



HHS Public Access

Author manuscript

LGBT Health. Author manuscript; available in PMC 2019 April 05.

Published in final edited form as:

LGBT Health. 2017 April ; 4(2): 121–129. doi:10.1089/lgbt.2016.0199.

Sexual Orientation and Health Information Technology Use: A Nationally Representative Study of U.S. Adults

James M. Dahlhamer, PhD, Adena M. Galinsky, PhD, Sarah S. Joesti, DrPH, and Brian W. Ward, PhD

Division of Health Interview Statistics, National Center for Health Statistics, Hyattsville, Maryland

Abstract

Purpose: The purpose of this study was to compare the prevalence and odds of participation in online health-related activities among lesbian, gay, and bisexual adults and straight adults aged 18–64.

Methods: Primary data collected in the 2013 and 2014 National Health Interview Survey, a nationally representative household health survey, were used to examine associations between sexual orientation and four measures of health information technology (HIT) use. Data were collected through face-to-face interviews (some telephone follow-up) with 54,878 adults aged 18–64.

Results: Compared with straight men, both gay and bisexual men had higher odds of using computers to schedule appointments with healthcare providers, and using email to communicate with healthcare providers. Gay men also had significantly higher odds of seeking health information or participating in a health-related chat group on the Internet, and using computers to fill a prescription. No significant associations were observed between sexual orientation and HIT use among women in the multivariate analysis.

Conclusions: Gay and bisexual men make greater use of HIT than their straight counterparts. Additional research is needed to determine the causal factors behind these group differences in the use of online healthcare, as well as the health implications for each group.

Keywords

health care access; health information technology (HIT); Internet use; National Health Interview Survey; sexual orientation; sexual identity

Address correspondence to: *James M. Dahlhamer, PhD, Division of Health Interview Statistics, National Center for Health Statistics, 3311 Toledo Road, Hyattsville, MD 20782, jdahlhamer@cdc.gov.*

Publisher's Disclaimer: Disclaimer

The views expressed in this article are those of the authors and do not necessarily represent the official views of the National Center for Health Statistics, the Centers for Disease Control and Prevention, or the U.S. Department of Health and Human Services.

Author Disclosure Statement

No competing financial interests exist.

Introduction

AS THE HEALTHCARE system in the United States evolves, use of health information technology (HIT), the exchange of healthcare information through computerized systems, continues to grow. In 2012, 81% of U.S. adults used the Internet, 59% went online in search of health/medical information, and 35% used Internet-based health information to self-diagnose a medical condition for themselves or someone else.¹ The National Health Interview Survey (NHIS) began collecting data on these outcomes in 2009. That year, 2.7% of adults aged 18–64 had scheduled an appointment with a healthcare provider through the Internet and 4.9% had communicated with a provider by email.² By 2015, these percentages reached 11.3% and 11.7%, respectively.³ By facilitating communication between patients and providers, the Internet may be an important part of the healthcare toolbox available to consumers.

With this rise in HIT use, research has emerged to describe its correlates. Age, sex, and education have repeatedly predicted HIT use across a wide range of samples and study designs. Specifically, women, younger adults, and more educated adults are more likely to search the Internet for health information, participate in online health-related chat groups, and fill prescriptions on the Internet than men, older adults, and less educated adults.^{4–23} A number of other sociodemographic, socioeconomic, health status, and healthcare access/utilization measures have been shown to predict HIT use, although findings on strength and direction of these associations are mixed: race/ethnicity;^{10,19,23} income;^{5,8,10,16,17,24} employment;^{11,17,20} marital status;^{4,16,18,19} urbanicity;^{7,14} health insurance coverage;^{5,8,25} general health status;^{4,6,7,10,13,16,18,26} chronic conditions;^{5,7,18,21} and doctor/healthcare facility visits.^{15,22,23} Surprisingly, our extensive search of the literature produced no studies that examined HIT use among lesbian, gay, and bisexual (LGB) persons.

A systematic review of research identified several possible reasons for the observed rise in HIT use and interventions.²⁷ One, stigma reduction, may be particularly relevant for the LGB population. Sexual minorities may have difficulty disclosing their sexual orientation to healthcare providers due to perceived or anticipated stigma.^{28–31} LGB persons' efforts to hide their stigmatized identities may result in delayed/inadequate medical care and/or lead them to alternative forms of care.^{32–40} The Internet, by contrast, allows one to search and consume health information without disclosing one's identity, offering a level of anonymity not available in face-to-face settings. Therefore, LGB persons may perceive benefits from using the Internet for health information and communication.⁴¹

We use a nationally representative sample of adults to examine whether men and women who self-identify as sexual minorities (i.e., gay/lesbian, bisexual) are more likely to use HIT than straight persons. We hypothesize that a sexual minority identity is associated with greater use of HIT, net of sociodemographic, socioeconomic, and health status covariates. While direct measures of perceived stigma were not available, we include measures of healthcare access and utilization in final multivariate models. If stigma is a causal factor, the inclusion of access and utilization measures should attenuate, if not eliminate, remaining significant relationships between sexual orientation and HIT use.

Methods

Data

Data collected from 54,878 sample adults aged 18–64 who participated in the 2013 and 2014 NHIS were used in this study. The NHIS is a multipurpose, nationally representative health survey of the civilian noninstitutionalized U.S. population, conducted by the National Center for Health Statistics (NCHS). Interviewers with the U.S. Census Bureau administer the questionnaire using computer-assisted personal interviewing. Telephone interviewing is permitted to complete missing portions of the interview.^{42,43}

Analytic variables were drawn from the NHIS Household Composition, Family Core, and Sample Adult Core modules. Demographic and relationship information on all householders was collected with the Household Composition module. The Family Core module collected self- and proxy-reported information on each member of the selected family, including disability status, health insurance coverage, and income. The Sample Adult Core module, administered to one adult aged 18 randomly selected from each family, collected information on sexual orientation, health conditions, health status and limitations, and health care access and use (including use of HIT). The sample adult answered for himself/herself unless mentally or physically incapacitated, in which case, a knowledgeable family member served as a proxy respondent. The final sample adult response rate for the 2 years was 60.0%.^{42,43}

Both the 2013 and 2014 NHIS were approved by the research ethics review board of the NCHS and by the U.S. Office of Management and Budget. This specific study was exempt from review. All respondents provided oral consent before participation.

Measures

HIT use.—Four dichotomous measures of HIT use were examined. The first, “look up health information on Internet/participate in Internet health chat groups,” is based on responses to questions asking if, during the past 12 months, he/she had used computers “to look up health information on the Internet” or “to use online chat groups to learn about health topics.” If the adult answered “yes” to either question, he/she was defined as having sought health information on the Internet.

The second outcome is based on a yes/no question that asks if the adult, during the past 12 months, “used computers to fill a prescription.” The third outcome is based on a yes/no question that ascertains if the adult, in the past year, had “used computers to schedule an appointment with a healthcare provider.” The final outcome is based on a question that asks the adult if he/she had, in the past 12 months, “used computers to communicate with a healthcare provider by email” (yes/no).

Sexual orientation.—Sexual orientation was ascertained with the following identity question: “Which of the following best represents how you think of yourself?” For male respondents, response options were “gay”; “straight, that is, not gay”; “bisexual”; “something else”; and “I don’t know the answer.” For female respondents, response categories were “lesbian or gay”; “straight, that is, not lesbian or gay”; “bisexual”;

“something else”; and “I don’t know the answer.” Given the small percentage of adults who answered “something else” (0.2%) or “I don’t know the answer” (0.4%), these responses, along with “refused,” were treated as missing in the analyses. Quality evaluations of the sexual identity question, including an analysis of responses to follow-up questions for “something else” and “I don’t know the answer,” are discussed elsewhere.^{44,45}

Sociodemographic characteristics.—Sociodemographic covariates empirically informed by the literature on HIT use included the following: sex, age, race/ethnicity, marital status, nativity, neighborhood attachment, U.S. region of residence, and urbanicity. More detail on the neighborhood attachment variable is provided elsewhere.³⁵

Socioeconomic characteristics.—Education, work status, and poverty status (from NHIS imputed income files) comprised the socioeconomic characteristics. Poverty status, (total family income/federal poverty threshold [FPT]) × 100, was categorized as poor (<100% FPT), near poor (100% FPT <200%), and not poor (≥ 200% FPT).

Health status.—Covariates included reported health status, activity limitation, multiple chronic conditions (≥ 2 of 10 selected conditions), and serious psychological distress (a score on the K6 scale of ≥ 13). Additional details on each of these measures can be found elsewhere.^{35,46–48}

Healthcare access and utilization.—Health insurance coverage, number of different providers seen/talked to in the past 12 months, whether or not the sample adult had surgery in the past 12 months, and four separate measures of barriers to healthcare encountered in the past 12 months (did not receive specific services due to cost, delayed care for noncost reasons, trouble finding a provider, and no usual source of medical care) were used to capture healthcare access and utilization. Number of different providers involved summing the number of providers seen in the past 12 months and recoding to 0, 1, 2, or 3 or more. Providers included mental health professionals; optometrist/ophthalmologist/eye doctor; foot doctor; chiropractor; physical therapist, speech therapist, respiratory therapist, audiologist, or occupational therapist; nurse practitioner, physician assistant, or midwife; medical doctor specializing in a particular medical disease/problem; and general doctor. Additional description of the barriers to healthcare measures is provided elsewhere.³⁵

Frequency of computer use. Frequency of computer use was included in all multivariate analyses as a control.

Statistical analyses

Since the proportion of adults aged ≥ 65 who identified as a sexual minority was <1%, our analyses are limited to adults aged 18–64. All analyses are stratified by sex. Descriptive statistics for all variables are presented first, followed by prevalence rates for HIT use by sexual orientation. Two-tailed significance tests were performed to determine whether significant differences exist by sexual orientation. Note that small sample sizes of LGB adults in the NHIS (due to the relatively small size of the larger LGB population) led to the production of certain prevalence estimates that require cautious interpretation (noted in the

Tables). This includes those with a relative standard error (i.e., [standard error/estimate] × 100) >30.0%, but ≤ 50.0%.

Two sets of multivariate logistic regression models were fit to assess the relationship between sexual orientation and each HIT-use outcome, net of covariates. The first set includes the sociodemographic, socioeconomic, health status, and frequency of computer use measures. The second set adds the healthcare access and utilization measures. The initial models allow us to determine if significant bivariate associations between sexual orientation and HIT use can be explained by factors other than the access and utilization measures. The final models allow us to assess, indirectly, the role of stigma in driving HIT use among LGB adults. We would expect stigma to impact HIT use through reduced access and utilization of conventional healthcare resources. By controlling for the aforementioned access/utilization measures, we expect an attenuation, if not elimination, of significant relationships between sexual orientation and HIT use.

To account for the stratified, complex cluster sampling design of the NHIS, analyses were conducted in SAS-callable SUDAAN 11.0 software (RTI International, Research Triangle Park, NC). To ensure the results are generalizable to the U.S. adult, civilian noninstitutionalized population aged 18–64, all analyses used final sample adult weights adjusted for nonresponse and calibrated to population control totals.

Results

Descriptive statistics

Table 1 presents sex-stratified descriptive statistics for sexual orientation, HIT use, and covariates, for adults aged 18–64. For all four HIT outcomes, a higher percentage of women aged 18–64 used HIT compared to men. For women, percentages ranged from 8.5% for use of computers to fill a prescription to 56.5% for seeking health information on the Internet. HIT use for men ranged from 5.8% for using computers to schedule an appointment with a healthcare provider to 42.7% for seeking health information on the Internet. As for sexual orientation, 1.6% of women identified as gay, 1.2% as bisexual, and 97.2% as straight. For men, the percentages were 2.0%, 0.4%, and 97.6% respectively.

Bivariate analyses

Bivariate associations between sexual orientation and HIT use among men and women aged 18–64 are presented in Table 2. Among women, only two significant differences emerged. A higher percentage of bisexual women and gay/lesbian women sought health information on the Internet compared with straight women. For men, a significantly higher percentage of those who identified as gay or bisexual sought health information on the Internet compared with those who identified as straight. Similarly, a higher percentage of gay (vs. straight) men used computers to fill a prescription, schedule an appointment with a healthcare provider, and communicated with a healthcare provider by email. For both men and women, no significant differences in HIT use were observed in comparisons of gay/lesbian and bisexual adults.

Multivariate analyses

Table 3 presents adjusted odds ratios and 95% confidence intervals for sexual orientation from two separate logistic regression models fit for each HIT use measure. The initial model for each outcome includes sociodemographic, socioeconomic, health status, and frequency of computer use measures. The full model for each outcome adds the healthcare access and utilization measures.

Focusing on the initial model results, all but one (sought health information on the Internet among gay or lesbian women) of the significant bivariate associations held. Interestingly, two new significant effects emerged for bisexual men: using computers to schedule an appointment with a healthcare provider and communicating with a healthcare provider by email. Among men, those identifying as gay or bisexual had higher odds of seeking health information on the Internet, using computers to schedule an appointment with a healthcare provider, and using computers to communicate with a healthcare provider by email compared to those identifying as straight. Gay men also had over twice the odds of using computers to fill a prescription. The lone significant association among women showed bisexuals, compared to straight adults, have significantly higher odds of seeking health information on the Internet.

In the full models, the access and utilization measures did attenuate the relationships between sexual orientation and HIT use observed in the initial models. However, while reductions in the magnitude of associations were consistent across all outcomes, six of the eight significant associations observed in the initial models held in the full models. The associations reduced to nonsignificance were sought health information on the Internet for bisexual men and bisexual women. As a consequence of the latter, no significant associations between sexual orientation and HIT use were observed for women when controlling for the full set of covariates.

Focusing on the six significant associations, gay men had higher odds of seeking health information on the Internet, over twice the odds of using computers to fill a prescription, and nearly twice the odds of using computers to schedule an appointment with a healthcare provider than straight men. In addition, bisexual men, compared to straight men, had nearly two-and-a-half times the odds of using computers to schedule an appointment with a healthcare provider. Finally, gay and bisexual men had over twice the odds of communicating with a healthcare provider by email than straight men.

Discussion

In what may be the first nationally representative examination of LGB adults' use of HIT, we found, net of sociodemographic, socioeconomic, health status, and healthcare access and utilization covariates, that gay and bisexual men aged 18–64 had higher odds of using computers to schedule appointments with healthcare providers and communicating with healthcare providers by email compared to straight men. Gay men also had higher odds of seeking health information on the Internet and using computers to fill a prescription. No significant associations between sexual orientation and HIT use were observed for women in the full models.

Given the paucity of studies on HIT use by sexual orientation, we turned to research exploring reasons for HIT use and interventions,^{27,49–53} and suggested stigma reduction as a possible reason for LGB adults to go online in search of health information and care. As expected, we identified significant associations between sexual orientation and HIT use. Not anticipated, however, were the persistent effects for sexual minority men after the addition of healthcare access and utilization measures to our models. Assuming that perceived stigma is associated with reduced utilization of traditional healthcare services, we anticipated that controlling for these measures would attenuate, if not eliminate, significant associations between sexual orientation and HIT use. While reductions in magnitude were observed, only two of eight significant associations in the initial models were reduced to nonsignificance in the final models.

The persistent associations between sexual minority status and HIT use for men are suggestive of causal factors other than, or in addition to, perceived stigma. One possible explanation involves the quality of interactions between LGB adults and traditional healthcare providers/settings. Regardless of the extent to which traditional services are used, sexual minorities may perceive the quality of their interactions as less satisfactory than straight adults, necessitating greater use of nontraditional health outlets. For example, Diamant et al.³⁶ found that 57% of straight women were very satisfied with their regular source of care compared to 45% of lesbians and 39% of bisexual women. Similarly, McNair et al.⁵⁴ found lesbians, compared to straight women, produced lower satisfaction ratings of their general provider, while Avery et al.⁵⁵ identified higher levels of dissatisfaction with mental health services among LGBT adults compared to straight adults. Eliason and Schope⁵⁶ found that sexual minority men provided less favorable provider ratings than their female counterparts, leading to lower levels of sexual identity disclosure. In addition, Stein and Bonuck⁵⁷ found 24% of male and 38% of female sexual minorities perceived their providers to be insensitive to LGB concerns. Several other studies have noted the scarcity of providers trained in and sensitive to LGB needs.^{28,56–60} Not surprisingly, LGB adults often attribute their sexual orientation nondisclosure and/or delays in seeking care to fears of rejection, disrespect, and inappropriate treatment.^{28,29,39,57} These issues may be compounded for bisexual men who report lower levels of self-disclosure and community connection relative to their gay peers.⁶¹

Limitations and future research

Even after pooling two years of data, the samples of sexual minorities remain small (especially for bisexual men), resulting in a few unreliable estimates and nonsignificant *P*-values, despite moderately sized associations. Second, the cross-sectional nature of the data prohibits us from examining underlying causal mechanisms that may explain the sexual orientation–HIT use link. Finally, our models may be misspecified as we were unable to include measures of perceived stigma or quality of care.

Future research could explore the underlying reasons why LGB persons, especially sexual minority men, are more likely than straight adults to seek health information and care on the Internet. In addition to perceived stigma, this research could consider the quality of care received in traditional healthcare settings and the inability to find healthcare providers

competent in LGB needs as possible determinants of HIT use. Results of these studies would be useful for addressing shortcomings of the traditional U.S. healthcare system and may lead to improved healthcare delivery through the Internet and other nontraditional means.

Conclusion

Gay and bisexual men were more likely to use HIT than their straight counterparts. Perceived stigma, concerns over homophobia, and greater dissatisfaction with care, likely limit the choice of providers available to these adults. Hence, Internet healthcare may be seen as a viable tool given its ability to provide anonymity and bridge large physical distances to match LGB patients with providers sensitive to their needs.⁵⁶ However, unintended and potentially harmful consequences of delivering healthcare over the Internet should be considered, especially with regard to the consumption and exchange of health information. The provision of Internet healthcare to LGB persons who cannot find adequate support through traditional delivery mechanisms may simply shift the modality of lower quality health services these individuals receive. Furthermore, research has shown that disclosure of sexual orientation to a provider is associated with increased healthcare utilization and patient satisfaction.^{28,62–66} If a goal of seeking healthcare over the Internet is to avoid disclosing one's sexual orientation, consumers may miss opportunities for healthcare providers to offer appropriate health education/counseling, perform targeted screening/treatment, and identify individual risks.^{67,68}

Acknowledgments

The authors would like to thank Anjel Vahratian, Marcie Cynamon, Stephen Blumberg, and Jennifer Madans for their valuable feedback on the article.

References

1. Fox S, Duggan M: Health Online 2013 Washington, DC: Pew Research Center, 2013.
2. Cohen RA, Stussman B: Health information technology use among men and women aged 18–64: Early release of estimates from the National Health Interview Survey, January–June, 2009. Health E-Stats National Center for Health Statistics, 2 2010.
3. Cohen RA: Table. Percentages (and Standard Errors) of Adults Who Have Used Selected Health Information Technology in the Past 12 Months by Selected Demographic Characteristics: United States, 2015. Hyattsville, MD: National Center for Health Statistics, 2016 Available at www.cdc.gov/nchs/data/nhis/earlyrelease/healthinfotechuse2015.pdf Accessed October 3, 2016.
4. Atkinson NL, Saperstein SL, Pleis J: Using the Internet for health-related activities: Findings from a national probability sample. *J Med Internet Res* 2009;11:e4. [PubMed: 19275980]
5. Ayers SL, Kronenfeld JJ: Chronic illness and health-seeking information on the Internet. *Health (London)* 2007;11:327–347. [PubMed: 17606698]
6. Baker L, Wagner TH, Singer S, Bundorf NK: Use of the Internet and e-mail for health care information: Results from a national survey. *JAMA* 2003;289:2400–2406. [PubMed: 12746364]
7. Beckjord EB, Finney Rutten LJ, Squiers L, et al.: Use of the Internet to communicate with health care providers in the United States: Estimates from the 2003 and 2005 Health Information National Trends Surveys (HINTS). *J Med Internet Res* 2007;9:e20. [PubMed: 17627929]
8. Bundorf MK, Wagner TH, Singer SJ, Baker LC: Who searches the Internet for health information? *Health Serv Res* 2006;41:819–836. [PubMed: 16704514]
9. Jeannot JG, Froehlich F, Wietlisbach V, et al.: Patient use of the Internet for health care information in Switzerland. *Swiss Med Wkly* 2004;134:307–312. [PubMed: 15243842]

10. Koch-Weser S, Bradshaw YS, Gualtieri L, Gallagher SS: The Internet as a health information source: Findings from the 2007 Health Information National Trends Survey and 128 implications for health communication. *J Health Commun* 2010;15 Suppl 3:279–293. [PubMed: 21154099]
11. Kummervold PE, Chronaki CE, Lausen B, et al.: eHealth trends in Europe 2005–2007: A population-based survey. *J Med Internet Res* 2008;10:e42. [PubMed: 19017584]
12. Lerner AJ: Searching the Internet for medical information: Frequency over time and by age and gender in an outpatient population in the UK. *J Telemed Telecare* 2006;12:186–188. [PubMed: 16774699]
13. Lemire M, Paré G, Sicotte C, Harvey C: Determinants of Internet use as a preferred source of information on personal health. *Int J Med Inform* 2008;77:723–734. [PubMed: 18434246]
14. Licciardone JC, Smith-Barbaro P, Coleridge ST: Use of the Internet as a resource for consumer health information: Results of the Second Osteopathic Survey of Health Care in America (OSTEOSURV-II). *J Med Internet Res* 2001; 3:e31. [PubMed: 11772546]
15. Mehrota A, Paone S, Martich GD, et al.: Characteristics of patients who seek care via eVisits instead of office visits. *Telemed J E Health* 2013;19:515–519. [PubMed: 23682589]
16. Renahy E, Parizot I, Chauvin P: Health information seeking on the Internet: A double divide? Results from a representative survey in the Paris metropolitan area, France, 2005–2006. *BMC Public Health* 2008;8:69. [PubMed: 18291024]
17. Rice RE: Influences, usage, and outcomes of Internet health information searching: Multivariate results from the Pew surveys. *Int J Med Inform* 2006;75:8–28. [PubMed: 16125453]
18. Siliquini R, Ceruti M, Lovato E, et al.: Surfing the Internet for health information: An Italian survey on use and population choices. *BMC Med Inform Decis Mak* 2011; 11:21. [PubMed: 21470435]
19. Suziedelyte A: How does searching for health information on the Internet affect individuals' demand for health care services? *Soc Sci Med* 2012;75:1828–1835. [PubMed: 22884947]
20. van Uden-Kraan CF, Drossaert CH, Taal E, et al.: Health-related Internet use by patients with somatic diseases: Frequency of use and characteristics of users. *Inform Health Soc Care* 2009;34:18–29. [PubMed: 19306196]
21. Wagner TH, Baker LC, Bundorf MK, Singer S: Use of the Internet for health information by the chronically ill. *Prev Chronic Dis* 2004;1:A13.
22. Wangberg SC, Andreassen HK, Prokosch HU, et al.: Relations between Internet use, socio-economic status (SES), social support and subjective health. *Health Promot Int* 2008; 23:70–77. [PubMed: 18083686]
23. Weaver JB, 3rd, Mays D, Lindner G, et al.: Profiling characteristics of Internet medical information users. *J Am Med Inform Assoc* 2009;16:714–722. [PubMed: 19567794]
24. Kind T, Huang ZJ, Farr D, Pomerantz KL: Internet and computer access and use for health information in an underserved community. *Ambul Pediatr* 2005;5:117–121. [PubMed: 15780014]
25. Wagner TH, Hu TW, Hibbard JH: The demand for consumer health information. *J Health Econ* 2001;20:1059–1075. [PubMed: 11758048]
26. Houston TK, Allison JJ: Users of Internet health information: Differences by health status. *J Med Internet Res* 2002;4:e7. [PubMed: 12554554]
27. Griffiths F, Lindenmeyer A, Powell J, et al.: Why are health care interventions delivered over the Internet? A systematic review of the published literature. *J Med Internet Res* 2006; 8:e10. [PubMed: 16867965]
28. Barbara AM, Quandt SA, Anderson RT: Experiences of lesbians in the health care environment. *Women Health* 2001;34:45–62.
29. Boehmer U, Case P: Physicians don't ask, sometimes patients tell: Disclosure of sexual orientation among women with breast carcinoma. *Cancer* 2004;101:1882–1889. [PubMed: 15386304]
30. Klitzman RL, Greenberg JD: Patterns of communication between gay and lesbian patients and their health care providers. *J Homosex* 2002;42:65–75.
31. Berger M, Wagner TH, Baker LC: Internet use and stigmatized illness. *Soc Sci Med* 2005;61:1821–1827. [PubMed: 16029778]

32. Buchmueller T, Carpenter CS: Disparities in health insurance coverage, access, and outcomes for individuals in same-sex versus different-sex relationships, 2000–2007. *Am J Public Health* 2010;100:489–495. [PubMed: 20075319]
33. Clift JB, Kirby J: Health care access and perceptions of provider care among individuals in same-sex couples: Findings from the Medical Expenditure Panel Survey (MEPS). *J Homosex* 2012;59:839–850. [PubMed: 22853183]
34. Conron KJ, Mimiaga MJ, Landers SJ: A population-based study of sexual orientation identity and gender differences in adult health. *Am J Public Health* 2010;100:1953–1960. [PubMed: 20516373]
35. Dahlhamer JM, Galinsky AM, Joestl SS, Ward BW: Barriers to health care among adults identifying as sexual minorities: A US national study. *Am J Public Health* 2016; 106:1116–1122. [PubMed: 26985623]
36. Diamant AL, Wold C, Spritzer K, Gelberg L: Health behaviors, health status, and access to and use of health care: A population-based study of lesbian, bisexual, and heterosexual women. *Arch Fam Med* 2000;9: 1043–1051. [PubMed: 11115206]
37. Dilley JA, Simmons KW, Boysun MJ, et al.: Demonstrating the importance and feasibility of including sexual orientation in public health surveys: Health disparities in the Pacific Northwest. *Am J Public Health* 2010;100:460–467. [PubMed: 19696397]
38. Heck JE, Sell RL, Gorin SS: Health care access among individuals involved in same-sex relationships. *Am J Public Health* 2006;96:1111–1118. [PubMed: 16670230]
39. van Dam MAA, Koh AS, Dibble SL: Lesbian disclosure to health care providers and delay of care. *J Gay Lesbian Med Assoc* 2001;5:11–19.
40. Everett BG, Mollborn S: Examining sexual orientation disparities in unmet medical needs among men and women. *Popul Res Policy Rev* 2014;33:553–577. [PubMed: 25382887]
41. Cline RJ, Haynes KM: Consumer health information seeking on the Internet: The state of the art. *Health Educ Res* 2001;16:671–692. [PubMed: 11780707]
42. National Center for Health Statistics: 2013 National Health Interview Survey (NHIS) Public Use Data Release: Survey Description Hyattsville, MD: Division of Health Interview Statistics, National Center for Health Statistics, 2014.
43. National Center for Health Statistics: 2014 National Health Interview Survey (NHIS) Public Use Data Release: Survey Description Hyattsville, MD: Division of Health Interview Statistics, National Center for Health Statistics, 2015.
44. Miller K, Ryan JM: Design, Development and Testing of the NHIS Sexual Identity Question Hyattsville, MD: Questionnaire Design Research Laboratory, Office of Research and Methodology, National Center for Health Statistics, 2011.
45. Dahlhamer JM, Galinsky AM, Joestl SS, Ward BW: Sexual orientation in the 2013 National Health Interview Survey: A quality assessment. *Vital Health Stat* 2014;(169):1–32.
46. Kessler RC, Barker PR, Colpe LJ, et al.: Screening for serious mental illness in the general population. *Arch Gen Psychiatry* 2003;60:184–189. [PubMed: 12578436]
47. Ward BW, Clarke TC, Nugent CN, Schiller JS: Early Release of Selected Estimates Based on Data from the 2015 National Health Interview Survey Hyattsville, MD: Division of Health Interview Statistics, National Center for Health Statistics, 2016.
48. Ward BW, Schiller JS, Goodman RA: Multiple chronic conditions among US adults: A 2012 update. *Prev Chronic Dis* 2014;11:E62. [PubMed: 24742395]
49. Chang T, Yeh CJ, Krumboltz JD: Process and outcome evaluation of an online support group for Asian American male college students. *J Couns Psychol* 2001;48:319–329.
50. Flatley-Brennan P: Computer network home care demonstration: A randomized trial in persons living with AIDS. *Comput Biol Med* 1998;28:489–508. [PubMed: 9861507]
51. Gustafson DH, Hawkins R, Boberg E, et al.: Impact of a patient-centered, computer-based health information/support system. *Am J Prev Med* 1999;16:1–9.
52. Low KG, Charanasomboon S, Lesser J, et al.: Effectiveness of a computer-based interactive eating disorders prevention program at long-term follow-up. *Eat Disord* 2006;14:17–30. [PubMed: 16757446]
53. Zabinski MF, Pung MA, Wilfley DE, et al.: Reducing risk factors for eating disorders: Targeting at-risk women with a computerized psychoeducational program. *Int J Eat Disord* 2001;29:401–408.

54. McNair R, Szalacha LA, Hughes TL: Health status, health service use, and satisfaction according to sexual identity of young Australian women. *Womens Health Issues* 2011; 21:40–47. [PubMed: 21185989]
55. Avery AM, Hellman RE, Sudderth LK: Satisfaction with mental health services among sexual minorities with major mental illness. *Am J Public Health* 2001;91:990–991. [PubMed: 11392949]
56. Eliason MJ, Schope R: Does ‘‘Don’t Ask Don’t Tell’’ apply to health care? Lesbian, gay, and bisexual people’s disclosure to health care providers. *J Gay Lesbian Med Assoc* 2001;5:125–134.
57. Stein GL, Bonuck KA: Physician-patient relationships among the lesbian and gay community. *J Gay Lesbian Med Assoc* 2001;5:87–93.
58. Eliason MJ, Hughes T: Treatment counselor’s attitudes about lesbian, gay, bisexual, and transgendered clients: Urban vs. rural settings. *Subst Use Misuse* 2004;39:625–644. [PubMed: 15115216]
59. Fogel SC: Identifying facilitators and barriers to disclosure of sexual identity to health care providers. *Kans Nurse* 2005; 80:1–3.
60. Neville S, Henrickson M: Perceptions of lesbian, gay and bisexual people of primary health care services. *J Adv Nurs* 2006;55:407–415. [PubMed: 16866836]
61. Balsam KF, Mohr JJ: Adaptation to sexual orientation stigma: A comparison of bisexual and gay/lesbian adults. *J Couns Psychol* 2007;54:306–319.
62. Polek CA, Hardie TL, Crowley EM: Lesbians’ disclosure of sexual orientation and satisfaction with care. *J Transcult Nurs* 2008;19:243–249. [PubMed: 18445760]
63. White JC, Dull VT: Health risk factors and health-seeking behavior in lesbians. *J Womens Health* 1997;6:103–112. [PubMed: 9065379]
64. Morris JF, Waldo CR, Rothblum ED: A model of predictors and outcomes of outness among lesbian and bisexual women. *Am J Orthopsychiatry* 2001;71:61–71. [PubMed: 11271718]
65. Bergeron S, Senn CY: Health care utilization in a sample of Canadian lesbian women: Predictors of risk and resilience. *Women Health* 2003;37:19–35. [PubMed: 12839305]
66. Steele LS, Tinmouth JM, Lu A: Regular health care use by lesbians: A path analysis of predictive factors. *Fam Pract* 2006;23:631–636. [PubMed: 16799166]
67. Durso LE, Meyer IH: Patterns and predictors of disclosure of sexual orientation to health care providers among lesbians, gay men, and bisexuals. *Sex Res Soc Policy* 2013;10: 35–42.
68. Petroll AE, Mosack KE: Physician awareness of sexual orientation and preventive health recommendations to men who have sex with men. *Sex Transm Dis* 2011;38:63–67. [PubMed: 20706178]

Table 1. DESCRIPTIVE ESTIMATES OF HEALTH INFORMATION TECHNOLOGY MEASURES, SEXUAL ORIENTATION, SOCIODEMOGRAPHIC CHARACTERISTICS, SOCIOECONOMIC CHARACTERISTICS, HEALTH STATUS MEASURES, HEALTHCARE ACCESS AND UTILIZATION MEASURES, AND FREQUENCY OF COMPUTER USE AMONG U.S. ADULTS AGED 18–64 YEARS, BY SEX

<i>Variable</i>	<i>Men (n = 24,383), % (95% CI)</i>	<i>Women (n = 28,633), % (95% CI)</i>
Health information technology		
Sought health information on the Internet	42.7 (41.81–43.66)	56.5 (55.62–57.35)
Used computers to fill a prescription	5.9 (5.54–6.36)	8.5 (8.07–8.95)
Used computers to schedule an appointment with a healthcare provider	5.8 (5.35–6.25)	8.7 (8.20–9.17)
Used computers to communicate with a healthcare provider by email	6.4 (5.93–6.87)	9.5 (8.97–9.95)
Sexual orientation		
Straight	97.6 (97.27–97.81)	97.2 (96.90–97.44)
Gay/lesbian	2.0 (1.77–2.30)	1.6 (1.45–1.86)
Bisexual	0.4 (0.34–0.54)	1.2 (1.01–1.37)
Sociodemographic characteristics		
Age (in years)		
18–24	16.0 (15.17–16.83)	15.3 (14.57–16.07)
25–44	42.2 (41.23–43.09)	42.0 (41.14–42.77)
45–64	41.9 (40.89–42.83)	42.7 (41.84–43.65)
Race/ethnicity		
Hispanic	17.5 (16.65–18.38)	16.3 (15.63–17.04)
Non-Hispanic white	63.5 (62.46–64.61)	62.6 (61.60–63.58)
Non-Hispanic black	11.4 (10.87–12.04)	13.0 (12.33–13.65)
Non-Hispanic other	7.5 (7.01–8.06)	8.1 (1.56–8.68)
Marital status		
Never married	28.2 (27.26–29.13)	24.4 (23.63–25.26)
Married/cohabitating	61.6 (60.61–62.53)	60.5 (59.60–61.33)
Divorced/separated/widowed	10.2 (9.78–10.72)	15.1 (14.62–15.58)
Not U.S. born	19.6 (18.81–20.48)	18.7 (18.01–19.48)
Neighborhood attachment		
Low	12.6 (12.03–13.24)	15.1 (14.48–15.74)

<i>Variable</i>	<i>Men (n = 24,383), % (95% CI)</i>	<i>Women (n = 28,633), % (95% CI)</i>
Medium	36.6 (35.70–37.44)	33.7 (32.87–34.53)
High	45.6 (44.60–46.55)	45.5 (44.51–46.49)
Unknown	5.2 (4.86–5.65)	5.7 (5.28–6.17)
U.S. region of residence		
Northeast	17.0 (16.09–18.02)	16.9 (15.94–17.83)
Midwest	23.4 (22.44–24.40)	22.2 (21.14–23.31)
South	36.1 (34.86–37.27)	38.0 (36.86–39.12)
West	23.5 (22.55–24.50)	23.0 (22.05–23.88)
Place of residence		
Large MSA	34.1 (32.60–35.70)	33.6 (32.07–35.23)
Small MSA	52.4 (50.58–54.20)	52.2 (50.30–54.02)
Not in MSA	13.5 (12.23–14.83)	14.2 (12.98–15.53)
Socioeconomic characteristics		
Education		
Less than high school	13.2 (12.50–13.84)	11.6 (11.06–12.17)
High school diploma/GED	27.2 (26.36–28.04)	22.9 (22.18–23.64)
Some college	30.4 (29.51–31.33)	33.9 (33.12–34.76)
Bachelor's degree or higher	29.2 (28.26–30.24)	31.6 (30.64–32.49)
Currently working	76.9 (76.00–77.71)	65.5 (64.65–66.24)
Poverty status		
Poor (<100% FPT)	12.9 (12.28–13.63)	16.1 (15.44–16.87)
Near poor (100% FPT <200%)	17.3 (16.64–18.05)	18.9 (18.21–19.63)
Not poor (≥ 200% FPT)	69.7 (68.72–70.71)	65.0 (63.96–65.93)
Health status		
Reported health status		
Poor/fair	10.4 (9.90–10.95)	11.4 (10.89–11.89)
Good	24.3 (23.52–25.08)	25.2 (24.52–25.93)
Very good/excellent	65.3 (66.19–64.40)	63.4 (62.57–64.22)
Activity limitation	11.3 (10.76–11.88)	11.9 (11.32–12.41)
Multiple chronic conditions	16.6 (15.97–17.32)	19.1 (18.44–19.70)
Serious psychological distress	3.1 (2.83–3.42)	4.2 (3.88–4.49)

<i>Variable</i>	<i>Men (n = 24,383), % (95% CI)</i>	<i>Women (n = 28,633), % (95% CI)</i>
Healthcare access and utilization		
Health insurance status		
Private coverage	66.6 (65.67–67.57)	65.5 (64.58–66.35)
Public/other coverage	13.5 (12.87–14.14)	18.0 (17.33–18.69)
Uninsured/no coverage	19.9 (19.15–20.63)	16.5 (15.89–17.18)
Surgery in past 12 months	8.6 (8.09–9.03)	12.1 (11.61–12.63)
No. of different providers seen in past 12 months		
0	27.4 (26.60–28.29)	16.9 (16.22–17.54)
1	29.8 (29.00–30.60)	27.4 (26.66–28.12)
2	21.9 (21.19–22.57)	25.4 (24.76–26.13)
3	20.9 (20.17–21.64)	30.3 (29.50–31.13)
Did not receive specific services due to cost	16.0 (15.37–16.71)	22.0 (21.25–22.86)
Delayed care for a noncost reason	7.7 (7.29–8.19)	11.3 (10.76–11.83)
Trouble finding a provider	4.0 (3.72–4.36)	6.2 (5.84–6.62)
No usual source of care when sick or need medical advice	23.0 (22.20–23.80)	13.6 (12.98–14.14)
Frequency of computer use		
Never/almost never	18.3 (17.48–19.07)	15.0 (14.40–15.59)
Some days/most days	18.8 (18.11–19.53)	18.6 (17.96–19.33)
Every day	62.9 (61.92–63.93)	66.4 (65.51–67.24)

Data: National Health Interview Survey, 2013–2014.

Percent distributions may not add up to 100.0% due to rounding.

CI, confidence interval; MSA, metropolitan statistical area; GED, general educational development high school equivalency diploma; FPT, federal poverty threshold

Table 2.

PREVALENCE OF HEALTH INFORMATION TECHNOLOGY USE AMONG U.S. ADULTS AGED 18–64, BY SEXUAL ORIENTATION AND SEX

	<i>Men % (95% CI)</i>	<i>Women % (95% CI)</i>
Sought health information on the Internet		
Sexual orientation		
Straight	42.3 (41.31–43.19)	56.2 (55.35–57.10)
Gay/lesbian	62.0 ^a (55.53–68.01)	62.7 ^b (56.68–68.28)
Bisexual	62.5 ^a (52.05–71.96)	68.9 ^a (61.02–75.73)
	<i>n</i> = 24,362	<i>n</i> = 28,612
Used computers to fill a prescription		
Sexual orientation		
Straight	5.8 (5.35–6.18)	8.5 (8.05–8.95)
Gay/lesbian	14.5 ^a (11.00–18.76)	9.3 (6.62–12.82)
Bisexual	8.0 [†] (3.50–17.41)	8.2 (5.08–12.89)
	<i>n</i> = 24,374	<i>n</i> = 28,626
Used computers to schedule an appointment with a healthcare provider		
Sexual orientation		
Straight	5.6 (5.15–6.03)	8.6 (8.16–9.13)
Gay/lesbian	14.0 ^a (10.39–18.65)	8.5 (6.07–11.67)
Bisexual	14.5 [†] (7.57–25.97)	12.4 (8.45–17.73)
	<i>n</i> = 24,374	<i>n</i> = 28,624
Used computers to communicate with a healthcare provider by email		
Sexual orientation		
Straight	6.1 (5.66–6.62)	9.4 (8.91–9.90)
Gay/lesbian	17.2 ^a (13.30–21.97)	9.8 (7.03–13.54)
Bisexual	14.9 [†] (7.83–26.44)	13.4 (8.97–19.54)
	<i>n</i> = 24,373	<i>n</i> = 28,076

Data: National Health Interview Survey, 2013–2014.

[†]Estimates marked with a dagger have a relative standard error >30.0% and 50.0% and should be interpreted with caution.

^a*P* < 0.001 for comparisons of “gay/lesbian” to “straight” and “bisexual” to “straight.”

^b*P* < 0.05 for comparisons of “gay/lesbian” to “straight” and “bisexual” to “straight.”

LOGISTIC REGRESSIONS OF HEALTH INFORMATION TECHNOLOGY USE ON SEXUAL ORIENTATION AND COVARIATES FOR U.S. MEN AND WOMEN AGED 18–64 YEARS

Table 3.

	<i>Initial model; (excludes the healthcare access and utilization measures)</i>	<i>AOR (95% CI)</i>	<i>Full model AOR (95% CI)</i>
Sought health information on the Internet			
Men			
Straight	1.00 (ref.)		1.00 (ref.)
Gay	1.70 ^{***} (1.27–2.26)		1.50 ^{**} (1.12–2.01)
Bisexual	1.95 ^{**} (1.18–3.22)		1.61 (0.98–2.66)
	<i>n</i> = 23,829		<i>n</i> = 23,829
Women			
Straight	1.00 (ref.)		1.00 (ref.)
Gay/lesbian	1.11 (0.82–1.52)		1.15 (0.84–1.57)
Bisexual	1.68 [*] (1.11–2.54)		1.50 (1.00–2.27)
	<i>n</i> = 28,070		<i>n</i> = 28,070
Used computers to fill a prescription			
Men			
Straight	1.00 (ref.)		1.00 (ref.)
Gay	2.47 ^{***} (1.70–3.58)		2.14 ^{***} (1.47–3.12)
Bisexual	1.70 (0.68–4.26)		1.46 (0.59–3.62)
	<i>n</i> = 23,838		<i>n</i> = 23,838
Women			
Straight	1.00 (ref.)		1.00 (ref.)
Gay/lesbian	0.91 (0.63–1.33)		1.00 (0.68–1.47)
Bisexual	0.94 (0.54–1.62)		0.93 (0.53–1.63)
	<i>n</i> = 28,080		<i>n</i> = 28,080
Used computers to schedule an appointment with a healthcare provider			
Men			
Straight	1.00 (ref.)		1.00 (ref.)
Gay	2.30 ^{***} (1.55–3.40)		1.97 ^{***} (1.32–2.94)
Bisexual	2.83 [*] (1.21–6.62)		2.43 [*] (1.04–5.67)

	<i>Initial model; (excludes the healthcare access and utilization measures)</i>	<i>AOR (95% CI)</i>	<i>Full model AOR (95% CI)</i>
Women	<i>n</i> = 23,838		
Straight	1.00 (ref.)		1.00 (ref.)
Gay/lesbian	0.79 (0.54–1.15)		0.85 (0.59–1.22)
Bisexual	1.44 (0.90–2.31)		1.36 (0.83–2.23)
	<i>n</i> = 28,078		
Used computers to communicate with a healthcare provider by email			
Men	<i>n</i> = 23,837		
Straight	1.00 (ref.)		1.00 (ref.)
Gay	2.50 *** (1.68–3.72)		2.14 *** (1.41–3.25)
Bisexual	2.69 * (1.23–5.88)		2.26 * (1.02–5.02)
	<i>n</i> = 23,837		
Women	<i>n</i> = 28,079		
Straight	1.00 (ref.)		1.00 (ref.)
Gay/lesbian	0.83 (0.56–1.23)		0.90 (0.61–1.33)
Bisexual	1.57 (0.95–2.57)		1.54 (0.94–2.52)
	<i>n</i> = 28,079		

Data: National Health Interview Survey, 2013–2014.

The following covariates were included in the models: sociodemographic characteristics (age, race/ethnicity, marital status, nativity, neighborhood attachment, U.S. region of residence, and place of residence), socioeconomic characteristics (education, employment status, and poverty status), health status measures (reported health status, activity limitation, multiple chronic conditions, and serious psychological distress), healthcare access and utilization measures (health insurance status, the number of providers seen in the past 12 months, surgery in the past 12 months, did not receive care in the past 12 months due to cost, delayed receiving care in the past 12 months due to noncost reasons, trouble finding a provider, and no usual source of care), and frequency of computer use.

* *P* < 0.05

** *P* < 0.01

*** *P* < 0.001.

AOR, adjusted odds ratios; ref, reference category.