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Trenton M. Haltom *University of Nebraska-Lincoln*, tmhaltom@huskers.unl.edu

Shawn M. Ratcliff sratcliff@huskers.unl.edu

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ORIGINAL PAPER



Effects of Sex, Race, and Education on the Timing of Coming Out among Lesbian, Gay, and Bisexual Adults in the U.S.

Trenton M. Haltom¹ • Shawn Ratcliff²

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Abstract

Sexual identity formation or "coming out" as lesbian, gay, or bisexual (LGB) involves a complex process including both private realization and public disclosure. Private realization refers to the process through which an individual becomes aware of their LGB identity, whereas public disclosure reflects when an individual discloses their identity to another person. Sex, race, and class affect the timing of these processes across the life course. While extant research has identified the bivariate nature of these processes, we took a multivariate approach to understand the timing of these sexual identity milestones from a life-course perspective. Using data from the Pew Research Center's 2013 Survey of LGBT Adults (n=1136), we considered how the timing of private realization and public disclosure of LGB identity is a sexed, racialized, and classed experience. The sample consisted of lesbians (n=270), gay males (n=396), bisexual females (n=342), and bisexual males (n=127). Results indicated that females uniformly realized and disclosed their identities at later stages in the life course, whereas individuals with at least some college education came out during their prime college-age years. We also found variation in timing between private realization and public disclosure for Black respondents, but not other racial groups. These findings provide insight into how organizations can develop specific programs that allow LGB individuals to safely explore their sexuality and provide support over the life course.

Keywords Sexual orientation · Gay/lesbian/bisexual · Life course perspective

Introduction

Realizing one's sexual identity (privately) and disclosing this identity to others (publicly) have been conceptualized as important milestones in lesbian, gay, and bisexual (LGB) people's lives (Hunter, 2007; Sedgwick, 1990; Seidman, Meeks, & Traschen, 1999). Depending on one's social positionality, these events may occur at varying points over the life course. For instance, the process of privately realizing one's sexual identity differs across sex (Savin-Williams & Diamond, 2000), race (Grov, Bimbi, Nanín, & Parsons, 2006), and education (Pearson & Wilkinson, 2017). Similarly, public disclosure processes are dynamic across sex,

- ☐ Trenton M. Haltom tmhaltom@huskers.unl.edu
- Department of Sociology, University of Nebraska-Lincoln, 711 Oldfather Hall, Lincoln, NE 68588-0324, USA
- Kansas City Federal Statistical Research Data Center, U.S. Census Bureau, 1 Memorial Drive, Kansas City, MO, USA

race, and education (Floyd & Bakeman, 2006; Gates, 2010). While correlational and bivariate analyses have provided us some insight about coming out processes across these social groups (Gates, 2010, 2017; Grov et al., 2006), these descriptive approaches fail to account for confounding variables related to other individual and structural dynamics.

Applying a life course perspective (Elder, 1974, 1994), we contribute to research on sexual identity disclosure by exploring how the timing of private realization and public disclosure of one's LGB identity varies across sex, race, and educational achievement. Using a timing in lives perspective from life course theory, we focused on the social timing of age-graded events (Elder, 1974, 1994). Specifically, we explored how social positionality (e.g., race, sex, educational attainment) affects the timing of sexual identity formation milestones. In this study, we employed multivariate analyses to better understand and account for how sex, race, and educational achievement shaped coming out processes using data from the Pew Research Center's 2013 Survey of LGBT Adults (Suh, 2014). Using multinomial logistic regression, we provided insight into how sociodemographic



characteristics affect the timing of LGB identity private realization and first public disclosure.

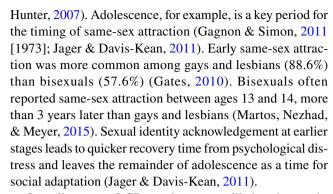
Coming Out Privately and Publicly

Coming out of the closet, or coming to terms with one's sexual identity, is not the simple process of walking over a threshold and going from the solitude of "in" to the communal "out" (Seidman et al., 1999). Rather, it is an individualized, dynamic process. Sexual identity formation theories describe a number of stages that occur in linear, sequential forms in which individuals complete one stage before moving on to the next (Cass, 1979, 1984; Coleman, 1982; Troiden, 1989). Despite criticisms that these approaches do not align with lived experiences (Hunter, 2007; Rosario, Hunter, Maguen, Gwadz, & Smith, 2001; Savin-Williams & Diamond, 2000), temporal ordering suggests private realization, or first awareness of same-sex attraction, often occurs in early adolescence. Coming out has various meanings to individuals, but central to this experience is the private realization and affirmation of one's sexual identity after becoming aware of their same-sex attraction (Grierson & Smith, 2005; Guittar, 2014; Orne, 2011). Should they choose to do so, LGB people can then self-manage public disclosures to family members, peers, health officials, coworkers, and others via what Orne (2011) called "strategic outness." The timing of private realization and public disclosure, however, varies across certain sociodemographic factors.

Coming Out Over the Life Course

The life course perspective provides a unique framework for examining life events, including those specific to LGB individuals. Elder's (1974, 1994) life course approach proposed five major tenets that individually and collectively shape one's life course trajectory. The timing in lives perspective focuses on the social timing of events in an individual's life. More specifically, this perspective conceptualizes life stages within important developmental periods such as adolescence, college, and young adulthood. (Alwin, 2012; Elder, Johnson, & Crosnoe, 2003). Formative periods of identity development for LGB individuals often align with these life stages, particularly those related to education. For example, experiencing bullying in high school may delay LGB identity development for protective purposes (GLSEN, 2015), whereas leaving home for the first time and college settings may promote sexual exploration and LGB identity formation (Coley, 2018; Pearson & Wilkinson, 2017; Wade, 2017).

For LGB individuals, private realization and initial public disclosure of one's sexual identity are key milestones that influence various life outcomes (Hunter, 2007; Sedgwick, 1990; Seidman et al., 1999). Research has identified certain ages at which these milestones often occur (for a review, see



Overall, younger LGB people are more likely to have publicly disclosed their identity compared to older LGB people (Gates, 2017). Adults aged 30–54 years were more than 16 times more likely to be closeted and those aged 55 years or older are 83 times more likely to be closeted than those 30 years old or younger (Gates, 2010). In younger cohorts, age at first disclosure to another person often occurred between 15 and 17 years (D'Augelli & Hershberger, 1993; Grov et al., 2006; Herdt & Boxer, 1993; Rosario et al., 1996). Older individuals tended to defer the coming out process until later life stages (Grierson & Smith, 2005; Grov et al., 2006). These patterns suggest an age-graded dynamic to the coming out process over the life course informed by sociodemographic, environmental, and historical contexts (Floyd & Bakeman, 2006). Thus, it is important to fully explore how formative developmental periods are shaped by social positionality to better understand LGB identity development over the life course.

Sexual Identity Formation within Sex, Race/ Ethnicity, and Education

There are important sex differences in private and public coming out patterns that may stifle sexual identity development. Same-sex desires or attractions often appeared between 7 and 13 years with males becoming aware of their same-sex desires earlier than females (D'Augelli & Hershberger, 1993; Grov et al., 2006; Herdt & Boxer, 1993; Martos et al., 2015; Rosario et al., 1996; Savin-Williams & Diamond, 2000). Age at first disclosure, however, occurred between 16 and 20 years among both male and female youth (D'Augelli & Hershberger, 1993; Herdt & Boxer, 1993; Rosario et al., 1996; Savin-Williams & Diamond, 2000). For males, early sexual identity awareness may be a product of policing atypical gender and sexual behaviors wherein effeminate behaviors are deemed "gay" (Pascoe, 2007). Women, in turn, experienced sexual identity milestones later in life compared to men (Jensen, 1999; Martos et al., 2015). Compulsory heterosexuality may



¹ Sex and gender are often conflated terms. While sex and gender are different socially constructed categories, research that explicitly focuses on gender (i.e., women) reports similar findings for women as

also play an important role in shaping women's realization and public disclosure (Rich, 1980). That is, women may feel compelled to fulfill heteronormative expectations of marriage and childbearing which delay explicit acknowledgement of their same-sex attraction (Jensen, 1999). Given these dynamics, we proposed the two following hypotheses:

H1a Females will be more likely to have privately realized their LGB identity later in life.

H1b Females will be more likely to have publicly disclosed their LGB identity later in life.

Race/Ethnicity

Among racial minority groups, cultural factors such as racial prejudice, limited community acceptance, and religiosity hinder sexual identity processes (Elias et al., 2017; Han, 2015; Lewis, 2003). In some environments, such as Black or Latinx communities, homophobic attitudes have led to postponement of one's coming out (Lewis, 2003). For Black and Latinx LGB men, staying in the closet has operated as a form of protection from violence. Black men may also live on the Down Low (DL)—getting married to a woman and participating in secretive sexual acts with other men—but not externally identify as gay or bisexual (Collins, 2004; Sandfort & Dodge, 2008; Snorton, 2014). In contrast, there may be no relationship between racial/ethnic cultural influences and sexual identity formation processes, such as public disclosure (Rosario et al., 2004). Given these competing explanations, there is a critical need to further investigate how race influences coming out.

Research on racial differences in coming out patterns has been minimal due to poor sampling techniques used to survey LGB respondents of color (Rosario et al., 2001). Some research, however, has found no significant race-related differences in private or public disclosure patterns (Grov et al., 2006; Martos et al., 2015; Rosario et al., 2004). Younger racial and ethnic groups have reported higher rates of LGB identification in line with general trends among younger populations (Gates, 2010, 2017). For example, LGB identification among Hispanics and Asians increased by 1.1% and 1.4% between 2012 and 2016, respectively—more than the percentage increase of Whites, Blacks and other non-Hispanics combined (Gates, 2017). Given limited empirical research on the effect of race on LGB private realization and public disclosure, we did not posit any directional hypotheses.

research that employs sex-based categories (i.e., female) (Jensen, 1999; Martos et al., 2015; van Anders, 2015).

Education

Educational attainment may influence the timing of identity development considering high rates of educational attainment among LGB individuals (Gates, 2010, 2017). Bisexuals, for example, have been more likely than gays, lesbians, and heterosexuals to report lower educational attainment (Gates, 2010). At the intersection of race and education, White LGB youth were more likely to be currently attending college (47%) than Black (22%) or Latino (30%) youths, but a college-aged sample was also more likely to be recruited (Rosario et al., 2004).

Regardless, educational settings may have contributed to the formation and disclosure of individuals' sexual identities. High schools have increasingly embraced gay-straight alliance (GSA) organizations. GSAs have been noted to increase feelings of safety within the school and have positive effects on LGB psychological health (Fetner & Kush, 2008; Heck et al., 2011; Walls et al., 2010). College campuses have also provided sexual minority peer networks and LGBT events which have made emerging sexual minority identities more salient (Coley, 2018; Pearson & Wilkinson, 2017; Rosario et al., 2001; Wade, 2017). Given the tie between educational settings and increasing LGBT support networks, we posited the following hypotheses:

H2a College educated individuals will be more likely to have personally realized their LGB identities during college or immediate post-college years.

H2b College educated individuals will be more likely to have publicly disclosed their LGB identities during college or immediate post-college years.

Method

Participants

Data for this study came from the Pew Research Center's 2013 Survey of LGBT Adults (Suh, 2014), a cross-sectional study of 1197 lesbian, gay, bisexual, and transgender (LGBT) respondents aged 18 or older from across the U.S. These data were unique in that questions on the survey asked specifically about realization and disclosure in the coming out process which are often overlooked by many large-scale, LGBT-focused surveys (Rosario et al., 2004). Respondents were chosen from a larger study conducted via cellular and landline phones. Those who identified as LGBT in this larger study were then (re)contacted and offered an incentive to participate in the Survey of LGBT Adults. In total, 1924 possible respondents were identified. Of these respondents, 1422 indicated their sexuality during the initial re-contact, and



Footnote 1 (continued)

were then asked if they still identified as an LGBT person. For those who responded that they were not an LGBT person (i.e., heterosexual or straight), the interview concluded resulting in a loss of 225 respondents (n=1197).

Transgender respondents (n=43) were excluded from the present analyses due to our focus on sexual identity rather than gender identity. Thus, our sample was focused on lesbian, gay, or bisexual (LGB) people (n = 1154). Additionally, our sample was limited to those who had realized their sexual orientation privately and to those who had publicly disclosed to another person. Put differently, we excluded respondents who reported uncertainty of their sexuality and/or indicated sexuality had not come up in their life. The following respondents were dropped from the analyses: 15 (1.3%) reported that sexual orientation had not come up yet with another person, 11 (0.95%) reported that they were still unsure about their sexual identity, and 8 (0.69%) respondents indicated both personal sexual uncertainty and that sexuality had yet to come up with another person. Of the final sample (n=1136), roughly one quarter (23.7%) identified as gay, a third (34.9%) identified as lesbian, and 41.5% identified as bisexual of which 11.2% were male and 30.1% were female. The final sample size was 1136.²

Measures

Dependent Variables

Age of Private Realization was the self-reported age at which a person knew they were LGB. Respondents were asked, "How old were you when you knew for sure that you were gay/lesbian/bisexual..." The responses were coded into age-specific cohorts to better understand coming out over the life course: 13 and under, 14–17 (adolescence/high school), 18–21 (young adult/college), 22–29 (adult), and 30 and older. We used 18–21 as the reference category. Sensitivity analyses were performed to test whether these theoretically driven categories accurately reflect empirical relationships and are available upon request.³

Age of Public Disclosure was the self-reported age at which a person disclosed their LGB identity to another person. Respondents were asked, "How old were you when you first told a close friend or family member that you were, or might be, gay/lesbian/bisexual...". We used the same age categories for this variable and conducted similar sensitivity analyses.

Independent Variables

Demographic variables included sex, race/ethnicity, and education. In the survey, sex was reported by the respondent as male or female. We acknowledge that sex is a biological measure and may not match the gender identity of respondents. 4 Male is used as the reference category. Respondents reported their race as White, Black, Other, Hispanic, or Multiracial. These were then collapsed into four different groups: White, Black, Hispanic, and Other. While we recognize these crude categories may not capture the nuances of the contemporary racialized social structure (Bonilla-Silva, 1997), we are limited by the sample size and analytic strategy. We use White as the reference group. Respondents also reported their level of education at the time of interview. Respondents could report having a high school education or less, some college, or a bachelor's degree (B.A.) or more. We use the lowest level of educational attainment (high school or less) as the reference category.

Controls We controlled for multiple demographic and geographic characteristics. Respondents reported their religion as Protestant, Roman Catholic, Agnostic or Atheist, Christian, or Other. We combined Protestant and Christian, resulting in four categories: Protestant, Roman Catholic, Agnostic/Atheist, or Other. We used religion as a control due to beliefs held by some religious groups that homosexuality is unnatural, a possible deterrent for coming out (Wilkinson, 2004). We also included a control for religious attendance. Age at interview was coded in three different groups to account for generational differences (Floyd & Bakeman, 2006): 18–34, 35–54, and 55+. U.S. political parties have

Footnote 3 (continued)

explored how our independent variables and controls were associated with age as a continuous variable. We conducted a series of multi-variable analyses of variance (MANOVA) and document the average age for a respondent in a particular social group. Results are available upon request.



² Respondents were categorized as lesbian, gay, bisexual, or transgender based on information provided in the pre-interview stage. Fifty-three respondents who originally reported their sexuality as bisexual later reported they were "straight." Prior research suggests that those who engage in same-sex relations may not identify with a certain group (Rupp, Taylor, Regev-Messalem Fogarty, & England 2014; Ward, 2015) and that this may be more pronounced for people who navigate a bisexual identity (Scherrer et al., 2015). These cases were dropped from the analysis along with anyone who stated they have not become aware of or disclosed their LGBT identity.

³ Sensitivity analyses included two different approaches. First, we conceptualized age categories in 5-year (e.g., 13 or under, 14–19, 20–24, 25–29, 30 or older) and 10-year intervals (e.g., 9 or younger, 10–19, 20–29, 30–39, 40 or older). Model fit statistics indicated the categories selected in the empirical analyses presented are preferred. Second, we

⁴ We recognize that gender identity and sex do not overlap for some participants and dropping all transgender respondents from the survey assumes all respondents are cisgender. However, not all non-trans identifying individuals may be cisgender; this is a limitation of the survey.

⁵ We tested the continuous variable of age, as well as a 5-year incremented variable (e.g., 18–22, 23–27), and a 10-year incremented variable (e.g., 18–27, 28–37). Model fit statistics and similarity in the relationships provide evidence that these identified cohort-like groupings of age are the preferred operationalization.

varying perspectives on sexual minority rights and freedoms (Lewis et al., 2017); we thus controlled for respondent political affiliation. To account for class-based dynamics not captured by education, we included an annual income variable using the following categories: \$30,000 or less, \$40,000 to \$50,000, \$50,000 to \$75,000, \$75,000 to \$100,000, and \$100,000 or more. Finally, research has found regional differences in sexual orientation acceptance and rights within the U.S. (Hasenbush et al., 2014). Therefore, we controlled for whether the respondent resided in a state located in the Northeastern, Midwestern, Southern, or Western regions of the U.S.

Missing Data

Although we dropped respondents who reported having not privately realized or publicly disclosed their sexual identity, some respondents did not provide answers to questions resulting in missing data points. Given that we could not conclude that these data were missing-at-random (MAR), we employed multiple imputation methods (Allison, 2001). We imputed data from the following missing variables using the *mi impute* command in Stata 15.1: age of private realization (n=62), age of public disclosure (n=146), and sex (n=1). The imputation model included all variables of interest, including the dependent variables, which was done through 50 imputed datasets.

Statistical Analysis Plan

Given our interest in understanding how sex, race, and education affected the timing of private realization and public disclosure, we employed both bivariate chi-square tests (Table 2) and multinomial logistic regressions (Tables 3, 4). All multinomial results were interpreted in comparison with their respective reference category. We conducted additional analyses rotating the reference categories of the respective dependent variable and reported them via superscripts within the tables. Tables 3 and 4 are reported in relative risk ratios (RRR), the preferred coefficient for multinomial logistic regression (Long & Freese, 2014). In the original data, weights were calculated for each individual based off of their sex, age, race/ethnicity, education, religion, and other demographic reports. Analyses used this weight in order to maintain an accurate representation of the U.S. LGB population.

Results

Descriptive Statistics

Table 1 shows the descriptive statistics of all variables in the analyses, including all independent and control variables not reported in the text. Respondents reported private realization (PR) and public disclosure (PD) of identity at ages: 13 or earlier (PR = 19.0%, PD = 6.0%), 14–17 (PR = 27.0%, PD = 21.0%), 18–21 (PR = 26.0%, PD = 30.0%), 22–29 (PR = 15.0%, PD = 23.0%), and 30 or older (PR = 12.0%, PD = 20.0%). As expected, private realization was more pronounced at earlier ages, whereas public disclosure was more common in later stages.

Bivariate Associations

Table 2 shows the bivariate associations between our focal independent variables and our private realization and public disclosure dependent outcomes, respectively. Results indicated a significant difference in private realization between males and females ($\chi^2 = 25.88$, p < .001 df = 4), racial groups ($\chi^2 = 24.47$, p = .018, df = 12), and level of education ($\chi^2 = 62.10$, p < .001 df = 8). Specifically, a majority of respondents privately realized their LGB identity between 14 and 17 or between 18 and 21, across sex, race, and education. Almost a quarter (24.06%) of males reported realizing their LGB identity at age 13 or younger, but only 14.04% of females reported the same timeline. Comparatively, only 9.74% of males reported realizing their identity at age 30 or older while 14.91% of females reported realization at age 30 or older. As for racial differences, Black, Hispanic, and Other respondents realized their LGB identity at earlier stages than White respondents. For example, 30.00% of Black respondents reported realizing their sexual identity at age 13 or younger, compared to only 15.99% of White respondents. Finally, respondents with a high school or less education reported realizing their LGB identity at ages 13 or younger, 14–17, and 18–21, with far fewer in the 22–29 or 30 or older age categories. Put differently, people with lower levels of educational attainment reported privately realizing their sexual minority identity at earlier life stages. Contrarily, respondents realized their identity at older ages as educational attainment increased. For example, only 14.84% of B.A. or more educated individuals, compared to 27.86% of high school or less respondents, reported realizing their LGB identity at age 13 or younger. However, 17.58% of B.A. or more educated respondents, compared to 6.43% of high school or less, reported LGB identity realization at age 30 or older.

Similar to the private realization, there were significant bivariate differences in public disclosure patterns across sex, race, and educational attainment. In line with the private realization models, results indicated significant differences between racial groups in their timing of public disclosure ($\chi^2 = 28.83$, p = .021, df = 12), as well as level of education attained ($\chi^2 = 74.90$, p < .001, df = 8); however, there was no statistical evidence of a bivariate association



Table 1 Descriptive statistics ^a

	M	SD	n		M	SD	n
Age of private realization			1074	Religion			1132
13 or under	0.19			Protestant	0.29		
14–17	0.27			Roman Catholic	0.12		
18-21	0.26			Agnostic/atheist	0.17		
22-29	0.15			Other	0.42		
30 or older	0.12			Religious attendance	1.31	1.41	1132
Age of public disclosure			991	Age			1136
13 or under	0.06			34 or younger	0.33		
14–17	0.21			35–54	0.34		
18-21	0.30			55 or older	0.33		
22-29	0.23			Political identity			1132
30 or older	0.20			Democrat	0.58		
Sex			1135	Independent/other	0.35		
Male	0.46			Republican	0.07		
Female	0.54			Income			1120
Race			1136	\$30,000 or less	0.32		
White	0.76			\$40,000-\$50,0000	0.22		
Black	0.07			\$50,000-\$75,000	0.17		
Hispanic	0.10			\$75,000-\$100,000	0.12		
Other	0.07			\$100,00 or more	0.16		
Education			1136	Region			1136
High school or less	0.13			Northeast	0.18		
Some college	0.36			Midwest	0.23		
B.A. or more	0.51			South	0.31		
				West	0.28		

Data are reported prior to any transformations, including imputations

B.A. Bachelor's degree

between sex and age of public disclosure ($\chi^2 = 6.94$, p = .139, df = 4). Males and females followed similar patterns in public disclosure; however, there was variation between males (17.38%) and females (22.85%) in public disclosure at age 30 or older. Looking at differences among racial groups, White respondents were more likely to publicly disclose their LGB identity at later life stages compared to respondents of color. For example, only 19.07% of White respondents reported publicly disclosing their identities between ages 14–17, whereas 30.77% of Black, 26.17% of Hispanic, and 26.09% of other respondents disclosed between 14 and 17. Finally, there were differences in educational attainment and public disclosure compared to the age of realization. People who reported attending college—some college (32.77%) or B.A. or more (29.68%) reported publicly disclosing in prime college years (18–21) at a higher percentage than those with a high school or less education (25.19%). These findings, however, are purely bivariate and may be explained by confounding factors like religion, income, and other sociodemographic indicators.

Multivariate Results

Private Realization

Table 3 shows results for the timing of private realization of sexual identity and respondent demographics. The model presented in Table 3 used "18-21" as the reference category; however, we shifted the reference categories and reported statistically significant differences using superscripts in the table. Females, relative to males, were less likely to privately realize their LGB identity at 13 or under, compared to ages 18-21 (RRR = 0.28, p < .001). Conversely, female respondents, relative to males, were more likely to report they privately realized their identity at 30 or older, compared to ages 18-21 (RRR = 3.05, p < .001). Additional analyses show that females were more likely to realize their identities at 30 or older, compared to realizing at 13 and under, 14–17, or 22–29 (p < .05). We found similar trends for females who realized their identity in later years (22–29), compared to earlier life course stages.



Table 2 Bivariate results of sex, race, and education on age of private realization and age of public disclosure

				,										
	Male	Male Female Total (n)	Total (n)		White	Black	Other	Hispanic Total (n)	Total (n)		High school or less Some college B.A. or more	Some college	B.A. or more	Total (n)
Age of private realization	te realiza	ion,												
Pre-14	24.06%	24.06% 14.04%	201	Pre-14	15.99%	30.00%	25.00%	26.96%	201	Pre-14	27.86%	20.88%	14.84%	201
14-17	29.03% 25.44%	25.44%	291	14-17	26.57%	22.86%	32.89%	30.43%	292	14-17	35.00%	33.25%	20.88%	292
18–21	23.46% 28.95%	28.95%	283	18–21	27.31%	27.14%	21.05%	22.61%	283	18–21	22.14%	25.26%	28.21%	283
22-29	13.72% 16.67%	16.67%	164	22-29	16.61%	10.00%	11.84%	11.30%	164	22-29	8.57%	13.14%	18.50%	164
30+	9.74%	14.91%	134	30+	13.53%	10.00%	9.21%	8.70%	134	30+	6.43%	7.47%	17.58%	134
Total (n)	503	570	1073	Total (n)	813	70	92	115	1074	Total (n)	140	388	546	1074
$\chi^2 = 25.88, p < .001, df = 4$	v < .001, d	f=4		$\chi^2 = 24.47$	$\chi^2 = 24.47, p = .018, df = 12$	= 12				$\chi^2 = 62.10,$	$\chi^2 = 62.10, p < .001, df = 8$			
Age of public disclosure	ic disclosu	re												
Pre-14	5.42%	2.67%	55	Pre-14	4.80%	6.15%	8.70%	8.41%	55	Pre-14	10.37%	6.21%	3.78%	55
14-17	19.86%	21.94%	208	14-17	19.07%	30.77%	26.09%	26.17%	209	14-17	31.85%	28.81%	12.75%	209
18-21	32.51%	28.34%	299	18–21	29.20%	29.23%	30.43%	37.38%	299	18–21	25.19%	32.77%	29.68%	299
22-29	24.83%	21.21%	226	22–29	24.27%	18.46%	18.84%	17.76%	226	22-29	17.78%	19.49%	26.49%	226
30+	17.38%	22.85%	202	30+	22.67%	15.38%	15.94%	10.28%	202	30+	14.81%	12.71%	27.29%	202
Total (n)	443	547	066	Total (n)	750	65	69	107	991	Total (n)	135	354	502	991
$\chi^2 = 6.94, p = .139, df = 4$	=.139, df	= 4		$\chi^2 = 28.83,$	$\chi^2 = 28.83, p = .021, df = 12$	= 12				$\chi^2 = 74.90$	$\chi^2 = 74.90, p < .001, df = 8$			

All data are reported prior to any transformations, including imputations B.A. Bachelor's degree



Table 3 Multinomial logistic results on age of private realization 13 or under 14-17 22-29 30 or older RRR RRR RRR RRR Sex Male 0.28^{bcd}*** 1.18^{abd} 0.62^{acd} 3.05abe*** Female Race White Black 2.51bc 0.99^{a} 0.44^{a} 0.93 Hispanic 1.13 0.86 0.69 0.66 0.98 Other 1.56 1.12 1.35 Education High school or less 0.56 0.85 1.10 0.84 Some college 1.83^{ab} 0.53^{d} 0.53^{d} 1.19 B.A. or more Religion Protestant Roman Catholic 0.70 0.36* 1.08 0.80 Agnostic/atheist 1.12 1.01 0.66 0.89 0.99 Other 1.17 0.96 0.89 1.43** Religious Attendance 1.17 1.19 1.20 Age34 or younger 18.41abc*** 0.63^{cd} 2.24abd* 35-54 0.41^{cd}** 0.65^{cd} 3.27abd** 34.07abc*** 0.42cs* 55 or older Political Identity Democrat Independent/Other 1.08 1.53 1.27 1.15 1.60 0.85 1.59 Republican 0.86 Income \$30,000 or less \$40,000-\$50,0000 0.60 0.78 0.88 0.81 1.50 \$50,000-\$75,000 0.80 0.71 1.11 0.85 \$75,000-\$100,000 1.01 1.26 1.34 \$100,00 or more 0.77 0.80 1.15 0.93 Region Northeast 0.90^{c} 0.54 $0.34^{ad}**$ 1.43^c Midwest South 0.83 0.53^{d} 0.43^{d*} 1.34bc 0.85 0.46^{d} 1.35^{c} West 0.63 1136 n

Reference category is 18-21

B.A. Bachelor's degree

*p < .05; **p < .01; ***p < .001, two-tailed test, RRR=Relative Risk Ratio

^aCoefficient differs when the reference category is Private Realization (Pre-13) at p < .05

^bCoefficient differs when the reference category is Private Realization (14-17) at p < .05

^cCoefficient differs when the reference category is Private Realization (22-29) at p < .05

^dCoefficient differs when the reference category is Private Realization (30 or older) at p < .05



Table 4 Multinomial logistic results on age of public disclosure

	13 or under	14–17	22–29	30 or older
	RRR	RRR	RRR	RRR
Sex				
Male				
Female	0.99^{d}	0.67^{d}	1.19 ^d	3.01abc***
Race				
White				
Black	1.20	1.53	0.47	0.53
Hispanic	0.58	0.87	0.80	0.32
Other	0.29bc	1.53 ^a	1.25	1.04
Education				
High school or less				
Some college	0.45	0.47*	0.60	0.35*
B.A. or more	0.54	0.32 ^c **	0.80^{b}	0.64
Religion				
Protestant				
Roman catholic	1.42	0.68	0.32ad**	0.87
Agnostic/atheist	1.21	1.26	0.73	0.70
Other	1.08	1.24	0.69	0.70
Religious attend- ance	1.24	1.02	1.08	1.10
Age				
34 or younger				
35-54	0.92 ^{cd}	$0.54^{cd}*$	3.75 ^{abde} ***	41.13 ^{abc} ***
55 or older	0.59 ^{cd}	0.55 ^{cd}	3.28abd***	92.81 ^{abc} ***
Political identity				
Democrat				
Independent/other	2.17	1.37	1.31	1.84
Republican	0.49	1.35	1.17	2.23
Income				
\$30,000 or less				
\$40,000-\$50,0000	2.19	1.02 ^c	2.17 ^b *	1.50
\$50,000-\$75,000	1.34	1.15	2.32*	1.89
\$75,000-\$100,000	0.31 ^c	1.23	1.75 ^a	1.50
\$100,00 or more	0.46^{d}	1.37	2.07	2.31 ^a
Region				
Northeast				
Midwest	0.59	0.84	0.63	0.68
South	0.54	0.60	0.42*	0.69
West	0.95	1.01	0.57	0.60
n	1136			

Reference category is 18-21

B.A. Bachelor's degree

*p<.05; **p<.01; ***p<.001, two-tailed test, RRR=Relative Risk Ratio

^aCoefficient differs when the reference category is Public Disclosure (Pre-13) at p < .05

^bCoefficient differs when the reference category is Public Disclosure (14-17) at p < .05

^cCoefficient differs when the reference category is Public Disclosure (22-29) at p < .05

^dCoefficient differs when the reference category is Public Disclosure (30 or older) at p < .05

There were a few differences in private realization of LGB identity by race/ethnicity and educational attainment. Despite no other significant evidence of racial differences in private realization, Black respondents, compared to White respondents, were less likely to report they privately realized their LGB identity between 14 and 17 or 22 and 29, compared to 13 or under (p < .05). These results confirmed findings from the bivariate analyses regarding racial differences in early LGB identity realization particularly for Black LGB individuals, even after accounting for important confounding factors. As for educational differences, respondents with a B.A. or more, relative to those with a high school or less education, were more likely to report having privately realized their LGB identity at 30 or older, compared to either 13 or under or 14–17 (p < .05).

As for the controls, our findings indicated respondent age and regions were the most consistent covariates associated with private realization. Roman Catholics, compared to Protestants, were less likely to report privately realization at age 22–29, compared to 18–21. Conversely, those who reported more frequent religious attendance reported a higher likelihood of private realization at age 22–29, compared to 18–21. We found no significant evidence that political identity nor annual income were associated with timing of private realization. However, there are some pronounced regional differences. Compared to the Northeastern region of the U.S., those who lived in the Midwestern and Southern regions were associated with a decreased likelihood of coming out at earlier stages (14–17, 22–29), compared to ages 30 or older.

Public Disclosure

Table 4 shows the results from the multivariate analysis regarding the age of public disclosure. Similar to the bivariate and private realization results, females were more likely, compared to males, to publicly disclose their LGB identity at 30 or older, compared to 18-21 (RRR = 3.01, p < .001). This significant finding notwithstanding, there was no statistical evidence to support that females, relative to males, were more, or less, likely to publicly disclose their identity when 18-21 is the reference category. However, additional analyses provided evidence that females, compared to males, experienced an increase in the likelihood of publicly coming out at 30 and older, compared to all other public disclosure age ranges (p < .05).

Although there were some racial differences in the private realization models, we found no evidence to support there were racial differences in public disclosure patterns. However, differences based on educational attainment remained. Relative to those with a high school or less education, respondents with some college were less likely to publicly

disclose their LGB identity between 14 and 17, compared to coming out between 18 and 21 (RRR = 0.47, p < .05). Respondents who reported having some college education experienced a decrease in the likelihood of publicly disclosing at 30 or older, compared to publicly disclosing between 18 and 21 (RRR = 0.35, p < .05). Moreover, respondents who reported having a B.A. or more were less likely to have publicly disclosed between 14 and 17, compared to ages 18–21 (RRR = 0.32, p < .01).

As for the controls, there continued to be minimal associations with religious affiliation and political identity. Religious attendance had no association with timing of public disclosure compared to private realization. As for age, people who were 35-54 or 55 or older were significantly more likely to come out at later stages, especially at ages 30 or older. We found some associations with income; however, these results were idiosyncratic and showed no clear pattern with public disclosure. Finally, there was one significant association with region and public disclosure timing related to the South (RRR = 0.42, p < .05).

Summary

In sum, our analyses demonstrated how the social dynamics of sex, race, and educational attainment affect private realization and public disclosure of one's LGB identity. Females were more likely to privately realize (H1a) and publicly disclose (H1b) at later stages in life, specifically at ages 30 or older. Shown in Fig. 1a and b, there were identifiable gaps between males and females in their predicted probabilities of private realization and public disclosure at 30 or older. Despite no directional hypotheses, we found some racial differences in the timing of private realization. Black respondents were more likely to realize their identity at an earlier stage; however, there was no evidence this trend translated into public disclosure. For our educational hypotheses, we found respondents with a B.A. or more often privately realized (H2a) and publicly disclosed (H2b) their identities during prime college years or shortly thereafter. To help visualize these trends, Fig. 2a and b reports the predicted probabilities of private realization and public disclosure by educational attainment. Between ages 18–21, respondents with a B.A. or more education were more likely to realize at 18-21 than those who received only some or no college education. A similar, and more pronounced, pattern was present for public disclosure. Additionally, we found that age was a consistent factor associated with private realization and public coming out. Specifically, older respondents reported coming out at later stages in the life course. Religious and regional dynamics influenced private realization timing but had a minimal effect on public disclosure. Collectively, our



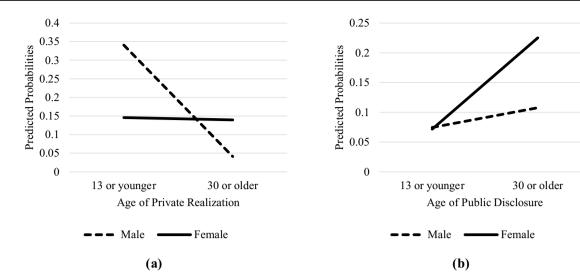


Fig. 1 Predicted probabilities of privately realizing and publicly disclosing sexual orientation by sex

findings provided insight into how sex and race differences inform LGB identity development and how accessing college settings may foster identity exploration and development.

Discussion

Our results made three key contributions about how sex, race, and education inform the private and public aspects of the coming out process. First, our results provided complimentary evidence to earlier research that establishes females' realization and disclosure processes often occur later in the life course. Second, race factored into private realization among Black respondents, but there were no observed differences in public disclosure. Finally, our results indicated accessing a college education increases the likelihood of privately realizing and publicly disclosing one's sexual identity during prime college years or shortly thereafter. Overall, results presented here demonstrated how sexual identity formation is not solely based on sex *or* race *or* class, but that all three factors offer individually unique insights into sexual minority identity formation.

In line with previous research, we found that females privately realized and publicly disclosed their sexual minority identities later in life (Jensen, 1999; Martos et al., 2015). Prior literature suggested that females came to terms with their sexual desires later to appease heterosexist expectations like heterosexual marriage or child bearing (Acosta, 2013; Jensen, 1999; see also Rich, 1980). Our work provided confirmatory evidence that sex-based differences in private realization and public coming out processes were consistent. Extending existing scholarship (Grov et al., 2006), our findings indicated that females privately realized and publicly

disclosed their sexual identity at later life stages, even after controlling for other sociodemographic factors.

We also found notable differences for Black respondents in private realization, but not public disclosure. Such findings dovetailed ongoing research and competing arguments about Black males on the "Down Low" (DL) (Collins, 2004; Snorton, 2014). Our findings neither confirmed nor denied interpretations of the DL; rather, our results revealed the complexity of sexuality/sexual identity formation especially within communities of color. The observed difference between private realization and public disclosure among Black males may be a product of sociocultural context (e.g., community environments, family pressures, or social networks). On one hand, exposure to (hetero)sexual encounters at earlier ages through peers' conversations and actions during adolescence may heighten awareness of sexuality, especially within Black communities (Ford, Sohn, & Lepkowski, 2001). On the other hand, homophobia within their communities may have hindered when racial minorities chose to tell another person about their sexual minority identity for protective purposes (Moradi et al., 2010; Snorton, 2014). Overall, these results highlighted the critical need for research to further examine identity realization and public disclosure of sexual minority identities among racial minorities and the complexities associated with these intersecting identities (Acosta, 2013).

Educational differences were consistent across private realization and public coming out processes indicating education promoted sexual identity formation. Prime college years (18–21) and early adulthood (22–29) are critical time points for LGB identity formation. College environments offer a unique, privileged space for identity development, realization, and exploration (Coley, 2018; Rupp et al., 2014; Schmitz & Tyler, 2017; Wade, 2017). Our results provided additional evidence of this claim. Indeed, the college



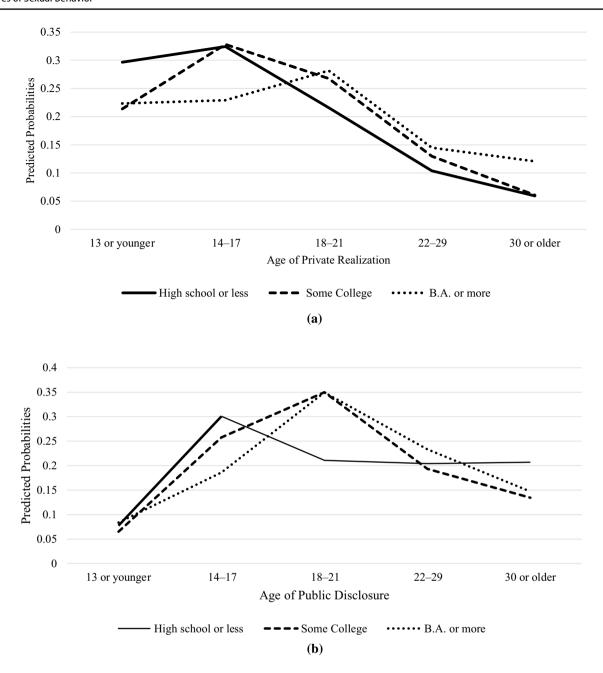


Fig. 2 a Predicted probabilities of sexual orientation private realization by educational attainment. b Predicted probabilities of sexual orientation public disclosure by educational attainment

experience and campus climate may be both educationally and socially meaningful. For example, some LGB people may go to college as a way to get out of certain harmful social settings (e.g., hometowns). Access to college is varied, however, especially among vulnerable populations like LGB homeless youth (Schmitz & Tyler, 2017). Thus, the importance of constructing safe environments for sexual identity formation is critical. New programs can foster more supportive environments to reduce psychological and physiological

risk, an outcome linked to sexual identity repression (Cole et al., 1996; Pachankis, 2007).

Finally, we found that age was a constant predictor for the private realization and public disclosure of LGB identity. Specifically, older LGB individuals consistently reported realization and public disclosure during later life stages (30 or older). Public disclosure later in life was even more significant for the oldest group (55 or older), consistent with prior research (Gates, 2010, 2017; Grierson & Smith, 2005; Grov et al., 2006). These findings have two potential



interpretations: First, our findings may speak to broader cohort patterns. Older respondents would have been exposed to the Gay Rights Movement during the 1960s and the HIV/ AIDS epidemic of the 1980s. Younger generations, by comparison, have been exposed to more accepting cultural attitudes toward LGBTQ people that allow for more open and safer sexual expression (Garretson, 2018; Grierson & Smith, 2005). Though debatable, the significance of "the closet" may be on the decline for younger populations due to increasing normalization and routinization in popular culture (Seidman et al., 1999). Second, we focused only on those who came out; therefore, selection bias places younger respondents into younger age categories of realization and disclosure by default. Notwithstanding these explanations, there was robust evidence to support an age-graded dynamic to the coming out process. Overall, there remains a need for increased attention to the sociodemographic diversity of experiences in the timing of coming out and events throughout the life course that may shape this dynamic.

Limitations

Although this study extended knowledge about sexual identity formation processes, it was not without limitations. First, we only examined LGB adults who had already come out both privately and publicly. By excluding those respondents who had not yet come out publicly but had privately realized their identities, we may have missed important differences. Moreover, individuals may have publicly disclosed one identity (e.g., bisexual), but in private may identify another way (e.g., gay or lesbian) contributing to the idea that coming out is an ongoing, dynamic process (see Orne, 2011). We must also acknowledge the limited number of sexual identities included in the analyses, a restriction of the data set. Much work is needed to expand scholarly knowledge about the coming out processes and variations across demographic characteristics of other sexual identities (e.g., queer, pansexual, asexual, etc.).

Second, we did not include an analysis of the interactions between demographic identities and how any intersections may affect the findings; it is possible that sex, race, and education intersect in multiplicative ways. Intersectionality scholars have documented how overlapping axes of domination (e.g., sexism, racism, classism) inform identity development and sexuality simultaneously (Collins, 2004; Moore, 2011; Purdie-Vaughns & Eibach, 2008). We explored the possibility of interaction effects; however, there were not enough cases to perform the analyses.

Third, we echo concerns by scholars about the importance of increasing data collection efforts to provide more representative data on LGB people of color in nationally representative surveys (Rosario et al., 2001, 2004). Finally, we

recognize that private realization may be a precursor to public disclosure of one's LGB identity; however, we were unable to control for this in our models. Age of private realization and age of public disclosure were highly correlated (r=0.60) and present issues of multi-collinearity when included in the model. Thus, the results from the age of private realization and the age of public disclosure results should be interpreted for each unique process rather than theorize about any link between the two. Future research should explore the differences in timing and whether or not there are differences (i.e., How does the temporal distance between private realization and public disclosure vary across social classifications?). These limitations should not detract from the importance of our findings.

Conclusion

Using data from the Pew Research Center's 2013 Survey of LGBT Adults (Suh, 2014), our results provided insight into LGB private and public sexual identity formation processes. Results indicated evidence that females realized and disclosed their sexual minority identities at 30 or older, relative to nearly all age categories. We posit these findings reflect heteronormative social structures. We also found differences between private realization and public disclosure of LGB identification among Black respondents. We posit this was due to the social context of sexual identity formation. With findings that educational attainment lead to realization and disclosure during prime college years, we posit college environments offer space for LGB people to explore and solidify their sexual identities. Accessing higher education, however, is rooted in economic privileges. We suggest that schools, organizations, and community programs increase their support of queer and questioning individuals, particularly aimed toward women, people of color, and other minority communities.

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Compliance with Ethical Standards

Conflict of interest The authors declare no conflict of interest.



Ethical approval This article does not contain any studies with human participants performed by any of the authors.

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