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Wendy Wen Date

Differences in sexual orientation disclosure across age groups in MSM

By

Wendy Wen
MPH

Epidemiology

_____

Jodie L. Guest, Ph.D., MPH
Committee Chair

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By

Wendy Wen

B.S.

Rutgers, The State University of New Jersey

2015

Thesis Committee Chair: Jodie L. Guest, PhD, MPH

An abstract of

A thesis submitted to the Faculty of the
Rollins School of Public Health of Emory University

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Abstract

Differences in sexual orientation disclosure across age groups in MSM

By Wendy Wen

Background: Society has evolved to become more progressive and accepting of lesbian, gay, bisexual, and transgender (LGBT) individuals over the years. The recent United States Supreme Court decision ruling same-sex marriage bans as unconstitutional represented an unprecedented acceptance of the LGBT community at a national level. Previous studies have examined stigma-related issues such as sexual orientation disclosure among LGBT individuals, but few studies have examined how disclosure differs across age groups. The present study sought to examine whether disclosure among MSM differed by age in the recent years of 2013-2016.

Methods: The present study utilized sexual orientation disclosure measures from the American Men's Internet Survey (AMIS) data from survey years 2013-2016 and compared disclosure in MSM by age groups.

Results: Older MSM were overall less likely to disclose their sexual orientation. While older MSM were less likely to disclose to non-LGBT friends compared to younger MSM, younger MSM were less likely to disclose to family members and healthcare providers compared to older MSM.

Conclusions: The results demonstrate the importance of understanding how disclosure and stigma experiences differ within the LGBT community. Future studies that examine other stigma-related measures are needed to continue the improvement of initiatives aimed at reducing stigma and improving health outcomes in the LGBT community.

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Introduction

Since the Defense of Marriage Act (DOMA) passed in 1996, which defined marriage as strictly the union of one man and one woman and consequentially allowing for states to ban same-sex marriage, several legal milestones have been made toward the acceptance of the Lesbian, Gay, Bisexual, Transgender (LGBT) community. In 2003, the Goodridge v. Department of Public Health in Massachusetts case ruled that denying same-sex marriage violated the Massachusetts Constitution. In 2008, Connecticut made a similar court decision, ruling that the state was required to recognize same-sex marriage, and in the following years, states such as Vermont, New Hampshire, New York, and Maryland followed by legalizing same-sex marriage in their own respective jurisdictions. However, such progress in same-sex marriage legalization had not always been consistent, including several marriage equality reversals such as California's 2008 Proposition 8, which ended recognition of same-sex marriage just six months after California's decision to legalize it. In 2009, Maine signed a law legalizing same-sex marriage, which also later saw a reversal by a referendum shortly after. That same year, Congress proposed the repeal of DOMA, but several members of Congress did not consider it a priority issue. Through these political fluctuations in the progress for marriage equality, LGBT individuals have reflected society's varied levels of acceptance and discrimination for the LGBT community through their mental and physical wellbeing. As members of a marginalized group, individuals who identify as belonging to the LGBT community may oftentimes feel social stigma, resulting in negative side effects such as fear of disclosing their identity, lack of social support, harassment and abuse from non-stigmatized groups, and social isolation, all of which can create overall poor health outcomes.

Social stigma comes from the negative labeling and social partitioning of societally marginalized and disenfranchised groups, which can result in social disadvantage and lost opportunities for individuals in those groups [1]. The cycle of stigmatization starts when negative characteristics and stereotypes become associated with a particular social group, which is only perpetuated by a majority group that enforces continued labeling and discrimination over the minority group [1]. Majority and minority groups can exist for many social areas including race, ethnicity, gender, religion, social class, and sexuality [1]. Social stigma is then internalized by many individuals of stigmatized groups, resulting in self-stigma, where the negative perceptions of the society create a negative perception of self [2]. Minority groups subject to this kind of stigmatization will oftentimes suffer from a phenomenon known as “minority stress”, where an individual of a minority group will feel that they are lesser than an individual of a majority group. LGBT individuals in particular can find themselves feeling not as worthy as heterosexual individuals [3], and a prolonged endurance of minority stress can eventually lead to significant mental and physical health disparities among LGBT individuals in comparison to their heterosexual peers [4]. Minority stress has been known to increase instances of depression and suicidal ideation among LGBT youth due to “perceived burdensomeness”, where the feeling of being a burden to others was found to be a key mechanism in depression and suicide [5]. Other risk factors associated with these disparities include increased illicit drug use among gay and bisexual men [6] and increased alcohol consumption among lesbian women [7].

Additionally, experiences of stigma can influence an LGBT individual to conceal their sexual identity due to fear of discrimination [8]. In one study examining sexual orientation disclosure to health care providers among lesbians, the author found a correlation between feelings of stigma

and likelihood of disclosing sexual orientation to a health care provider, where those who felt more stigma were less likely to inform their health care provider of their sexual identity [9]. Such concealment behavior not only has connections to feelings of anxiety, low self-esteem, depression, suicidality, and psychological distress [10, 11], but can also result in poor preventative care, as those who are unwilling to disclose to their healthcare providers are less likely to receive the appropriate screening and care based on their sexual behavior [8].

Past studies have shown that willingness to disclose one's sexual orientation can oftentimes differ by age and the generation with which the LGBT individual identifies, where the likelihood of disclosure among gay men decreases as age increases [12]. Willingness to disclose also varies depending on whom the LGBT individual is disclosing to. In Still Out, Still Aging: The MetLife study of LGBT boomers, 74% of gay men said that they were "completely" or "mostly" out, but only 57% of gay men said that their families were "completely" or "very" accepting of their sexual identity. 28% of the respondents said they felt "guarded" about their sexuality with family members, 16% with health care providers, and 12% with closest friends [13]. Fear of disclosure among older LGBT individuals can most likely be attributed to growing up in more conservative times when homosexuality was highly stigmatized, such as during the years surrounding the Stonewall riots. Notably, it was not until 1973 that the American Psychiatric Association (APA) removed homosexuality as a mental disorder from the Diagnostic Statistical Manual (DSM). LGBT youth also have their own concerns and hesitations when choosing to disclose sexual orientation. In a study examining parents' awareness of their LGBT children's sexual orientation, one of the main reasons given by LGBT youth for their nondisclosures to their parents was the fear of rejection or eviction [14]. Another common reason given was the fear of verbal or

physical abuse [14]. Younger LGBT individuals may also be less likely to disclose their sexual orientation simply because they have had less time to develop a gay identity compared to older LGBT individuals [15], although this gay identity has been shown to evolve at a relatively young age. In the same study, LGBT youth on average were first aware of their same-gender attractions at the age of 10 [14].

Such differences in disclosure between age groups can be a cause for concern when attempting to address stigma issues that exist in the LGBT community. Although often widely acknowledged that stigma and fear of disclosure exist among the community, initiatives to address these issues may need to be more specialized for specific age groups, as the consequences of nondisclosure can be vastly different for LGBT individuals depending on their age. For example, fear of disclosure has previously been associated with discomfort in using social services among older LGBT individuals, compared to younger LGBT individuals who felt more accepted by their community [16]. Older LGBT individuals also show hesitation in using aging service providers due to fear of discrimination, which leads to either avoidance of such services or the hiding of sexual identity in order to continue comfortably accessing needed services [17]. These fears are oftentimes not unwarranted as many LGBT individuals have previously stated that they had been refused health care due to their sexual orientation [18].

On June 26, 2015, the United States Supreme Court ruled state bans on same-sex marriage as unconstitutional under the 14th Amendment, resulting in the legalization of same-sex marriage across all 50 states in the US. While the decision was largely favorable among the LGBT community, the ruling was also seen to have potentially significant health implications for LGBT

individuals. In the past, studies have shown that discriminatory laws against LGBT individuals resulted in poor mental health outcomes. In one study, an online survey of lesbian, gay, and bisexual adults revealed that psychological distress increased for those living in states that passed the antigay amendments following the 2006 elections [19]. In another study, the prevalence of psychiatric disorders among LGBT persons increased for those who lived in states with policies that did not extend protections for LGBT individuals (e.g. legislation allowing employment discrimination based on sexuality) [20].

The nationally-recognized legalization of same-sex marriage could signify a level of acceptance of the LGBT community that has not previously been experienced before and could potentially improve the social stigma felt by those in the community. Although previous studies have examined changes in stigma in relation to various legislative policies and decisions regarding marriage equality for same-sex couples, there has been little research studying the effects of the most recent 2015 decision to strike down DOMA and require recognition of same-sex marriage at the federal level. Previous studies studying the effects of legislation on LGBT health have also largely focused on laws aimed to discriminate LGBT individuals rather than protect them. For instance, Hatzenbuehler compared the prevalence of psychiatric disorders among lesbian, gay, and bisexual respondents from a longitudinal survey before and after the 2004 elections that put amendments banning same-sex marriage on the ballot and found that prevalence of mood disorders and substance use disorders increased after the elections [21].

This study aims to examine the “outness” of MSM as a proxy for stigma through the years 2013-2016 to observe if sexual orientation disclosure differs by age or year. Because previous studies

have suggested that LGBT individuals feel more comfortable revealing their sexual identity when they feel acceptance in their community [16], the federally recognized right for same-sex couples to marry could act as a strong signal of recognition and acceptance across the nation. This shift in perception of society's acceptance could result in a decrease of stress and fear associated with sexual identity disclosure, especially for older LGBT individuals, and an overall reduction of social stigma.

Methods

Study Population

Data were obtained from the American Men's Internet Survey (AMIS) for years 2013-2016 [22]. AMIS is an annual cross-sectional online HIV behavioral survey of men who have sex with men (MSM) in the United States. The survey was created by the PRISM Health Research team at Emory University Rollins School of Public Health with the purpose of observing HIV-related trends. To be eligible to participate in the survey, respondents were required to be at least 15 years of age, be a U.S. resident, and have a history of oral or anal sex with a man or identify as gay or bisexual. Recruitment for the surveys was completed through banner advertisements placed on general social networking websites, gay social networking websites, gay interest websites, and mobile applications made for MSM. Details of demographic distributions for respondents across the four survey years are summarized in Table 1.

Measures

Five measures of outness were used to examine trends of sexual orientation disclosure across years 2013-2016. Because questions related to outness varied slightly across different survey years, only questions that appeared in all four survey years were included. Respondents who answered "no" for the first item ("Have you ever told anyone that you were attracted to or have sex with men?") were not prompted to answer the subsequent items ("Who of the following people have you told that you are attracted to or have sex with men?")

Outness Items (Yes/No)	
1	Have you ever told anyone that you were attracted to or have sex with men?
	Who of the following people have you told that you are attracted to or have sex with men?
2	Gay, lesbian, or bisexual friends
3	Friends who are not gay, lesbian, or bisexual
4	Family members
5	Health care provider

Statistical Analyses

Descriptive statistics were used to show the frequencies of responses across the five outness measures for each survey year, stratified on age (Table 2). Due to non-convergence of log-binomial regression models, Poisson regression models were created to estimate risk ratios, adjusted for race, age, educational attainment, and income, with the 15-24 age group as the referent and baseline for statistical comparisons. Age group was treated as the predictor variable to observe differences between the four age groups for each outness outcome across all survey years. Potential confounders were determined based on previous studies [9, 23, 24] and tested using the 10% change-in-estimate criterion. Interaction of variables was assessed using the Wald test, and the fit of the model was assessed using the Hosmer and Lemeshow goodness-of-fit test. Analyses were completed with SAS software version 9.4, and statistical significance was evaluated at $\alpha=0.05$.

Results

Table 2 provides percentages of respondents who answered "yes" to each outness question within each age group and survey year. Disclosure rates remained relatively consistent across survey years but varied by disclosure measure and age group. A high percentage of respondents across all age groups and years said that they told someone about being attracted to men (92.64-96.99%). Of those who disclosed to anyone, almost all respondents said that they had disclosed to an LGBT friend (97.73-99.32%). A fewer percentage of respondents said that they had disclosed to a family member (79.34-90.46%). The healthcare provider measure saw the lowest percentage of disclosure, as well as the most variability across age groups. While 78.31-85.45% of respondents who were ages 40+ years disclosed to a healthcare provider, only 53.42-59.78% of respondents who were ages 15-24 years disclosed to a healthcare provider.

The Poisson regression (Table 3) shows that respondents of ages 40+ years were significantly less likely than respondents of ages 15-24 years to have told anyone about being attracted to men for survey years 2014 (RR=0.98; 95% CI=0.97, 0.99), 2015 (RR=0.96; 95% CI=0.96, 0.97), and 2016 (RR=0.95; CI=0.94, 0.96). However, of the respondents who disclosed to anyone, differences were seen in whom the respondents disclosed to.

Of the respondents who had told anyone about being attracted to men, respondents of ages 30-39 were 2-4% statistically less likely than respondents of ages 15-24 years to have told a friend who was not gay, lesbian, or bisexual about being attracted to men [2015 RR=0.98 (95% CI=0.97, 0.98) and 2016 RR=0.96 (95% CI=0.95, 0.98)]. A bigger difference was seen examining respondents ages 40+ years compared to younger men. Respondents of ages 40+ years were 4-12% statistically less likely to have told a friend who was not gay, lesbian, or bisexual about

being attracted to men [2013 RR=0.96 (95% CI=0.94, 0.97), 2014 RR=0.93 (95% CI=0.92, 0.94), 2015 RR=0.91 (95% CI=0.90, 0.91), and 2016 RR=0.88 (95% CI=.87, .89)].

Of the respondents who had told anyone about being attracted to men, respondents of ages 25-29 years were 6-10% statistically more likely than respondents of ages 15-24 years to have told a family member about being attracted to men [2014 RR=1.06 (95% CI=1.03, 1.08), 2015 (RR=1.08, 95% CI=1.06, 1.10), and 2016 RR=1.10 (95% CI=1.11, 1.13)]. Respondents of ages 30-39 years were 7% statistically more likely to have told a family member [2013 RR=1.07 (95% CI=1.04, 1.11), 2014 RR=1.07 (95% CI=1.05, 1.10), 2015 RR=1.07 (95% CI=1.05, 1.09), and 2016 RR=1.07 (95% CI=1.04, 1.11)].

The largest disclosure difference between age groups was seen with the healthcare provider measure. Of the respondents who had told anyone about being attracted to men, respondents of all other age groups were significantly more likely to tell a healthcare provider about being attracted to men, compared to the reference 15-25 age group for all survey years, with disclosure rates steadily increasing with each older age group. Respondents ages 25-29 years were 24-31% statistically more likely to disclose to a healthcare provider compared to respondents ages 15-24 years, respondents ages 30-39 years were 33-37% statistically more likely to disclose, and respondents ages 40+ years were 33-35% statistically more likely to disclose. There were no significant differences for telling a friend who is gay, lesbian, or bisexual about being attracted to men, suggesting that the other age groups were not significantly more or less likely to be “out” to a gay, lesbian, or bisexual friend compared to the reference age group in any of the survey years.

Discussion

The implementation of legislation changes in the past related to LGBT rights has been shown to have a substantial impact on the mental and physical well-being of LGBT individuals [19-21], oftentimes resulting in varying degrees of internalized stigma and fear to disclose sexual orientation identity. This fear of disclosure has also been known to vary depending on an individual's age [16], presenting a concern that older LGBT individuals may experience stigma differently than younger LGBT individuals and therefore require specialized attention when attempting to address LGBT health issues. However, the recent legalization of same-sex marriage could represent a new and unprecedented national acceptance for the LGBT community that has the potential to reduce stigma and overall fear of disclosure. The present study examined stigma experiences felt by different age groups, focused on varying "outness" measures over the span of years 2011-2016 to create a better understanding of stigma-related gaps that exist between LGBT individuals different age groups.

There was a very high overall disclosure rate among respondents, suggesting that most respondents had disclosed their sexual orientation to at least one person. We found that for overall disclosure, older MSM were less willing to disclose their sexual orientation compared to younger MSM. However, of those who had disclosed their sexual orientation, disclosure to another LGBT friend did not differ by age while disclosure to a non-LGBT friend, family member, or healthcare provider did differ by age. While almost all respondents who had disclosed to anyone also disclosed to an LGBT friend, disclosure to healthcare providers was less consistent and varied greatly by age group. Disclosure rates within each age group were consistent across all survey years.

Despite little differences in disclosure to LGBT friends across the four age groups, we found that MSM ages 30 years and older were less likely to disclose to a non-LGBT friend compared to younger MSM. This may demonstrate stigma attached to homosexuality that exists more prominently among older generations, as older MSM feel that their non-LGBT friends would be significantly less accepting of their sexual identity compared to their LGBT friends. In contrast, younger MSM feel comfortable disclosing to both LGBT and non-LGBT friends. Although society has become more accepting of the LGBT community over the years, older generations may still hold to more conservative beliefs. Comparatively, younger LGBT individuals tend to have an easier coming-out experience, having had grown up in more progressive times when homosexuality is less stigmatized even in non-LGBT communities [25].

We found that LGBT men of ages 25-39 years were also more likely to have disclosed their sexual orientation to a family member, compared to younger MSM. This finding remains consistent with previous studies that have shown LGBT youth's hesitation to disclose to family members due to fear of rejection or eviction [14]. However, as MSM begin to reach an age of greater independence and self-sustainability, those fears of rejection or eviction may also begin to fade, encouraging individuals to come out to family members when they previously would not have when they were younger. The increased likelihood of disclosure to family members for those of ages 25-39 years also suggest that those MSM may have reached a more family-oriented age, where living with a permanent life partner and starting a family become more relevant. As a result, MSM in that age group may feel a greater need or responsibility to come out to family members in order to introduce future life plans.

Of those who disclosed to anyone about being attracted to men, we found that MSM ages 25 years and older were significantly more likely to disclose to a healthcare provider compared to MSM younger than age 25 years. This remains consistent with a similar study which showed that older LGBT individuals were more likely to disclose to their healthcare provider than younger LGBT individuals. LGBT youth hesitate to disclose to their healthcare providers due to parents being in the room or fear that the provider might disclose to the parents if the individual has not come out to his/her parents already [26]. LGBT youth are also less likely to disclose to a healthcare provider because they do not feel that disclosure would have any impact on the quality of their received care [26]. In contrast, older LGBT individuals, compared to younger LGBT individuals, are more likely to claim that their healthcare provider is comfortable with the disclosure and that the disclosure influences their care in a positive way [27]. Although fear of discrimination at a healthcare setting does exist among older MSM, the increased willingness to disclose can be attributed to older MSM creating more open and trusting relationships with their healthcare providers [28]. Stigma and fear of disclosure that exist for LGBT individuals in a healthcare setting are especially a cause for concern due to previous research which has shown a correlation between stigma and lower utilization of health services [8]. In turn, healthcare environments that encourage disclosure result in better health outcomes [29].

Limitations

Because AMIS is an online survey that uses a convenience sample of internet users, limitations of the study include response bias as well as non-generalizability due to the under-representation of black MSM [22]. Although respondents remained anonymous when taking the survey, it is still possible that some disclosure measures were under-reported due to discomfort in identifying as an LGBT individual. Another source of bias may exist due to the fact that those who frequented the LGBT websites and platforms where the survey ads were placed were already

more out and comfortable with disclosing their sexual identity. Although the study controlled for common demographic characteristics, some relevant demographic characteristics previously controlled for in similar studies such as religious affiliation were not included in the AMIS survey and therefore could not be controlled for in the analysis for this study. Finally, AMIS exclusively surveys the MSM population, so results from the current study cannot be representative of stigma experiences in the entire LGBT community.

Conclusion

While the understanding of stigma issues in LGBT communities is essential to improving health outcomes for LGBT individuals, acknowledging the existence of differing stigma experiences between age groups is just as necessary. As the current political climate changes and as new legislations are made that either strengthen or deter from the well-being of LGBT communities, it is important to track how these changes are affecting stigma-related behaviors, such as sexual orientation disclosure, among LGBT individuals. The results from this study suggest that while older MSM tend to be, overall, more private than younger MSM, younger MSM are actually less open than older MSM toward family members and healthcare providers. Because the unwillingness to disclose to family members and healthcare providers can have a greater negative impact on health outcomes compared to the unwillingness to disclose to friends, public health initiatives that aim to reduce stigma and encourage disclosure may want to consider focusing on the younger LGBT population, despite the preconceived notion that younger LGBT individuals face less stigma having grown up in more progressive times. However, further research is needed to reaffirm how stigma differs across age groups within the LGBT community. In addition to disclosure trends, future studies should also aim to explore other stigma measures that may provide insight on the varying stigma experiences felt by the LGBT community, such as perceived discrimination, internalized stigma, and self-image. Although

disclosure trends among age groups remained consistent across the survey years 2013-2016 of this study, there is reason to expect trends to change as U.S. legislation adjusts to a more accepting society for the LGBT community. With an improved understanding and active vigilance of stigma experiences, stigma-related issues that exist within the LGBT community can ultimately be reduced, improving health outcomes and overall quality of life for LGBT individuals across the nation.

TABLE 1 – Demographic Characteristics of AMIS Respondents, 2013-2016

Characteristic	2013 n=10078		2014 n=8256		2015 n=9616		2016 n=8732	
	n	%	n	%	n	%	n	%
Race								
American Indian/Alaska Native	62	0.62	69	0.83	71	0.75	49	0.56
Asian/Native Hawaiin/Other Pacific Islander	234	2.32	194	2.35	232	2.41	224	2.56
Black	342	3.39	352	4.26	628	6.53	731	8.37
Hispanic/Latino	1042	10.34	1134	13.74	1312	13.64	1147	13.14
White	8029	79.67	6223	75.37	7012	72.92	6194	70.94
Other/Multiple	369	3.66	285	3.45	362	3.76	380	4.35
Education								
< HS Diploma	110	1.09	136	1.65	286	2.97	328	3.76
HS Diploma or Equivalent	919	9.12	657	7.96	1060	11.03	881	10.09
Some College or Technical Degree	3242	32.18	2661	32.23	3249	33.79	2938	33.65
College Degree or Postgraduate Education	5807	57.62	4802	58.16	5021	52.22	4584	52.50
Income								
$0-19,999	925	15.06	925	11.21	1516	15.77	1377	15.77
$20,000-39,999	1572	21.03	1572	19.04	2118	22.03	1939	22.20
$40,000-74,999	2286	27.44	2286	27.69	2630	27.35	1972	22.58
$75,000+	3472	36.47	3472	42.06	3351	34.85	1867	21.38
Age								
15-24	1901	18.86	1224	14.83	2669	27.76	2398	27.46
25-29	1459	14.48	1086	13.17	1506	15.66	1522	17.43
30-39	1863	18.49	1750	21.20	1405	14.61	1215	13.91
40+	4855	48.17	4195	50.81	4036	41.97	3597	41.19

TABLE 2 – Percentage of Respondents Who Answered "Yes" to Each Outness Measure by Age Groups, 2013-2016

Measure	2013 (%)	2014 (%)	2015 (%)	2016 (%)
Told anyone about being attracted to men				
15-24	95.94	96.21	96.06	96.22
25-29	97.27	97.69	97.46	97.82
30-39	95.69	97.99	96.50	96.85
40+	94.78	96.19	92.64	92.90
Told a friend who is gay, lesbian, bisexual				
15-24	98.27	98.87	97.73	98.43
25-29	98.79	98.85	99.03	98.98
30-39	98.48	99.11	98.49	99.21
40+	98.76	99.32	98.57	98.70
Told a friend who is not gay, lesbian, bisexual				
15-24	96.43	96.97	97.32	97.57
25-29	95.58	96.45	96.34	96.87
30-39	96.13	95.68	93.83	94.87
40+	89.50	92.77	86.62	86.51
Told a family member				
15-24	83.02	81.81	79.92	79.34
25-29	87.53	86.32	87.27	88.53
30-39	88.32	90.46	85.11	87.35
40+	83.30	87.47	79.70	81.03
Told a healthcare provider				
15-24	57.25	59.78	53.42	53.94
25-29	74.73	79.03	75.54	77.46
30-39	81.91	84.48	78.02	81.67
40+	80.96	85.45	78.32	78.86

TABLE 3 – Risk Ratios from Poisson Regression of Outness Measures and Age, 2013-2016

Measure	2013, RR (95% CI)	2014, RR (95% CI)	2015, RR (95% CI)	2016, RR (95% CI)
Told anyone about being attracted to men				
15-24	REF	REF	REF	REF
25-29	1.00 (0.99, 1.02)	1.00 (0.99, 1.01)	1.00 (1.00, 1.01)	1.00 (0.99, 1.01)
30-39	1.99 (0.98, 1.01)	1.00 (0.99, 1.01)	0.98 (0.99, 1.01)	1.00 (0.98, 1.01)
40+	0.99 (0.97, 1.00)	0.98 (0.97, 0.99)	0.96 (0.96, 0.97)	0.95 (0.94, 0.96)
Told a friend who is gay, lesbian, bisexual				
15-24	REF	REF	REF	REF
25-29	1.00 (0.99, 1.01)	1.00 (1.00, 1.01)	1.00 (1.00, 1.01)	1.00 (1.00, 1.01)
30-39	0.98 (0.99, 1.01)	1.00 (0.99, 1.01)	1.00 (1.00, 1.01)	1.00 (1.00, 1.01)
40+	1.00 (0.99, 1.01)	1.00 (1.00, 1.01)	1.00 (1.00, 1.00)	1.00 (0.99, 1.01)
Told a friend who is not gay, lesbian, bisexual				
15-24	REF	REF	REF	REF
25-29	0.99 (0.97, 1.01)	.099 (0.98, 1.00)	0.99 (0.98, 1.00)	0.99 (0.98, 1.00)
30-39	1.00 (0.98, 1.01)	0.98 (0.98, 1.00)	0.98 (0.97, 0.98)	0.96 (0.95, .98)
40+	0.96 (0.94, 0.97)	0.93 (0.92, 0.94)	0.91 (0.90, 0.91)	0.88 (0.87, 0.89)
Told a family member				
15-24	REF	REF	REF	REF
25-29	1.04 (1.00, 1.08)	1.06 (1.03, 1.08)	1.08 (1.06, 1.10)	1.10 (1.07, 1.13)
30-39	1.07 (1.04, 1.11)	1.07 (1.05, 1.10)	1.07 (1.05, 1.09)	1.07 (1.04, 1.11)
40+	1.02 (0.99, 1.06)	1.01 (0.99, 1.0338)	1.00 (0.98, 1.02)	0.99 (0.97, 1.02)
Told a healthcare provider				
15-24	REF	REF	REF	REF
25-29	1.24 (1.17, 1.33)	1.27 (1.22, 1.32)	1.29 (1.25, 1.33)	1.31 (1.26, 1.38)
30-39	1.33 (1.25, 1.41)	1.34 (1.29, 1.39)	1.35 (1.31, 1.40)	1.37 (1.31, 1.43)
40+	1.35 (1.27, 1.43)	1.34 (1.29, 1.39)	1.33 (1.30, 1.37)	1.33 (1.27, 1.38)

References

1. Goldbach, J.T., et al., *The grand challenge of promoting equality by addressing social stigma*. 2015, American Academy of Social Work and Social Welfare Cleveland.
2. Corrigan, P., *How stigma interferes with mental health care.* American psychologist, 2004. **59**(7): p. 614.
3. Buffie, W.C., *Public health implications of same-sex marriage.* American Journal of Public Health, 2011. **101**(6): p. 986-990.
4. Lick, D.J., L.E. Durso, and K.L. Johnson, *Minority stress and physical health among sexual minorities.* Perspectives on Psychological Science, 2013. **8**(5): p. 521-548.
5. Baams, L., A.H. Grossman, and S.T. Russell, *Minority stress and mechanisms of risk for depression and suicidal ideation among lesbian, gay, and bisexual youth.* Developmental psychology, 2015. **51**(5): p. 688.
6. Kecojevic, A., et al., *Initiation into prescription drug misuse: differences between lesbian, gay, bisexual, transgender (LGBT) and heterosexual high-risk young adults in Los Angeles and New York.* Addictive behaviors, 2012. **37**(11): p. 1289-1293.
7. Case, P., et al., *Sexual orientation, health risk factors, and physical functioning in the Nurses' Health Study II.* Journal of Women's Health, 2004. **13**(9): p. 1033-1047.
8. Whitehead, J., J. Shaver, and R. Stephenson, *Outness, stigma, and primary health care utilization among rural LGBT populations.* PloS one, 2016. **11**(1): p. e0146139.
9. Austin, E.L., *Sexual orientation disclosure to health care providers among urban and non-urban southern lesbians.* Women & health, 2013. **53**(1): p. 41-55.
10. White, D. and R. Stephenson, *Identity formation, outness, and sexual risk among gay and bisexual men.* American journal of men's health, 2014. **8**(2): p. 98-109.

11. Bybee, J.A., et al., *Are gay men in worse mental health than heterosexual men? The role of age, shame and guilt, and coming-out.* Journal of Adult Development, 2009. **16**(3): p. 144-154.

12. Rawls, T.W., *Disclosure and depression among older gay and homosexual men: Findings from the Urban Men's Health Study.* Gay and lesbian aging: Research and future directions, 2004: p. 117-141.

13. MetLife, *Still out, still aging: The MetLife study of lesbian, gay, bisexual and transgender baby boomers*. 2010, MetLife Mature Market Institute Westport, CT.

14. D'Augelli, A.R., A.H. Grossman, and M.T. Starks, *Parents' awareness of lesbian, gay, and bisexual youths' sexual orientation.* Journal of Marriage and Family, 2005. **67**(2): p. 474-482.

15. Schope, R.D., *The decision to tell: Factors influencing the disclosure of sexual orientation by gay men.* Journal of Gay & Lesbian Social Services, 2002. **14**(1): p. 1-22.

16. Gardner, A.T., B. de Vries, and D.S. Mockus, *Aging out in the desert: Disclosure, acceptance, and service use among midlife and older lesbians and gay men.* Journal of Homosexuality, 2014. **61**(1): p. 129-144.

17. Cheese, B., *ImProvIng the LIves of LgBt oLder AduLts.* 2010.

18. Legal, L., *When health care isn't caring: Lambda Legal's survey of discrimination against LGBT people and people with HIV.* New York: Lambda Legal, 2010.

19. Rostosky, S.S., et al., *Marriage amendments and psychological distress in lesbian, gay, and bisexual (LGB) adults.* Journal of Counseling Psychology, 2009. **56**(1): p. 56.

20. Hatzenbuehler, M.L., K.M. Keyes, and D.S. Hasin, *State-level policies and psychiatric morbidity in lesbian, gay, and bisexual populations.* American journal of public health, 2009. **99**(12): p. 2275-2281.

21. Hatzenbuehler, M.L., et al., *The impact of institutional discrimination on psychiatric disorders in lesbian, gay, and bisexual populations: A prospective study.* American Journal of Public Health, 2010. **100**(3): p. 452-459.

22. Sanchez, T.H., et al., *The annual American men's internet survey of behaviors of men who have sex with men in the United States: protocol and key indicators report 2013.* JMIR public health and surveillance, 2015. **1**(1).

23. Schrimshaw, E.W., et al., *Disclosure and concealment of sexual orientation and the mental health of non-gay-identified, behaviorally bisexual men.* Journal of consulting and clinical psychology, 2013. **81**(1): p. 141.

24. Durso, L.E. and I.H. Meyer, *Patterns and predictors of disclosure of sexual orientation to healthcare providers among lesbians, gay men, and bisexuals.* Sexuality Research and Social Policy, 2013. **10**(1): p. 35-42.

25. Cohler, B.J. and R.M. Galatzer-Levy, *The course of gay and lesbian lives: Social and psychoanalytic perspectives*. 2000: University of Chicago Press.

26. Meckler, G.D., et al., *Nondisclosure of sexual orientation to a physician among a sample of gay, lesbian, and bisexual youth.* Archives of pediatrics & adolescent medicine, 2006. **160**(12): p. 1248-1254.

27. Neville, S. and M. Henrickson, *Perceptions of lesbian, gay and bisexual people of primary healthcare services.* Journal of advanced nursing, 2006. **55**(4): p. 407-415.

28. Graham, R., et al., *The health of lesbian, gay, bisexual, and transgender people: Building a foundation for better understanding.* Washington, DC: Institute of Medicine, 2011.

29. Hart, G., et al., *Gay and bisexual men's general health.* Promoting men's health: A guide for practitioners, 2001: p. 225-234.