

TECHNICAL PAPERS ON HEALTH AND BEHAVIOR MEASUREMENT

TECHNICAL PAPER 69

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Reference Citation

Villarroel MA, Turner CF, Eggleston E, Al-Tayyib A, Rogers SM, Roman AM, Cooley PC, Gordek H. (2006) Sample design and demographic characteristics of respondents in the 1999–2000 National STD and Behavior Measurement Experiment. *Technical Papers on Health and Behavior Measurement, No. 69*, Washington DC: RTI Program in Health and Behavior Measurement.

Sample Design and Demographic Characteristics of Respondents in the 1999– 2000 National STD and Behavior Measurement Experiment

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The 1999-2000 National STD and Behavioral Measurement Experiment (NSBME) randomly assigned a probability sample of U.S. adults ages 18 to 45 to have sensitive questions asked either by a human telephone interviewer (T-IAQ: telephone interviewer-administered questioning) or by Telephone Computer-Assisted Self Interviewing (T-ACASI) technology. This working paper summarizes the NSBME's sample design and presents a comparison of the social and demographic characteristics of subjects in the two experimental conditions. This information supplements study details provided by Turner et al. (2005) and Villarroel et al. (2006). (Additional information can be found in Roman [2000] and Nyman et al. [2004].)

Sample Design.

The NSBM experiment was embedded in a telephone survey of a probability sample of women and men aged 18 to 45 years residing in U.S. households with working land line telephones. The survey was conducted between September, 1999 and April, 2000. Two sample strata were recruited for this survey measurement experiment: (1) a sample of the telephone-accessible U.S. household population aged 18 to 45 (national stratum), and (2) a parallel sample of the population of the city of Baltimore, MD (Baltimore stratum). A list-assisted random digit dialed (RDD) sample was drawn for each stratum using the Genesys Sampling System (2002).¹

¹ This system creates a sampling universe for telephone households by creating all possible "blocks" of 100 telephone numbers. A block is created by using the first eight digits of a telephone number. For each valid telephone area code (NPA) and each valid telephone exchange (NXX) combination, 100 such blocks are created (i.e., NPA-NXX-00xx, NPA-NXX-01xx, ..., NPA-NXX-99xx). Once these blocks are created, a search is conducted to determine if any one of the 100 possible telephone numbers appears in a database that contains all directory-listed residential telephone numbers in the United States (or Baltimore for that stratum). If at least 1 of the 100 numbers is found in the residential directory database, the entire block is retained in the sampling universe. Blocks with no residential numbers are eliminated. A simple random sample from all telephone numbers in this sampling universe

Sample Execution. For the national stratum, 14,250 telephone numbers were generated, and 12,322 telephone numbers (86.5%) were successfully screened for eligibility (Roman, 2000).² 2,183 of these screened telephone numbers were found to be residential numbers with one or more eligible English-speaking respondents aged 18 to 45. One eligible household member of these households was randomly selected for participation in the survey (without substitution). 1,452 of the 2,183 target respondents in the national strata completed³ interviews (66.5%), and 91 respondents (4.2%) completed partial interviews that included at least one substantive questionnaire section. A maximum of 91 calls per household were made to screen households and complete an interview in the national stratum. Ten percent of all completed interviews required 25 or more calls. Of 709 completed interviews assigned to be conducted in the T-ACASI experimental condition, 24 (3.4%) were administered in T-IAQ mode because respondents did not have a touchtone telephone. (Data for these 24 cases are excluded from our analyses.) Interview completion rates were higher in the T-IAQ condition than in T-ACASI (71.5% versus 61.3%). Data for 10 of the 1,452 completed interviews in the national stratum were lost due to a data processing error.

The second sample stratum was drawn to represent the adult population of Baltimore, MD.⁴ For the Baltimore stratum, 7,498 telephone numbers were generated and 6,326 (84.4%)

is then drawn. The sampling universe is updated every three months to include new area codes, exchanges, and changes in the status of any blocks. Elimination of “zero blocks” from the sampling universe in this procedure greatly increases sampling efficiency. About 45% of telephone numbers dialed are residential compared to fewer than 20% if the zero blocks are retained. Brick, et al (1995) have shown that only about four percent of all telephone households in national surveys are eliminated from possible selection by the elimination of the zero blocks.

² 629 numbers were contacted but refused screening, 177 were determined to be residences but could not be screened for eligibility, and the status of 1,122 numbers could not be determined typically because the number generated a ring with no answer on all call attempts. In studies in which random samples of these numbers have been vigorously pursued, the survey organization found that only four percent of such numbers were working, residential telephones (Roman, 2000) and thus would have been eligible for inclusion in the NSBME.

³ Interviews were considered “complete” if the respondent completed the 101st of 123 questions in the male version of the questionnaire and the 103rd of 125 questions in the female version (excluding the closeout section on reactions to survey).

⁴ This sample stratum was included to permit comparison of NSBME results to the in-person Audio-CASI and IAQ measurements made in a parallel experiment embedded in the 1997-98 Baltimore STD and Behavior Survey (Turner et al. 2002). BSBS comparisons are not included in the present paper because the BSBS used a Paper SAQ (compared to audio-CASI) to administer questions on same-gender sexual contact.

were successfully screened for eligibility. Screening identified 1,072 households with an eligible respondent, and 697 of these eligible respondents completed interviews (65.0%). An additional 47 respondents (4.4%) completed partial interviews. A maximum of 82 calls per household were made to screen households and complete an interview in the Baltimore stratum. Ten percent of all completed interviews required 26 or more calls. Of 332 completed Baltimore interviews assigned to be conducted in the T-ACASI experimental condition, 15 (4.5%) were completed in T-IAQ mode because respondents did not have a touchtone telephone. (These 15 cases are excluded from our analyses.) As in the national stratum, interview completion rates were higher in the T-IAQ condition, but the difference was smaller in magnitude (67.7% vs. 62.3%).

AAPOR Response Rates. Roman (2000, pp. 23-29) has calculated the AAPOR response rates (formula RR3)⁵ to be 62% for the T-IAQ condition and 53% for the T-ACASI condition in the national strata. In the Baltimore strata, these response rates were 56% for the T-IAQ condition and 50% for the T-ACASI condition.

Sample Equivalence.

Table 1 presents tests of the equivalence of the sociodemographic characteristics of respondents completing T-IAQ versus T-ACASI interviews. These results indicate that the social and demographic characteristics of respondents in the two experimental conditions were statistically equivalent.

⁵ The Center for Survey Research (CSR) has taken random samples of telephone numbers of unknown eligibility status (i.e., ring but never answer) in household surveys and rigorously pursued all avenues to reconcile their status. CSR has consistently found that only approximately 4% of such numbers are eligible residential telephones. This figure was used to estimate the number of eligible households among such cases when calculating the NSBME response rates.

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TABLE 1. Demographic characteristics of respondents by interview mode. (Unweighted data from 1999-2000 NSBM Experiment, combined National and Baltimore sample strata). [a]

Demographic characteristic	T-ACASI		T-IAQ		P (b)
	%	n	%	n	
Gender					
Female	58.5	931	58.8	1,164	>.5
Male	41.5		41.2		
Age					
18-25	23.1	929	24.9	1,160	>.5
26-35	37.7		36.6		
36-45	39.2		38.5		
Marital Status					
Married	42.8	930	41.3	1,162	0.477
Cohabiting	10.8		9.3		
Divorced, separated, widowed	13.8		14.0		
Never married	32.7		35.4		
Education					
Less than high school (f)	7.8	930	8.3	1,162	>.5
High school	23.3		24.1		
Some college or trade school	35.9		34.2		
College graduate or more	32.9		33.4		
Children in Household					
No	40.4	929	40.8	1,162	>.5
Yes	59.6		59.2		
Race - Ethnicity					
Black (non-Hispanic)	23.6	929	24.7	1,150	>.5
White (non-Hispanic)	61.7		58.7		
Hispanic - Latino origin	7.3		8.4		
Other (non-Hispanic)	7.4		8.2		
Sample					
National	66.3		68.5		
Baltimore	33.7	931	31.5	1,164	0.286
Level of Urbanization ^{c, d}					
21 largest MSAs	36.0	594	36.0	780	0.434
Counties with 85,000+ households	31.3		34.4		
Counties with 20,000-84,999 households	17.8		17.4		
Counties with <20,000 households	14.8		12.2		
Region ^{c, e}					
Northeast	15.6	617	19.9	797	
North Central	27.9		24.7		0.367
South Atlantic	18.0		18.1		
South Central	17.0		15.8		
Mountain	7.5		7.2		
Pacific	14.1		14.3		

(a) Analysis compares participants who reached the first question on same-gender sexual behavior, at least three-fourths of the way into the questionnaire. Analysis excludes 39 respondent assigned to T-ACASI who were interviewed in T-IAQ because they did not have a touchtone telephone.

(b) P-value for Pearson chi-square test.

(c) National sample only

(d) 21 largest MSAs refers to counties belonging to the top 21 metro areas (based on household counts from 1990 Census): Atlanta, Boston-Worcester-Lawrence-Lowell-Brockton, Chicago-Gary-Kenosha, Cleveland-Akron, Dallas-Fort Worth, Detroit-Ann Arbor-Flint, Houston-Galveston-Brazoria, Los Angeles-Riverside-Orange, Miami-Fort Lauderdale, Minneapolis-St. Paul, New Haven-Bridgeport-Stanford-Waterbury-Danbury, New York-Northern New Jersey-Long Island, Philadelphia-Wilmington-Atlantic City, Phoenix-Mesa, Pittsburgh, San Diego, San Francisco-Oakland-San Jose, Seattle-Tacoma-Bremerton, St Louis, Tampa-St. Petersburg-Clearwater, Washington-Baltimore. Counties with 85,000+ households are counties with 85,000 or more households in metropolitan areas not included in the 21 largest MSAs. Counties with 20,000-84,999 households are counties with 20,000 or more households not included in the larger categories. Counties with <20,000 households are all remaining areas not included in the larger categories described above.

(e) Geographical regions: North East (CT, MA, ME, NH, NJ, NY, PA, RI & VT); North Central (IA, IL, IN, KS, MI, MN, MO, ND, NE, OH, SD & WI); South Atlantic (DC, DE, FL, GA, MD, NC, SC, VA & WV); South Central (AL, AR, KY, LA, MS, OK, TN & TX); Mountain (AZ, CO, ID, MT, NM, NV, UT & WY); Pacific (AK, CA, HI, OR & WA).

(f) The T-ACASI condition found 2.5% of respondents reported having an 8th grade education or less while only 0.8% of respondents told a human interviewer they had left school in 8th grade or earlier. We suspect that this variation in reported educational attainment may reflect an impact of survey mode — with respondents being more willing to report very low levels of educational attainment in the more private T-ACASI interview condition.