25 and April 27, 2025. Panelists and non-panelists received communications on the same schedule, with minor wording differences in select instances to distinguish Gallup Panel membership (e.g., inclusion of the sentence, "On behalf of the Gallup Panel, we thank you for being a Panel member" for panelists).

In addition to email outreach, Gallup panelists were mailed a letter on April 23, 2025, which included a mention of a \$5 prepaid incentive, which was deposited into their panel member account. The letter provided a web link and QR code directing respondents to the contact information survey. All web and mail materials were translated into Spanish for respondents identified as Spanish-speaking.

Main Survey Pilot

On June 17, 2025, Gallup randomly selected 200 respondents to participate in a pilot test of the main survey, including 31 non-panel respondents and 169 Gallup Panelists. Of those invited, 133 responded to the survey and were retained in the final weighted dataset (15 from the non-panel sample and 118 from the Gallup Panel sample).

Respondents who did not complete the survey received a series of six email reminders on June 20, June 26, July 7, July 11, July 16, and July 24, 2025. Respondents who provided consent to receive text messages also received SMS reminders on June 20, June 26, July 2, and July 16, 2025.

A \$25 postpaid incentive was offered to respondents who completed the pilot survey.

No major issues were identified with the survey instrument during pilot testing that required substantive changes. As a result, pilot respondents were retained in the final analytic dataset.

Main Survey

Survey invitations were sent to the rest of the returning sample on July 7, 2025. The survey invitation included mention of a \$25 post-paid incentive, an explanation of the study and survey request, the survey link, and the consent statement language. The survey link contained an embedded unique respondent I.D. for accessing the survey.

The survey link took respondents to the survey instrument, which first asked for participant consent. Respondents who gave consent continued with the survey. For those who did not consent, the survey ended, and they were no longer contacted to participate in NCHAT.

The survey took approximately 25 minutes to complete. Respondents were able to leave the survey without finishing and come back to it later using their unique link. The survey resumed where they left off (meaning respondents did not have to start over if they left the survey without completing it).

Respondents who did not complete the survey received a series of six email reminders to complete the survey on July 10, July 16, July 22, July 31, August 5, and August 13, 2025. Respondents who provided consent to receive text messages also received SMS reminders on July 10, July 16, July 22, and August 5, 2025. Gallup Panel members could also see the survey request in their Panel member website or panel member app, provided they had created a panel member account. The panel member could see the invitation to participation in the NCHAT survey, as well as the incentive for participating. The invitation to complete remained visible on their webpage or app until the survey was fully completed or until the survey closed and was removed from the field.

A Spanish-language version of the survey and associated communications was launched to nine respondents on October 7, 2025. Respondents received a \$25 postpaid incentive for participation. Initial invitations were sent on October 7, followed by email reminders on October 10, October 16, October 22, October 31, November 5, and November 13, 2025. SMS reminders were sent on October 10, October 16, October 22, and November 5, 2025.

Nonresponse Follow-up

Several nonresponse follow-up efforts were implemented for the main survey sample, for both the returning and refreshment sample, to improve participation. Beginning with the reminders sent on October 10, 2025, the post-paid incentive was increased for English speaking respondents to \$40. The incentive amount was updated on all communications and the consent statement. Email reminders were sent on October 10, October 16, October 22, October 31, November 5, and November 13, 2025. SMS reminders were sent on October 10, October 16, October 22, and November 5, 2025.

Reminder phone calls and postcards were used to attempt to research respondents via additional modes of communication, which has been demonstrated to improve response rates. Reminder phone calls could only be placed and postcards could only be sent to participants for whom we had a phone number and/or mailing address.

Reminder postcards were mailed on October 14, 2025. The postcard was 6x9 inches and included the NCHAT logo. It provided a brief overview of the survey request, mention of the incentive, and contained the survey URL and respondent's unique access code so they could access the survey. Respondents would either type in the URL and unique access code or they could scan their unique QR code, which directed them to the survey. Reminder postcards were mailed to 396 "returning" respondents.

Reminder phone calls started on October 16, 2025. All numbers were dialed up to 3 times, on different days and at different times. If the interviewer reached a respondent, they briefly explained the purpose of the call and the survey request. They asked the respondent if they had received the email invitation and confirmed the respondent's email address to ensure the invitation had been delivered. The interviewer provided the respondent with instructions to find the survey invitation, reminded them of the incentive for completion, and requested their participation. Interviewers were also able to gather feedback from respondents. If a respondent was not reached on the third phone call attempt, the interviewer left a voicemail with details about the survey request and instructions to participate. Phone calls were placed to 1,331 returning respondents.

Reminder emails were timed to be sent during the same time frame as the reminder phone calls and mailers, so that respondents would have recent email communications they could more easily find in their messages.

Revised reminder language

Additional email reminders were sent on December 19, December 22, and December 26, 2025 and February 4, 2026. These reminders reflected two important changes:

First, all reminders and invitations sent prior to December 19 mentioned the National Couples' Health and Time Use Survey, including the NCHAT logo. The research team hypothesized that the study title, which includes the word "couples", might discourage participation from respondents who are no longer part of a couple from participating, believing that the study is only for individuals who are part of a couple. The NCHAT logo, mention of the study name (NCHAT), and word "couple" were removed from the reminders.

Second, the communications to panel members prior to December 19, 2025 mentioned that their incentive would be deposited into their panel member account, which requires an account and secure login to redeem (and is the standard incentive process for Gallup Panel members). Not all panel members have an account or choose to accumulate and redeem their points. Based upon feedback from a respondent during the reminder calls, the team hypothesized that this could be a potential barrier to participation, given the length of the survey and large incentive. To remove this potential perceived barrier, the team changed the incentive redemption mechanism for panel members. Instead of needing to redeem their points via their secure account and point bank, respondents received an email, which provided a link to redeem the reward without the need for an account (which is the same process used for non-panel respondents). Corresponding updates were also made to the main survey consent and closing pages to ensure consistency and clarity in how the incentive was described.

The final reminder sent on February 4, 2026 included a sentence emphasizing that it was the final opportunity to participate.

Survey Changes During the Field Period

The following four updates were made to the main survey instrument on July 3, 2025. These changes were made based on the results of the pilot but prior to the full launch of the survey.

1. The cognition items (W3_Q141 through W3_Q145), which were originally restricted to respondents aged 45 and older, were revised to be administered to all respondents.
2. Display logic for the personal income item (W3_D10) was updated. The original logic displayed the follow-up item if the preceding open-ended income response (W3_D9) was missing; this was modified to account for a programming issue in which a value of zero was coded as missing in Qualtrics. The revised logic ensured that cases with a value of zero were treated as valid responses. The same correction was applied to the household income items (W3_D11 and W3_D12).
3. Display logic for W3_Q120 was expanded. Originally, this item was displayed only if W3_Q119 = 1; the revised logic also included cases where a household roster member was present (i.e., W3_HHR14_1 indicated at least one entry or W3_HHR1 was not empty), allowing additional eligible respondents to receive the item.
4. The display logic for W3_Q122 was simplified by removing a condition that compared responses in W3_Q120 to household roster initials, while retaining the requirement that RELAT_STATUS = 1 and W3_Q121 ≠ 1.

On November 11, 2025, all month/year (MM/YYYY) dropdown response options were extended. The original upper bound of July 2025 was updated to January 2026. This change affected items W3_Q20, W3_Q21, W3_Q22, W3_Q25, W3_Q28, and W3_Q29.

Refreshment Sample

Main Survey Pilot

On October 8, 2025, Gallup randomly selected 200 respondents from the selected refreshment sample to participate in a pilot test of the main survey. Of those invited, 139 responded to the survey.

Respondents who did not complete the survey received a series of six email reminders on October 11, October 17, October 23, November 1, November 6, and November 14, 2025. Respondents who provided consent to receive text messages also received SMS reminders on October 11, October 17, October 23, and November 6, 2025.

Respondents received a \$5 prepaid incentive and were offered a \$50 postpaid incentive for participation, which mirrors the incentives used in Wave 1.

No major issues were identified with the survey instrument during pilot testing that required substantive changes. As a result, pilot respondents were retained in the final analytic dataset.

Main Survey

Initial survey invitations were sent on November 3, 2025, to 1,656 Gallup panelists selected for the refreshment sample. The invitation included a \$5 prepaid incentive, a \$50 postpaid incentive, a description of the study, the survey link, and consent language. Each survey link contained an embedded unique respondent ID to enable secure access to the instrument.

Upon accessing the survey, respondents were first presented with a consent statement. Participants were then asked a screening question regarding their relationship status (“Are you currently living with a spouse/partner/boyfriend/girlfriend most of the time?”). Respondents who provided consent and answered “Yes” to the screening question proceeded to the full survey. All others were screened out.

The survey took approximately 45 minutes to complete. Respondents were able to exit the survey and return later using their unique link, with progress saved so that the survey resumed where they left off.

Respondents who did not complete the survey were scheduled to receive a series of five email reminders on November 6, November 12, November 18, November 27, and December 2, 2025. A sixth reminder planned for December 10 was not deployed due to strong response rates. Respondents who had consented to receive text messages also received SMS reminders on November 6, November 12, November 18, and December 2, 2025.

A Spanish-language version of the survey and associated communications was launched on November 24, 2025, to a sample of 11 respondents. These respondents received a \$5 prepaid incentive and a \$50 postpaid incentive. Email reminders were sent on November 27, December 3, December 9, December 18, and December 23, 2025, and SMS reminders were sent on November 27, December 3, December 9, and December 23, 2025.

Main Survey Nonresponse Follow-up

Additional targeted efforts were undertaken starting December 12, 2025 in to reach LGBT respondents from the refreshment sample. These efforts mirror the non-response phone and postcard follow-ups described in the returning sample section. Eighty respondents from the LGBT refreshment sample oversample were sent a reminder postcard and 117 received a reminder phone call.

Additional LGBT Sample Invitations

On January 29, 2026, an additional sample was invited to participate in the refreshment sample, in an effort to reach additional LGBT respondents who may qualify for the survey.

Respondents received a \$5 prepaid incentive and were offered a \$50 post-completion incentive. Survey invitations for this additional sample were sent on January 29, 2026. Follow-up email reminders were sent to nonrespondents on February 3, February 6, February 9, and February 13, 2026.

Survey Changes During the Field Period

The following updates were made to the main survey instrument while fielding:

On November 5, 2025, item NEW_D15 was updated to include “District of Columbia” as a response option, which had been inadvertently omitted from the original programming.

On November 11, 2025, all month/year (MM/YYYY) dropdown response options were extended. The original upper bound of July 2025 was updated to January 2026. This change affected items Q87, PARENT3, PARENT3B, Q31, Q32, Q33, Q34, Q35, and Q36.

Time Diary

At the time of this report, the time diary data were still being cleaned, and these time diary methodology will be described in a separate report, at a later date.

Response Rates

Survey Response Rates

The returning sample survey achieved a response rate of 67.5%, using AAPOR RR5. The refreshment sample survey achieved an overall response rate of 66.5%, using AAPOR RR3. However, the rate is 72.8% for the first refreshment sample selected from individuals who were believed to be eligible. It is 34.0% for the second refreshment sample selected from LGBT individuals who did not report being married or cohabiting (and were therefore not expected to be eligible). The response rate for this group reflects a very conservative estimate for this group. The purpose of the study was disclosed in the survey invitations and reminders, and therefore most ineligible respondents likely self-screened and did not respond to the survey, including not answering the screening question used in the eligibility calculation.

There are several ways to calculate response rates, and some methods include partial completes. Partial completes are worth considering in the calculation of this survey, particularly given the length of the survey, and are provided in the tables.

More information about response rates and their utility for assessing bias can be found in the Wave 1 report.

Table 1: Returning sample - Response outcomes

		Total	Panel sample	Non-panel sample (recontact sample)
1	Total invited cases	3642	3104	538
2	Completed survey (weighted cases)	2457	2177	280
3	Partial complete	14	10	4
4	Refused consent	14	8	6
5	On “do not contact list” – invite could not be sent	43	35	8
	AAPOR RR5 (2/1)	67.5%	70.1%	52.0%
	AAPOR RR6 ((2+3)/1)	67.8%	70.5%	52.8%

Table 2: Refreshment sample - Response outcomes

		Invite Group 1	Invite Group 2	Group 1 + Group 2	Total sample (not accounting for group differences)
1	Total sampled cases	1656	1096	2752	2752
2	Completed survey (weighted cases)	1083	97	1180	1180
3	Ineligible	124	291	415	415
4	Partial complete	24	5	29	29
5	Refused consent	4	2	6	6
6	Attempted survey (2+3+4+5)	1235	395	1630	1630
7	Unknown (1-6)	421	701	1122	1122
8	Eligibility rate ((2+4)/6)	89.6%	25.8%		74%
9	Estimated eligible unknowns (7*8)	377	181	558	832
10	Total estimated eligible sample (2+4+5+9)	1488	285	1773	2047
	AAPOR RR3 (2/10)	72.8%	34.0%	66.5%	57.6%
	AAPOR RR4 ((2+4)/10)	74.4%	35.8%	68.2%	59.1%

Data Cleaning

Prior to weighting the data, several data cleaning decisions were implemented to ensure data quality and consistency with prior waves. All datasets were reviewed for duplicate cases, and any duplicates were removed. This included a check to confirm that no respondents appeared in both the returning and refreshment sample.

Returning Sample

Cases that did not provide informed consent were screened out of the survey and excluded from the final dataset (n=14). Fourteen cases that completed less than 10% of the survey were also excluded from the final weighted dataset.

Respondents were asked to report the number of people living in their household other than themselves and their partner, and to provide demographic information (age, gender, race, ethnicity, relationship) for up to 10 members of their household. Some respondents indicated in text-based survey items (when providing household member initials, in write-in questions, etc.) that they had previously reported an incorrect number of household members, likely due to accidental reporting of themselves and/or their partner. For these cases, demographic variables for the respective household members were replaced with missing indicators. The initial household size variable was adjusted to reflect the reduced number of household members.

Refreshment Sample

Cases that did not provide informed consent (n= 6) or who did not complete enough of the survey to respond to the demographic questions necessary for weighting (n=29) were removed from the final dataset.

Ineligible respondents were also removed from the final data. This includes respondent who did not answer “Yes” to the partner screening question (S1: Are you currently living with a spouse/partner/boyfriend/girlfriend most of the time?) (n=315). It also includes anyone with a reported age of less than 20 or older than 29 (n=100).

Weights

Sample data were weighted to minimize bias in survey-based estimates. Eligible respondents who completed the survey were assigned final weights.

Returning Sample Weights

The returning sample was weighted to project to a target population of respondents who were between the ages of 20 and 60 and married or cohabiting at the time they completed the baseline (Wave 1) survey in 2020.

The final returning sample weight in the dataset is: `WEIGHT_LONGITUDINAL`. This weight should be used for longitudinal analysis (respondents who completed the Wave 1 and Wave 3 surveys) or cross-sectional analysis of the returning sample Wave 3 (2025) data.

To create the returning sample weights, the process started with 3,642 NCHAT Wave 1 completes. This data set included 2,457 cases that also responded in Wave 3. The remaining 1,185 Wave 1 completes were non-respondents i.e., they did not respond in Wave 3. The initial weight assigned to each of these 3,642 cases was the final Wave 1 weight associated with each case.

Next, non-response adjustments were made, using logistic regression, with predictors being age, gender, education, race, ethnicity, marital status, LGB/Non-LGB, and couple type. The dependent variable was coded 1 for a Wave 3 respondent and 0 for Wave 3 non-respondents. The Wave 1 final weight was used for running the logistic regression model. The resulting weight from the fitted logistic regression model was the cumulative weight up to that point.

The weights were then post-stratified. The target population for the returning sample consisted of individuals who were between the ages of 20 and 60 and married or cohabiting at the time of the 2020 survey. Therefore, the weighting targets and procedures used in Wave 1 (2020) were used in Wave 3 (2025).

The post-stratification weighting was conducted in two stages. In the first stage, two groups (LGB and non-LGB) were weighted separately to the NHIS 2019 targets. Another round of raking was used to set LGB and Non-LGB to right proportions. In the next stage, the weights from the first stage were further adjusted by couple type (adults in same-sex couples vs. adults in different-sex couples) from the ACS 2019 data targets. Finally, the proportions of same-sex and different-sex couples were set to correct proportions. The NHIS targets were used for the first stage and the ACS for the second or final stage due to the small NHIS sample sizes and the importance of generating final weights based on targets from the larger sample sizes of the ACS.

While not a major issue, some cases had missing data in one or more raking variables. However, percentage of missing data was quite small. It was 1.57% (about 57 cases) for marital status, and was less than 0.3% (less than 10 cases) for the other variables, after imputing some missing values using information from the Gallup Panel database. Given the nature and extent of missing values, simple imputation based on mode was used to deal with missing values for most variables.

Different trimming options were considered for the final weights and the weights were trimmed to arrive at an optimal balance between variance in weights and fit to the target distributions. The two-stage weighting produced weighted distributions that were within a few percentage points of the ACS targets for all weighting variables for both same-sex and different-sex couples. The weights also produced demographic distributions by sexual orientation that are comparable to the NHIS targets. A comparison of the weighted and unweighted NCHAT demographic distributions to the ACS and NHIS demographic targets are provided in the accompanying excel files.

Refreshment Sample Weights

The refreshment sample was weighted to generate estimates for the target population of adults who, at the time of the 2025 survey, were between the ages of 20 and 29 and were married or cohabiting. The weighting procedures for the refreshment sample mirror those described above for the returning sample.

The final refreshment sample weight in the dataset is: YS_WEIGHT. This weight should be used when analyzing the 2025 refreshment sample data.

To create the refreshment sample weights, the weighting process started with combining the two refreshment samples (appending one sample to the next). As mentioned before, both samples were selected from the Gallup Panel and they were non-overlapping by design. Each case in the panel database is weighted (calibration weight) so that the panel represents the US adult (18+) population. The initial weight assigned to each respondent in the refreshment sample was the panel weight for those cases. All cases satisfying the selection criteria in the panel database were selected in the sample and so no additional weighting adjustments for sub-sampling was necessary.

Next, non-response adjustments were made, using logistic regression. All individuals sampled into the refreshment sample were members of the Gallup Panel and each respondent had known demographic information. The non-response predictors used in the adjustments included: age, gender, education level, race and ethnicity, region, employment status, marital status, and sexual identity (lgbt or non-lgbt). Missing cases, if any, for the predictor variables were imputed using multivariate imputation (in R)².

² The non-response adjustment for the refreshment sample included more variables than the adjustment for the returning sample. The refreshment sample, because it was all pulled from the panel sample frame, had more complete and more recent frame data available for adjustments, as compared to the returning sample. Please refer to the sampling section of the Wave 1 and 3 documents for more details about sampling.

The non-response adjusted weights were then post-stratified. The target population for the refreshment sample consists of individuals who were between the ages of 20 and 29 and married or cohabiting at the time of the Wave 3 (2025) survey. Therefore, ACS (2024) and NHIS (2022-23-24) targets were used in Wave 3 (2025). To avoid issues related to small sample sizes, NHIS data for three years (2022 to 2024) were pooled to create the NHIS (2022-23-24) combined targets.

The post-stratification weighting was conducted in two stages. In the first stage, two groups (LGB and non-LGB) were weighted separately to the NHIS (2022-23-24) 3-yr combined targets. Another round of raking was used to set LGB and Non-LGB to right proportions. In the next stage, the weights from the first stage were further adjusted by couple type (adults in same-sex couples vs. adults in different-sex couples) using the ACS 2024 data targets. Finally, the proportions of same-sex and different-sex couples were set to correct proportions. The NHIS targets were used for the first stage and the ACS for the second stage due to the relatively small NHIS sample sizes and the importance of generating final weights based on targets from the larger sample sizes of the ACS.

Different trimming options were considered for the final weights, and the weights were trimmed to arrive at an optimal balance between variance in weights and fit to the target distributions. The two-stage weighting produced weighted distributions that were within a few percentage points of the ACS targets for all weighting variables for both same-sex and different-sex couples. The weights also produced demographic distributions by sexual orientation that are comparable to the NHIS targets. A comparison of the weighted and unweighted demographic distributions to the ACS and NHIS demographic targets are provided in the accompanying excel files.

Combined Sample (Returning and Refreshment) Weights

The returning and refreshment sample respondents who completed the 2025 survey were combined to create a 2025 cross-sectional sample of individuals who are married and cohabiting. The final combined weight in the dataset is: `WEIGHT_COMBINED`. This weight should be used when analyzing data that explores questions asked on the 2025 survey of both the returning and refreshment samples.

To be included in this weight, respondents must be married or cohabiting. In practice, this means all cases from the refreshment sample were retained. Cases from the returning sample who reported they are not currently married or cohabiting (based on answers to `W3_Q16`, `W3_Q27` and/or `W3_Q12`) were not included in the combined sample weight. There were 231 respondents who met these criteria.

It is important to note that weights were constructed only for those who are married or cohabiting because of the availability of reliable population estimates to use as weighting targets. Population targets do not exist for individuals who were married or cohabiting in 2020 but not in 2025.

The resulting sample includes people who were between the ages of 20 and 60 and married or cohabiting in 2020 (the requirement for inclusion in the 2020 study) and were married or cohabiting at the time of the Wave 3 (2025) survey. So, at the time of the Wave 3 (2025) survey, they were between 25 and 65 years of age. It also includes people between the ages of 20 and 29 who were married or cohabiting when they completed the survey in 2025. Individuals who are over the age of 30 and coupled (married or cohabiting) for the first time are underrepresented in this sample.

For the purpose of weighting the combined (Returning plus the Refreshment) sample, the initial weight assigned to cases in the Refreshment sample was the final cross-sectional weights `YS_WEIGHT` (as described in the section on Refreshment Sample weights) above. The Returning sample (to be combined with the Refreshment sample) was selected by including only those cases who were still married or co-habiting at the time of the Wave 3 (2025) survey. It involved dropping individuals no longer in a relationship in 2025 from the Returning sample. This returning sample was then weighted following the same weighting steps described above in the section on Returning Sample Weights. The exceptions were: (i) weighting targets used were NHIS (2022-24) and ACS (2024) (ii) for post-stratification, recoding of demographic variables were based on Wave 3 (2025) items first and then supplementing with Wave 1 (2020) values, if missing.

The final step was to combine the two weighted data sets (Returning and Refreshment). The following steps were implemented.

Divide the Refreshment sample into two groups: 20-24 year olds and 25-29 year olds, and project each subgroup to their corresponding population using projection weights

Divide the Returning sample into two groups: 25-29 year olds and 30-65 year olds, and project each subgroup to their corresponding population using projection weights

Combine the 25-29 age-groups (from both samples) using composite weighting procedure based on effective sample size method.

Individuals between the ages of 20 and 29 were overrepresented in the unweighted sample, due to the refreshment oversample. These final steps ensured that each age group is represented in the correct proportion in the weighted sample.

Non-response Analysis

A non-response bias analysis was carried out for the returning and refreshment samples to better understand the potential for bias in the NCHAT samples. While response rates are presented in an earlier section of the report, they are just one measure of non-response and are poorly correlated with non-response bias (Groves, 2006; Groves & Peytcheva, 2008; Yeager et al., 2011; MacInnis et al., 2018; Davern, 2013; Keeter et al., 2006). For bias to occur, non-respondents must have systematically different responses from the respondents on the substantive variables of interest.

To assess the potential for bias, the National Academy of Sciences and the Office of Management and Budget (OMB) have outlined several methods that can be used when response rates indicate a potential risk of non-response bias³. These methods include:

- comparing the weighted and unweighted samples and results
- benchmarking survey estimates and respondent characteristics to gold standard estimates
- conducting a non-response follow-up survey or executing intense non-response follow-up (NRFU)
- time-of-return analysis (comparing late and early responders)
- comparing respondents and non-respondents
- comparing response rates across sub-groups

The Wave 3 NCHAT study included several non-response follow-up (NRFU) activities, which were described in detail in the data collection section. This section presents the demographic characteristics of the invited and completed sample, response rates across sub-groups, a comparison of early versus late responders, and an analysis of the correlates of key substantive variables.

This wave includes the returning and refreshment samples, which have different eligibility criteria, sampling frames and response history. The non-response analyses below are conducted and reported separately for each. The returning sample is comprised of individuals who completed the Wave 1 survey and their demographic and substantive survey responses are known for everyone who was invited to participate in Wave 3. The refreshment sample, by contrast, is being observed for the first time in this study. The non-response analysis for this sample relies on the demographic profile available from the Gallup Panel sampling frame.

³ National Research Council 2013. *Nonresponse in Social Science Surveys: A Research Agenda*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/18293>

Comparison of Demographic Characteristics of Invited Participants and Responding Participants

Tables 3 and 4 present the number of invited participants by demographic group for the returning and refreshment samples, respectively. Although these numbers are limited in their ability to help assess non-response bias directly, they provide helpful context for understanding sample composition and for interpreting the analyses that follow.

All numbers in the “invited” column are based on the known demographic attributes of sample members at the time they were sampled. All numbers in the “completed” column are based on responses provided in the Wave 3 survey. Weighting corrects for any deviations between the completed sample and population targets. These unweighted counts are shown to illustrate which groups are more or less likely to appear among completers, relative to the composition of the invited sample.

Returning Sample

Table 3: Returning sample - Comparison of demographics of invited participants and responding participants

	N Invited (N = 3642)	N Completed* (N=2457**) (unweighted)
<i>Sex</i>		
Male	1829	1208
Female	1813	1249
<i>Age</i>		
20-30	441	287
31-40	971	659
41-50	954	643
51-60	1276	868
<i>Education</i>		
HS or less	641	439
Above HS below BA	949	611
BA or above	2052	1407
<i>Ethnicity</i>		
Hispanic	585	407
Non-Hispanic	3057	2050
<i>White vs. non-white</i>		
non-Hispanic white	2432	1611
non-White	1210	846
<i>Black vs. non-Black</i>		
non-Hispanic Black	406	282
non-Black	3236	2175

*Includes only respondents who met eligibility requirements and who were assigned a weight.

**Numbers do not sum to the total invited or completed because of missing data.

Refreshment Sample

Table 4: Refreshment sample - Comparison of demographics of invited participants and responding participants

	N Invited (N = 2752)	N Completed* (N=1180**) (unweighted)
<i>Sex</i>		
Male	938	416
Female	1608	713
<i>Age</i>		
20-24	571	146
25-29	2181	1034

<i>Education</i>		
HS or less	360	125
Above HS below BA	682	264
BA or above	1708	791
<i>Ethnicity</i>		
Hispanic	432	175
Non-Hispanic	2320	1005
<i>White vs. non-white</i>		
non-Hispanic white	1951	882
non-White	801	298
<i>Black vs. non-Black</i>		
non-Hispanic Black	246	70
non-Black	2506	1110

*Includes only respondents who met eligibility requirements and who were assigned a weight.

**Numbers do not sum to the total invited or completed because of missing data.

Comparison of Response Rates

This analysis examines the relationship between demographics and response rate to see if certain subgroups had a lower propensity to respond, which could lead to potential bias in estimates if not corrected for in weighting. For example, we calculated the response rate (R.R.) for different age groups and examined whether R.R. is different across age groups. Similar analysis was done for gender, race, ethnicity, marital status, educational attainment, census region, population density, employment status, and sexual identity. These demographic indicators were available on the sample frame and based on earlier self-reports.

All R.R. calculations were carried out following the AAPOR3 response rate calculation. Each person in the sample was classified into one of three eligibility categories: Known Eligible, Known Ineligible, and Unknown Eligibility, based on the following criteria:

- **Returning sample:** all respondents who completed Wave 1 were eligible for Wave 3.
- **Refreshment sample:** respondents between the ages of 20 and 29 and who were married or cohabiting with a partner were eligible. A person was identified as 'Known Eligible' if they confirmed meeting these criteria. A person was treated as 'Known Ineligible' if they did not meet the eligibility criteria. Finally, a person was included in the 'Eligibility Unknown' category if they did not answer the necessary question(s) related to living with a partner. This unknown eligibility group primarily includes people who never started the survey but also includes people who started the survey but did not answer the initial screening questions.

Response rates were expected to vary by group for several of the demographic variables. For example, younger respondents, racial and ethnic minorities, and those with low levels of education tend to respond to surveys at lower rates. The demographic groups selected for this analysis are also expected to be related to the key variables of interest. For example, racial and ethnic minorities may have very different daily experiences and stressors as compared to white respondents. As another example, we hypothesized that employed and not employed individuals may have different daily life experiences, which could also be correlated with survey participation. Response rates for the returning and refreshment sample, by group, are presented in the tables below.

Returning Sample

As shown in Table 5, response rates for the returning sample were relatively similar across demographic groups, and every group achieved at least a 62% response rate. The group with the lowest response rate were respondents who identify as LGBT, with a 62% response rate. Many LGBT respondents in NCHAT were oversampled from the “recontact sample” (see the Wave 1 report). Individuals in the “recontact sample” are not Gallup Panel members and did not expect a survey invitation to participate in NCHAT Wave 3. As noted in the response rate section, the “recontact sample” had a lower overall response rate (52%) than the panel sample (70%).

Table 5: Returning sample - Response rates by demographic groups

Demographic Group	AAPOR3 RR
Age	
20-30	65%
31-40	68%
41-50	67%
51-60	68%
Gender	
Male	66%
Female	69%
White vs. non-white	
Non-Hispanic white	66%
Non-white	70%
Black vs. non-Black	
Non-Hispanic Black	69%
Non-Black	67%
Ethnicity	
Hispanic	70%
Non-Hispanic	67%
Education	
High School or Less	68%
Some College	64%
College Grad	69%
Marital Status	
Married	64%
Cohabiting	68%
Sexual Identity	
LGBT	62%
Not LGBT	72%
Census Region	
Northeast	64%
Midwest	68%
South	70%
West	67%
Population Density	
1 – Top 20%	64%
2	69%
3	64%
4	70%
5 – Bottom 20%	73%
Employment Status	
Employed	67%
Not Employed	70%

Refreshment Sample

Response rates for the refreshment sample, shown in Table 6, varied considerably more by demographic group than the returning sample. This is consistent with being a fresh recruitment rather than a longitudinal follow-up and consistent with the response rate patterns we observed for the returning sample cohort in Wave 1. One of the largest response rate differences was for LGBT respondents, who had a response rate of 44%, compared to 75% for non-LGBT respondents. This differential is driven by the second refreshment sample group, which oversampled LGBT panelists, regardless of their reported marital status. The survey purpose was disclosed on the invitation, and many ineligible respondents from this group likely self-screened out rather than completing eligibility questions, which depresses the response rate for this

subgroup, without necessarily indicating differential engagement among *eligible* LGBT respondents. Further, these demographic and sample composition factors were accounted for in the refreshment sample weighting.

Table 6: Refreshment sample - Response rates by demographic groups

Demographic Group	AAPOR3 RR
<i>Age</i>	
20	40%
21	41%
22	39%
23	45%
24	52%
25	52%
26	56%
27	61%
28	66%
29	62%
<i>Gender</i>	
Male	53%
Female	65%
Non-binary	59%
<i>White vs. non-white</i>	
Non-Hispanic white	60%
Non-white	50%
<i>Black vs. non-Black</i>	
Non-Hispanic Black	41%
Non-Black	59%
<i>Ethnicity</i>	
Hispanic	53%
Non-Hispanic	58%
<i>Education</i>	
High School or Less	47%
Some College	54%
College Grad	61%
<i>Marital Status</i>	
Married	73%
Cohabiting	35%
<i>Sexual Identity</i>	
LGBT	44%
Non-LGBT	75%
<i>Census Region</i>	
Northeast	55%
Midwest	60%
South	57%
West	58%
<i>Population Density</i>	
1 – Top 20%	53%
2	57%
3	60%
4	58%
5 – Bottom 20%	61%
<i>Employment Status</i>	
Employed	59%
Not Employed	56%

Time-of-Return Comparison

The time-of-return analysis compares “early” respondents to “late” respondents on selected key variables of interest, based on the assumption that the latter group may more closely resemble the population of non-respondents than the early responders. Not all respondents received their survey invitation at the same time, so the time of response was calculated relative to each respondent’s own invitation date.

Respondents who completed the survey within 14 days of their initial invitation were treated as “early” responders, and those who took longer were treated as “late” responders.

For both the returning and refreshments samples, several Wave 3 survey questions were selected and compared between early and late respondents, using chi-square tests, shown both unweighted and weighted in the tables below.

Returning Sample

Overall, none of the measures examined for the returning sample showed a statistically significant difference between the early and late responders. This suggests that among returning sample respondents, the timing of response was not meaningfully related to the eight substantive outcomes measured in the analysis. It is worth noting that late responders were more likely than early responders to have item missing data, especially in questions that appeared later in the survey.

Table 7: Returning Sample - Early versus late responders - *I have a warm and comfortable relationship with my spouse*

	Unweighted	Unweighted	Unweighted	Weighted	Weighted
Response	Early	Late	Unweighted n	Early	Late
Missing*	0.1%	0.1%	2	0.1%	0.1%
Not at all true	1.5%	1.4%	32	1.5%	1.4%
A little true	2.8%	4.4%	75	3.1%	4.7%
Somewhat true	9.1%	7.4%	190	10.8%	8.1%
Mostly true	18.9%	18.7%	422	20.1%	16.4%
Almost completely true	21.4%	25.4%	512	19.4%	23.5%
Completely true	46.4%	42.6%	1011	45.1%	45.8%

The chi-square test was not significant ($p = 0.11$) at the 5% level of significance

* Missing includes cases who were asked the question but did not answer. It does not include cases that were missing by design.

Table 8: Returning Sample - Early versus late responders - *How rewarding is your relationship with your spouse/partner?*

	Unweighted	Unweighted	Unweighted	Weighted	Weighted
Response	Early	Late	Unweighted n	Early	Late
Missing*	0.1%	0.3%	3	0.1%	0.2%
Not at all rewarding	2.1%	1.6%	43	2.7%	1.7%
A little rewarding	5.6%	6.6%	134	6.5%	8.7%
Somewhat rewarding	10.2%	11.2%	236	10.9%	10.0%
Mostly rewarding	21.8%	23.1%	499	20.9%	17.7%
Almost completely rewarding	28.1%	28.4%	633	25.5%	28.8%
Completely rewarding	32.2%	28.8%	696	33.4%	32.8%

The chi-square test was not significant ($p = 0.40$) at the 5% level of significance

*Missing includes cases who were asked the question but did not answer. It does not include cases that were missing by design.

Table 9: Returning Sample - Early versus late responders - *In general, how satisfied are you with your relationship?*

	Unweighted	Unweighted	Unweighted	Weighted	Weighted
Response	Early	Late	Unweighted n	Early	Late
Missing*	0.0%	0.3%	2	0.0%	0.1%
Not at all satisfied	2.2%	2.3%	50	2.9%	2.0%
A little satisfied	5.0%	5.4%	115	4.4%	6.1%
Somewhat satisfied	8.9%	9.1%	202	9.3%	9.1%
Mostly satisfied	20.1%	23.4%	478	18.6%	20.0%
Almost completely satisfied	33.3%	32.8%	744	31.0%	31.5%
Completely satisfied	30.4%	26.7%	653	33.8%	31.2%

The chi-square test was not significant ($p = 0.50$) at the 5% level of significance

*Missing includes cases who were asked the question but did not answer. It does not include cases that were missing by design.

Table 10: Returning Sample - Early versus late responders - *On which step of the ladder would you say you personally feel you stand at this time?*

	Unweighted	Unweighted	Unweighted	Weighted	Weighted
Response	Early	Late	Unweighted n	Early	Late
Missing	0%	0%	0	0%	0%
0 – Worst possible	0.3%	0.1%	5	0.4%	0.1%
1	0.2%	0.2%	5	0.3%	0.2%
2	0.5%	1.6%	17	1.0%	1.2%
3	2.6%	2.7%	65	3.2%	2.2%
4	4.9%	4.7%	118	4.9%	4.7%
5	8.9%	7.9%	210	9.0%	8.7%
6	16.2%	16.9%	402	14.7%	16.5%
7	28.4%	31.4%	725	27.3%	30.8%
8	25.3%	23.9%	608	25.8%	23.1%
9	10.6%	8.7%	244	11.2%	9.9%
10 – Best possible	1.9%	1.9%	46	2.2%	2.3%

The chi-square test was not significant ($p = 0.93$) at the 5% level of significance

Table 11: Returning Sample - Early versus late responders - *On which step do you think you will stand about five years from now?*

	Unweighted	Unweighted	Unweighted	Weighted	Weighted
Response	Early	Late	Unweighted n	Early	Late
Missing	0%	0%	0	0%	0%
0 – Worst possible	0.4%	0.3%	9	0.6%	0.2%
1	0.6%	0.7%	16	1.1%	0.2%
2	0.8%	1.2%	23	0.6%	1.0%
3	1.6%	1.8%	41	2.0%	2.7%
4	2.8%	1.1%	53	2.6%	1.0%
5	5.6%	4.7%	129	4.8%	4.7%
6	7.3%	6.4%	171	7.4%	5.6%
7	15.6%	16.7%	393	13.4%	15.6%
8	28.1%	30.7%	713	28.6%	27.8%
9	27.3%	25.9%	658	28.6%	30.5%
10 – Best possible	10.0%	10.6%	251	10.3%	10.7%

The chi-square test was *not* significant ($p = 0.13$) at the 5% level of significance.

Table 12: Returning Sample - Early versus late responders - *In general, would you say your health is?*

	Unweighted	Unweighted	Unweighted	Weighted	Weighted
Response	Early	Late	Unweighted n	Early	Late
Missing	0.3%	7.5%	72	0.6%	7.5%
Poor	2.7%	2.5%	64	3.1%	2.8%
Fair	17.5%	14.6%	404	19.0%	13.1%
Good	40.8%	38.2%	979	39.9%	37.6%
Very good	31.9%	29.8%	765	30.7%	31.6%
Excellent	6.7%	7.2%	170	6.5%	7.3%

The chi-square test was not significant ($p = 0.15$) at the 5% level of significance

Table 13: Returning Sample - Early versus late responders - *Below is a list of the ways you might have felt or behaved. How often have you felt this way in the past 7 days? I had trouble keeping my mind on what I was doing*

	Unweighted	Unweighted	Unweighted	Weighted	Weighted
Response	Early	Late	Unweighted n	Early	Late
Missing	0.3%	8.2%	79	0.6%	8.4%
Rarely or none of the time (Less than 1 day)	41.5%	36.1%	972	44.8%	38.7%
Some of a little of the time (1 – 2 days)	34.5%	30.5%	812	33.3%	31.8%
Occasionally or a moderate amount of the time (3 – 4 days)	16.5%	17.1%	411	16.1%	15.8%
Most or all of the time (5 – 7 days)	7.0%	7.8%	179	4.9%	5.4%

The chi-square test was not significant ($p = 0.36$) at the 5% level of significance

Table 14: Returning Sample - Early versus late responders - *Below is a list of the ways you might have felt or behaved. How often have you felt this way in the past 7 days? I could not get going*

	Unweighted	Unweighted	Unweighted	Weighted	Weighted
Response	Early	Late	Unweighted n	Early	Late
Missing	0.3%	8.2%	79	0.6%	8.4%
Rarely or none of the time (Less than 1 day)	49.1%	41.8%	1141	51.1%	43.0%
Some of a little of the time (1 – 2 days)	31.4%	29.7%	756	30.0%	32.9%
Occasionally or a moderate amount of the time (3 – 4 days)	12.8%	13.0%	316	12.7%	10.4%
Most or all of the time (5 – 7 days)	6.3%	7.1%	162	5.5%	5.4%

The chi-square test was not significant ($p = 0.16$) at the 5% level of significance

Refreshment Sample

As with the returning sample, none of the measures examined for the refreshment sample showed a statistically significant difference between the early and late responders. Taken together, the time-of-return analyses for both samples do not indicate meaningful differences between early and late responders on the key outcome variables examined, and do not suggest that late responders – who may better approximate non-respondents – were systematically different.

Table 15: Refreshment Sample - Early versus late responders - *I have a warm and comfortable relationship with my spouse/partner*

	Unweighted	Unweighted	Unweighted	Weighted	Weighted
Response	Early	Late	Unweighted n	Early	Late
Missing	0.4%	0.6%	5	0.3%	1.7%
Not at all true	0.9%	0.6%	10	0.8%	0.6%
A little true	2.5%	1.2%	27	3.9%	1.7%
Somewhat true	5.5%	7.2%	68	7.2%	5.6%
Mostly true	12.4%	15.7%	152	14.1%	15.6%
Almost completely true	23.1%	19.3%	266	23.3%	15.6%
Completely true	55.2%	55.4%	652	50.4%	59.2%

The chi-square test was not significant ($p = 0.74$) at the 5% level of significance

Table 16: Refreshment Sample - Early versus late responders - *How rewarding is your relationship with your spouse/partner?*

	Unweighted	Unweighted	Unweighted	Weighted	Weighted
Response	Early	Late	Unweighted n	Early	Late
Missing	0.3%	0.6%	4	0.3%	1.7%
Not at all rewarding	1.4%	2.4%	18	1.8%	2.2%
A little rewarding	3.6%	3.6%	42	4.7%	3.4%
Somewhat rewarding	4.7%	7.8%	61	5.4%	7.8%
Mostly rewarding	19.0%	19.9%	226	20.2%	17.9%
Almost completely rewarding	27.6%	25.3%	322	26.2%	20.7%
Completely rewarding	43.3%	40.4%	506	41.5%	46.4%

The chi-square test was not significant ($p = 0.98$) at the 5% level of significance

Table 17: Refreshment Sample - *In general, how satisfied are you with your relationship?*

	Unweighted	Unweighted	Unweighted	Weighted	Weighted
Response	Early	Late	Unweighted n	Early	Late
Missing	0.4%	0.6%	5	0.4%	1.7%
Not at all satisfied	1.7%	2.4%	21	1.2%	2.2%
A little satisfied	3.3%	3.0%	38	4.6%	3.4%
Somewhat satisfied	5.2%	4.8%	61	5.7%	1.7%
Mostly satisfied	17.9%	20.5%	215	18.1%	23.5%
Almost completely satisfied	33.5%	34.9%	398	31.5%	27.9%
Completely satisfied	38.1%	33.7%	442	38.5%	39.7%

The chi-square test was not significant ($p = 0.81$) at the 5% level of significance

Table 18: Refreshment Sample - Early versus late responders - *On which step of the ladder would you say you personally feel you stand at this time?*

	Unweighted	Unweighted	Unweighted	Weighted	Weighted
Response	Early	Late	Unweighted n	Early	Late
Missing	0.1%	0.6%	2	0.0%	2.2%
0 – Worst possible	0.0%	0.0%	0	0.0%	0.0%

1	0.3%	0.0%	3	0.5%	0.0%
2	0.7%	1.8%	10	1.2%	1.1%
3	2.8%	2.4%	32	3.3%	4.4%
4	5.8%	6.0%	69	6.5%	5.6%
5	9.7%	14.5%	122	11.0%	16.1%
6	18.1%	19.9%	217	16.9%	16.1%
7	32.1%	21.7%	362	31.3%	22.2%
8	21.2%	20.5%	249	19.4%	16.7%
9	6.8%	8.4%	83	6.7%	9.4%
10 – Best possible	2.4%	4.2%	31	3.2%	6.1%

The chi-square test was not significant ($p = 0.43$) at the 5% level of significance

Table 19: Refreshment Sample - Early versus late responders - *On which step do you think you will stand about five years from now?*

	Unweighted	Unweighted	Unweighted	Weighted	Weighted
Response	Early	Late	Unweighted n	Early	Late
Missing	0.1%	0.6%	2	0.0%	0.6%
0 – Worst possible	0.1%	0.0%	1	0.1%	0.0%
1	0.3%	1.2%	5	0.5%	2.2%
2	0.1%	0.0%	1	0.1%	0.0%
3	1.0%	0.6%	11	1.0%	0.0%
4	1.0%	0.0%	11	1.3%	0.0%
5	3.2%	4.2%	39	3.4%	2.8%
6	7.3%	5.4%	83	7.9%	2.2%
7	13.3%	16.9%	163	13.4%	19.1%
8	32.3%	27.1%	373	28.0%	27.5%
9	29.8%	27.1%	347	31.0%	23.0%
10 – Best possible	11.5%	16.9%	145	13.3%	22.5%

The chi-square test was not significant ($p = 0.07$) at the 5% level of significance.

Table 20: Refreshment Sample - Early versus late responders - *In general, would you say your health is?*

	Unweighted	Unweighted	Unweighted	Weighted	Weighted
Response	Early	Late	Unweighted n	Early	Late
Missing	0.9%	1.2%	11	1.2%	3.9%
Poor	2.2%	1.8%	25	2.2%	0.6%
Fair	14.4%	15.1%	171	17.8%	15.6%
Good	34.7%	44.0%	426	34.4%	39.7%
Very good	38.4%	27.1%	434	35.4%	27.9%
Excellent	9.4%	10.8%	113	9.1%	12.3%

The chi-square test was not significant ($p = 0.57$) at the 5% level of significance

Table 21: Refreshment Sample - Early versus late responders - *Below is a list of the ways you might have felt or behaved. How often have you felt this way in the past 7 days? I had trouble keeping my mind on what I was doing*

	Unweighted	Unweighted	Unweighted	Weighted	Weighted
Response	Early	Late	Unweighted n	Early	Late
Missing	0.9%	1.2%	11	1.1%	3.9%
Rarely or none of the time (Less than 1 day)	29.2%	27.7%	342	32.4%	24.6%
Some of a little of the time (1 – 2 days)	36.4%	34.3%	426	33.9%	36.9%
Occasionally or a moderate amount of the time (3 – 4 days)	23.0%	23.5%	272	23.7%	24.6%

Most or all of the time (5 – 7 days)	10.6%	13.3%	129	9.0%	10.1%
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The chi-square test was not significant ($p = 0.17$) at the 5% level of significance

Table 22: Refreshment Sample - Early versus late responders - *Below is a list of the ways you might have felt or behaved. How often have you felt this way in the past 7 days? I could not get going*

	Unweighted	Unweighted	Unweighted	Weighted	Weighted
Response	Early	Late	Unweighted n	Early	Late
Missing	1.1%	2.4%	15	1.3%	5.0%
Rarely or none of the time (Less than 1 day)	39.0%	39.2%	460	37.8%	36.1%
Some of a little of the time (1 – 2 days)	36.1%	31.3%	418	36.4%	33.3%
Occasionally or a moderate amount of the time (3 – 4 days)	17.1%	15.7%	199	17.8%	16.7%
Most or all of the time (5 – 7 days)	6.8%	11.4%	88	6.7%	8.9%

The chi-square test was not significant ($p = 0.97$) at the 5% level of significance

Table 23: Refreshment Sample - Early versus late responders - *In the past day, did you experience any of the following feelings during a lot of the day: Boredom*

	Unweighted	Unweighted	Unweighted	Weighted	Weighted
	Early	Late	Unweighted n	Early	Late
Missing	0.2%	0.6%	3	0.2%	1.7%
Yes	42.6%	41.0%	500	49.4%	44.4%
No	57.2%	58.4%	677	50.4%	53.9%

The chi-square test was not significant ($p = 0.50$) at the 5% level of significance

Analysis of Correlates of Key Outcome Variables

This analysis uses logistic regression models to examine predictors of the key outcomes variables. This includes the relationship satisfaction battery and the depression battery. All models control for the demographics used in weighting and several variables that were not a part of the weighting but were hypothesized to be related to both survey participation and the outcomes of interest: presence of a child in the household, self-reported stress in the past week, self-reported health, employment status, and household income.

For evidence of potential non-response bias to exist related to any of these additional variables, three conditions must all hold: 1) the variable must be correlated with the outcome, controlling for the variables already used in weighting 2) there must be differential non-response related to that variable, resulting in under – or over-representation of certain groups, and 3) respondents and non-responders on that variable must give meaningfully different answers to the outcome questions. A significant coefficient in the table below satisfies only the first of these three conditions, so significance here should be read as identifying variables worth attention, not as direct evidence of bias. The corresponding predicted probabilities tables translate these coefficients into the predicted probability of a positive response at each level of the variables that were significant.

As an example of interpretation, consider “warm and comfortable” relationship in Table 24. Stress in the past week and self-reported health are both significant predictors, controlling for demographics used in weighting. Presence of a child in the household, employment status, and income are not. Table 25 shows that the predicted probability of a positive response to “warm and comfortable” falls from 0.93 among respondents who report no stress at all to 0.63 among those who report being very stressed. This is a gap, holding all things constant. This same pattern – stress as a significant predictor – holds across the variables examined for the returning and refreshment samples. Stress is not among the variables used in weighting. If stressed respondents are meaningfully under-represented in the completed sample, there is a potential for bias when reporting an overall estimate for the outcome variable. However, as shown in the comparison

of time of return section above, we did not observe evidence that these measures differed between early and late responders.

Returning Sample

Table 24: Returning Sample - Results of logistic regression – relationship satisfaction questions

	Warm and comfortable	Warm and comfortable	Rewarding	Rewarding	Satisfied	Satisfied	Committed	Committed
	Wald F	Sig	Wald F	Sig	Wald F	Sig	Wald F	Sig
Corrected model	4.546	0.000	4.709	0.000	4.773	0.000	5.173	0.000
Intercept	64.471	0.000	33.084	0.000	57.403	0.000	53.930	0.000
Child in HH	1.809	0.179	2.294	0.130	0.137	0.712	0.100	0.752
Stress past week	11.122	0.000	10.631	0.000	2.661	0.031	11.699	0.000
Self-reported health	3.825	0.004	5.445	0.000	1.645	0.160	4.902	0.001
Employment	0.809	0.369	0.619	0.432	0.242	0.623	0.777	0.378
Income	2.008	0.091	1.228	0.297	4.808	0.001	1.908	0.106

Table 25: Predicted probabilities of relationship satisfaction by response

		Warm and comfortable	Rewarding	Satisfied	Committed
In the past week, how stressed have you been?	1 Not stressed at all	0.926	0.901	0.985	0.934
	2	0.911	0.861	0.983	0.896
	3	0.859	0.810	0.961	0.818
	4	0.671	0.559	0.939	0.651
	5 Very stressed	0.627	0.592	0.917	0.633
Self-reported health	Poor	0.607	0.526	0.948	0.661
	Fair	0.719	0.608	0.911	0.656
	Good	0.848	0.808	0.975	0.847
	Very good	0.918	0.880	0.981	0.899
	Excellent	0.917	0.876	0.987	0.879
Child in household	No child	0.860	0.806	0.965	0.826
	Child in HH	0.827	0.776	0.967	0.829
Employment status	Employed	0.850	0.800	0.966	0.831
	Not employed	0.831	0.765	0.966	0.814
Household Income	0 thru 47,999	0.756	0.680	0.935	0.743
	48,000 thru 89,999	0.802	0.746	0.958	0.808
	90,000 thru 119,999	0.843	0.793	0.971	0.825
	120,000 thru 179,999	0.865	0.820	0.951	0.821
	180,000 and over	0.890	0.839	0.990	0.872

Table 26: Results of logistic regression – Part 1 of depression battery

	Bothered	Bothered	Trouble	Trouble	Lonely	Lonely	Restless	Restless	Depressed	Depressed
	Wald F	Sig	Wald F	Sig	Wald F	Sig	Wald F	Sig	Wald F	Sig
Corrected model	5.923	0.000	8.147	0.000	9.180	0.000	7.126	0.000	5.965	0.000
Intercept	62.784	0.000	38.527	0.000	131.846	0.000	18.624	0.000	59.360	0.000
Child in HH	0.079	0.779	0.960	0.327	0.973	0.324	6.497	0.011	2.063	0.151
Stress past week	19.747	0.000	27.203	0.000	35.741	0.000	16.926	0.000	17.961	0.000
Self Reported Health	2.372	0.050	3.277	0.011	1.295	0.270	11.125	0.000	6.102	0.000
Employment	0.684	0.408	0.332	0.564	0.724	0.395	1.799	0.180	1.885	0.170
Income	0.093	0.985	1.484	0.204	6.328	0.000	0.142	0.966	2.108	0.077

Table 27: Predicted probabilities of depression (Part 1 of battery) by response

		Bothered	Trouble	Lonely	Restless	Depressed
In the past week, how stressed have you been? (STRESS1)	1 Not stressed at all	0.005	0.028	0.000	0.099	0.004
	2	0.022	0.100	0.038	0.150	0.032
	3	0.081	0.257	0.132	0.327	0.159
	4	0.238	0.501	0.331	0.502	0.353
	5 Very stressed	0.345	0.569	0.262	0.514	0.445
Self-reported health	Poor	0.219	0.564	0.284	0.754	0.546
	Fair	0.186	0.372	0.200	0.470	0.309
	Good	0.074	0.199	0.102	0.254	0.113
	Very good	0.061	0.170	0.091	0.163	0.056
	Excellent	0.009	0.089	0.028	0.113	0.053
Child in household	No child	0.085	0.206	0.113	0.286	0.133
	Child in HH	0.093	0.245	0.119	0.245	0.144
Employment status	Employed	0.086	0.207	0.110	0.250	0.119
	Not employed	0.099	0.279	0.134	0.330	0.204
Household Income	0 thru 47,999	0.119	0.297	0.262	0.337	0.245
	48,000 thru 89,999	0.099	0.221	0.121	0.285	0.204
	90,000 thru 119,999	0.088	0.277	0.151	0.266	0.126
	120,000 thru 179,999	0.085	0.192	0.093	0.257	0.123
	180,000 and over	0.076	0.197	0.063	0.243	0.078

Table 28: Results of logistic regression – Part 2 of depression battery

	Effort	Effort	Hopeful	Hopeful	Fearful	Fearful	Happy	Happy	Get going	Get going
	Wald F	Sig	Wald F	Sig	Wald F	Sig	Wald F	Sig	Wald F	Sig
Corrected model	6.907	0.000	6.264	0.000	6.157	0.000	6.939	0.000	7.057	0.000
Intercept	19.594	0.000	2.096	0.148	88.945	0.000	27.949	0.000	49.258	0.000
Child in HH	1.306	0.253	0.016	0.899	5.700	0.017	0.004	0.953	3.969	0.046
Stress past week	21.264	0.000	16.844	0.000	21.889	0.000	21.243	0.000	16.902	0.000
Self Reported Health	6.428	0.000	4.683	0.001	0.942	0.439	6.801	0.000	11.231	0.000
Employment	5.133	0.024	2.980	0.084	0.002	0.960	0.147	0.702	3.470	0.063
Income	1.687	0.150	2.430	0.046	1.755	0.135	3.049	0.016	1.624	0.165

Table 29: Predicted probabilities of depression (Part 2 of battery) by response

		Effort	Hopeful	Fearful	Happy	Get going
In the past week, how stressed have you been?	1 Not stressed at all	0.020	0.774	0.006	0.931	0.021
	2	0.069	0.715	0.040	0.909	0.081
	3	0.215	0.542	0.138	0.746	0.223
	4	0.427	0.362	0.286	0.537	0.386
	5 Very stressed	0.519	0.303	0.421	0.570	0.442
Self-reported health	Poor	0.653	0.146	0.293	0.388	0.581
	Fair	0.391	0.452	0.224	0.606	0.411
	Good	0.143	0.602	0.100	0.800	0.161
	Very good	0.095	0.679	0.090	0.882	0.074
	Excellent	0.122	0.735	0.098	0.940	0.037
Child in household	No child	0.177	0.610	0.128	0.789	0.184
	Child in HH	0.194	0.579	0.120	0.790	0.178
Employment status	Employed	0.158	0.593	0.117	0.804	0.158
	Not employed	0.278	0.606	0.150	0.740	0.260
Household Income	0 thru 47,999	0.335	0.498	0.187	0.611	0.280
	48,000 thru 89,999	0.248	0.520	0.167	0.751	0.274
	90,000 thru 119,999	0.169	0.628	0.091	0.790	0.144
	120,000 thru 179,999	0.159	0.587	0.106	0.821	0.157
	180,000 and over	0.121	0.668	0.105	0.852	0.123

Refreshment Sample

Table 30: Results of logistic regression – relationship satisfaction questions

	Warm and comfortable	Warm and comfortable	Rewarding	Rewarding	Satisfied	Satisfied	Committed	Committed
	Wald F	Sig	Wald F	Sig	Wald F	Sig	Wald F	Sig
Corrected model	2.741	0.000	2.502	0.000	3.715	0.000	4.136	0.000
Intercept	20.323	0.000	28.492	0.000	30.721	0.000	38.426	0.000
Child in HH	6.079	0.014	8.135	0.004	5.833	0.016	0.501	0.479
Stress past week	7.301	0.000	5.002	0.001	6.520	0.000	3.873	0.004
Self-reported Health	2.859	0.023	5.148	0.000	5.549	0.000	2.424	0.046
Employment	1.537	0.203	1.003	0.390	0.381	0.767	0.996	0.394
Income	0.784	0.536	1.003	0.390	4.022	0.003	1.835	0.120

Table 31: Predicted probabilities of relationship satisfaction by response

		Warm and comfortable	Rewarding	Satisfied	Committed
In the past week, how stressed have you been?	1 Not stressed at all	0.984	0.976	0.989	0.990
	2	0.949	0.948	0.953	0.994
	3	0.909	0.888	0.922	0.980
	4	0.861	0.829	0.833	0.958
	5 Very stressed	0.653	0.713	0.680	0.895
Self-reported health	Poor	0.736	0.628	0.612	0.982
	Fair	0.772	0.793	0.769	0.955
	Good	0.892	0.887	0.921	0.973
	Very good	0.924	0.898	0.909	0.968
	Excellent	0.990	0.996	0.996	0.999
Child in household	No child	0.919	0.910	0.918	0.970
	Child in HH	0.840	0.831	0.849	0.971
Employment status	Full time employed	0.916	0.900	0.914	0.972
	Part time employed	0.840	0.855	0.826	0.953
	Employed but not working	0.892	0.927	0.927	0.973
	Unemployed	0.798	0.787	0.841	0.987
Household Income	0 thru 47,999	0.807	0.793	0.799	0.956
	48,000 thru 89,999	0.888	0.872	0.876	0.957
	90,000 thru 119,999	0.928	0.923	0.920	0.992
	120,000 thru 179,999	0.925	0.912	0.963	0.973
	180,000 and over	0.929	0.944	0.938	0.997

Table 32: Results of logistic regression – Part 1 of depression battery

	Bothered	Bothered	Trouble	Trouble	Lonely	Lonely	Restless	Restless	Depressed	Depressed
	Wald F	Sig	Wald F	Sig	Wald F	Sig	Wald F	Sig	Wald F	Sig
Corrected model	4.352	0.000	3.419	0.000	4.233	0.000	4.444	0.000	4.666	0.000
Intercept	12.474	0.000	1.253	0.263	11.064	0.001	4.142	0.042	11.404	0.001
Stress past week	14.570	0.000	14.032	0.000	14.085	0.000	10.773	0.000	17.149	0.000
Self-reported health	0.261	0.903	0.878	0.477	0.402	0.808	2.251	0.062	2.301	0.057
Child in household	1.934	0.165	0.783	0.376	0.000	0.985	0.263	0.608	3.926	0.048
Employment	0.363	0.779	0.301	0.825	2.430	0.064	0.999	0.393	0.152	0.929
Income	0.366	0.833	0.625	0.645	0.844	0.497	1.025	0.393	1.575	0.179

Table 33: Predicted probabilities of depression (Part 1 of battery) by response

		Bothered	Trouble	Lonely	Restless	Depressed
In the past week, how stressed have you been?	1 Not stressed at all	0.022	0.068	0.054	0.076	0.023
	2	0.012	0.191	0.042	0.107	0.038
	3	0.083	0.322	0.154	0.264	0.161
	4	0.204	0.423	0.215	0.364	0.264
	5 Very stressed	0.421	0.760	0.578	0.633	0.605
Self-reported health	Poor	0.273	0.580	0.550	0.357	0.696
	Fair	0.193	0.478	0.278	0.452	0.342
	Good	0.134	0.350	0.181	0.313	0.191
	Very good	0.083	0.263	0.116	0.171	0.113
	Excellent	0.059	0.216	0.100	0.108	0.055
Child in household	No child	0.114	0.349	0.156	0.260	0.200
	Child in HH	0.134	0.308	0.204	0.281	0.165
Employment status	Full time employed	0.107	0.329	0.137	0.240	0.172
	Part time employed	0.164	0.347	0.278	0.333	0.249
	Employed but not working	0.222	0.449	0.085	0.503	0.117
	Unemployed	0.133	0.321	0.268	0.305	0.202
Household Income	0 thru 47,999	0.179	0.374	0.299	0.378	0.264
	48,000 thru 89,999	0.135	0.319	0.200	0.283	0.238
	90,000 thru 119,999	0.114	0.337	0.157	0.257	0.169
	120,000 thru 179,999	0.092	0.308	0.088	0.220	0.111
	180,000 and over	0.050	0.327	0.060	0.136	0.079

Table 34: Results of logistic regression – Part 2 of depression battery

	Effort	Effort	Hopeful	Hopeful	Fearful	Fearful	Happy	Happy	Get going	Get going
	Wald F	Sig	Wald F	Sig	Wald F	Sig	Wald F	Sig	Wald F	Sig
Corrected model	5.375	0.000	3.464	0.000	4.555	0.000	2.813	0.000	4.992	0.000
Intercept	5.257	0.022	0.246	0.620	4.282	0.039	10.972	0.001	2.493	0.115
Stress past week	18.224	0.000	4.852	0.001	10.047	0.000	5.839	0.000	19.379	0.000
Self-reported health	2.639	0.033	5.673	0.000	1.393	0.234	3.232	0.012	1.385	0.237
Child in household	0.005	0.944	10.395	0.001	0.093	0.760	13.132	0.000	2.283	0.131
Employment	1.875	0.132	1.136	0.333	1.290	0.276	1.139	0.332	2.817	0.038
Income	2.132	0.075	3.352	0.010	0.561	0.691	1.036	0.387	0.614	0.652

Table 35: Predicted probabilities of depression (Part 2 of battery) by response

		Effort	Hopeful	Fearful	Happy	Get going
In the past week, how stressed have you been?	1 Not stressed at all	0.097	0.645	0.049	0.803	0.077
	2	0.111	0.695	0.075	0.920	0.085
	3	0.216	0.543	0.120	0.802	0.215
	4	0.475	0.422	0.209	0.765	0.365
	5 Very stressed	0.737	0.322	0.435	0.501	0.685
Self-reported health	Poor	0.661	0.144	0.479	0.613	0.553
	Fair	0.510	0.318	0.185	0.597	0.412
	Good	0.291	0.540	0.172	0.795	0.260
	Very good	0.183	0.657	0.115	0.862	0.153
	Excellent	0.210	0.592	0.115	0.906	0.237
Child in household	No child	0.282	0.499	0.158	0.745	0.255
	Child in HH	0.304	0.607	0.149	0.866	0.247
Employment status	Full time employed	0.258	0.554	0.133	0.785	0.220
	Part time employed	0.373	0.509	0.195	0.771	0.277
	Employed but not working	0.139	0.378	0.192	0.685	0.482
	Unemployed	0.394	0.532	0.222	0.874	0.363
Household Income	0 thru 47,999	0.412	0.426	0.214	0.738	0.350
	48,000 thru 89,999	0.319	0.496	0.154	0.776	0.252
	90,000 thru 119,999	0.237	0.601	0.150	0.783	0.267
	120,000 thru 179,999	0.271	0.635	0.129	0.857	0.187
	180,000 and over	0.116	0.613	0.098	0.825	0.164

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