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National Survey of Fertility Barriers: Methodology Report for Wave 1

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National Survey of Fertility Barriers

Methodology Report for Wave 1

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Preface

This methodology report provides information on the first wave of the National Survey of Fertility Barriers (NSFB). This nationally representative telephone survey of women age 25-45 was funded by grant R01-HD044144 from the National Institute of Child Health and Development (NICHD) entitled “Infertility: Pathways and Psychological Outcomes.” Professor Lynn K. White was the Principal Investigator for the first two years of the project. Following her retirement, Professor David R. Johnson assumed this role. The survey was conducted between 2004 and 2007 and includes completed interviews with 4,712 women age 25 to 45 and 936 of their partners. The data were collected by the Survey Research Center at The Pennsylvania State University and the Bureau of Sociological Research at the University of Nebraska-Lincoln. The Bureau of Sociological Research is currently in the field re-interviewing the respondents three years after their initial interview. The field work on the second wave is not expected to be completed until the end of 2009. The documentation in this report is directed towards researchers who are interested in conducting analyses of the public release version of these data. The data are being released and are archived with the Population Research Institute at Penn State University. Inquiries about the NSFB should be directed to the study Principal Investigator Professor David R. Johnson at Penn State University (drj10@psu.edu) or to Professor Julia McQuillan, a project investigator at the University of Nebraska (jmcquillan2@unlnotes.unl.edu).

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Research Procedures

Study Design and Sample Selection.

The NSFB is a national probability sample of women between the ages of 25 and 45 that was designed to be large enough to allow us to examine those with biomedical barriers who do and do not seek treatment and to compare women with biomedical barriers to those who are childless by choice or circumstance. We omitted women younger than 25 because National Survey of Family Growth (NSFG) data show that they represent only 3% of those with infertility experience. Although pilot data for this study included women 46-50, analyses of these data suggested that only a tiny fraction of women in this age group had recent infertility experiences and none intended additional children. Thus, the focus of the NSFB is on the age range most likely to experience infertility.

The sample was selected to be representative of all female adults living in households with a land line telephone in the contiguous United States. A random-digit dialing (RDD) sample design was used with the telephone numbers purchased from Survey Sampling, Inc. Because we wanted enough cases to undertake specific analyses of African American and Latina women, our design included an over-sample drawn from Census tracts with more than 40% minorities. All sampled numbers were matched with an address by Survey Sampling if a match was available. Our sample design included a pre-notification letter with a \$1 or \$2 cash incentive for all telephone numbers with address matches. The incentive was changed from \$2 to \$1 following an experimental comparison built into a random sample segment that found little difference in response rate between the two amounts. The sample was released in segments during the data collection phases of the study. Each segment was a representative sample of the population. Interviewing was conducted by the Survey Research Center (SRC) at Penn State and the Bureau of Sociological Research (BOSR) at the University of Nebraska-Lincoln. The sample was divided between the two survey organizations with the SRC calling the numbers in the Eastern and Southern Regions and the BOSR calling those in the Midwest and the West.

The Survey Interview Schedules.

The survey procedure used an initial set of screening questions used to assess eligibility for the study. The screener determined if the number was a household (as opposed to a business) and if any women age 25-45 resided there. If more than one woman in this age range lived in the household, one was selected at random using a random number provided by the interviewing software. Following the determination that an eligible respondent was present, this person was

invited to participate in the survey. If the woman indicated later in the interview that she had a partner (a husband for married women, a male partner for cohabiting woman, or a female partner for lesbians) then an attempt was made to also interview the partner. Partners were usually interviewed in a later call to the household. The women who met the age and sample criteria and agreed to participate in the study were given the complete interview except in one situation. Items were included in the screener to identify women who already had at least one child, planned to have no more children, and had not had a fertility problem. Women in this category were less critical for this study and only one in five who met these criteria was randomly selected to be interviewed.

The interviewing at both sites was conducted using the WinCATI computer assisted telephone interviewing system. Several versions of the interview were programmed to meet the design requirements of the study. These included the main interview schedule, the male partner interview schedule, and a version of the partner interview designed for lesbian partners. These interview schedules are included in Appendix C. In addition, Spanish language versions were prepared to be used in households with Spanish speaking respondents.

In preparation for the NSFB and prior to the award of our current grant, we conducted a pilot study in 2002 with funding from the University of Nebraska-Lincoln and the University of Nebraska Medical Center. In that study, 580 women ages 25 to 50 were selected by random digit dialing (RDD) in the North Central Region of the United States and interviewed by telephone. The pilot study was conducted by BOSR at the University of Nebraska-Lincoln. The results of the pilot study provided insights about the experience of infertility among non-help-seekers as well as the help-seeking process and served as a basis for the interview schedules used in the NSFB. This pilot survey was also used to test a number of the newly created survey items, some of which were included in the NSFB. Preparation of the items for the survey was also assisted by cognitive interviews with five women and two couples with more than six months of unprotected intercourse, no conception, and no help-seeking. Information gained from these interviews allowed us to refine questions about women's attitudes toward their pregnancies and other items on the survey.

Obtaining Interviews and Response Rate Analysis:

Before calling the sampled households, a pre-notification letter was sent to those for which the address matching process yielded a valid postal address. Copies of the letters used are included in Appendix B. Multiple callbacks (up to 25 or more) were made to unresolved telephone numbers. Call records and disposition codes were developed and retained for all numbers called using the WinCATI system. Disposition codes were created to correspond to those used in the response rate definitions developed by the American Association of Public Opinion Research (AAPOR). Details on the definitions of the measures of survey response used and the calculation of these measures for the NSFB are presented in Appendix E.

The overall response rate to the main interview, based on AAPOR response rate (AAPOR 2006) and revised to include screening eligibility estimates, was 37.2%. The screener response rate was 53.7%. Among the women with partners (married, cohabiting, or lesbian), 47% of the partners completed the partner interview. The interview schedules for both the main and partner surveys are included in Appendix C, and the interviewer training guide is included in Appendix F.

The response rate of 37.2% is typical for RDD telephone surveys conducted in the last several years (McCarty et al. 2006). Recent studies have shown that surveys with relatively low response rates are not necessarily more biased than higher response rate studies (Ketter et al. 2006), but, as is recommended by federal Office of Management and Budget (OMB) standards, we conducted a number of analyses to assess potential non-response bias and survey validity. We first compared the distribution on basic demographics in the NSFB for women age 25 to 45 to the 2005 Current Population Survey (CPS), which is based on in-person interviews and has a high (over 90%) response rate. We used the CPS public use data set to restrict the estimates to women in this age group. Applying only the weight that adjusted the NSFB for the one group of women who were intentionally under-sampled, a comparison with the CPS found close correspondence between demographic distributions in both samples (see table 1). Among 34 demographic categories in which the percent in the CPS and NSFB were compared, 22 were within +/- 1.5%. The largest differences were for educational attainment categories (e. g., the CPS had 28.3% with a high school degree and the NSFB had only 20.6%). The percent black in the NSFB (18.6%) was higher than in the CPS (14.3%) reflecting, in part, the oversampling in calling areas with higher minority populations. Weights were developed to adjust for these differences and are described in more detail in the following section.

To assess possible bias in fertility-related variables, we next compared the NSFB to the 2002 National Survey of Family Growth (NSFG). The NSFG is a large federal personal interview survey with a high response rate (near 90%) and the 2002 survey was the most recent year available to us in this series. We compared the weighted NSFB with the weighted NSFG for women age 25 to 45 (see Appendix J). . The comparisons show very similar results for fertility/fecundity-related variables. For example, 16.2% of the women in the NSFG had talked to a doctor about pregnancy help compared to 15.6% in the NSFB. Although the items were asked in slightly different ways, the estimates of impaired fecundity using NSFB definitions are very similar (NSFG = 15.5%, NSFB = 19.6%). In the NSFG, 83.4% had ever been pregnant compared to 85.3% in the NSFB. We also examined the relationship of comparable fertility measures to demographic characteristics and found very similar relationships in both surveys. These comparisons show that the NSFB sample is similar to substantially more costly nationally representative personal interview surveys even though the overall response rate was substantially lower.

Because of funding reductions, a desire to limit respondent burden, and the limits of the survey mode, we restricted the interview to 35 minutes. To do so required reducing the number of items in 21 scales that measured concepts important to our conceptual framework. Our first step was to try to find standard measures with acceptable reliability and validity that had the fewest number of items. In some cases we further reduced the number of items in these scales based on our experience with the pilot study. We also included a “planned missing” design in which each respondent was given a random two-thirds of the items on each scale (Johnson et al. 2006). Because the study was conducted over the telephone using computer-assisted telephone interviewing (CATI), we had considerable flexibility in planning the patterns of planned missing data. We chose to drop a portion of each scale rather than to randomly drop whole scales so that we would have some actual measurement of each of the concepts for each respondent. Items that made up a scale were divided into three groups of approximately equal numbers of items. A random number was generated for each respondent assigning them a 1, 2 or 3. This number was used to determine which third to drop from that interview. Our work (Johnson et al. 2006) suggests that planned missing designs are a viable and effective option for studies like the NSFB where we needed more information than can be reasonably gathered in a half-hour interview. Details on the items included in the planned missing design are presented in Appendix D.

To facilitate use of the items in the main survey instrument which contain missing values due to the PM design, we include in the dataset a version of the PM items with the missing values imputed. These were singly imputed using the ICE procedure in Stata. Details of the variables used to inform the imputations and the procedures followed are found in Appendix K. We are also in the process of imputing the PM missing values for the partner items and will add these to the public release data set in the future.

Because only about half (47.1%) of the partners of the responding women completed the partner interview, we explored possible biases introduced by differences in the propensity for the partner to respond. Using logistic regression analysis, we assessed the extent to which characteristics of the women affected the odds of their partner responding. Overall, the women with responding partners were very similar to those whose partner did not respond. Using 31 variables measuring demographic, health, and fertility characteristics, we found only four that significantly predicted partner participation. Married women were twice as likely to have a participating partner as cohabiting women; Blacks and other racial/ethnic groups were about half as likely to have a participating partner as Whites; women holding traditional gender attitudes were less likely to have a participating partner; and women reporting male sterilization surgery were less likely to have a participating partner. None of the other 27 variables significantly affected participation.

Representativeness and Calculation of Sample Weights.

Weights were developed for use with the sample to yield a representative national sample of women age 25-45. The weights adjusted for disproportionate sampling of certain groups and

to account for differential response rates by groups. We used the distribution of demographic characteristics of women in the U.S. obtained from the 2005 Current Population Survey March Demographic Supplement to provide the population figures. Although the 2005 CPS is not a population (as would be the 2000 Census), it was more recent and had been adjusted to population figures using weights. The demographic characteristics used for the adjustments were age, educational attainment, marital status, metropolitan residence, region of the country, and race/ethnicity.

Based on the screener, one group of women respondents were sampled at 1/5th the rate of the other women. These were women who reported that they had at least one child, had no plans for additional children, and did not report ever having had a fertility problem. A design weight was created where these women were assigned a weight of 5 and women not meeting these three characteristics were assigned a weight of 1.

The sample was drawn so that approximately one-half of the numbers were from central office telephone areas which were predicted to have 40% minority residents. The other half of the sample was selected from a sample of all central office code areas. The motivation for this sampling strategy was to increase the proportion minority respondents in the study, as minority respondents were less likely to respond in the pilot telephone surveys and to increase the statistical power of analyses of minority groups. Because it was not possible to match the population data for these areas in the CPS data in the calculation of the weights, we instead combined the main and minority oversamples together and weighted them to the nationally represented figures as found in the 2005 CPS.

The weights were calculated using the SAS IHB Raking macro (Battaglia, Izrael, Hoaglin, & Frankel, 2004). This procedure uses an iterative algorithm to create weights that match the percentage distributions on each of the characteristics in the sample and the population. We began with the design weight, which compensated for the random under-sampling of women with complete families and no fertility-related problems. The six demographic characteristics mentioned above were used for the weighting. Age was recoded into three-year age groups to yield more stable weights than would be obtained using single year comparisons.

Comparisons of the distributions on these demographic characteristics in the unweighted and weighted sample with the CPS are presented in Table 1. The final weight yields percentage distributions on these characteristics that matched to within 1/10th of a percentage point to the distributions in the CPS.

Three weights were created for use by researchers. The Design Weight (Dwate) only adjusted for the random under-sampling in the screener of women with completed families and no reported fertility problems. The Final Weight (Fwate) adjusts for both the design and other differences between the population and sample on these six demographic characteristics. It is

scales so that the weighted data sum to the total number of actual respondents in the data set. The last Final Population Weight (FPwate) adjusted the weight so that number of cases sums to the national population totals (in thousands). For example the total of the weighted number of cases using FPwate is 59,940 which is the estimated total number (in thousands) of women age 25 to 45 in the United States in 2005.

Management of the Study.

The data collection for the study and the procedures used were approved by the Human Subjects Institutional Review Boards (IRB) at both Penn State University and the University of Nebraska. The letters sent to the respondents and the consent statements used in the data collection effort can be found in Appendix B. In order to coordinate the data collection effort at the two sites (the SRC at Penn State and the BOSR at the University of Nebraska) close communication was maintained between the two centers and both used the same CATI software systems. The management of the interview schedules and the samples was maintained at the Penn State site and all changes or corrections in the survey interview schedules were handled through Penn State. Changes in the programming were transmitted to both sites so the surveys would be identical. The preparation of the sample, selection of sample segments and the addition of random numbers used for sampling respondents and for the planned missing design were also all created at the Penn State SRC. The same interviewer training material and interviewer guides were used at both sites. Data cleaning was carried out in two stages. Initial data cleaning was carried out at the site in which the interview was conducted. This was done because occasionally this required communication with the interviewers and supervisors on site to clarify comments or changes. The final data cleaning and coding of a number of the open-ended items was carried out at Penn State. The same data coders were used for the interviews from both sites to insure that there were no differences between the sites in interpretation or coding of some of the variables. For the public data release, all open-ended answers were examined to remove any possible identifying information (such as use of family member names, specific names of employers, or names of doctor's offices, clinics, or communities).

Appendices

Several appendices are available in addition to this short methodology report. These are available as separate files. The contents of each of these are summarized here.

A: Proposal

This is the text of the proposal for the study that was submitted to NICHD and funded. This provides a complete description of the rationale and objectives of the study, a description of the major measures used, and the methods proposed to analyze the data.

B: Letters Sent to Respondents

This appendix includes the pre-notification letters that were sent to the respondents as part of the data collection process,

C: Interview Schedules and Frequencies

This appendix contains copies of the interview schedules (English versions) for the main interview and the male partner interview. The interview for the female partners (lesbian partners) was very similar to the interview of the main respondent.

D: Planned Missing Design Information

This appendix includes the details on the planned missing design used for a number of the scales in the study. The specific items included in the design are indicated and the definitions of the variables used to randomly select items are included.

E: Response Rate Formulas and Calculations

This appendix provides detailed information on the specific definitions and formulas used to calculate the response rates and related measures for the NSFB.

F: Interviewer Guides

Included here are the interviewer guides used at both sites.

G: Responses to Open-ended Questions

This detailed appendix will be release at a later date. It will include the responses, edited for confidentiality, of all the open-ended responses on the survey. Both a text and database version will be available. The database version will include the respondent ID numbers allowing the researcher to merge the answers into the mail data base.

H: Constructed Variables Glossary and Sample Syntax

A number of constructed variables were created for the project and in the process of defining the skip patterns for a number of the survey questions. These are detailed here.

I: List of Variables in the Data File

This is a list of the variables in the public release data file. The items are names so that a link to the actual wording of the question can be easily obtained.

References:

- AAPOR. 2006. Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys. American Association for Public Opinion Research. (Available on <http://www.aapor.org>).
- Johnson, David R., Julia McQuillan, Karina Shreffler, and Katie Johnson. 2006. Planned Missingness Designs in CATI Surveys. Paper Presented at the 2006 Annual meetings of the American Association for Public Opinion Research, Montreal, Canada.
- Mccarty, Christopher, Mark House, Jeffrey Harman, and Scott Richards. 2006. Effort in Phone Survey Response Rates: The Effects of Vendor and Client-Controlled Factors Field Methods, 18: 2, 172–188.
- Michael P. Battaglia, David Izrael, David C. Hoaglin, and Martin R. Frankel. 2004. Tips and Tricks for Raking Survey Data (a.k.a. Sample Balancing). ABT Associates.