Young Sexual Minority Males in the United States: Sociodemographic Characteristics And Sexual Attraction, Identity and Behavior

By Amy M. Fasula, Emeka Oraka, William L. Jeffries IV, Monique Carry, M. Cheryl Bañez Ocfemia, Alexandra B. Balaji, Charles E. Rose and Paula E. Jayne for the Workgroup on Adolescent Sexual and Reproductive Health

CONTEXT: *HIV incidence is increasing among 13–24-year-old U.S. men who have sex with men, yet limited research is available to guide HIV prevention efforts for this population.*

METHODS: *National Survey of Family Growth data collected in 2002, in 2006–2010 and in 2011–2013 from 8,068 males aged 15–24 were analyzed to describe the population of U.S. young sexual minority males (i.e., males reporting same-sex attraction, identity or behavior). Correlates of sexual minority classification were assessed in logistic regression models.*

RESULTS: *An estimated 10% of young males, representing a population of 2.1 million, were sexual minorities. Males had an elevated likelihood of being sexual minorities if they were aged 18–19 or 20–24, rather than 15–17 (prevalence ratio, 1.7 for each); belonged to nonblack, non-Hispanic racial or ethnic minority groups (1.6); had no religious affiliation, rather than considering religion very important (1.9); or lived below the federal poverty level (1.3). They had a reduced likelihood of being sexual minorities if they lived in metropolitan areas outside of central cities (0.7). Among young sexual minority males, 44% were 15–19 years old, 29% were poor and 59% resided outside central cities. Forty-seven percent had engaged in same-sex behavior. Of those with data on all measured dimensions of sexuality, 24% reported same-sex attraction, identity and behavior; 22% considered themselves heterosexual, yet had had a male sex partner.*

CONCLUSION: *Future investigations can further explore subpopulations of young sexual minority males and assess sexual trajectories, resilience and HIV risk.*

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Amy M. Fasula and Monique Carry are behavioral scientists, William L. Jeffries IV is associate chief for science, M. Cheryl Bañez Ocfemia and Alexandra B. Balaji are epidemiologists, and Charles E. Rose is mathematical statistician, Division of HIV/AIDS Prevention; Paula E. Jayne is health scientist, Division of Adolescent and School Health—all in the National Center on HIV/AIDS, Viral Hepatitis, STD and TB Prevention, Centers for Disease Control and Prevention, Atlanta. Emeka Oraka is health data analyst with ICF International, Atlanta. Members of the Workgroup on Adolescent Sexual and Reproductive Health, including Pilgrim Spikes, contributed to this manuscript.

Trends in HIV for young gay men, bisexual men and other men who have sex with men in the United States underscore the importance of HIV prevention, testing, care and treatment for this population. Although the overall estimated number of new HIV infections in the United States remained stable from 2008 to 2010, HIV incidence increased 22% among men who have sex with men aged 13–24.[1] In 2010, some 45% of new HIV infections among black men who have sex with men were among 13–24-year-olds.[1] Furthermore, among all age-groups, persons aged 13–24 have the highest proportion of infections that are undiagnosed (51%, compared with 5–26% of others) and, for individuals with an HIV diagnosis, the lowest proportions who are linked to care (75%, compared with 81–86%) and who have achieved viral suppression (34%, compared with 40–51%).[2] This HIV profile, along with high rates of STDs,[3,4] sets the stage for continued increases in HIV among young men who have sex with men and suggests that they may benefit from access to tailored prevention.

Understanding the size and characteristics of a population at risk is one of several components necessary for developing and implementing appropriate public health programs,[5,6] and a number of limitations exist in current population-level studies of gay men, bisexual men and other men who have sex with men.[7–10] These studies often do not include those younger than 18, and because sexual orientation is typically defined exclusively by same-sex behaviors, estimates miss those who have not yet transitioned to sexual risk behaviors with male partners. Similar limitations are reflected in HIV programming, which is often designed for adult men who have already engaged in same-sex behaviors.[11]

To help fill this gap, we analyzed nationally representative data from the National Survey of Family Growth (NSFG) to estimate the prevalence of sexual minority status among U.S. males aged 15–24 and the number of sexual minority males of this age in the United States. We used a broad conceptualization of sexual orientation that expands the typical focus on sexual behavior to include other dimensions of sexuality (i.e., attraction and identity). This conceptualization has been well established in previous research[7,12–16] and is more inclusive of sexual minorities. As has been done in national studies with older men,[7,12,16–19] we examined the sociodemographic characteristics of this population. In addition, many young men express discordance across sexual orientation dimensions, or are just beginning to develop their sexual identities and to engage in sexual behavior; consequently, interrelationships among these dimensions may be particularly dynamic.[7,13–15] Therefore, we examined the intersections of these dimensions to describe the range of sexual orientation expression in this

TABLE 1. Percentage of U.S. males aged 15–24 who were sexual minorities, by selected characteristics, and prevalence ratios from logistic regression analyses assessing correlates of sexual minority status, National Survey of Family Growth, 2002, 2006–2010 and 2011–2013

Characteristic	N	%	Prevalence ratio
Total	**8,068**	**10.0**	**na**
Age			
15–17 (ref)	2,685	6.7	1.0
18–19	1,887	11.7	1.7 (1.3–2.3)*
20–24	3,475	11.2	1.7 (1.3–2.1)*
Race/ethnicity			
White (ref)	4,048	9.0	1.0
Hispanic	1,960	11.2	1.2 (0.9–1.5)
Black	1,545	10.2	1.1 (0.9–1.4)
Other	494	14.4	1.6 (1.1–2.3)*
Religiosity			
Very important (ref)	2,596	7.8	1.0
Somewhat important	2,902	9.2	1.2 (0.9–1.5)
Not important	679	9.0	1.2 (0.8–1.7)
No religious affiliation	1,870	14.7	1.9 (1.5–2.4)*
Income			
≥poverty level (ref)	5,987	9.3	1.0
<poverty level	2,060	12.2	1.3 (1.04–1.6)*
Residence			
Central city (ref)	3,143	11.9	1.0
Other metropolitan	3,699	8.2	0.7 (0.6–0.9)*
Nonmetropolitan	1,205	10.9	0.9 (0.8–1.1)

*p<.05. *Notes:* Sexual minority males are defined as those reporting any same-sex attraction, identity or behavior. Percentages and prevalence ratios are adjusted for survey cycle; p values are based on Wald statistic. ref=reference group. na=not applicable. Figures in parentheses are 95% confidence intervals.

population. This approach to sexual orientation, combined with the use of national-level data, could enhance current knowledge and lay a foundation for future research on the characteristics associated with HIV risk and resilience among young sexual minority males.

METHODS

Data

The NSFG is an in-person cross-sectional health survey that is conducted by the Centers for Disease Control and Prevention (CDC) and is representative of the U.S. civilian, noninstitutionalized population aged 15–44.[20,21] Hispanics, blacks and adolescents (15–19-year-olds) are oversampled to produce reliable estimates for these groups. Information on sensitive issues, including sexual attraction, identity and behavior is collected using audio computer-assisted self-interviewing. Minors are required to have parent or guardian consent and to provide their own assent.[20,21] Because this study reports secondary data analyses of de-identified publicly available data, institutional review board approval was not required.

The CDC collected NSFG data every 3–7 years through 2002, then changed to continuous data collection in 2006. To increase the sample size and estimate stability, we combined data from the 2002, 2006–2010 and 2011–2013 cycles. A total of 4,928 males participated in 2002, some 10,403 participated in 2006–2010 and 4,815 participated in 2011–2013. The weighted response rate for men was 78% in the first of these three cycles, 75% in the second and 72% in the third. Our analyses were restricted to the 8,068 men who were aged 15–24 at the time of the survey: 2,059 from the 2002 cycle, 4,111 from 2006–2010 and 1,898 from 2011–2013.

Measures

We used data on respondents' sexual attraction, identity and behavior to create a dichotomous variable indicating sexual minority status. Participants were classified as sexual minorities if they reported at least one of the following: same-sex attraction, identity or behavior.

Same-sex attraction was based on participants' responses to a closed-ended question asking them to describe their sexual feelings toward others. Those giving any of the following responses were classified as having same-sex attraction: "mostly attracted to females," "equally attracted to females and males," "mostly attracted to males" and "only attracted to males." Those who responded that they were "only attracted to females" were classified as not having same-sex attraction. Those who responded "not sure" or "don't know" were excluded from the analysis of this dimension of sexual orientation.

Sexual identity was determined by participants' responses to a closed-ended question. The response categories changed across study cycles. The 2002 cycle included the following response categories: "heterosexual," "homosexual," "bisexual" and "something else." In 2006, the first two options were changed to "heterosexual or straight" and "homosexual or gay"; in 2008, "something else" was dropped. Because of the lack of clarity about how to code "something else,"[7] we treated these responses (from 100 men) as missing. Respondents who said they were homosexual, gay or bisexual were classified as having same-sex identity; those who responded that they were heterosexual were classified as not having same-sex identity. Respondents who said "not sure" were excluded from the analysis of sexual identity.

Same-sex behavior was measured using four dichotomous questions asking whether participants had ever given or received oral sex, and whether they had ever engaged in receptive or insertive anal sex, with a same-sex partner. Those who said yes to any of these questions were classified as having engaged in same-sex behavior. Those who said "don't know" were excluded from the analysis of same-sex behavior. For a more complete picture of men's sexual behavior, we also included measures assessing whether participants had ever engaged in oral, vaginal and anal sex with a female partner.

Sociodemographic characteristics included self-reported age (15–17, 18–19 or 20–24); race and ethnicity (Hispanic, non-Hispanic white, non-Hispanic black or other*); religiosity (no religious affiliation, religion not important, religion somewhat important or religion very important); and household income (at or above the federal poverty

*Other possible responses were American Indian or Native Alaskan, Asian, Native Hawaiian or other Pacific Islander, and multiracial.

level, below that level).[22] Residence was based on census-designated metropolitan statistical areas and was coded as central city (for a metropolitan statistical area with an urban core of 50,000 or more population), other metropolitan (for areas, such as suburbs, that are within a metropolitan statistical area, but outside the central city) or nonmetropolitan.[22]

Analysis

Before combining the three cycles of data, we used chi-square analysis to compare the estimated prevalence of sexual minority status across NSFG cycles. We found no significant differences; thus, we pooled the three data sets.

Prevalence ratios derived from logistic regression models (adjusted for survey cycle), along with 95% confidence intervals, were used to assess sociodemographic correlates of sexual minority classification. National estimates were derived using methods and procedures proposed by the National Center for Health Statistics (NCHS) to account for weighting based on selection probability, nonresponse and sampling differences between regions. To account for combining three cycles of data, in accordance with procedures recommended by NCHS,[23] we divided the cumulative sample weight by three to calculate results averaged over three survey periods.

Responses of "don't know," "not sure" and "something else," along with data that were not ascertained, were treated as missing. Statistical significance was determined using the Wald chi-square test, and a p value of less than .05 was considered statistically significant for all analyses. All analyses were performed using SUDAAN 10.0.1.

RESULTS

An estimated 10% of young males, representing a population of 2,052,233 U.S. men aged 15–24, reported any same-sex attraction, identity or behavior, and were classified as sexual minorities. To allow for comparisons to other population estimates, we also assessed the prevalence of sexual minority status on the basis of same-sex behavior only; 5% of respondents had ever had sex with a male partner.

Males aged 18–19 and those aged 20–24 were more likely to be classified as sexual minorities than were males aged 15–17 (prevalence ratio, 1.7 for each—Table 1). Members of "other" racial or ethnic groups were more likely than whites to be classified as sexual minorities (1.6). Males were more likely to be classified as sexual minorities if they reported no religious affiliation than if they considered religion very important (1.9), and if they lived below the federal poverty level than if they lived at or above it (1.3); men who resided in metropolitan areas, but outside central cities, were less likely than those living in central cities to be sexual minorities (0.7).

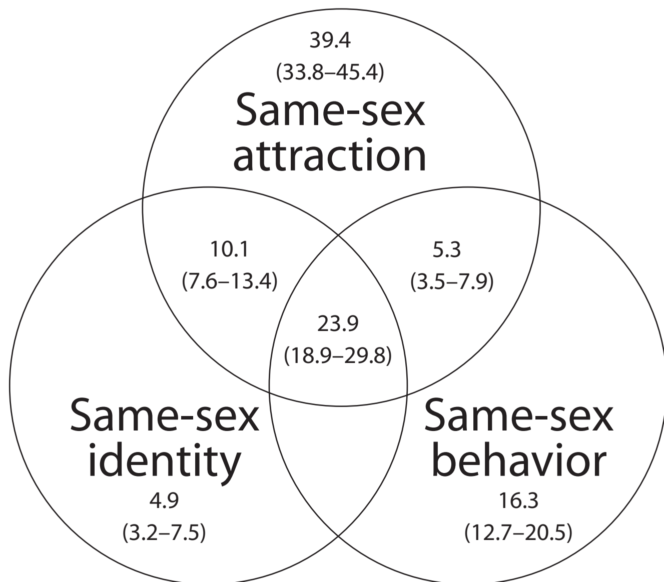
Among sexual minority males, 44% were aged 19 or younger, 54% were white, 58% said that religion was at least somewhat important to them, 29% lived below the federal poverty level and 59% lived outside a central city (Table 2). The majority of sexual minority males reported any same-sex attraction (79%); fewer than half identified themselves as gay (19%) or bisexual (20%), or reported same-sex behavior (47%). The majority of sexual minority males had had a female sex partner (68%); approximately half had had oral or vaginal sex with a female partner (53% and 51%, respectively), and a quarter (26%) had had anal sex with a female partner.

TABLE 2. Percentage distribution and estimated weighted number of sexual minority males aged 15–24, by selected characteristics

Characteristic	% (N=778)	Weighted no.
Total	**100.0**	**2,052,233**
Age		
15–17	19.9 (16.5–23.8)	408,031
18–19	24.5 (20.0–29.6)	502,748
20–24	55.6 (50.3–60.9)	1,141,454
Race/ethnicity		
White	53.9 (48.7–58.9)	1,105,616
Hispanic	21.7 (17.7–26.2)	445,081
Black	14.9 (11.9–18.4)	304,708
Other	9.6 (6.3–14.3)	196,828
Religiosity		
Very important	25.3 (21.2–29.8)	518,108
Somewhat important	33.0 (27.9–38.6)	677,992
Not important	8.5 (6.2–11.5)	174,198
No religious affiliation	33.2 (28.2–38.7)	681,935
Income		
<poverty level	29.2 (24.5–34.4)	599,481
≥poverty level	70.8 (65.6–75.5)	1,452,751
Residence		
Central city	40.8 (35.0–47.0)	838,021
Other metropolitan	39.2 (33.7–45.1)	805,127
Nonmetropolitan	19.9 (15.9–24.7)	409,085
Sexual attraction		
Females only	21.3 (17.4–25.9)	420,755
Any same-sex attraction	78.7 (74.2–82.6)	1,554,762
Mostly females	47.0 (41.9–52.3)	928,945
Equally females and males	11.1 (8.2–14.8)	219,055
Mostly males	6.1 (4.3–8.6)	119,862
Only males	14.5 (10.8–19.2)	286,900
Sexual identity		
Heterosexual/straight	60.7 (54.9–66.2)	1,176,199
Any same-sex identity	39.3 (33.9–45.1)	762,908
Homosexual/gay	19.4 (15.4–24.3)	376,968
Bisexual	19.9 (16.2–24.2)	385,941
Sexual behavior		
Same-sex partners		
None	52.8 (46.9–58.6)	1,080,545
Any	47.2 (41.4–53.1)	965,578
Oral sex	44.7 (39.1–50.5)	917,399
Anal sex	26.2 (22.2–30.7)	538,040
Opposite-sex partners		
None	32.1 (27.5–37.2)	658,083
Any	67.9 (62.8–72.6)	1,391,335
Oral sex	53.3 (47.1–59.4)	734,352
Vaginal sex	50.9 (45.5–56.3)	866,225
Anal sex	25.7 (21.2–30.7)	523,816

Notes: Sexual minority males are defined as those reporting any same-sex attraction, identity or behavior. Estimated numbers account for weighting based on selection probability, nonresponse and sampling differences between regions; estimated numbers may not sum to the total. Percentages may not total 100.0 because of rounding. Figures in parentheses are 95% confidence intervals.

FIGURE 1. Percentage of sexual minority males aged 15–24 reporting various combinations of dimensions of sexual minority status.



Notes: A reliable estimate cannot be shown for the intersection of same-sex identity and behavior because the relative standard error exceeds the National Center for Health Statistics threshold of 30%. Participants with missing data for any dimension were excluded; figure is not to scale. Numbers in parentheses are 95% confidence intervals.

Among the 714 sexual minority men for whom we had complete data, 24% reported same-sex attraction, identity and behavior; 15% reported same-sex identity, but not behavior; 22% identified themselves as heterosexual, yet reported same-sex behavior (Figure 1).

DISCUSSION

There is a dearth of research to guide an effective, comprehensive HIV strategy for young sexual minority males. A research program might include studies to identify sexual minority males who are particularly vulnerable to HIV; assess the types of services and programs that would best address the particular needs of specific subpopulations of sexual minority males; test programs that most effectively and efficiently reduce risk and promote health; and identify implementation strategies for increasing the reach and scalability of effective services. This study takes a first step in filling these gaps by providing population-level descriptive information, laying a foundation for future studies and identifying directions for future research.

On the basis of our broad definition of sexual minority status (i.e., any same-sex attraction, identity or behavior), we estimated that 10% of males aged 15–24, or 2.1 million, are sexual minorities. This estimate is similar to Laumann and colleagues' nationally representative estimate that as adults, 10% of U.S. males report any same-sex attraction, identity or behavior.[12] Our estimate that 5% of young men have ever engaged in same-sex behavior is consistent with estimates by Purcell and colleagues that 4% of U.S. males have engaged in same-sex behavior in the past five years and 7% have ever done so.[10] Our estimates can be used to estimate local population sizes[24] and prevalence ratios of HIV and other STDs.[10]

Given the developmental processes of sexual behavior and identity development,[25,26] it is not surprising that males aged 18 and older are more likely than younger males to be sexual minorities. Nevertheless, 15–19-year-olds make up nearly half of the sexual minority male population. In addition, approximately half of young sexual minority males have not engaged in same-sex behavior. Inclusion of these men in future studies will facilitate assessment of the education and health promotion needs of non–sexually active sexual minority males; it also will allow for analyses to assess characteristics associated with becoming sexually active with a male partner. Assessing the effectiveness and relative costs and benefits of early education and prevention efforts for younger and non–sexually active sexual minority males may prove useful in developing a comprehensive strategy for primary prevention.

The demographic data presented here can help inform future studies on how to implement services and programming for sexual minority males. For instance, most sexual minority males (59%) lived outside the most urbanized areas. Further studies to refine our understanding of where young sexual minority males live, if and at what age they move to central cities, and differences in HIV risk behavior by residence can help assess whether HIV services need to be made more widely available outside of urban areas.

Consistent with findings from studies with adult populations,[18,19,27] we found that having no religious affiliation and living below the federal poverty level were associated with young males' increased likelihood of being sexual minorities. On the other hand, previous studies have shown that black and Hispanic men are less likely than white men to have ever engaged in same-sex behavior[7] and to identify as gay,[17] and that black and Hispanic sexual minority adolescents report less disclosure of their sexual identity than their white counterparts.[28] However, we did not find a difference in the prevalence of sexual minority status between white males and either blacks or Hispanics. One possible reason for these differing results is that the sexual orientation expression of black and Hispanic young sexual minority males is better captured by the more inclusive conceptualization than it was by earlier measures. In-depth analyses of how religiosity, income, race and ethnicity intersect with sexual orientation to affect HIV risk and resilience may help explain how social determinants of health influence the impact of HIV on young men who have sex with men.

Researchers have called for models of adolescent sexual orientation that are multidimensional and nonlinear.[26,29–32] Our findings illustrate the complex nature and diversity of sexual orientation expression among young sexual minority males. There may be benefit of incorporating HIV prevention strategies and messages relevant for subgroups, such as those not yet engaged in same-sex behavior, those who identify themselves as heterosexual and those who have had female sex partners. Our findings also highlight next

steps in research to better describe the sexual trajectories, and HIV risk and protective factors, among sexual minority males in general and within subpopulations. For example, it will be important to better understand and assess the future HIV risk for the subgroups reporting only same-sex attraction (particularly those who report being mostly attracted to females) and only same-sex behavior, as well as the context in which this behavior occurs (including involuntary and isolated same-sex experiences). Furthermore, there is growing evidence that discordance between sexual identity and behavior among adult men who have sex with men is associated with risk behaviors.[17,33,34] Future research might consider more focused analyses of attraction, identity and behavior concordance among sexual minority males, for whom difficulties with respect to age-related development and psychological adjustment present unique challenges.[35]

We have focused here on HIV risk; however, sexual minority youth are at risk for many negative health outcomes,[36] as well as the synergistic effect of multiple health problems combining to heighten HIV risk.[37] Our findings can provide a basis for studies examining a wide range of health and social services for sexual minority males, as well as how these services intersect with and affect HIV risk. Future work to identify the underlying forces driving these intersections can inform a holistic approach to health and well-being among young sexual minority males.

Limitations

The study has several limitations. The NSFG is a household-based survey and does not include young men who are homeless or in institutional settings (e.g., prisons). Although audio computer-assisted self-interview was used to minimize social desirability bias, participants may still have underreported same-sex attraction, identity or behavior.[27] The NSFG does not include items for transgender identity or sex with transgender partners, and does not specifically assess questioning or uncertainty about sexual attraction or identity. Furthermore, the sexual identity response categories changed across study cycles; however, we did not find significant differences in the prevalence of sexual minority status among the three cycles and controlled for study cycle in regression models. The standard NSFG religiosity measure used here combines "no religious affiliation" with "importance of religion," potentially missing those who have no religious affiliation, but to whom religion is very important. In addition, the poverty measure is based on participants' knowledge of their family income, which may be limited for younger participants. Because of small sample sizes, we were unable to stratify the data on the intersection of the three sexual orientation dimensions by demographic characteristics, and our "other" category of race and ethnicity included individuals with diverse social and cultural backgrounds and experiences, making related findings difficult to interpret. As additional waves of the NSFG are conducted, and the sample sizes increase, more detailed analyses will be possible.

Conclusion

Sexual minority males make up a sizable proportion of young men in the United States. This proportion differs by age, race and ethnicity, religiosity, income and residence; however, there is representation across multiple sociodemographic characteristics and a diversity of sexual orientation expression. By including a younger age range and a broader definition of sexual orientation than previous studies have, our data reflect the experiences of men making the transition from adolescence to adulthood, becoming sexually active with male partners and establishing sexual identity. This unique period of development and multiple transitions represents a prime opportunity to provide prevention and support to help sexual minority males establish positive sexual and health-seeking behaviors now and in the future. Our data also provide the basis for research to better understand the complexities of emerging sexuality in a context of high HIV transmission risk and cultural shifts.

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Author contact: *afasula@cdc.gov*