



Monitoring the

Nation's Health

SAFER • HEALTHIER • PEOPLE™

Sexual Orientation in the 2013 National Health Interview Survey: A Quality Assessment



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
National Center for Health Statistics

Copyright information

All material appearing in this report is in the public domain and may be reproduced or copied without permission; citation as to source, however, is appreciated.

Suggested citation

Dahlhamer JM, Galinsky AM, Joestl SS, Ward BW. Sexual orientation in the 2013 National Health Interview Survey: A quality assessment. *Vital Health Stat* 2(169). 2014.

Library of Congress Cataloging-in-Publication Data

Sexual orientation in the 2013 National Health Interview Survey : A quality assessment.

p. ; cm.— (Vital and health statistics. Series 2, Data evaluation and methods research ; number 169) (DHHS publication ; no. (PHS) 2015–1369)
Includes bibliographical references.

ISBN 978-0-8406-0670-9—ISBN 0-8406-0670-2

I. National Center for Health Statistics (U.S.), issuing body. II. Series: Vital and health statistics. Series 2, Data evaluation and methods research ; no. 169. III. Series: DHHS publication ; no. (PHS) 2015–1369. 0276–4733

[DNLM: 1. National Health Interview Survey (U.S.) 2. Health Surveys—United States. 3. Sexual Behavior—United States. 4. Statistics as Topic—United States. W2 A N148vb no.169 2015]

RA407.3

614.4'273—dc23

2014036999

For sale by the U.S. Government Printing Office
Superintendent of Documents
Mail Stop: SSOP
Washington, DC 20402–9328
Printed on acid-free paper.

Vital and Health Statistics

Series 2, Number 169

Sexual Orientation in the 2013 National Health Interview Survey: A Quality Assessment

Data Evaluation and Methods Research

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
National Center for Health Statistics

Hyattsville, Maryland
December 2014
DHHS Publication No. 2015-1369

National Center for Health Statistics

Charles J. Rothwell, M.S., M.B.A., *Director*

Jennifer H. Madans, Ph.D., *Associate Director for Science*

Division of Health Interview Statistics

Marcie L. Cynamon, *Acting Director*

Contents

Abstract	1
Introduction	1
Methods	2
Primary Data Source	2
Secondary Data Sources	2
Sexual Orientation Questions	2
Demographic Variables	4
Health Variables	4
Statistical Analyses	4
Results	5
NHIS Estimates of Sexual Orientation	5
Analysis of Follow-up Responses to the NHIS Initial Sexual Orientation Question	5
Estimates of Sexual Orientation Based on Data From NHIS, NHANES, and NSFG	6
Prevalence of Selected Health Indicators by Sexual Orientation Based on Data From NHIS and NSFG	7
Sexual Orientation Nonresponse Rates Based on Data From NHIS	8
Sexual Orientation Question Response Time Based on Data From NHIS	9
Discussion	10
Follow-up Questions on Sexual Orientation	10
Cross-survey Comparisons	11
Item Nonresponse	12
Item Response Times	12
Conclusions	12
References	13
Appendix. Technical Notes	23
Detailed Tables	
1. Sexual orientation among adults aged 18 and over, by sex: United States, 2013	14
2. Follow-up responses among adults aged 18 and over who answered “something else” to the initial question on sexual orientation, by sex: National Health Interview Survey, 2013	15
3. Follow-up responses among adults aged 18 and over who answered “I don’t know the answer” to the initial question on sexual orientation, by sex: National Health Interview Survey, 2013	16
4. Sexual orientation among adults aged 18 and over before and after backcoding using responses to the follow-up questions on sexual orientation, by sex: United States, 2013	17
5. Sexual orientation among adults, by national health survey, sex, and age group	18
6. Selected health indicators among men aged 18–44, by national health survey and sexual orientation	19
7. Selected health indicators among women aged 18–44, by national health survey and sexual orientation	20
8. Item nonresponse rates for the initial sexual orientation question, by selected characteristics: United States, 2013	21
9. Distribution of item response times to the initial sexual orientation question, by selected characteristics: United States, 2013	22

Acknowledgments

We would like to thank Jaime Gahche for providing prevalence rates for sexual orientation using data from the 2009–2012 National Health and Nutrition Examination Survey, and Casey Copen and Jo Jones for their consultation and help with using the 2006–2010 National Survey of Family Growth data. We would also like to thank Anjel Vahratian, Marcie Cynamon, Stephen Blumberg, Jennifer Madans, and Anjani Chandra for their valuable assistance with and feedback on this report.

Objective

This report presents a set of quality analyses of sexual orientation data collected in the 2013 National Health Interview Survey (NHIS). NHIS sexual orientation estimates are compared with those from the National Survey of Family Growth (NSFG) and the National Health and Nutrition Examination Survey (NHANES). Selected health outcomes by sexual orientation are compared between NHIS and NSFG. Assessments of item nonresponse, item response times, and responses to follow-up questions to the sexual orientation question are also presented.

Methods

NHIS is a multipurpose health survey conducted continuously throughout the year by the Centers for Disease Control and Prevention's National Center for Health Statistics. Analyses in this report were based on NHIS data collected in 2013 from 34,557 adults aged 18 and over. Sampling weights were used to produce national estimates that are representative of the civilian noninstitutionalized U.S. adult population. Data from the 2006–2010 NSFG and 2009–2012 NHANES were used for the comparisons.

Results

Based on the 2013 NHIS data, 96.6% of adults identified as straight, 1.6% identified as gay/lesbian, and 0.7% identified as bisexual. The remaining 1.1% of adults identified as "something else," stated "I don't know the answer," or refused to answer. Responses to follow-up questions suggest that the sexual orientation question is producing little classification error. In addition, largely similar patterns of association between sexual orientation and health were observed for NHIS and NSFG. Analyses of item nonresponse rates revealed few data quality issues, although item response times suggest possible shortcutting of the question and comprehension problems for select respondents.

Keywords: sexual identity • item nonresponse • measurement error • data quality

Sexual Orientation in the 2013 National Health Interview Survey: A Quality Assessment

by James M. Dahlhamer, Ph.D., Adena M. Galinsky, Ph.D., Sarah S. Joestl, Dr.P.H., and Brian W. Ward, Ph.D., Division of Health Interview Statistics

Introduction

A 2011 Institute of Medicine (IOM) report on the health of lesbian, gay, bisexual, and transgender (LGBT) persons called for ongoing collection of sexual orientation data in federally funded surveys and more research on inequities in sexual minority health care (1). The U.S. Department of Health and Human Services' Healthy People 2020 initiative includes the goal of improving the health, safety, and wellbeing of LGBT persons, and like the IOM report, calls for an increase in the number of population-based data systems using a standard set of sexual orientation questions to monitor Healthy People objectives (2). However, there are challenges in the collection of sexual orientation data, including how to define and operationalize the different dimensions of sexual orientation (behavior, attraction, and identity), and how to collect information on a sufficiently large sample of these relatively small populations to permit meaningful analyses (1). Seeking to address these objectives and challenges, the Centers for Disease Control and Prevention's (CDC) National Center for Health Statistics (NCHS) developed, tested, and added questions on the identity component of sexual orientation (3) to the 2013 National Health Interview Survey (NHIS).

Since monitoring lesbian, gay, and bisexual health requires accurate and reliable data, the goal of this report is to present a set of data quality analyses of the 2013 NHIS sexual orientation data

that researchers may use to make informed decisions about the appropriate use of the data. First, response distributions of sexual orientation are presented. This is followed by an analysis of responses to a set of follow-up questions to the initial NHIS sexual orientation question. These questions were added for two reasons: (a) to gauge the extent to which adults identify with terms other than gay/lesbian, bisexual, and straight, and provide meaningful response alternatives, and (b) to determine if any misclassification of responses occurred at the initial sexual orientation question because the response options provided with the initial question were unfamiliar or confusing. NHIS estimates of sexual orientation are then compared with similar estimates from other NCHS health surveys administering sexual orientation questions. Next, health outcomes by sexual orientation are compared between NHIS and the National Survey of Family Growth (NSFG). Consistency between the NHIS and NSFG estimates and patterns of association are not necessarily an indicator of validity, but inconsistency is informative. Following this, attention is given to two item quality measures: item nonresponse and item response times. Both quality measures are used to gauge the extent to which respondents or interviewers may have found the sexual orientation questions to be sensitive, and the extent to which respondents may have encountered comprehension problems when answering the questions. Item nonresponse analyses are also used to

explore possible nonresponse bias in the NHIS sexual orientation data.

Methods

Primary Data Source

Data from the 2013 NHIS were used to generate the majority of the estimates presented in this report. NHIS is a multipurpose health survey conducted continuously throughout the year and serves as a primary source of health data on the civilian noninstitutionalized population of the United States (4). Trained interviewers with the U.S. Census Bureau collect data using computer-assisted personal interviewing (CAPI), a data collection method in which an interviewer meets with respondents face-to-face to ask questions and enters the answers into a laptop computer. When necessary, interviewers may complete missing portions of the interview over the telephone.

The survey has four main components: the Household Composition Section, Family Core, Sample Adult Core, and Sample Child Core. The Household Composition Section of the questionnaire collects basic demographic and relationship information about all persons in the household. The Family Core questionnaire, which is administered separately for each family in the household, collects information on all persons in the family. Topics in the Family Core include sociodemographic characteristics, basic indicators of health status, health insurance coverage, and access to and use of health care services. From each participating family, one sample child (if there are any children aged 17 and under) and one sample adult aged 18 and over are randomly selected, and information on each is collected with the Sample Child and Sample Adult questionnaires. The Sample Adult Core interview collects additional data on health status and conditions, health behaviors, functioning and disability, and access to and use of health care services. The sample adult answers for himself or herself, unless he

or she is mentally or physically unable to do so; in that case, a knowledgeable family member serves as a proxy respondent.

Analyses in this report were based on data collected from 34,557 sample adults aged 18 and over. The conditional sample adult response rate (i.e., the number of completed Sample Adult interviews divided by the total number of eligible sample adults) was 81.7%. The final sample adult response rate, calculated by multiplying the conditional response rate by the final family response rate, was 61.2% (5).

Secondary Data Sources

Two other sources of data were used in this report: the 2006–2010 NSFG and the 2009–2012 National Health and Nutrition Examination Survey (NHANES). While these surveys use similar sample designs and include many of the same demographic and health measures as NHIS, the three surveys have different objectives. NHIS is a multipurpose health survey, NHANES includes a physical examination component, and NSFG focuses on family formation issues. The data years for NSFG and NHANES were chosen because they were the most recent years available, with multiple years of data used so that reliable estimates could be generated for the categorical measure of sexual orientation.

NSFG is a cross-sectional, multistage continuous national survey of women and men aged 15–44 living in households in the United States. One person in the given age range at each selected address is chosen randomly for the in-person interview. NSFG collects data on family life, sexual activity and contraception use, pregnancy, childbearing, men's and women's health, and parenting. While mostly administered through CAPI, more sensitive questions, including those on same-sex sexual behavior, sexual attraction, and sexual identity, are asked via audio computer-assisted self interviewing (ACASI). For the ACASI portion, the respondent answers alone by entering his or her responses directly into the laptop computer. The

respondent can read the questions on the screen as well as listen to them through headphones. Comparisons with NHIS were made for adults aged 18–44.

NHANES is a cross-sectional, multistage continuous national survey of individuals of all ages in the United States. It consists of a survey, a physical examination, and collection of biospecimens for more than 700 laboratory tests. Questions on health conditions, diseases, and diet behavior and nutrition are asked of NHANES participants, both in the home and in a mobile examination center (MEC). The physical examination and biospecimen collection are performed in the MEC. Like NSFG, the survey is administered primarily by CAPI, with more sensitive questions, including questions on same-sex behavior and sexual identity, asked via ACASI. Comparisons with NHIS were made for adults aged 18–59.

Readers interested in learning more about these two surveys can find additional detail and information on NSFG (6) and NHANES (7) elsewhere.

Sexual Orientation Questions

National Health Interview Survey

The NHIS sexual orientation questions are in the Adult Selected Items section in the Sample Adult Core. This section also contains questions about computer use, satisfaction with health care, neighborhood tenure, neighborhood attachment, financial worries, sleep, HIV testing, and psychological distress.

The sexual orientation question battery in the 2013 NHIS consisted of four cascading questions. The initial question, asked of all sample adults aged 18 and over, reads, “Which of the following best represents how you think of yourself?” For men, the response options were:

- Gay
- Straight, that is, not gay
- Bisexual
- Something else
- I don't know the answer

For women, the response options were:

- Lesbian or gay
- Straight, that is, not lesbian or gay
- Bisexual
- Something else
- I don't know the answer

The initial sexual orientation question for NHIS was developed, tested, and iteratively refined to capture the sexual identity component of self-reported sexual orientation (3,8–10). Over an 11-year period, the NCHS Questionnaire Design Research Laboratory (QDRL) conducted 377 in-depth cognitive interviews to better understand the interpretive and response process patterns people use to answer questions on sexual identity. One-hundred thirty-nine of those interviews were conducted specifically in the development of a sexual orientation question for NHIS. The QDRL encountered several challenges, including fluid and changing sexual identities, differential saliency of the topic for LGBT and non-LGBT respondents, and lack of consistent interpretation of the terms “heterosexual,” “homosexual,” and “bisexual.”

Two important design strategies were implemented to address these challenges and minimize response error in the NHIS sexual orientation question. First, terms that respondents use in their everyday lives to describe themselves were adopted. As opposed to the more abstract, scientific labels of “homosexual” and “heterosexual,” which respondents do not always understand and use, cognitive testing revealed that the terms “straight,” “lesbian,” and “gay” improved question performance. This was especially true for non-LGBT or nonminority respondents. Cognitive interviewing found that some nonminority respondents confused the words “homosexual” and “heterosexual,” believing that “heterosexual” was gay and “homosexual” was straight. Furthermore, some respondents, not knowing the terminology, inferred that the term “bisexual” meant “heterosexual,” concluding that “bi” means two: one man and one woman. Hence, the inclusion of the terms

“heterosexual” and “homosexual” led to classification error (3,8–10). And second, the “gay/lesbian” response option came first, before “straight.” As cognitive interviewing revealed, the concept of sexual identity holds a particularly distinct and salient meaning for those identifying as lesbian, gay, bisexual, or transgender. This is not the case for many heterosexuals. They do not so much identify with being heterosexual as they disidentify with being gay. To this end, adding “that is, not gay” to the “straight” category helped these respondents select the optimal response category. Because of the “not gay” wording, this response category had to come after the “gay/lesbian” category (3,8–10).

After the cognitive testing, the sexual orientation question was further evaluated in the field. From November 2011 through October 2012, three field tests in which the sexual orientation question was embedded in the NHIS questionnaire were conducted. In the first two field tests, the question was administered only using ACASI. The first was a 50-interview test designed to assess the integration of an ACASI module with the NHIS CAPI interview. The second test included a Spanish translation of the sexual orientation question in the ACASI module. This second test was conducted in geographic areas with relatively high concentrations of Spanish-speaking persons. A total of 531 ACASI interviews were completed in the second test: 415 in English and 116 in Spanish. An interviewer debriefing question that asked if Spanish language respondents had any difficulties with the Spanish translation was included. Of the 116 Spanish interviews, a problem was reported for only eight (6.9%). A review of the descriptions of these eight cases showed that four respondents had some difficulty with the term “heterosexual,” although it appears that the interviewer provided sufficient clarification in each case. (The Spanish translation used the term “heterosexual” because there is no conceptual translation for the word “straight.” “Heterosexual” is a word more commonly used by Spanish speakers.)

In the third and final test, a split-ballot experiment in which 60% of sample adults were randomly assigned to receive the initial sexual orientation question by ACASI and 40% by CAPI was conducted. Using a nationally representative sample, the primary goal of this test was to determine the mode by which the sexual orientation question would be administered in the 2013 NHIS. A total of 5,377 sample adults were asked the initial sexual orientation question. No significant differences were identified by mode for the percentage of adults identifying as gay/lesbian or bisexual (ACASI = 2.2%, CAPI = 2.4%). In addition, item nonresponse (responses of “something else,” “I don't know the answer,” or refusing to answer) to the sexual orientation question did not differ significantly by mode (ACASI = 2.7%, CAPI = 2.3%).

While the cognitive and field testing produced a well-performing question, there was concern that when the question was fielded as part of the production 2013 NHIS, some respondents might not understand the key terms, while others might not identify with the initial categories included with the question. Therefore, follow-up questions were asked of respondents who answered “something else” or “I don't know the answer.” The goal was to measure the extent to which adults use terms other than gay, lesbian, bisexual, and straight, and to determine if any misclassification of responses occurred with the initial sexual orientation question.

Respondents who answered “something else” to the initial question were asked the follow-up question, “What do you mean by something else?” Response options included:

- You are not straight, but identify with another label such as queer, trisexual, omnisexual, or pansexual
- You are transgender, transsexual, or gender variant
- You have not figured out or are in the process of figuring out your sexuality
- You do not think of yourself as having sexuality
- You do not use labels to identify yourself
- You mean something else

Respondents who answered “I don’t know the answer” to the initial question were asked the follow-up question, “What do you mean by don’t know?” Response options included:

- You don’t understand the words
- You understand the words, but you have not figured out or are in the process of figuring out your sexuality
- You mean something else

Respondents who selected the response option “You mean something else” to either of the follow-up questions could provide a verbatim response.

For the initial sexual orientation question and the “something else” and “don’t know” follow-ups, flashcards listing the response options were handed to respondents in the face-to-face setting. Respondents were asked to report the number corresponding to their answer. When the questions were administered over the telephone, the interviewer read the response options. Respondents could refuse to answer any of these questions.

National Survey of Family Growth

The 2006–2010 NSFG sexual orientation question was asked of all respondents aged 15–44 and reads, “Do you think of yourself as...,” with the following response options for men:

- Heterosexual or straight
- Homosexual or gay
- Bisexual
- Something else

The response options for women were:

- Heterosexual or straight
- Homosexual, gay, or lesbian
- Bisexual
- Something else

Note that the “something else” option was included in the 2006–2007 NSFG, but was deleted as a response option in the 2008–2010 NSFG (11). The sexual orientation question is near the end of the ACASI portion of the interview after questions on pregnancy, substance use, risk behaviors for sexually transmitted diseases (STDs)

and HIV, nonvoluntary sexual intercourse, sexual attraction, and same-sex sexual behavior. Questions on experiences with STDs, income, and income sources follow the sexual orientation question.

National Health and Nutrition Examination Survey

The NHANES question on sexual orientation was asked of all respondents aged 18–59 and reads, “Do you think of yourself as...,” with the following response options for men:

- Heterosexual or straight (that is, sexually attracted only to women)
- Homosexual or gay (that is, sexually attracted only to men)
- Bisexual (that is, sexually attracted to men and women)
- Something else
- You’re not sure

The response options for women were:

- Heterosexual or straight (that is, sexually attracted only to men)
- Homosexual or lesbian (that is, sexually attracted only to women)
- Bisexual (that is, sexually attracted to men and women)
- Something else
- You’re not sure

The NHANES sexual orientation question was asked in the MEC and appears toward the end of the ACASI section, after questions on substance use, food security, sexual behavior, and experiences with STDs.

Demographic Variables

The demographic variables included in this report were taken from either the Household Composition Section or Family Core component of the 2013 NHIS. They include the sample adult’s sex, age group, race and ethnicity, educational attainment, urbanicity of residence, and language in which the sample adult interview was conducted. The categories for the sex variable are male and female. Age is categorized into the following groups: 18–24, 25–34, 35–44, 45–54, 55–64, and 65 and over. For race and ethnicity, the categories

include Hispanic, non-Hispanic white, non-Hispanic black or African American, and non-Hispanic identifying as some other race (includes persons identifying as multiple races). Educational attainment is categorized into less than a high school diploma or General Educational Development (GED) high school equivalency diploma, high school diploma or GED, some college (but no bachelor’s degree), bachelor’s degree, and master’s degree or higher. Urbanicity of residence is either urban or rural. Finally, interview language is classified as primarily conducted in English, Spanish, or some other language (including bilingual interviews conducted in both English and Spanish). All demographic variables were used to examine differences in item nonresponse rates and the length of time spent answering the initial sexual orientation question.

Health Variables

As part of the cross-survey comparisons between NHIS and NSFG, a number of health outcomes captured on both surveys were examined by sexual orientation. These variables include having a health status described as excellent or very good, being obese (defined as a body mass index of 30 kg/m² or more), having a usual place to go for medical care, the type of usual place to go for medical care, and ever having been tested for HIV. For NHIS, these health variables were included in either the Sample Adult Core or the Family Core component. For NSFG, all variables were taken from the 2006–2010 public-use data files. Similar comparisons between NHIS and NHANES were not performed due to the limited sexual minority sample size in NHANES.

Further details regarding the demographic and health variables can be found in the [Appendix](#).

Statistical Analyses

First, population distributions of sexual orientation based on NHIS data were calculated overall and by sex.

Two-tailed significance tests were performed to test for significant differences by sex. Second, response distributions of the “something else” and “I don’t know” follow-up questions to the initial sexual orientation question were assessed, followed by an examination of the distribution of sexual orientation based on responses to the initial question compared with responses to the initial question along with backcoding of responses to the follow-up questions. (Backcoding is a process whereby responses to the follow-up questions are assigned to one of the five response options for the initial sexual orientation question.) Third, population distributions of sexual orientation based on NSFG and NHANES data were calculated and compared separately with NHIS estimates. For the comparison with NHANES, NHIS estimates were constrained to match the age range of the NHANES sexual orientation question (18–59). To enable comparisons between NHIS and NSFG, estimates were based on the age range of 18–44. Two-tailed significance tests were performed to test for significant differences in distributions of sexual orientation between NHIS and NHANES and between NHIS and NSFG. Fourth, prevalence rates of selected health outcomes by sexual orientation were compared between NHIS and NSFG among adults aged 18–44. Two-tailed significance tests were performed to test for significant differences in health outcomes by sexual orientation *within* each survey (no tests of statistical significance were performed across surveys). The goal of this analysis was to see if associations between sexual orientation and health were similar across the two surveys. The analysis of obesity was restricted to men and nonpregnant women aged 20–44.

The final section of the analysis focused on item nonresponse rates and item response times. Item nonresponse rates to the initial sexual orientation question were compared by demographic group. Item response times were split into quintiles, and comparisons were made for the shortest and longest time groups by respondent demographics. Two-tailed significance

tests were used to test for differences across groups.

To account for the multistage, complex sampling design of NHIS, NSFG, and NHANES, most estimates and standard errors included in this report are based on weighted data and were generated using SAS version 9.3 and SAS-callable SUDAAN version 11.0. These weighted estimates are generalizable to the adult civilian noninstitutionalized U.S. population. Note that the analysis of the sexual orientation follow-up questions is unweighted. Differences discussed in this report are significantly different at the p less than 0.05 level unless otherwise noted, with no adjustments made for multiple comparisons. Given the limited statistical power resulting from small sample sizes, some large observed differences do not reach statistical significance.

Unless otherwise noted, care was taken to report and discuss only estimates that met NCHS standards of reliability or precision, determined by the calculation of a relative standard error (RSE) for each estimate, as described in the [Appendix](#). Only estimates with an RSE equal to or less than 30% are considered reliable. Estimates with an RSE greater than 30% and less than or equal to 50%, although reported, are considered unreliable and are denoted in the tables with an asterisk. Estimates with an RSE greater than 50%, denoted with a dagger in the tables, are not reported due to insufficient reliability and precision of the point estimate.

Results

NHIS Estimates of Sexual Orientation

Using data from the 2013 NHIS, [Table 1](#) presents the percent distribution of sexual orientation among all U.S. adults aged 18 and over, as well as separately for men and women. Overall, 96.6% of adults identified as straight, 1.6% identified as gay/lesbian, and 0.7% identified as bisexual. The remaining

1.1% of adults identified as something else (0.2%), stated “I don’t know the answer” (0.4%), or refused to answer (0.6%). The percent distributions were quite similar for men and women; however, a higher percentage of men identified as gay (1.8%) compared with women who identified as gay/lesbian (1.4%), and a higher percentage of women identified as bisexual (0.9%) compared with men (0.4%). No other significant differences in the percent distribution of sexual orientation between men and women were found.

Analysis of Follow-up Responses to the NHIS Initial Sexual Orientation Question

Among respondents who answered “something else”

Of the 33,784 sample adults who responded to the initial sexual orientation question, only 56 (29 men and 27 women) answered “something else.” [Table 2](#) presents unweighted percentages and frequency counts of responses provided by adults who answered “something else” to the initial sexual orientation question. The table includes backcoded responses provided by 20 respondents who answered “something else” to both the initial question and the “something else” follow-up question, and were then asked the open-ended question, “What do you mean by something else?” (see [Appendix](#)).

The two most frequent answers provided were: “You do not use labels to identify yourself” and “You do not think of yourself as having sexuality.” Combined, these two answers accounted for 57.2% of the adults who answered “something else” to the initial sexual orientation question (55.2% of men and 59.2% of women). A small number of respondents refused to answer or said “I don’t know” (14.3% of all respondents, 18.5% of women, and 10.4% of men), three respondents (all men) indicated that they had not figured out or were in the process of figuring out their sexuality, and only one respondent said that she did not understand the words.

A small number of respondents identified as a sexual minority via the “something else” follow-up questions. Two respondents identified with another label such as queer, trisexual, omnisexual, or pansexual; and three respondents identified as transgender, transsexual, or gender variant. Finally, an additional three respondents identified themselves as heterosexual or straight in response to the open-ended question (“What do you mean by something else?”), indicating some classification error with the initial sexual orientation question.

Among respondents who answered “I don’t know the answer”

One-hundred fifty-five respondents (79 women and 76 men) answered “I don’t know the answer” to the initial sexual orientation question. One man quit the survey before answering the follow-up questions. [Table 3](#) presents unweighted percentages and frequency counts of responses provided by adults who answered “I don’t know the answer” to the initial question. [Table 3](#) includes backcoded responses from the 44 respondents who answered “I don’t know the answer” to the initial question, “something else” to the “I don’t know the answer” follow-up question, and then answered the open-ended question “What do you mean by something else?” (see [Appendix](#)).

Of the 154 respondents who answered the follow-up questions, nearly 90% gave one of four responses. Roughly 30% of adults (30.7% of men and 29.1% of women) who said “I don’t know the answer” at the initial sexual orientation question later reported that they had not figured out or were in the process of figuring out their sexuality, while a slightly lower percentage of adults (28.6%) reported that they did not understand the words used in the initial question (38.0% of women and 18.7% of men). Finally, just over 16% of respondents answered “I don’t know the answer” (17.3% of men and 15.2% of women), and an additional 14% of respondents refused to answer (18.7% of men and 10.1% of women).

Additional responses included “no sexuality” (one woman), “don’t use labels” (three men and one woman), and “something else” (seven men and one woman). While none of the adults among the initial “I don’t know the answer” respondents later identified as a sexual minority, four (2.6%) identified as heterosexual or straight. Again, this indicated some misclassification of responses at the initial sexual orientation question.

Comparison of sexual orientation estimates before and after backcoding using the follow-up questions

Next, how the estimates of sexual orientation could be impacted by the incorporation of the responses to the three follow-up questions was examined. Specifically, does assigning one of the original response options based on information collected with the follow-up questions (backcoding) make a substantial difference in the percentage of adults identifying as a sexual minority?

[Table 4](#) presents estimates of sexual orientation before and after the backcoding of responses to the follow-up questions. Estimates based on these two measures are listed for all U.S. adults, and separately for men and women. When comparing the two measures, there is no substantive change in the distribution after incorporating the data collected from the follow-up questions on sexual orientation. Among U.S. adults, and separately for men and women, no change was observed in the percentages of persons who identified as gay/lesbian or bisexual. The percentage who identified as straight changed only 0.1 percentage points (from 96.6% to 96.7%). Due to rounding, this percentage did not change when looking at men and women separately. Finally, the percentage of adults who identify as a sexual minority (2.3%) did not change if the adults who identified as queer, trisexual, omnisexual, pansexual, transgender, transsexual, or gender variant in the follow-up questions were included in the measure (results not shown). Given the very low percentage

of adults who received the follow-up questions and the small number of responses that could be backcoded to one of the main response options (straight, gay/lesbian, bisexual), the follow-up questions will no longer be asked starting with the 2015 NHIS.

The remaining analyses presented in this report are based on data collected with the initial sexual orientation question.

Estimates of Sexual Orientation Based on Data From NHIS, NHANES, and NSFG

In the top panel of [Table 5](#), NHIS estimates are compared with estimates from the 2009–2012 NHANES. To ensure appropriate comparisons, NHIS estimates were restricted to adults aged 18–59, the same age range of adults that received the survey question on sexual orientation in NHANES. For both sexes combined and separately among men and women, a higher percentage of adults identified as heterosexual or straight based on data from NHIS (96.2% of all adults, 96.3% of men, and 96.1% of women) compared with NHANES (93.6% of all adults, 94.9% of men, and 92.2% of women). Discrepancies in the heterosexual/straight estimates are largely due to the lower percentage of adults in NHIS who identified as bisexual (0.8%) or answered “I don’t know” (0.4%) compared with NHANES (2.6% and 1.3%, respectively). Among men and women separately, the same pattern is found where the percentages of adults identifying as bisexual or who said “I don’t know” were lower based on NHIS data relative to NHANES, with this difference more apparent among women than men. The percentage of adults identifying as homosexual or gay/lesbian, however, was similar between NHIS and NHANES, with a slightly higher (but not statistically significant) percentage of women who identified as homosexual or gay/lesbian in NHIS (1.7%) compared with NHANES (1.3%), and a similar percentage of men who identified as gay

based on data from NHIS (2.1%) compared with NHANES (2.3%). It is important to note that unlike the NHIS sexual orientation question, the NHANES question conflates attraction and identity and is asked after a set of sexual behavior questions. This may partially explain the differences in estimates.

Next, estimates of sexual orientation were compared between NHIS and NSFG. To create comparable samples, the analysis was restricted to adults aged 18–44. In these comparisons, differences existed in the percentage of adults who identified as heterosexual or straight. Among women, 95.7% identified as heterosexual or straight based on NHIS data, compared with 93.6% based on NSFG data. This difference existed among men, but was smaller in magnitude and not statistically significant (96.4% in NHIS, compared with 95.6% in NSFG). Consistent with the comparisons between NHIS and NHANES, much of this discrepancy appears to result from a larger percentage of adults who identified as bisexual based on data from NSFG. One and one-half percent of women identified as bisexual based on NHIS data, whereas 3.9% identified as such based on NSFG data. A similar pattern, although less pronounced, was found among men (0.6% in NHIS, compared with 1.2% in NSFG). The percentage of adults who identified as gay/lesbian was more uniform across the two surveys, with slightly higher percentages of men (2.1%) and women (1.7%) who identified as gay/lesbian based on NHIS data compared with men (1.8%) and women (1.2%) based on NSFG data (however, the difference for men was not statistically significant). The percentages of adults who refused to answer, answered “I don’t know,” or identified as something else were similar based on data from both NHIS and NSFG. As noted with the NHANES sexual orientation question, the NSFG question comes after questions on sexual behavior, including same-sex behavior and attraction. Again, this is very different from the context of the NHIS sexual orientation question and may partially explain the differences.

Prevalence of Selected Health Indicators by Sexual Orientation Based on Data from NHIS and NSFG

Given the differences in sexual orientation estimates across NHIS, NHANES, and NSFG, particularly the lower prevalence of adults identifying as bisexual based on data from NHIS, analyses were performed to see if differences in the association between sexual orientation and health also exist across surveys. The patterns of the relationships between sexual orientation and health are compared using a small subset of outcomes that are available and comparable in both NHIS and NSFG (Tables 6 and 7). Like the NHIS–NSFG comparisons in Table 5, these comparisons were restricted to adults aged 18–44 (with the exception of obesity, which was restricted to men and nonpregnant women aged 20–44). Of the five health indicators examined, two had matching patterns of association with sexual orientation across the two surveys, two had cross-survey matching patterns of association with sexual orientation among one sex but not the other, and one had different patterns of association across the surveys.

Obesity and usual place of care

The two health indicators with similar patterns of association with sexual orientation across the surveys were obesity and having a usual place to go for medical care. In both NHIS and NSFG, among respondents aged 20–44 there were no differences by sexual orientation among men in prevalence of obesity, and no difference between gay/lesbian and straight nonpregnant women in prevalence of obesity. However, in both NHIS and NSFG, a higher percentage of nonpregnant women who identified as bisexual were obese compared with nonpregnant women who identified as straight (39.0% compared with 26.2% in NHIS; 42.7% compared with 32.6% in NSFG).

Similarly, in both NHIS and NSFG, among respondents aged 18–44 there

were no differences by sexual orientation in having a usual place to go for medical care among men, and in both surveys there was no difference between bisexual and straight women. However, in both NHIS and NSFG, a higher percentage of women who identified as straight had a usual place to go for medical care than women who identified as gay/lesbian (80.9% compared with 65.5% in NHIS; 83.7% compared with 61.0% in NSFG).

For type of usual place of care, the patterns were similar across surveys for both sexes, although the differences were only significant for women in both surveys. Based on data from NHIS, a higher percentage of men aged 18–44 who identified as straight (26.2%) went to a clinic or health center compared with those who identified as gay (16.2%), while a lower percentage of men aged 18–44 who identified as straight (68.1%) went to a doctor’s office or health maintenance organization (HMO) compared with those who identified as gay (78.1%). Also, a higher percentage of men aged 18–44 who identified as bisexual (51.4%) went to a clinic or health center compared with those who identified as straight (26.2%), while a lower percentage of bisexual men aged 18–44 (44.7%) went to a doctor’s office or HMO compared with those who identified as straight (68.1%). Again, this pattern among men was also found in NSFG, but the differences were not significant.

Among women, however, the same patterns and significance of association between sexual orientation and type of usual place of care were found in both surveys. In both NHIS and NSFG, a higher percentage of women aged 18–44 who identified as straight went to a doctor’s office or HMO compared with those who identified as bisexual (69.7% compared with 54.9% in NHIS; 77.1% compared with 67.4% in NSFG). Likewise, in both NHIS and NSFG, a higher percentage of women aged 18–44 who identified as bisexual went to a clinic or health center compared with those who identified as straight (43.1% compared with 27.3% in NHIS; 24.7% compared with 16.2% in NSFG).

Tested for HIV

For the indicator ever having been tested for HIV, a different pattern of association was found between the surveys among women, while the pattern was the same across surveys among men. Among women aged 18–44, no differences by sexual orientation were found using data from NHIS, but a difference by sexual orientation was found using data from NSFG. In NSFG, a higher percentage of women who identified as bisexual (73.2%) had been tested for HIV compared with those who identified as straight (63.5%). In both surveys, there was no significant difference in the percentage of respondents tested for HIV between women aged 18–44 who identified as gay/lesbian and those who identified as straight, nor between men aged 18–44 who identified as bisexual and those who identified as straight. Also, in both surveys a higher percentage of men aged 18–44 who identified as gay had been tested for HIV compared with those who identified as straight (78.9% compared with 36.8% in NHIS; 82.5% compared with 45.6% in NSFG). [For a more thorough discussion of the associations between sexual orientation and HIV testing in NSFG, see Chandra et al. (12)].

Health status

The last health outcome examined was having a health status described as excellent or very good, and for this indicator the pattern of association with sexual orientation differed across surveys. Based on data from NHIS, a higher percentage of women aged 18–44 who identified as straight (71.1%) had a health status described as excellent or very good compared with those who identified as gay/lesbian (56.1%). Although the difference is not significant, the pattern is similar for NSFG. Almost 67% of women aged 18–44 who identified as straight had a health status described as excellent or very good compared with 59.8% of those who identified as gay/lesbian. When comparing women aged 18–44 who identified as straight (NHIS:

71.1%, NSFG: 66.8%) with women of the same age who identified as bisexual (NHIS: 61.4%, NSFG: 51.8%), the pattern was again similar by survey, but significant only for NSFG.

Also, while a higher percentage of men aged 18–44 who identified as straight (69.9%) reported excellent or very good health compared with those who identified as bisexual (53.4%) based on data from NSFG, no such difference was found based on data from NHIS (straight: 72.5%, bisexual: 71.7%). However, in both surveys, there was no significant difference in the percentage who described their health status as excellent or very good between men aged 18–44 who identified as gay and those who identified as straight.

Sexual Orientation Nonresponse Rates Based on Data From NHIS

The next set of analyses focuses on two data quality indicators: item nonresponse and item response times. These two measures may provide indirect evidence that respondents struggled with answering the initial NHIS sexual orientation question or found the question to be overly sensitive (13–15).

Table 8 shows the nonresponse rates for the sexual orientation question, broken out by sex, age, education, race and ethnicity, language in which the sample adult interview was conducted, and urbanicity of the sample residence.

First, sociodemographic differences in the individual categories of nonresponse were examined. Starting with refusals, only 0.55% of respondents refused to answer. Adults aged 18–24 had a significantly lower refusal rate (0.21%) compared with their older counterparts (refusal rates ranged from 0.49% to 0.73%). Although slight variation in refusal rates was observed among racial and ethnic groups (e.g., respondents who identified as non-Hispanic white had the lowest refusal rate of all racial and ethnic groups), only the difference between non-Hispanic white (0.48%) and non-Hispanic black (0.86%) adults reached statistical significance.

An even smaller percentage of adults overall indicated that they did not know the answer to the sexual orientation question (0.38%). Little variation was observed by age, although adults aged 25–34 had the highest rate of “I don’t know the answer” nonresponse at 0.61%. This rate was significantly different only from that among adults aged 35–44, in which only 0.21% indicated not knowing how to respond. Non-Hispanic white adults had the lowest rate of “I don’t know the answer” responses, but only the difference between the rate among non-Hispanic white (0.29%) and Hispanic (0.69%) adults reached statistical significance. Looking at education, the rate of “I don’t know the answer” responses among adults with less than a high school diploma or GED (0.80%) was significantly higher than the rates among adults with all other levels of education (which ranged from 0.22% to 0.41%). Finally, the rate of “I don’t know the answer” responses was significantly lower for adults who completed the interview in English (0.32%) or Spanish (0.67%) compared with respondents who completed the interview in both English and Spanish or some other language (1.89%).

Adults who answered “something else” to the initial sexual orientation question gave a variety of responses to the follow-up questions, including “You do not use labels to identify yourself,” “You do not think of yourself as having sexuality,” “You have not figured out or are in the process of figuring out your sexuality,” and “transgender, transsexual, or gender variant” (Table 2). Since the category is relatively small (see below) and captures a range of labels and identities, researchers may treat “something else” as missing for select analyses.

The overall percentage of adults answering “something else” was only 0.17%. Given this extremely low percentage, significant differences were observed for only two sociodemographic characteristics: (a) race and ethnicity and (b) education. The percentage of Hispanic adults who answered “something else” (0.05%) was less than one-third that of non-Hispanic white adults (0.19%) and non-Hispanic black

adults (0.17%). Adults with some college education had a significantly higher “something else” rate (0.32%) compared with adults with a bachelor’s degree (0.10%) or a master’s degree or higher (0.07%).

Next, sociodemographic differences in two summary or total nonresponse indicators were examined. The first measure, “total nonresponse 1,” includes participants who responded “I don’t know the answer” and those who refused to answer. The second measure of total nonresponse, “total nonresponse 2,” includes participants who responded “I don’t know the answer” or “something else” and those who refused to answer.

Regardless of the indicator, total nonresponse to the initial sexual orientation question was low. Total nonresponse 1 indicator shows that 0.93% of adults refused to answer or indicated that they did not know how to answer the question. Total nonresponse 2 indicator shows that only 1.10% of adults selected “I don’t know the answer,” refused to answer, or answered “something else.” While the total nonresponse rates are low, they are still large relative to the percentage of adults identifying as a sexual minority. In addition, some significant differences emerged when examining the two indicators by sociodemographic characteristics.

Looking at the total nonresponse 1 indicator, adults aged 18–24 had significantly lower rates of nonresponse (0.58%) compared with those aged 25–34 (1.09%) and 45–54 (1.08%). Likewise, non-Hispanic white adults (0.77%) had a significantly lower percentage of nonresponse than Hispanic (1.27%) and non-Hispanic black (1.21%) adults. More strikingly, adults who completed the interview in a combination of English and Spanish or in a language other than English or Spanish had more than twice the rate of nonresponse (2.56%) compared with those who completed the interview in only English (0.87%) or only Spanish (1.17%). It is important to note, however, that in 2013, less than 1% of NHIS interviews were conducted in a combination of English and Spanish or some other language.

Looking at differences by education, the only statistically significant difference in nonresponse rates (total nonresponse 1) was between those without a high school diploma or GED (1.22%) and those who had completed some college (0.75%). Finally, the difference between adults residing in urban compared with rural areas reached statistical significance, whereby 0.62% of rural compared with 1.01% of urban respondents answered “I don’t know the answer” or refused to answer.

The examination of total nonresponse 2 yielded fewer significant differences by subgroup. For education, only the difference between nonresponse rates among those with less than a high school diploma or GED (1.36%) and adults with a master’s degree or higher (0.81%) was statistically significant. Despite lacking statistical significance for other pairwise comparisons of education levels, adults with higher educational attainment had lower nonresponse rates than their less-educated counterparts. The second significant difference in total nonresponse 2 rates emerged when examining the language of interview. Here, only the difference between adults who completed the interview in English (1.05%) and those who completed it in English and Spanish or some other language (2.63%) was statistically significant. Finally, a higher total nonresponse 2 rate was observed for adults residing in urban areas (1.18%) compared with adults residing in rural areas (0.78%).

Sexual Orientation Question Response Time Based on Data From NHIS

The amount of time spent on the initial sexual orientation question (not including the follow-up questions) is presented in [Table 9](#). A concern with face-to-face and telephone administration of the sexual orientation question was that certain interviewers might find this question sensitive, particularly when asking it of certain kinds of respondents (16). For example, interviewers may be less likely to ask

the question of older adults. Or, if respondents had difficulty with question terminology, this may result in longer response times. Lack of comprehension along with shortcutting of the question could lower estimates of sexual minorities, reducing the usability of the NHIS sexual orientation data.

The percentages of adults, by subgroup, that fall into one of five time groups are presented in [Table 9](#). These groups are based on quintile cut points of the weighted item time distribution, with group 1 including adults who spent the least amount of time (1–4 seconds) on the sexual orientation question and group 5 including adults who spent the most time (22 or more seconds) on the question. These two groups are the focus of this analysis and will be referred to as the shortest-time group and longest-time group, respectively.

Of greatest concern is the shortest-time group. At a very fast pace, the initial sexual orientation question could be read in about 2 seconds. However, if administered properly in the face-to-face setting, time would be needed to hand the flashcard to the respondent, have the respondent find the appropriate response, and answer. This would then prompt the interviewer to make an entry. It is unlikely that this process, administered appropriately, could be completed in less than 5 seconds. In addition, if the interviewer did not use the flashcard in the face-to-face setting or administered the survey over the telephone, the response options would need to be read. Reading all response options at a very fast pace takes about 4 seconds. While some respondents will likely interrupt this process after the appropriate response option is read, this question, regardless of mode of administration, cannot be completed in less than 5 seconds and still collect accurate data for all respondents.

Respondents spent an average of 14.4 seconds (standard error = 0.13) on the sexual orientation question, with a median of 11.0 seconds (standard error = 0.10). Individual times ranged from 1 second to 382 seconds. A small number of outlying times above 382 seconds were removed from the analysis.

The data suggest that both shortcutting of the question-and-answer

process and respondent comprehension problems may have occurred, at least among select subgroups. For example, about one-quarter (25.2%) of adults aged 65 and over were in the shortest-time group, a figure that is significantly higher than those for all other age groups. At the other end of the time distribution, a higher percentage of older adults also spent the most time on the question (24.1%) compared with other age groups, with the exception of adults aged 55–64 (22.1%). This suggests possible comprehension problems among older adults.

A similar pattern is observed for less-educated adults. Almost 24% of adults with less than a high school diploma or GED were in the shortest-time group, representing a significantly higher percentage of adults compared with all other education groups. The next highest figure was 20.0% of adults with a high school diploma or GED. At the other end of the time distribution, a significantly higher percentage of adults with less than a high school diploma or GED were in the longest-time group (23.4%) compared with adults with other education levels. Here, the next highest percentage was 19.6% of adults with some college, but no bachelor's degree.

Significant differences by race and ethnicity were found, although the magnitude of those differences is not large. A higher percentage of Hispanic adults (22.3%), for example, were in the longest-time group (group 5) compared with other racial and ethnic groups. A significantly lower percentage of non-Hispanic white adults (16.9%) compared with other racial and ethnic groups were in the shortest-time group. Sizeable differences were observed by language of interview. The percentage of adults answering in Spanish who were in the shortest-time group (31.0%) was significantly higher than the percentage of adults answering in English (17.5%), or English and Spanish, or some other language (22.5%). Considering that there is little difference in the length of the English and Spanish text for the question (English = 11 words, 54 characters; Spanish = 14 words, 57 characters), this suggests shortcutting of

the question-and-answer process among Spanish-speaking respondents.

While the time distributions look similar for men and women, and for urban and rural residents, some interesting results for sexual orientation were observed. Generally speaking, adults who identified as a sexual minority took longer to answer the question. This was especially true for adults who identified as bisexual, with 28.8% of these adults falling into the longest-time group. This figure was significantly higher than the figure for adults who identified as straight (19.3%). Also noteworthy are the time distributions for responses of “something else” and “I don't know the answer.” While the number of adults choosing these responses was rather small (Table 1), the time data suggest that these adults struggled with the question, possibly asking for clarification. For example, 59.6% of adults who answered “something else” and a similar percentage of adults answering “I don't know the answer” (53.5%) fell into the longest-time group.

What is difficult to know from these data is the extent to which the short response times were respondent-driven, interviewer-driven, or both. If interviewers did not ask the question as intended or not at all, it seems plausible that, in the absence of previous responses or environmental cues to the contrary, they would enter the modal category of straight. Sexual orientation estimates broken out by the five response time groups (data not shown) show that the percentage of straight adults is highest in the shortest-time group (group 1). In fact, the percentage of straight adults in the shortest-time group (98.4%) is significantly higher than the percentage of straight adults in the four other time groups (group 2 = 97.4%, group 3 = 96.8%, group 4 = 95.9%, longest-time group = 95.0%). These results may indicate that the short response times are related to interviewer sensitivity to the question. However, other explanations, such as the question being easier for some groups to answer than for others, are also possible.

Discussion

For NHIS, 2013 marked the first year that questions on sexual orientation were included, thereby enabling researchers and data users to examine how the prevalence of a wide variety of health conditions, health behaviors, and indicators of health care access and service use varies across categories of the sexual identity component of sexual orientation in a representative sample of the civilian noninstitutionalized U.S. adult population. This report presents a set of data quality analyses of the sexual orientation data that will enhance the ability of data users and researchers to draw conclusions about their findings.

Follow-up Questions on Sexual Orientation

The number and type of responses to the follow-up questions to the initial sexual orientation question suggested minimal classification error. Only 211 of 33,784 sample adults (less than 1%) answered “something else” or “I don't know the answer” to the initial sexual orientation question, with only seven respondents providing a follow-up response that should have been captured with the initial sexual orientation question (all seven answering heterosexual or straight to the open-ended question “What do you mean by something else?”). As demonstrated, incorporating the responses to the follow-up questions did not change the estimates of the primary sexual orientation categories. Therefore, the sexual orientation variable included on the public-use Sample Adult data file is based solely on data collected with the initial question, and the follow-up questions will no longer be asked starting with the 2015 NHIS.

Consistent with the intent of the follow-up questions, a small number of sexual minorities ($n = 5$) who identify as something other than gay/lesbian or bisexual were identified, and a number of responses reflected a sexual identity in flux (e.g., “not figured out or in the process of figuring out your sexuality”). More concerning are the 45 respondents

who indicated that they did not understand the words used with the initial sexual orientation question; if these respondents ultimately identify as a sexual minority, the estimates for gay/lesbian and bisexual could be impacted.

Cross-survey Comparisons

Response distribution of sexual orientation

Among U.S. adults aged 18 and over, 96.6% identified as straight, 1.6% as gay/lesbian, 0.7% as bisexual, and 0.2% as something else. In addition, 0.6% of adults refused to answer the question on sexual orientation, while 0.4% did not know how to answer the question. When examining these rates separately for men and women, there were only two differences: A higher percentage of men identified as gay, while a higher percentage of women identified as bisexual.

The distribution of adult sexual orientation differs between NHIS and other national surveys. A higher percentage of adults identified as gay or lesbian in NHIS compared with NHANES, and a higher percentage of women identified as gay or lesbian in NHIS compared with NSFG. Overall and regardless of sex, however, the percentage of adults who identified as bisexual in NHIS was considerably lower than in NHANES and NSFG. Extending the reach of these comparisons to other national and subnational surveys, the percentage of adults who identified as gay or lesbian was 1.7% in the 2008 General Social Survey (GSS) and 1.8% in the 2009 California Health Interview Survey (CHIS) (17). These figures are very similar to those reported here for NHIS. The NHIS bisexual estimate (0.7%), while lower, is more consistent with the GSS (1.1%) and CHIS (1.4%) compared with either NSFG or NHANES.

A complete examination of the reasons for these differences in estimates, especially for adults identifying as bisexual, is beyond the scope of this report. However, variations in question wording and survey design

(e.g., mode of administration, survey content, and placement of the sexual orientation survey question), as well as differences in survey time periods, are all possible contributing factors. In all three surveys, different wording is used for the initial survey question that asks about sexual orientation. For example, NHANES provides additional text with each of the main response categories that intertwines sexual identity with sexual attraction (e.g., “homosexual or lesbian, that is, sexually attracted only to women”). In addition, the terms “heterosexual” and “homosexual” are used in the response options for the sexual orientation survey questions in both NSFG and NHANES. NHIS did not define sexual orientation by sexual attraction, and did not use the terms heterosexual and homosexual based on results from the extensive cognitive interviewing (3).

As for context within the survey, NSFG asks numerous questions on sexual behavior and attraction immediately before asking the respondent about sexual orientation. NHANES also asks questions about sexual behavior before asking the respondent about sexual orientation. This context may induce consistency in which responses to the later survey question on the sexual identity aspect of sexual orientation are brought into line with responses given to earlier questions on behavior and attraction, known as correlational context effects (18–20). This could happen in at least two ways. First, the sexual orientation measure may be capturing a more fluid, subjective conception that is influenced by the context of the question, particularly if the context includes questions about sexual behavior. For example, an NSFG or NHANES respondent who usually thinks of himself or herself as straight, but whose past experiences include both same-sex and opposite-sex sexual behaviors (a topic addressed just before the sexual orientation question), may question or change his or her self-conception to match the just-reported behaviors. Second, some respondents may answer the sexual orientation question in a way that maintains consistency between this answer and earlier answers to questions

on sexual behaviors because it is assumed that the survey researchers value consistency in responses. With these mechanisms in mind, and depending on the extent of bisexual relations that the NSFG and NHANES behavior questions uncovered (especially when these questions are administered in each survey using ACASI), this may partially explain the higher percentage of adults who identify as bisexual in NSFG and NHANES (11). Contrast this with the context of the NHIS sexual orientation question, which follows questions on satisfaction with healthcare, neighborhood tenure, and neighborhood attachment.

Finally, in addition to wording and context differences, the survey question(s) on sexual orientation are also administered using ACASI in both NHANES and NSFG, in contrast to face-to-face interviewing (with some follow-up interviewing by telephone) in NHIS. However, extensive field testing of the NHIS sexual orientation question failed to identify significant differences in sexual orientation estimates between ACASI and CAPI (21).

Sexual orientation and health

The extent to which associations between sexual orientation and health were consistent across surveys was also examined. Analyses were conducted to compare patterns of relationships between sexual orientation and a small set of comparable health outcomes in the 2013 NHIS and the 2006–2010 NSFG. Most associations between sexual orientation and health were similar across the two surveys, and where a significant association was identified in one survey, but not the other, the pattern or direction of the association was sometimes consistent. In many ways, differences in findings across the surveys should not be surprising, especially given the design differences noted previously (i.e., wording variations, question context, and mode of administration), as well as the differences in time periods. For example, although a consistent pattern of significant association between sexual orientation and obesity was found in the two surveys, this pattern differs from the

one found in research using an earlier wave of NSFG which used a different question (22). Similarly, although no significant difference was found in the percentage between men aged 18–44 who identified as bisexual and those who identified as straight who had ever been tested for HIV in either NHIS or NSFG, research using an earlier wave of NSFG with a different question did find a difference in this variable between these two groups of men (23).

The consistency of the associations across the two surveys examined in this report, despite the differences between the surveys, is notable. For example, although overall estimates of obesity and ever being tested for HIV, regardless of sexual orientation, appear to be different between NHIS and NSFG, the sexual orientation association patterns were the same across surveys for both men and women for obesity, and for men for HIV testing.

Item Nonresponse

Item nonresponse to the initial sexual orientation question was low. Only 0.55% of respondents refused to answer, and even fewer respondents (0.38%) answered “I don’t know the answer.” Combined, these two nonresponse categories accounted for only 0.93% of respondents to the initial sexual orientation question. Treating responses of “something else” as missing increased the nonresponse rate to just 1.10%.

Although the nonresponse rates were low and differentials by demographic category were reduced compared with other sexual orientation questions (10), analyses revealed some differences by subgroup. For example, when looking at the combination of “something else,” “I don’t know the answer,” and refused responses (total nonresponse 2), adults with less than a high school education or GED had a significantly higher nonresponse rate (1.36%) compared with adults with at least a master’s degree (0.81%). Significant differences were also observed for the measure of urbanicity, with urban residents having more item nonresponse (1.18%) than rural residents (0.78%). It is important to note,

however, that only one subgroup, respondents answering in English and Spanish or some other language, had a total nonresponse rate greater than 2%. Examination of the individual categories of nonresponse and the total nonresponse indicators showed little evidence that many respondents found the questions to be particularly sensitive or hard to answer.

As for potential nonresponse bias with the sexual orientation data, nonresponse to the sexual orientation question was consistently low across subgroups, suggesting that the differential rates of nonresponse are of insufficient magnitude to seriously bias survey findings. However, given the very low percentage of adults identifying as gay/lesbian and bisexual, if nonresponse to the question is related to respondents’ sexual orientation (a case of nonignorable nonresponse) (24), the potential for bias in estimates of sexual minorities remains. And while overall nonresponse to the sexual orientation question is low, it is still large relative to the percentage of adults identifying as a sexual minority.

Item Response Times

Time analyses revealed some evidence of shortcutting of the question-and-answer process for the sexual orientation question. This was especially the case for older adults, less-educated adults, and adults answering in Spanish. As noted earlier, some of this may be due to interviewers’ sensitivity toward asking this question. If so, interviewers may lead respondents to the modal category of straight or simply make assumptions about the respondent’s sexual orientation based on responses to other survey questions. The extent to which this may be depressing the estimate of sexual minorities is unknown. To address any shortcutting that might be occurring, NHIS interviewer training will emphasize the importance of asking the sexual orientation question of all adults and reading the question as worded. Continued monitoring and training will be performed.

Many of the same subgroups emerged at the other end of the time

distribution, including less-educated and older adults. Here, the findings for age and education are consistent with other studies (14,25) that have found older and less-educated respondents to take, on average, longer to respond to survey questions than younger and more-educated respondents. This is often attributed to less working memory capacity among these respondents (26,27). Focusing on the relationship between item response times and sexual orientation reporting among adults aged 65 and over (data not shown), the slowest respondents provided answers such as “something else,” “I don’t know the answer,” or refused to answer. The same is observed for less-educated adults. Consistent with work by Draisma and Dijkstra (28), this is suggestive of cognitive difficulty and uncertainty over how to answer the sexual orientation question.

Finally, the longer response times observed for non-English-speaking respondents may be due to translation issues. The NHIS CAPI instrument is only programmed in English and Spanish. For sample adult interviews conducted in other languages, a bilingual interviewer translates the questions on the spot, a practice that likely adds time to the question-and-answer process. In NHIS, the most common languages of interview other than English and Spanish are Chinese (Cantonese and Mandarin), Korean, and Vietnamese. Future consideration may be given to translating the survey instrument into these languages.

Conclusions

While it appears that the NHIS sexual orientation data are sufficiently robust to support a wide array of analyses, including explorations of health outcomes by sexual orientation, there are still limitations of the data. Because the percentage of the U.S. adult civilian noninstitutionalized population that identifies as a sexual minority is small, there is a heightened risk of generating unreliable estimates when exploring the health of the sexual minority population. Researchers and

NHIS data users should be careful not to draw conclusions from statistically unreliable estimates based on small sample sizes. Multiple years of NHIS data may need to be collected and aggregated to yield more reliable estimates for select analyses.

References

- Institute of Medicine. The health of lesbian, gay, bisexual, and transgender people: Building a foundation for better understanding. Washington, DC: National Academies Press. 2011.
- U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion. Healthy People 2020. Washington, DC. Available from: <http://www.healthypeople.gov/2020/default.aspx>.
- Miller K, Ryan JM. Design, development and testing of the NHIS sexual identity question. Hyattsville, MD: National Center for Health Statistics. 2011. Available from: http://www.cdc.gov/qbank/report/Miller_NCHS_2011_NHIS%20Sexual%20Identity.pdf.
- Blackwell DL, Lucas JW, Clarke TC. Summary health statistics for U.S. adults: National Health Interview Survey, 2012. National Center for Health Statistics. Vital Health Stat 10(260). 2014.
- National Center for Health Statistics. 2013 National Health Interview Survey (NHIS) public use data release survey description. 2014. Available from: http://www.cdc.gov/nchs/nhis/quest_data_related_1997_forward.htm.
- National Center for Health Statistics. 2006–2010 National Survey of Family Growth public use data file documentation: User's guide. 2011.
- Johnson CL, Dohrmann SM, Burt VL, Mohadjer LK. National Health and Nutrition Examination Survey: Sample design, 2011–2014. National Center for Health Statistics. Vital Health Stat 2(162). 2014.
- Miller K. Cognitive testing of the NHANES sexual orientation questions. Hyattsville, MD: National Center for Health Statistics. 2011. Available from: http://www.cdc.gov/qbank/report/Miller_NCHS_2001NHANESSexualityReport.pdf.
- Ridolfo H, Perez K, Miller K. Testing of sexual identity and health related questions: Results of interviews conducted May–July 2005. Hyattsville, MD: National Center for Health Statistics. 2011. Available from: http://www.cdc.gov/qbank/report/Ridolfo_NCHS_2011_NCHS_SexualityMeasures.pdf.
- Ridolfo H, Miller K, Maitland A. Measuring sexual identity using survey questionnaires: How valid are our measures? Sex Res Soc Policy 9(2):113–24. 2012.
- Chandra A, Mosher WD, Copen C, Sionean C. Sexual behavior, sexual attraction, and sexual identity in the United States: Data from the 2006–2008 National Survey of Family Growth. National health statistics reports; no 36. Hyattsville, MD: National Center for Health Statistics. 2011.
- Chandra A, Billioux VG, Copen CE, et al. HIV testing in the U.S. household population aged 15–44: Data from the National Survey of Family Growth, 2006–2010. National health statistics reports; no 58. Hyattsville, MD: National Center for Health Statistics. 2012.
- Tourangeau R, Yan T. Sensitive questions in surveys. Psychol Bull 133(5):859–83. 2007.
- Yan T, Olson K. Analyzing paradata to investigate measurement error. In: Kreuter F (ed.). Improving surveys with paradata: Analytic uses of process information. Hoboken, NJ: John Wiley & Sons, Inc. 73–95. 2013.
- Yan T, Tourangeau R. Fast times and easy questions: The effects of age, experience and question complexity on web survey response times. Appl Cogn Psychol 22(1):51–68. 2008.
- Pickery J, Loosveldt G. An exploration of question characteristics that mediate interviewer effects on item nonresponse. J Off Stat 17(3):337–50. 2001.
- Gates GJ. How many people are lesbian, gay, bisexual, and transgender? Los Angeles, CA: The Williams Institute of the University of California, Los Angeles School of Law. 2011.
- Schuman H, Presser S. Questions and answers in attitude surveys: Experiments on question form, wording, and context (quantitative studies in social relation). Thousand Oaks, CA: Sage Publications. 1996.
- Tourangeau R, Rips LJ, Rasinski K. The psychology of survey response. New York, NY: Cambridge University Press. 2000.
- Feldman JM. Constructive processes as a source of context effects in survey research: Explorations in self-generated validity. In: Schwarz N, Sudman S (eds.). Context effects in social and psychological research. New York, NY: Springer-Verlag New York, Inc. 49–62. 1992.
- Dahlhamer J. Asking about sexual identity in the National Health Interview Survey: Does mode matter? Presentation to the National Center for Health Statistics Board of Scientific Counselors. February 7, 2013.
- Boehmer U, Bowen DJ, Bauer GR. Overweight and obesity in sexual-minority women: Evidence from population-based data. Am J Public Health 97(6):1134–40. 2007.
- Jeffries WL 4th. HIV testing among bisexual men in the United States. AIDS Educ Prev 22(4):356–70. 2010.
- Little RJA, Rubin DB. Statistical analysis with missing data. New York, NY: John Wiley & Sons, Inc. 1987.
- Fricker S, Galesic M, Tourangeau R, Yan T. An experimental comparison of Web and telephone surveys. Public Opin Q 69(3):370–92. 2005.
- Just MA, Carpenter PA. A capacity theory of comprehension: Individual differences in working memory. Psychol Rev 99(1):122–49. 1992.
- Salthouse TA. Theoretical perspectives on cognitive aging. Hillsdale, NJ: Lawrence Erlbaum Associates. 1991.
- Draisma S, Dijkstra W. Response latency and (para)linguistic expressions as indicators of response error. In: Presser S, Rothgeb JM, Couper MP, Lessler JT, Martin E, Martin J, Singer E (eds.). Methods for testing and evaluating survey questionnaires. Hoboken, NJ: John Wiley & Sons, Inc. 131–47. 2004.

Table 1. Sexual orientation among adults aged 18 and over, by sex: United States, 2013

Sexual orientation	Both sexes		Men		Women	
	Number (in thousands)	Percent ¹ (standard error)	Number (in thousands)	Percent ¹ (standard error)	Number (in thousands)	Percent ¹ (standard error)
Gay/lesbian ²	3,729	1.6 (0.09)	2,000	1.8 (0.14)	1,729	1.4 (0.12)
Straight ³	224,168	96.6 (0.13)	108,093	96.7 (0.18)	116,075	96.6 (0.18)
Bisexual	1,514	0.7 (0.06)	481	0.4 (0.06)	1,033	0.9 (0.10)
Something else.	400	0.2 (0.03)	196	0.2 (0.05)	204	*0.2 (0.05)
Refused	1,277	0.6 (0.05)	600	0.5 (0.07)	677	0.6 (0.06)
I don't know the answer	879	0.4 (0.04)	411	0.4 (0.06)	468	0.4 (0.06)

* Estimates have a relative standard error greater than 30% and less than or equal to 50% and should be used with caution as they do not meet standards of reliability or precision.

¹Percent distributions in this table may not equal exactly 100% due to rounding.

²Response option provided on the National Health Interview Survey was "gay" for men, and "lesbian or gay" for women.

³Response option provided on the National Health Interview Survey was "straight, that is, not gay" for men, and "straight, that is not lesbian or gay" for women.

SOURCE: CDC/NCHS, National Health Interview Survey, 2013.

Table 2. Follow-up responses among adults aged 18 and over who answered “something else” to the initial question on sexual orientation, by sex: National Health Interview Survey, 2013

Response	Both sexes		Men		Women	
	Number ¹	Percent ²	Number ¹	Percent ²	Number ¹	Percent ²
Total	56	100.0	29	100.0	27	100.0
Gay/lesbian	0	0.0	0	0.0	0	0.0
Straight, that is, not lesbian or gay	3	5.4	3	10.3	0	0.0
Bisexual	0	0.0	0	0.0	0	0.0
Identify with another label such as queer, trisexual, omnisexual, or pansexual.	2	3.6	0	0.0	2	7.4
Transgender, transsexual, or gender variant	3	5.4	1	3.4	2	7.4
Not figured out or are in the process of figuring out sexuality	3	5.4	3	10.3	0	0.0
Do not think of yourself as having sexuality	10	17.9	4	13.8	6	22.2
Do not use labels to identify yourself	22	39.3	12	41.4	10	37.0
Something else	4	7.1	3	10.3	1	3.7
Don't understand the words	1	1.8	0	0.0	1	3.7
Refused	6	10.7	2	6.9	4	14.8
Don't know	2	3.6	1	3.5	1	3.7

¹Unweighted frequency count.²Percent distribution is unweighted and rounded.

SOURCE: CDC/NCHS, National Health Interview Survey, 2013.

Table 3. Follow-up responses among adults aged 18 and over who answered “I don’t know the answer” to the initial question on sexual orientation, by sex: National Health Interview Survey, 2013

Response	Both sexes		Men		Women	
	Number ¹	Percent ²	Number ¹	Percent ²	Number ¹	Percent ²
Total	154	100.0	75	100.0	79	100.0
Gay/lesbian	0	0.0	0	0.0	0	0.0
Straight, that is, not lesbian or gay	4	2.6	1	1.3	3	3.8
Bisexual	0	0.0	0	0.0	0	0.0
Identify with another label such as queer, trisexual, omnisexual, or pansexual.	0	0.0	0	0.0	0	0.0
Transgender, transsexual, or gender variant	0	0.0	0	0.0	0	0.0
Not figured out or are in the process of figuring out sexuality	46	29.9	23	30.7	23	29.1
Do not think of yourself as having sexuality.	1	0.6	0	0.0	1	1.3
Do not use labels to identify yourself.	4	2.6	3	4.0	1	1.3
Something else	8	5.2	7	9.3	1	1.3
Don’t understand the words	44	28.6	14	18.7	30	38.0
Refused	22	14.3	14	18.7	8	10.1
Don’t know.	25	16.2	13	17.3	12	15.2

¹Unweighted frequency count.²Percent distribution is unweighted and rounded.

SOURCE: CDC/NCHS, National Health Interview Survey, 2013.

Table 4. Sexual orientation among adults aged 18 and over before and after backcoding using responses to the follow-up questions on sexual orientation, by sex: United States, 2013

Sexual orientation	Both sexes		Men		Women	
	Number ¹	Percent ² (standard error)	Number ¹	Percent ² (standard error)	Number ¹	Percent ² (standard error)
Before backcoding						
Gay/lesbian ³	571	1.6 (0.09)	320	1.8 (0.14)	251	1.4 (0.12)
Straight ⁴	32,546	96.6 (0.13)	14,495	96.7 (0.18)	18,051	96.6 (0.18)
Bisexual	233	0.7 (0.06)	78	0.4 (0.06)	155	0.9 (0.10)
Something else	56	0.2 (0.03)	29	0.2 (0.05)	27	*0.2 (0.05)
Refused.	223	0.6 (0.05)	97	0.5 (0.07)	126	0.6 (0.06)
I don't know the answer.	155	0.4 (0.04)	76	0.4 (0.06)	79	0.4 (0.06)
After backcoding						
Gay/lesbian ³	571	1.6 (0.09)	320	1.8 (0.14)	251	1.4 (0.12)
Straight ⁴	32,553	96.7 (0.13)	14,499	96.7 (0.18)	18,054	96.6 (0.18)
Bisexual	233	0.7 (0.06)	78	0.4 (0.06)	155	0.9 (0.10)
Something else	54	0.2 (0.03)	30	0.2 (0.05)	24	*0.1 (0.05)
Refused.	251	0.6 (0.05)	113	0.6 (0.07)	138	0.6 (0.07)
I don't know the answer.	121	0.3 (0.04)	54	0.3 (0.05)	67	0.4 (0.06)

* Estimates have a relative standard error greater than 30% and less than or equal to 50% and should be used with caution as they do not meet standards of reliability or precision.

¹Unweighted frequency count.

²Percent distribution is weighted and rounded.

³Response option provided on the National Health Interview Survey was "gay" for men, and "lesbian or gay" for women.

⁴Response option provided on the National Health Interview Survey was "straight, that is, not gay" for men, and "straight, that is, not lesbian or gay" for women.

SOURCE: CDC/NCHS, National Health Interview Survey, 2013.

Table 5. Sexual orientation among adults, by national health survey, sex, and age group

Characteristic	Homosexual, gay, or lesbian ¹	Heterosexual or straight ²	Bisexual ³	Something else	Refused	Don't know ⁴
Adults aged 18–59			Percent ⁵ (standard error)			
NHIS (2013), both sexes	1.9 (0.12)	96.2 (0.16)	0.8 (0.08)	0.2 (0.04)	0.5 (0.06)	0.4 (0.05)
NHANES (2009–2012), both sexes.	1.8 (0.37)	93.6 (0.52)	2.6 (0.20)	0.4 (0.09)	0.2 (0.05)	1.3 (0.16)
NHIS (2013), men	2.1 (0.18)	96.3 (0.23)	0.5 (0.08)	*0.1 (0.05)	0.6 (0.09)	0.4 (0.06)
NHANES (2009–2012), men.	2.3 (0.61)	94.9 (0.71)	1.4 (0.19)	*0.3 (0.10)	*0.2 (0.08)	0.9 (0.15)
NHIS (2013), women	1.7 (0.15)	96.1 (0.23)	1.1 (0.13)	*0.2 (0.07)	0.5 (0.07)	0.4 (0.08)
NHANES (2009–2012), women	1.3 (0.35)	92.2 (0.59)	3.9 (0.31)	0.5 (0.14)	0.2 (0.05)	1.8 (0.23)
Adults aged 18–44						
NHIS (2013), both sexes	1.9 (0.14)	96.0 (0.21)	1.1 (0.11)	*0.2 (0.07)	0.4 (0.06)	0.4 (0.07)
NSFG (2006–2010), both sexes.	1.5 (0.14)	94.6 (0.27)	2.6 (0.16)	0.3 (0.06)	0.6 (0.10)	0.4 (0.06)
NHIS (2013), men	2.1 (0.22)	96.4 (0.29)	0.6 (0.11)	*0.2 (0.08)	0.5 (0.10)	0.3 (0.08)
NSFG (2006–2010), men.	1.8 (0.22)	95.6 (0.36)	1.2 (0.15)	*0.2 (0.08)	0.8 (0.16)	0.4 (0.10)
NHIS (2013), women	1.7 (0.19)	95.7 (0.31)	1.5 (0.20)	*0.3 (0.11)	0.4 (0.07)	0.5 (0.11)
NSFG (2006–2010), women	1.2 (0.17)	93.6 (0.39)	3.9 (0.28)	0.4 (0.09)	0.5 (0.10)	0.4 (0.07)

* Estimates have a relative standard error greater than 30% and less than or equal to 50% and should be used with caution as they do not meet standards of reliability or precision.

¹In NHIS, the response option provided was “gay” for men, and “lesbian or gay” for women. In NHANES, the response option provided was “homosexual or gay (that is, sexually attracted only to men)” for men, and “homosexual or lesbian (that is, sexually attracted only to women)” for women. In NSFG, the response option provided was “homosexual or gay” for men, and “homosexual, gay, or lesbian” for women.

²In NHIS, the response option provided was “straight, that is, not gay” for men, and “straight, that is, not lesbian or gay” for women. In NHANES, the response option provided was “heterosexual or straight (that is, sexually attracted only to women)” for men, and “heterosexual or straight (that is, sexually attracted only to men)” for women. In NSFG, the response option provided was “heterosexual or straight.”

³In NHIS and NSFG, the response option provided was “bisexual.” In NHANES, the response option provided was “bisexual (that is, sexually attracted to men and women).”

⁴In NHIS, the response option provided was “I don't know the answer.” In NHANES, this category includes both “You're not sure” and “don't know.”

⁵Percent distributions in this table may not equal exactly 100% due to rounding.

NOTES: NHIS is National Health Interview Survey; NHANES is National Health and Nutrition Examination Survey; NSFG is National Survey of Family Growth.

SOURCES: CDC/NCHS, National Health Interview Survey, 2013; CDC/NCHS, National Health and Nutrition Examination Survey, 2009–2012; CDC/NCHS, National Survey of Family Growth, 2006–2010.

Table 6. Selected health indicators among men aged 18–44, by national health survey and sexual orientation

Selected health indicator ¹	NHIS, 2013			NSFG, 2006–2010		
	Gay ²	Straight ³	Bisexual	Gay ²	Straight ³	Bisexual
Health status			Percent ⁴ (standard error)			
Described as excellent or very good	69.2 (4.95)	72.5 (0.72)	71.7 (8.57)	62.4 (5.27)	69.9 (0.93)	53.4 (6.46)
Body mass index						
Obese ⁵	20.4 (4.12)	27.4 (0.81)	*20.6 (6.73)	32.5 (5.78)	32.0 (1.09)	22.8 (6.43)
Health care access						
Has a usual place to go for medical care	73.9 (5.10)	69.0 (0.80)	75.0 (7.39)	85.2 (3.06)	67.3 (1.04)	64.8 (6.59)
Type of usual place of care						
Clinic or health center	16.2 (3.75)	26.2 (0.88)	51.4 (11.79)	12.0 (2.67)	16.9 (1.41)	*29.4 (9.04)
Doctor's office or HMO ⁶	78.1 (4.50)	68.1 (0.93)	44.7 (11.66)	79.6 (4.17)	70.2 (1.54)	60.1 (8.71)
Other ⁷	†	5.7 (0.46)	†	*8.4 (2.93)	12.9 (0.76)	*10.5 (3.61)
Health care service use						
Ever been tested for HIV ⁸	78.9 (4.59)	36.8 (0.80)	41.5 (9.36)	82.5 (3.87)	45.6 (0.98)	58.6 (7.29)

* Estimates have a relative standard error greater than 30% and less than or equal to 50% and should be used with caution as they do not meet standards of reliability or precision.

† Estimates with a relative standard error greater than 50% are not shown.

¹Selected health indicators were chosen based on survey questions that were comparable across both NHIS and NSFG. Definitions of selected health measures can be found in the Appendix.

²In NHIS, the response option provided is "gay." In NSFG, the response option provided is "homosexual or gay."

³In NHIS, the response option provided is "straight, that is, not gay." In NSFG, the response option provided is "heterosexual or straight."

⁴Percentages in this table are rounded.

⁵Only calculated for men aged 20–44.

⁶HMO is health maintenance organization.

⁷In NHIS, this category includes "hospital outpatient department," "some other place," and "doesn't go to one place most often." In NSFG, this category includes "hospital outpatient clinic," "hospital regular room," "urgent care center, urgi-care, or walk-in facility," or "some other place."

⁸Estimates from NSFG were generated using the imputed version of the variable for "ever been tested for HIV."

NOTES: NHIS is National Health Interview Survey; NSFG is National Survey of Family Growth.

SOURCES: CDC/NCHS, National Health Interview Survey, 2013; CDC/NCHS, National Survey of Family Growth, 2006–2010.

Table 7. Selected health indicators among women aged 18–44, by national health survey and sexual orientation

Selected health indicator ¹	NHIS, 2013			NSFG, 2006–2010		
	Gay/lesbian ²	Straight ³	Bisexual	Gay/lesbian ²	Straight ³	Bisexual
Health status						
Percent ⁴ (standard error)						
Described as excellent or very good	56.1 (5.65)	71.1 (0.70)	61.4 (5.97)	59.8 (5.68)	66.8 (0.84)	51.8 (3.71)
Body mass index						
Obese ⁵	36.5 (5.71)	26.2 (0.69)	39.0 (6.43)	32.6 (4.99)	32.6 (0.91)	42.7 (3.65)
Health care access						
Has a usual place to go for medical care	65.5 (5.42)	80.9 (0.60)	69.7 (5.95)	61.0 (8.33)	83.7 (0.73)	76.8 (3.68)
Type of usual place of care						
Clinic or health center	32.6 (6.10)	27.3 (0.82)	43.1 (7.41)	*11.6 (4.40)	16.2 (1.37)	24.7 (4.07)
Doctor's office or HMO ⁶	63.6 (6.38)	69.7 (0.83)	54.9 (7.41)	77.2 (5.31)	77.1 (1.72)	67.4 (4.32)
Other ⁷	†	3.1 (0.27)	†	*11.3 (4.25)	6.6 (0.70)	*8.0 (2.63)
Health care service use						
Ever been tested for HIV ⁸	60.0 (5.58)	54.5 (0.79)	54.9 (6.51)	67.0 (5.63)	63.5 (1.11)	73.2 (3.05)

* Estimates have a relative standard error greater than 30% and less than or equal to 50% and should be used with caution as they do not meet standards of reliability or precision.

† Estimates with a relative standard error greater than 50% are not shown.

¹Selected health indicators were chosen based on survey questions that were comparable across both NHIS and NSFG. Definitions of selected health measures can be found in the Appendix.

²In NHIS, the response option provided is "lesbian or gay." In NSFG, the response option provided is "homosexual, gay, or lesbian."

³In NHIS, the response option provided is "straight, that is, not lesbian or gay." In NSFG, the response option provided is "heterosexual or straight."

⁴Percentages in this table are rounded.

⁵Only calculated for nonpregnant women aged 20–44.

⁶HMO is health maintenance organization.

⁷In NHIS, this category includes "hospital outpatient department," "some other place," and "doesn't go to one place most often." In NSFG, this category includes "hospital outpatient clinic," "hospital regular room," "urgent care center, urgi-care, or walk-in facility," or "some other place."

⁸Estimates from NSFG were generated using the imputed version of the variable for "ever been tested for HIV."

NOTES: NHIS is National Health Interview Survey; NSFG is National Survey of Family Growth.

SOURCES: CDC/NCHS, National Health Interview Survey, 2013; CDC/NCHS, National Survey of Family Growth, 2006–2010.

Table 8. Item nonresponse rates for the initial sexual orientation question, by selected characteristics: United States, 2013

Selected characteristic	Refused	I don't know the answer	Something else	Refused or I don't know the answer (total nonresponse 1)	Refused, I don't know the answer, or something else (total nonresponse 2)
	Percent ¹ (standard error)				
Total	0.55 (0.05)	0.38 (0.04)	0.17 (0.03)	0.93 (0.06)	1.10 (0.07)
Sex					
Female	0.56 (0.06)	0.39 (0.06)	0.17 (0.05)	0.95 (0.09)	1.12 (0.10)
Male	0.54 (0.07)	0.37 (0.06)	0.18 (0.05)	0.90 (0.09)	1.08 (0.10)
Age					
18–24	0.21 (0.07)	*0.37 (0.15)	†	0.58 (0.17)	0.90 (0.26)
25–34	0.49 (0.11)	0.61 (0.14)	0.13 (0.05)	1.09 (0.17)	1.22 (0.18)
35–44	0.55 (0.12)	0.21 (0.05)	0.23 (0.09)	0.75 (0.13)	0.99 (0.15)
45–54	0.73 (0.13)	0.34 (0.08)	0.08 (0.04)	1.08 (0.16)	1.16 (0.16)
55–64	0.62 (0.13)	0.39 (0.09)	0.17 (0.06)	1.01 (0.16)	1.19 (0.17)
65 and over	0.60 (0.11)	0.35 (0.09)	0.14 (0.05)	0.95 (0.14)	1.09 (0.15)
Race and ethnicity					
Hispanic	0.58 (0.12)	0.69 (0.13)	0.05 (0.03)	1.27 (0.17)	1.32 (0.18)
Non-Hispanic white	0.48 (0.06)	0.29 (0.05)	0.19 (0.05)	0.77 (0.07)	0.96 (0.09)
Non-Hispanic black or African American	0.86 (0.16)	0.35 (0.13)	0.17 (0.05)	1.21 (0.20)	1.38 (0.21)
Non-Hispanic other ²	0.63 (0.16)	0.59 (0.17)	0.22 (0.11)	1.23 (0.23)	1.45 (0.26)
Education					
Less than high school diploma	0.42 (0.10)	0.80 (0.16)	0.14 (0.06)	1.22 (0.19)	1.36 (0.19)
High school diploma or GED ³	0.60 (0.10)	0.41 (0.09)	0.11 (0.04)	1.01 (0.13)	1.12 (0.14)
Some college	0.53 (0.08)	0.22 (0.06)	0.32 (0.10)	0.75 (0.10)	1.07 (0.14)
Bachelor's degree	0.57 (0.11)	0.28 (0.07)	0.10 (0.04)	0.85 (0.13)	0.95 (0.14)
Master's degree or higher	0.48 (0.15)	0.26 (0.12)	0.07 (0.04)	0.74 (0.19)	0.81 (0.19)
Language of interview					
English	0.55 (0.05)	0.32 (0.04)	0.18 (0.04)	0.87 (0.06)	1.05 (0.07)
Spanish	*0.50 (0.18)	*0.67 (0.24)	†	1.17 (0.30)	1.28 (0.32)
Other ⁴	*0.67 (0.31)	1.89 (0.54)	†	2.56 (0.62)	2.63 (0.63)
Urbanicity					
Urban	0.59 (0.06)	0.41 (0.05)	0.18 (0.04)	1.01 (0.07)	1.18 (0.09)
Rural	0.38 (0.09)	0.24 (0.08)	0.15 (0.07)	0.62 (0.13)	0.78 (0.14)

* Estimates have a relative standard error greater than 30% and less than or equal to 50% and should be used with caution as they do not meet standards of reliability or precision.

† Estimates with a relative standard error greater than 50% are not shown.

¹Percentages in this table are weighted and rounded.

²Non-Hispanic other includes those who identified as American Indian or Alaska Native, Asian, Native Hawaiian or Other Pacific Islander, or more than one race.

³GED is General Educational Development high school equivalency diploma.

⁴Other language of interview includes bilingual interviews conducted in both English and Spanish.

SOURCE: CDC/NCHS, National Health Interview Survey, 2013.

Table 9. Distribution of item response times to the initial sexual orientation question, by selected characteristics: United States, 2013

Selected characteristic ²	Number (in thousands)	Item response time distribution ¹				
		Group 1 (1–4 seconds)	Group 2 (5–9 seconds)	Group 3 (10–13 seconds)	Group 4 (14–21 seconds)	Group 5 (22+ seconds)
		Percent ³ (standard error)				
Overall	231,584	18.1 (0.48)	21.0 (0.37)	20.6 (0.39)	20.8 (0.37)	19.6 (0.40)
Sexual orientation						
Gay/lesbian ⁴	3,716	8.5 (1.76)	23.3 (2.25)	22.3 (2.29)	25.6 (2.40)	20.3 (2.31)
Straight ⁵	223,740	18.4 (0.49)	21.2 (0.38)	20.6 (0.40)	20.6 (0.37)	19.3 (0.40)
Bisexual	1,491	*2.7 (1.14)	7.8 (1.96)	25.6 (3.65)	35.2 (4.41)	28.8 (4.09)
Something else	400	---	†	†	*20.5 (6.49)	59.6 (10.24)
Refused	1,252	23.9 (3.91)	20.8 (3.47)	10.3 (2.31)	16.7 (3.12)	28.3 (4.04)
I don't know the answer	875	†	*4.6 (1.80)	12.8 (3.35)	28.7 (4.97)	53.5 (5.31)
Sex						
Male	111,558	18.1 (0.55)	22.4 (0.51)	21.0 (0.51)	19.9 (0.48)	18.7 (0.49)
Female	120,027	18.2 (0.55)	19.7 (0.43)	20.1 (0.48)	21.5 (0.45)	20.4 (0.49)
Age						
18–24	29,692	13.5 (0.85)	24.8 (1.06)	25.9 (1.18)	20.8 (1.01)	14.9 (0.91)
25–34	40,723	14.8 (0.70)	24.3 (0.75)	23.8 (0.86)	20.6 (0.71)	16.6 (0.70)
35–44	38,786	16.8 (0.74)	22.4 (0.77)	21.4 (0.71)	21.5 (0.72)	17.9 (0.68)
45–54	42,205	17.8 (0.78)	20.2 (0.75)	19.9 (0.74)	21.6 (0.75)	20.4 (0.80)
55–64	37,911	18.9 (0.79)	18.4 (0.72)	19.2 (0.71)	21.4 (0.75)	22.1 (0.78)
65 and over	42,268	25.2 (0.84)	17.0 (0.62)	14.8 (0.57)	18.9 (0.62)	24.1 (0.73)
Race or ethnicity						
Hispanic	34,872	21.5 (0.81)	20.6 (0.74)	17.1 (0.70)	18.6 (0.66)	22.3 (0.79)
Non-Hispanic white	153,115	16.9 (0.56)	20.9 (0.48)	21.6 (0.47)	21.4 (0.48)	19.1 (0.50)
Non-Hispanic black or African American	26,553	19.5 (1.07)	21.2 (0.83)	19.8 (0.88)	20.6 (0.75)	19.0 (0.89)
Non-Hispanic other ⁶	17,044	20.1 (1.12)	22.1 (1.24)	19.0 (1.03)	19.5 (1.13)	19.3 (1.11)
Education						
Less than high school diploma	31,685	23.7 (0.90)	18.9 (0.78)	15.7 (0.82)	18.3 (0.75)	23.4 (0.83)
High school diploma or GED ⁷	60,015	20.0 (0.75)	21.1 (0.65)	19.5 (0.65)	20.2 (0.62)	19.1 (0.65)
Some college	71,208	16.1 (0.61)	20.8 (0.60)	22.0 (0.65)	21.5 (0.61)	19.6 (0.62)
Bachelor's degree	44,284	16.3 (0.68)	22.6 (0.72)	22.6 (0.73)	20.6 (0.69)	17.9 (0.69)
Master's degree or higher	23,379	14.6 (0.86)	21.2 (0.92)	21.7 (0.95)	23.4 (0.97)	19.0 (0.94)
Language of interview						
English	217,047	17.5 (0.50)	21.1 (0.39)	21.3 (0.41)	21.2 (0.39)	19.0 (0.41)
Spanish	7,991	31.0 (1.69)	19.8 (1.30)	9.6 (1.07)	12.8 (1.00)	26.8 (1.58)
Other ⁸	6,538	22.5 (1.82)	20.4 (1.78)	9.9 (1.27)	16.4 (1.52)	30.9 (2.07)
Urbanicity						
Urban	185,071	17.9 (0.48)	21.4 (0.39)	20.7 (0.41)	20.8 (0.39)	19.3 (0.40)
Rural	46,513	19.1 (1.21)	19.4 (0.78)	20.0 (0.88)	20.7 (0.82)	20.8 (0.99)

* Estimates have a relative standard error greater than 30% and less than or equal to 50% and should be used with caution as they do not meet standards of reliability or precision.

--- Data not available; too few cases to calculate the percentage and standard error.

† Estimates with a relative standard error greater than 50% are not shown.

¹The item time groups are based on quintiles of the weighted item response time distribution.

²Definitions of certain selected characteristics can be found in the Appendix.

³Percentages in this table are rounded.

⁴Response option provided in NHIS was "gay" for men, and "lesbian or gay" for women.

⁵Response option provided in NHIS was "straight, that is, not gay" for men, and "straight, that is, not lesbian or gay" for women.

⁶Non-Hispanic other includes those who identified as American Indian or Alaska Native, Asian, Native Hawaiian or other Pacific Islander, or more than one race.

⁷GED is General Educational Development high school equivalency diploma.

⁸Other language of interview includes bilingual interviews conducted in both English and Spanish.

NOTE: NHIS is National Health Interview Survey.

SOURCE: CDC/NCHS, National Health Interview Survey, 2013.

Appendix. Technical Notes

Sexual Orientation Survey Questions

For men

The following are the sexual orientation questions asked of sample adult men in the 2013 National Health Interview Survey (NHIS). Variable names are shown in **(BOLD)** after each question. An [R] indicates that data from that question are *not* included in the 2013 NHIS public-use file, but are available through the National Center for Health Statistics (NCHS) Research Data Center (<http://www.cdc.gov/rdc/>).

Which of the following best represents how you think of yourself? (**ASISIM**)

- Gay
- Straight, that is, not gay
- Bisexual
- Something else
- I don't know the answer

What do you mean by something else? (**ASISMELS**) [R]

- You are not straight, but identify with another label such as queer, trisexual, omnisexual, or pansexual
- You are transgender, transsexual, or gender variant
- You have not figured out or are in the process of figuring out your sexuality
- You do not think of yourself as having sexuality
- You do not use labels to identify yourself
- You mean something else

What do you mean by don't know? (**ASISIMDK**) [R]

- You don't understand the words
- You understand the words, but you have not figured out or are in the process of figuring out your sexuality
- You mean something else

What do you mean by something else? (**ASIMSESP**) [R]

- (Sample adult provides verbatim response)

For women

The following are the sexual orientation questions asked of sample adult women in the 2013 NHIS.

Which of the following best represents how you think of yourself? (**ASISIF**)

- Lesbian or gay
- Straight, that is, not lesbian or gay
- Bisexual
- Something else
- I don't know the answer

What do you mean by something else? (**ASISFELS**) [R]

- You are not straight, but identify with another label such as queer, trisexual, omnisexual, or pansexual
- You are transgender, transsexual, or gender variant
- You have not figured out or are in the process of figuring out your sexuality
- You do not think of yourself as having sexuality
- You do not use labels to identify yourself
- You mean something else

What do you mean by don't know? (**ASISIFDK**) [R]

- You don't understand the words
- You understand the words, but you have not figured out or are in the process of figuring out your sexuality
- You mean something else

What do you mean by something else? (**ASIFSESP**) [R]

- (Sample adult provides verbatim response)

Terms Related to Selected Health Indicators

Health status—Health status data were obtained by asking respondents to describe their health as excellent, very good, good, fair, or poor. In this report, the measure was coded as excellent or very good versus good, fair, or poor.

Obesity—Obesity is defined as a body mass index of 30 kg/m² or more. This measure is based on self-reported height and weight. In NHIS, the questions ask for weight and height *without shoes*, while in the National Survey of Family Growth (NSFG) there is no such qualifier. In this report, analyses of obesity were restricted to men and nonpregnant women aged 20–44.

Ever been tested for HIV—For this indicator, individuals who received HIV testing solely as a result of blood donation were considered not to have been tested for HIV. Because no questions were asked about blood donations before the HIV testing question, the wording of the question was the same for all respondents. They were instructed to exclude tests they may have had as part of blood donations before they were asked if they had ever been tested for HIV.

Having a usual place to go for medical care—In NHIS, having a usual place to go for medical care entails having one or more places that the respondent usually goes to when he or she is sick or needs advice about his or her health. In the 2006–2010 NSFG, it entails having a place that the respondent usually goes to when they are sick or need advice about health. NHIS offers the following response options: yes; there is no place; and there is more than one place; while the 2006–2010 NSFG only offers the response options yes and no. For both NHIS and NSFG estimates in this report, adults who stated that their usual place to go for medical care was a hospital emergency room were not recognized as having a usual place to go for medical care.

Type of usual place to go for medical care—In NHIS, the response options for usual place of care include: (a) clinic or health center; (b) doctor's office or health maintenance organization (HMO); (c) hospital emergency room; (d) hospital outpatient department; (e) some other place; and (f) doesn't go to one place most often. In this report, the last three categories

were combined to create the “other” category shown in [Tables 3 and 4](#), while the response option hospital emergency room (c) was omitted.

In the 2006–2010 NSFG, the response options are: (a) private doctor’s office; (b) HMO facility; (c) community health clinic, community clinic, or public health clinic; (d) family planning or Planned Parenthood clinic; (e) employer or company clinic; (f) school or school-based clinic; (g) hospital outpatient clinic; (h) hospital emergency room; (i) hospital regular room; (j) urgent care center, urgi-care, or walk-in facility; and (k) some other place. In this report, the first two categories were combined to create the “doctor’s office or HMO” category found in [Tables 6 and 7](#), categories c–f were used to create the “clinic or health center” category, and categories g and i–k were combined to create the “other” category. The response option hospital emergency room (h) was omitted.

The relative standard error (RSE) for each estimate was calculated as:

$$RSE = \frac{SE}{X} * (100)$$

where X is the estimate and SE is the standard error of that estimate.

Terms Related to Place of Residence

Urban place of residence—A classification used for the U.S. Census 2000 that includes all territory, population, and housing units located within an urbanized area or an urban cluster.

Rural place of residence—A classification used for the U.S. Census 2000 that includes all territory, population, and housing units located outside of an urbanized area or an urban cluster.

Two-tailed Significance Tests and Relative Standard Error

The statistic for all two-tailed tests of significance was calculated as:

$$Z = \frac{|X_a - X_b|}{\sqrt{SE_a^2 + SE_b^2}}$$

where X_a and X_b are the two estimates being compared and SE_a and SE_b are the standard errors of those estimates.

Vital and Health Statistics Series Descriptions

ACTIVE SERIES

- Series 1. **Programs and Collection Procedures**—This type of report describes the data collection programs of the National Center for Health Statistics. Series 1 includes descriptions of the methods used to collect and process the data, definitions, and other material necessary for understanding the data.
- Series 2. **Data Evaluation and Methods Research**—This type of report concerns statistical methods and includes analytical techniques, objective evaluations of reliability of collected data, and contributions to statistical theory. Also included are experimental tests of new survey methods, comparisons of U.S. methodologies with those of other countries, and as of 2009, studies of cognition and survey measurement, and final reports of major committees concerning vital and health statistics measurement and methods.
- Series 3. **Analytical and Epidemiological Studies**—This type of report presents analytical or interpretive studies based on vital and health statistics. As of 2009, Series 3 also includes studies based on surveys that are not part of continuing data systems of the National Center for Health Statistics and international vital and health statistics reports.
- Series 10. **Data From the National Health Interview Survey**—This type of report contains statistics on illness; unintentional injuries; disability; use of hospital, medical, and other health services; and a wide range of special current health topics covering many aspects of health behaviors, health status, and health care utilization. Series 10 is based on data collected in this continuing national household interview survey.
- Series 11. **Data From the National Health Examination Survey, the National Health and Nutrition Examination Surveys, and the Hispanic Health and Nutrition Examination Survey**—In this type of report, data from direct examination, testing, and measurement on representative samples of the civilian noninstitutionalized population provide the basis for (1) medically defined total prevalence of specific diseases or conditions in the United States and the distributions of the population with respect to physical, physiological, and psychological characteristics, and (2) analyses of trends and relationships among various measurements and between survey periods.
- Series 13. **Data From the National Health Care Survey**—This type of report contains statistics on health resources and the public's use of health care resources including ambulatory, hospital, and long-term care services based on data collected directly from health care providers and provider records.
- Series 20. **Data on Mortality**—This type of report contains statistics on mortality that are not included in regular, annual, or monthly reports. Special analyses by cause of death, age, other demographic variables, and geographic and trend analyses are included.
- Series 21. **Data on Natality, Marriage, and Divorce**—This type of report contains statistics on natality, marriage, and divorce that are not included in regular, annual, or monthly reports. Special analyses by health and demographic variables and geographic and trend analyses are included.
- Series 23. **Data From the National Survey of Family Growth**—These reports contain statistics on factors that affect birth rates, including contraception and infertility; factors affecting the formation and dissolution of families, including cohabitation, marriage, divorce, and remarriage; and behavior related to the risk of HIV and other sexually transmitted diseases. These statistics are based on national surveys of women and men of childbearing age.

DISCONTINUED SERIES

- Series 4. **Documents and Committee Reports**—These are final reports of major committees concerned with vital and health statistics and documents. The last Series 4 report was published in 2002. As of 2009, this type of report is included in Series 2 or another appropriate series, depending on the report topic.
- Series 5. **International Vital and Health Statistics Reports**—This type of report compares U.S. vital and health statistics with those of other countries or presents other international data of relevance to the health statistics system of the United States. The last Series 5 report was published in 2003. As of 2009, this type of report is included in Series 3 or another series, depending on the report topic.
- Series 6. **Cognition and Survey Measurement**—This type of report uses methods of cognitive science to design, evaluate, and test survey instruments. The last Series 6 report was published in 1999. As of 2009, this type of report is included in Series 2.
- Series 12. **Data From the Institutionalized Population Surveys**—The last Series 12 report was published in 1974. Reports from these surveys are included in Series 13.
- Series 14. **Data on Health Resources: Manpower and Facilities**—The last Series 14 report was published in 1989. Reports on health resources are included in Series 13.
- Series 15. **Data From Special Surveys**—This type of report contains statistics on health and health-related topics collected in special surveys that are not part of the continuing data systems of the National Center for Health Statistics. The last Series 15 report was published in 2002. As of 2009, reports based on these surveys are included in Series 3.
- Series 16. **Compilations of Advance Data From Vital and Health Statistics**—The last Series 16 report was published in 1996. All reports are available online, and so compilations of Advance Data reports are no longer needed.
- Series 22. **Data From the National Mortality and Natality Surveys**—The last Series 22 report was published in 1973. Reports from these sample surveys, based on vital records, are published in Series 20 or 21.
- Series 24. **Compilations of Data on Natality, Mortality, Marriage, and Divorce**—The last Series 24 report was published in 1996. All reports are available online, and so compilations of reports are no longer needed.

For answers to questions about this report or for a list of reports published in these series, contact:

Information Dissemination Staff
National Center for Health Statistics
Centers for Disease Control and Prevention
3311 Toledo Road, Room 5419
Hyattsville, MD 20782

Tel: 1-800-CDC-INFO (1-800-232-4636)

TTY: 1-888-232-6348

Internet: <http://www.cdc.gov/nchs>

Online request form: <http://www.cdc.gov/info>

For e-mail updates on NCHS publication releases, subscribe online at: <http://www.cdc.gov/nchs/govdelivery.htm>.

**U.S. DEPARTMENT OF
HEALTH & HUMAN SERVICES**

Centers for Disease Control and Prevention
National Center for Health Statistics
3311 Toledo Road, Room 5419
Hyattsville, MD 20782

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

For more NCHS Series reports, visit:
<http://www.cdc.gov/nchs/products/series.htm>.



FIRST CLASS MAIL
POSTAGE & FEES PAID
CDC/NCHS
PERMIT NO. G-284