

**2013 National Health Interview Survey (NHIS)
Public Use Data Release**



**A Brief Quality Assessment of the NHIS
Sexual Orientation Data**

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Introduction

What follows is a brief quality assessment of the sexual orientation data collected as part of the 2013 National Health Interview Survey (NHIS). Four sexual orientation questions were included: one initial question and three follow-up questions. Responses to the follow-up questions are examined first. These questions were added for two reasons: 1) to gauge the extent to which adults identify with terms other than gay/lesbian, bisexual, and straight, providing meaningful response alternatives in the process, and 2) to determine if any misclassification of responses was occurring at the initial sexual orientation question. For example, there was concern that some adults who others would identify as bisexual might select “something else” because the response options with the initial question were confusing or did not include the term(s) preferred by the respondent. Nonresponse to the initial question is then examined, and its implications for estimates based on this sexual orientation measure are discussed. A detailed report describing these and additional analyses is forthcoming and will be available at the following link: http://www.cdc.gov/nchs/nhis/nhis_series.htm#s2.

Background

The NHIS is a multipurpose household health survey conducted continuously throughout the year by the National Center for Health Statistics, Centers for Disease Control and Prevention. Interviews are conducted in respondents' homes using computer-assisted personal interviewing (CAPI), but follow-ups to complete missing portions of the interview may be conducted by telephone. The survey has four main components: Household Composition, Family, Sample Child, and Sample Adult. The sexual orientation questions are included in the Sample Adult component, where an adult aged 18 years or older is randomly selected from each family and answers for him or herself. For more information about the background and purpose of the survey, the approach to data collection, and the data editing procedures, visit the NHIS website at <http://www.cdc.gov/nchs/nhis.htm>.

Sexual Orientation Questions

Four cascading questions on sexual orientation were included on the 2013 NHIS. The initial question, asked of all sample adults, read, “Which of the following best represents how you think of yourself?” Five response options were provided. For male respondents, they were: (1) Gay, (2) Straight, that is, not gay, (3) Bisexual, (4) Something else, and (5) I don’t know the answer. For female respondents, response option (1) was worded “Lesbian or gay,” and response option (2) was worded “Straight, that is, not lesbian or gay.” Response options (3) to (5) were worded the same for female respondents as for male respondents.

The initial sexual orientation question for the NHIS was developed, tested, and iteratively refined to capture self-reported sexual orientation. (For more information on this testing effort, see Miller and Ryan, 2011.) At the conclusion of this process, very few response problems were identified. Nonetheless, there was concern that when the question was fielded in the diverse U.S. adult population, some respondents might not comprehend 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 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: (1) You are not straight, but identify with another label such as queer, trisexual, omnisexual or pansexual, (2) You are transgender, transsexual or gender variant, (3) You have not figured out or are in the process of figuring out your sexuality, (4) You do not think of yourself as having sexuality, (5) You do not use labels to identify yourself, and (6) 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?” Three response options were provided: (1) You don’t understand the words, (2) You understand the words, but you have not figured out or are in the process of figuring out your sexuality, and (3) You mean something else.

Respondents who selected the response option “you mean something else” to either of the follow-up questions were given the opportunity to 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. While not an explicit response option, respondents could refuse to give an answer to any of these questions.

Statistical Analyses

Unweighted percentages and frequency counts of responses to the “something else” and “I don’t know” follow-up questions are presented first (Tables 1 and 2), followed by the response distribution for sexual orientation based on answers to the initial question compared to the response distribution of sexual orientation based on the initial question and back-coding of responses to the follow-up questions (Table 3). (Back coding is a process whereby responses to the follow-up questions are assigned to one of the five response options used with the initial sexual orientation question.) Item nonresponse rates are then presented, overall and by select demographics, for the initial sexual orientation question (Table 4). Sexual orientation estimates presented in Table 3 and item nonresponse rates presented in Table 4 are weighted and generalizable to the adult civilian, noninstitutionalized U.S. population. To account for the multi-stage, complex sampling design of the NHIS, estimates and standard errors presented in Tables 3 and 4 were generated using SAS version 9.3 and SAS-callable SUDAAN version 11.0 software. Two-tailed significance tests were used to determine if differences in estimates of item nonresponse by demographics were statistically significant at the $p < 0.05$ level (unless noted otherwise).

Findings

Follow-up Responses among NHIS Respondents Who Answered “Something Else” to the Initial Sexual Orientation Question

Of the 33,785 sample adults who provided a response to the initial sexual orientation question, only 56 answered “something else,” which included 29 men and 27 women. Table 1 presents unweighted percentages and frequency counts of responses provided by adults who answered “something else” to the initial sexual orientation question. Also included in the table are back-coded 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?”

The two most frequent answers provided were “You don’t 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 male respondents and 59.2% of female respondents). A small number of respondents refused to answer or said don’t know (14.3% of all respondents, 18.5% of female respondents, and 10.4% of male respondents), three respondents (all males) indicated that they had not figured out or were in the process of figuring out their sexuality, and only one respondent said they didn’t 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 as heterosexual or straight at the open-ended question (“What do you mean by something else?”) indicating some classification error with the initial sexual orientation question.

Follow-up Responses among NHIS Respondents Who Answered “I Don’t Know the Answer” to the Initial Sexual Orientation Question

One-hundred and fifty-five respondents answered “I don’t know the answer” at the initial sexual orientation question, including 79 women and 76 men. One male respondent quit the survey before answering the sexual orientation follow-up questions. Table 2 presents unweighted percentages and frequency counts of responses provided by adults who answered “I don’t know the answer” to the initial sexual orientation question. Included in Table 2 are back-coded responses provided by 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?”

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

Additional responses included no sexuality (one female), don’t use labels (three male respondents and one female respondent), and something else (seven male respondents and one female respondent). While no adults

among the initial “I don’t know the answer” respondents subsequently identified as a sexual minority, four adults (2.6%) identified as heterosexual or straight. Again, this indicated some misclassification of responses at the initial sexual orientation question.

Comparison of NHIS Sexual Orientation Estimates Before and After Back-coding Using the Sexual Orientation Follow-up Questions

We next examined how the estimates of sexual orientation could be impacted by the incorporation of the responses to the three follow-up questions. Table 3 presents estimates of sexual orientation prior to back-coding of responses to the follow-up questions, and after back-coding was performed. Estimates based on these two measures are provided for all U.S. adults, and separately for men and women. When comparing the two measures, it is clear that 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%) does not change if the five adults who identified as queer, trisexual, omnisexual, pansexual, transgender, transsexual, or gender variant are included or excluded from the measure (results not shown).

Sexual Orientation Nonresponse Rates

We next assessed item nonresponse to the initial sexual orientation question, including variation by demographic subgroups. Of primary concern is the extent to which nonresponse bias may be present in the sexual orientation data. Table 4 displays the nonresponse rates for the sexual orientation question overall and broken out by sex, age, education, race/ethnicity, language in which the Sample Adult interview was primarily conducted, and urbanicity of the sample adult’s residence. Overall, only 0.6% of respondents refused to answer the initial sexual orientation question, 0.4% said “I don’t know the answer,” and 0.2% answered “something else.” The percentage of adults who either refused or answered “I don’t know the answer” was 0.9%, and the percentage providing any one of the three responses (i.e., the total nonresponse rate) was 1.1%. While not definitive, these estimates suggest that the sexual orientation question was not overly difficult to answer nor was it perceived to be overly sensitive by respondents (Tourangeau and Yan, 2007).

Comparing the total nonresponse rate by selected characteristics, only a small number of significant differences emerged. The greatest difference was observed between respondents who completed the interview in English and those who completed it in another language (including a mix of English and Spanish). Among English-language completers, only 1.1% provided a non-substantive response while 2.6% of other-language completers did so. Differences were also identified by education and urbanicity. While only 0.8% of respondents with educational attainment at the master’s level or above provided a non-substantive response, 1.4% of respondents who did not complete high school did so. A similar spread was observed when comparing urban to rural households: only 0.8% of respondents in rural households but 1.2% of respondents in urban households provided a non-substantive response.

Conclusion

The number and type of responses to the follow-up questions to the initial sexual orientation question were suggestive of minimal classification error. Only 211 of 33,785 sample adults (less than one percent) 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 alter the estimates of the primary sexual orientation categories based on data collected with the initial question alone. Therefore, the sexual orientation variable included on the public-use Sample Adult data file is based solely on data collected with the initial question.

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 were reflective of 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. While this number appears small, so was the total number of adults identifying as bisexual (n=233). If those respondents who struggled with the terminology would ultimately identify as a sexual minority, the estimates for gay/lesbian and bisexual could be impacted substantially.

Item nonresponse to the initial sexual orientation questions was low. Just over one percent of adults answered “I don’t know the answer” or “something else,” or simply refused to provide a response, and only one subgroup had a rate of nonresponse exceeding two percent. Although the rates were low, 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, adults with less than a high school education had a significantly higher nonresponse rate compared to adults with at least a master’s degree. Significant differences were also observed for the measure of urbanicity, with urban residents producing significantly more item nonresponse than rural residents. 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; Little and Rubin, 1987), the potential for bias in estimates of sexual minorities is considerable.

References

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Tables

Table 1. 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	Total, number ¹	Total, percent ²	Men, number ¹	Men, percent ²	Women, number ¹	Women, percent ²
Total	56	100.0	29	100.0	27	100.0
Gay or lesbian	0	0.0	0	0.0	0	0.0
Straight, that is, not gay or lesbian	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	3.5	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

¹ Number is unweighted frequency count.

² Percent distribution is unweighted and rounded.

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

Table 2. 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	Total, number ¹	Total, percent ²	Men, number ¹	Men, percent ²	Women, number ¹	Women, percent ²
Total	154	100.0	75	100.0	79	100.0
Gay or lesbian	0	0.0	0	0.0	0	0.0
Straight, that is, not gay or lesbian	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	0.7	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	21	14.3	14	18.7	8	10.1
Don't know	25	16.2	13	17.3	12	15.2

¹ Number is unweighted frequency count.

² Percent distribution is unweighted and rounded.

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

Table 3. Sexual Orientation among U.S. Adults Aged 18 and Over Before and After Using Responses to the Follow-up Questions on Sexual Orientation, by Sex: United States, 2013

	Total, number ¹	Total, percent ²	Men, number ¹	Men, percent ²	Women, number ¹	Women, percent ²
Sexual orientation prior to back-coding:						
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)
Sexual orientation after back-coding:						
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 preceded by an asterisk 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.

¹Number is the unweighted frequency count.

²Percent distribution is weighted and rounded.

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

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

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

Table 4. Item Nonresponse Rates (Percentages with Standard Errors in Parentheses) 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	Refused, I don't know the answer, or something else
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 (years)					
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/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)

Footnotes provided on next page.

* Estimates preceded by an asterisk 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 replaced with a dagger and 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.