Sample and Procedures

Participants for this study were respondents in the Couple Relationships and Transition Experiences (CREATE) study. The CREATE study is a nationally representative survey of newly married young couples. The study was approved by all appropriate IRB bodies. Participants for the study were recruited using a two-stage cluster stratification sample design, with the first stage involving a sample of counties, and the second involving a sample of recent marriages within those selected counties. Counties were selected based on a probability proportion to size (PPS) design. Selection was based on county population size, marriage, divorce, and poverty rates, and the racial-ethnic distribution of the county. The number of marriages selected per county ranged from 40 to 280, depending on these five characteristics. This design yielded a sampling frame of 11,960 marriages across 239 counties. Ten counties did not have at least 40 marriages during the sampling period, leaving the final sampling frame at 11,889 marriages.

In the second stage, marriage record information was used, with assistance from publicly available databases, to locate couples and invite them to participate. To be included in the sample, respondents had to (a) be married and selected into the sample frame (since some marriage applicants did not end up marrying), (b) have at least one partner between 18 and 36 years of age at the start of the study, (c) be a first marriage for at least one of the partners in the dyad, and (d) be living within the U.S. The majority of couples in the study were married during 2014 (90%), with the remainder in 2013 (4%) and 2015 (6%).

Based on the Dillman survey method, potential participants were first contacted by mailed letters that contained a $2.00 bill with an invitation to participate and instructions on how to enroll in the study (Dillman, Smyth, & Christian, 2008). For those that did not respond to the

initial invitation, follow-up postal mailings, E-mail invitations, and phone calls were made. As is common with online surveys, participants were asked to read and then acknowledge consent to participate in the study. Participating couples were given a $50.00 Visa gift card upon completion of the survey.

Among the 11,889 couples contacted, 8140 declined participation by either not answering or responding, and 1,220 did not meet inclusion criteria. A total of 2,187 marriages were recruited into the study, drawing a *raw response rate* of 18.24% (2,187/11,889). After dropping ineligible couples, the *adjusted response rate* was 20.50% (2,187/10,669). Of the 2,187 marriages, data from both members of the dyad were received in 1,889 (86%) cases, and data from one member of the dyad were received in the remaining 298 (14%) cases.

Additional information gained in the recruiting process allowed us to estimate a more accurate response rate, in accordance with the standards set by prominent survey research organizations (The American Association for Public Opinion Research, 2016). To calculate this, we first estimated the percent of marriages known to be ineligible (i.e., the percent of people who responded but who were not eligible to participate). In total the proportion of known marriages that were ineligible for participation was .48. If we assume that the proportion of ineligibles among those who either refused or did not respond (the unknowns) was similar, then there were an estimated 5,147 couples who were ineligible for our survey. When subtracting these out from the original 11,889, we get an estimated total response rate among eligible households of 32.43% (2,187/11,889-5,147).

Weighting the data. The sampling design used a self-weighting probability-proportional-to-size (PPS) design within the main sample and the minority oversample. This simplified the weighting for the sample design (design weight) as each respondent was self-

weighted. The only design adjustment necessary was to balance the main and minority strata. Persons sampled in the minority county stratum were selected at twice the rate as those in the main sample. These normally would be balanced by assigning a design weight of 1 to those in the main county sample and a weight of 0.5 for those in the minority county oversample. However, because the response rate was lower in the minority county sample than in the main sample, it was necessary to adjust the weight for the oversample to account for the difference in response rates. As a result, we used a weight of .6 for the oversample to adjust for this response rate difference.

Creating sample weights required four steps: 1) creating a response rate weight which adjusted for variability in the response rate from county to county; 2) creating a design weight which adjusted for extreme values; 3) creating a normalized weight which accounted for both the response rate weight and the design weight; and 4) a raking procedure which adjusted existing sample weights based on population characteristics from the Census Bureau. This multi-step weighting process enabled inferences to the population of married couples in the United States. We detail the creation of each of these weights below.

First, to account for variability in the response rate from county to county, we divided the number of couples in which at least one member of the marital dyad completed the survey by the number of marriages selected for contact in the county. To reduce bias, we subtracted the ineligible marriages from the sampled marriages, and used this as the denominator in the response rate equation. The actual response weight was then calculated by taking its inverse. For example, if only ½ of the sampled marriages completed the survey, then the weight would be 2.

Second, an adjustment was made to account for extreme values, such as counties with a very small number of responding couples. For example, counties with a very small number of

responding couples would yield a very large weight which will increase the design effect

substantially. After examining the distribution of the proportion of marriage records that yielded

a complete interview, we added .20 to the proportion responding. This eliminated several high

response weights due to the low proportion responding in some counties.

Third, we created a normalized weight so that the weighted N was the same as the

unweighted N. To create the final normalized weight, we multiplied the design weight and

response rate together using the following calculations:

Design Weight

DesignWeight = 1 if county in main sample

DesignWeight = .6 if county in minority oversample

Response Weight

ResponseWeight = 1/(participating couple/(sampled couples-ineligible couples)

(IFweight) Initial Final Weight = DesignWeight * ResponseWeight

(Fweight) Final Weight (normalized) = IFweight * (N of unweighted

respondents/N of weighted respondents)

The final step in the process of creating the weights involved a raking procedure at the

individual level. To do this, we obtained the population parameters for region, age, education and

race/ethnicity and then raked until convergence, meaning the existing sampling weights were

adjusted based on population characteristics from the Census Bureau, thereby bringing the

survey sample into conformity with the population, enabling inferences to the population of

married couples in the United States. This procedure is also known as iterative proportional fittings, sample-balancing, or raking ratio estimation.

References

Dillman, D. A., Smyth, J. D., & Christian, L. M. (2009). *Internet, mail, and mixed-mode surveys: The tailored design method*. Hoboken, N.J: Wiley & Sons.

The American Association for Public Opinion Research. (2016). *Standard definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys. 9th edition.*