

Religion and Sexual Identity Fluidity in a National Three-Wave Panel of U.S. Adults

Christopher P. Scheitle¹ · Julia Kay Wolf¹

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Abstract Research has shown that cross-sectional estimates of sexual identities overlook fluidity in those identities. Research has also shown that social factors, such as competing identities, can influence sexual identity fluidity. We contributed to this literature in two ways. First, we utilized a representative panel of US adults ($N = 1034$) surveyed in 2010, 2012, and 2014 by the General Social Survey. The addition of a third observation allowed us to examine more complexity in sexual identity fluidity. We found that 2.40% of US adults reported at least one change in sexual identity across the 4 years, with 1.59% reporting one change and 0.81% reporting two changes. Our second contribution came from examining the role of religion, as past research has suggested that religion can destabilize and prolong sexual identity development. We found that lesbian or gay individuals ($N = 17$), bisexuals ($N = 15$), and females ($N = 585$) showed more sexual identity fluidity compared to heterosexuals ($N = 1003$) and males ($N = 450$), respectively. Marital status, age, race, and education did not have significant associations with sexual identity fluidity. Regarding the role of religion, we found that participants identifying as more religious in Wave 1 showed more fluidity in sexual identity across later observations. Further analysis showed that higher levels of religiosity make it more likely that lesbian or gay individuals will be fluid in sexual identity, but this is not the case for heterosexual individuals. This finding reinforces past qualitative research that has suggested that religion can extend or complicate sexual minorities' identity development.

Keywords Sexual identity · Sexual orientation · Sexual fluidity · Religiosity

Introduction

As widely acknowledged in the literature on sexuality, one's sexual orientation is comprised of several components such as identity, behavior, and attraction (Gates, 2011; Institute of Medicine, 2011; Vrangalova & Savin-Williams, 2012) that may fluctuate throughout one's life (Beckstead, 2012; Diamond, 2008; Dickson, van Rooode, Cameron, & Paul, 2013; Jones & Yarhouse, 2011; Savin-Williams & Ream, 2007; Twenge, Sherman, & Wells, 2016). An individual's sexual identity is the way he or she understands his or her sexual propensity, and usually expresses it with a label such as "heterosexual, gay, lesbian, or bisexual" (Diamond, 2003, p. 352).¹ Approximately 3.5% of Americans identify as lesbian, gay, or bisexual in national surveys (Gates, 2011). This percentage, however, only represents a snapshot of what the U.S. population may consider their sexual identity at one point in time. Some of the individuals within that percentage may identify as something else if asked again at a future time while individuals who previously identified as heterosexual may become part of that percentage (Stokes, McKirnan, & Burzette, 1993). In short, sexual identity may change over the course of their life through a concept referred to as sexual identity mobility or fluidity (Everett, 2015; Katz-Wise & Hyde, 2015).

Studies of sexual identity fluidity have suggested that social factors can shape an individual's likelihood of experiencing fluidity (Katz-Wise & Hyde, 2015). In particular, there are reasons to believe that religiosity could shape the likelihood of experiencing sexual identity fluidity. Since many religious institutions, particularly those that are more theologically and socially conservative, hold negative and intolerant views of sexual minorities, reconcil-

✉ Christopher P. Scheitle
cpscheitle@mail.wvu.edu

¹ Department of Sociology and Anthropology, West Virginia University, PO Box 6326, Morgantown, WV 25606, USA

¹ An individual may use or may not use a label; there is the literature on those who refuse to label themselves or remained "unlabeled," potentially at times when questioning their identity, indicating attraction to a person instead of a gender, being open to changing identities, or not feeling that they fit completely in another category (Diamond, 2008).

ing one's attractions to the same or more than one sex/gender while trying to remain a faithful person may provide an additional barrier to developing a stable identity as a sexual minority (Lapinski & McKirman, 2013). While some individuals may give up their religious affiliation in favor of their sexual identity, those who find both as substantial components of their lives may endure a great deal of interpersonal conflict (Subhi & Geelan, 2012). The American Psychological Association's (APA) (2009) Task Force noted that those who are highly religious tend to be more motivated to seek ways to change their sexual orientation and, as Beckstead (2012) further points out from the APA Task Force, they struggle with their religious and sexual orientation identities, thinking that only one can prevail. The difficulty of trying to reconcile one's conflicting religious and sexual identities may lead to changing one's sexual identity once or multiple times over his or her life course.

The research presented here contributes to the sexual identity fluidity literature in two ways. Much of the previous research using panel surveys, such as Mock and Eibach's (2012) analysis of the 1994–1995 and 2004–2006 waves of the National Survey of Midlife Development in the United States (MIDUS), has used only two points of observation (see Ott, Corliss, Wypij, Rosario, & Austin [2011] and Savin-Williams & Ream [2007] for notable exceptions).² One of the suggestions for future research outlined by Mock and Eibach was to examine data with more than two points of observation. The research we present here used three waves of data from a panel of participants in the General Social Survey (GSS), a nationally representative survey of U.S. adults.

Our second contribution comes from examining the role that religion has in sexual fluidity. Though there has been an assortment of recent works on the intersection of sexual identity and race (e.g., Huang et al., 2010; Johnson & Henderson, 2005; Meyer, 2010), age (e.g., Martos, Nezhad, & Meyer, 2015; Ott et al., 2011), and gender (e.g., Dickson et al., 2013; Katz-Wise & Hyde, 2015; Mock & Eibach, 2012; Ott et al., 2011; Rosario, Schrimshaw, Hunter, & Bruan, 2006; Savin-Williams, Joyner, & Reiger, 2012), the need for an exploration on the intersection of religious and sexual identities was recognized over two decades ago (Patterson, 1995), and those studying sexual minorities have been recommended to include religion in further demographic research (National Research Council, 2011). A recent study by Twenge et al. (2016) considered how individuals' religious attendance was related to their acceptance and experiences of same-sex sexual behaviors, but this study did not address the role of religion in shaping one's identity. We specifically examined whether individuals who both identify as a sexual minority and as a religious person experience more sexual fluidity than sexual minorities who do not identify as a religious person. Additionally, since traditional religions tend to have more negative

views of homosexuality (Barret & Barzan, 1996; Yip, 2005), we addressed the relationship between liberal, moderate, and conservative religions on one's sexual identity fluidity.

Sexual Identity Fluidity

It was not until recently that the literature began to systematically examine sexual identity as a fluid concept (Diamond, Dickenson, & Blair, 2017; Kinnish, Strassberg, & Turner, 2005; Patterson, 1995). As pointed out by Kinnish et al. (2005), earlier reviews of the literature discussed the typically ineffective results of conversion therapy (aside from Spitzer's [2003] study on "reparative" therapy) and more unsuccessful reorientation methods (Haldeman, 1991, 1994; Murphy, 1992), suggesting that sexual identity seldom changed. Recently, more studies examining and supporting sexual fluidity have emerged, challenging the prominent understanding that sexual identities are inherently stable over the life course (Diamond, 2003, 2008; Diamond & Rosky, 2016; Katz-Wise & Hyde, 2015; Kinnish et al., 2005; Ott et al., 2011; Savin-Williams et al., 2012; Spitzer, 2003).

Although there has been research examining the stability or fluidity of sexual identity, many of these studies have utilized small samples, usually targeting sexual minorities (e.g., Diamond, 2003, 2008; Everett, Talley, Hughes, Wilsnack, & Johnson, 2016; Katz-Wise & Hyde, 2015; Rosario et al., 2006), or have otherwise limited data. For example, much of this research has focused on sexual identity fluidity in adolescence or early/mid-adulthood (e.g., Diamond, 2008; Everett, 2015; Ott et al., 2011; Savin-Williams et al., 2012). This prior research presents a variety of themes and findings. For example, in Mock and Eibach's (2012) analysis of two waves of the MIDUS survey, they found that heterosexuality was the most stable identity between the two waves and that bisexual and homosexual women tended to be more fluid in identity. Typically, sexual fluidity appears to be more common among women than men (Diamond, 2003; Everett, 2015; Kinnish et al., 2005; Patterson, 1995) or at least among initially identifying homosexual females than their male counterparts (Mock & Eibach, 2012). There have been exceptions to these findings, with some research finding no significant gender differences in sexual identity fluidity (e.g., Katz-Wise & Hyde, 2015; Ott et al., 2011) and others finding more fluidity among men (e.g., Rosario et al., 2006). Although not quite reaching statistical significance, Mock and Eibach's (2012) analysis also suggested that education might reduce sexual identity fluidity while age had no effect. Ott et al. (2011) also found that sexual identity fluidity was not significantly different across ages from adolescence to adulthood. On the other hand, Herek, Norton, Allen, and Sims (2010) found that those who identified as bisexual were younger than both the U.S. adult population and significantly younger than gay men and lesbians. From this, they posited that for younger individuals, simply identifying as bisexual (as opposed to only homosexual or heterosexual) may indicate a potential under-

² However, Savin-Williams and Ream (2007) only had one wave of available data for sexual identity; they analyzed romantic attraction and sexual behavior over three waves.

standing of their sexuality as fluid. We include these demographic characteristics in our analyses to add to the diverse literature.

Religion and Sexual Identity

Religion is a strong predictor of attitudes toward homosexuality across the world, particularly in nations that have cultural emphases on self-expression, like the U.S. (Adamczyk & Pitt, 2009). In the U.S., religious variables, such as religious affiliation, have been found to more strongly predict attitudes toward issues like same-sex marriage than demographic variables (Olson, Cadge, & Harris, 2006). Religion has also been pointed to as highly influential in stigmatizing sexual minority identities (Beaulieu-Prévost & Fortin, 2015; National Research Council, 2011). Most traditional religions hold negative views of homosexual behaviors (Barret & Barzan, 1996; Yip, 2005), and those who deem themselves quite religious are more likely to develop or hold homophobic or heterosexist attitudes (Olson et al., 2006). Twenge et al. (2016) found that those who rarely attended religious services reported increases in acceptance of same-sex behavior more than those who regularly attended services over time from 1973 to 2014. Given this, it is perhaps not surprising that Herek et al. (2010) found that those who identified as LGB were typically less religious than the US population with only about a quarter of LGB participants reporting “quite a bit” or “a great deal” of daily guidance from formal religion (vs. 59% of the U.S. population).

For individuals who are highly religious and also experiencing sexual attraction to the same or more than one sex/gender or who are engaging in same-sex sexual behavior, internalized homophobic/biphobic or heterosexist attitudes could create a form of cognitive dissonance or intrapersonal conflict (Barton, 2010; Lapinski & McKirnan, 2013; Mahaffy, 1996; Subhi & Geelan, 2012). Such an individual may have trouble coming to terms with identifying as a religious person and then trying to reconcile his or her feelings of belonging to the outgroup of sexual minorities (Buchanan, Dzelme, Harris, & Hecker, 2001). Individuals belonging to stricter and more conservative religions are also more likely to have friends predominantly from their religious congregation (Scheitle & Adamczyk, 2009). These relationships can be mutually reinforcing of the religion’s opposition to sexual minority behaviors and identities (Finke, Bahr, & Scheitle, 2006; Olson et al., 2006; Scheitle & Adamczyk, 2009).

According to Roccas and Brewer (2002), recognizing one’s membership in more than one social group (e.g., actively religious and sexual minority) and the lack of overlap between the groups calls for “cognitive resources” to resolve this “social identity complexity.” Everett (2015) found that those initially reporting same-sex romantic attractions or relationships who changed their identity to “a more same-sex oriented identity” had fewer depressive symptoms; Everett pointed out its consistency with identity control/change theory, which posits that mental health can be improved by reducing the cognitive dissonance between one’s proclaimed identity and the identity one thinks best fits him or her. However, trying to lessen one’s cognitive dissonance by accepting a sexual

minority identity may result in exclusion from his or her religious social networks. The typical lack of group overlap between religious affiliation and sexual minority identity presents complications in resolving one’s overall sense of self.

In their interviews with gay and lesbian individuals of Christian upbringings, Levy and Reeves (2011; see also Schuck & Liddle, 2001) found “the process of resolving conflict between sexual identity and religious beliefs is fluid and interactive” (p. 65). In other words, due to the dissonance between their sexual identity and religious beliefs, these participants developed their faith more quickly than usual, but their religious background led to a slower development of their sexual identity (Levy & Reeves, 2011). Lapinski and McKirnan (2013) also noted that those attempting to initially figure out their identity may adopt the label of “bisexual” as a “potential transition in gay and lesbian identity formation” (p. 855).³ Consequently, these individuals may struggle or fluctuate between self-identifying as a homosexual, gay, lesbian, or bisexual and as a heterosexual. This past theoretical and empirical work leads us to our primary hypotheses:

Hypothesis 1 Individuals identifying as a sexual minority and as religious will experience more sexual fluidity over time compared to sexual minorities identifying as less religious.

Hypothesis 2 Individuals identifying as a sexual minority and belonging to a liberal religious tradition will experience less sexual fluidity over time compared to sexual minorities belonging to a conservative or fundamentalist religious tradition.

Method

Participants

The data for our analysis come from the 2010–2012–2014 GSS panel (Smith, Marsden, & Hout, 2015). Begun in 1972, the GSS was traditionally a repeated cross-sectional survey of U.S. adults over age 18 conducted annually or biennially. Most GSS interviews are conducted in-person, although starting in 2004 a small number of interviews have been completed over the telephone (10–15%) for each wave. The instrument consists of core questions and questions that rotate onto the survey for particular years.

In 2008, the GSS began re-interviewing participants two times after their original interview while also drawing a new sample. This design resulted in rotating three-wave panels. The data we use here consist of those participants who were first interviewed in 2010 and then again in 2012 and for the final time in 2014. The 2008–2010–2012 panel was only asked about sexual identity in the 2008 and 2012 waves. The 2006–2008–2010 panel was only asked about sexual identity in the 2008 wave. So, in addition to

³ This does not imply that “bisexual” is not a true identity nor that all self-identified bisexuals are in a transition phase; it is a strategy used sometimes by those in the process of forming their identity (Lapinski & McKirnan, 2013).

Table 1 Summary statistics for all measures (2010, 2012, 2014 General Social Survey Panel; $N = 1034$)

	<i>N</i>	Weighted (%)	Weighted (Mean)	Linearized (SE)	Min.	Max.
Age in years in 2010	1034		45.24	0.55	18	89
Sex in 2010						
Male	450	45.04				
Female	584	54.96				
Marital status in 2010						
Not married	562	46.94				
Married	472	53.06				
Race in 2010						
White	824	78.73				
Black	144	13.52				
Other	66	7.74				
Highest educational degree in 2010						
Less than high school	94	9.66				
High school	529	52.02				
Junior college	79	7.47				
Bachelor's	209	20.01				
Graduate	123	10.83				
Religiosity in 2010						
Not religious	203	19.93				
Slightly religious	256	25.31				
Moderately religious	402	39.07				
Very religious	173	15.69				
Liberalism of religion in 2010						
Fundamentalist	264	23.93				
Moderate	412	41.46				
Liberal	358	23.93				
Fluid sexual identity						
No changes	1005	97.60				
One change	19	1.59				
Two changes	10	0.81				
Sexual identity in 2010						
Heterosexual or straight	1002	96.91				
Bisexual	15	1.45				
Gay, lesbian, or homosexual	17	1.64				

being the most recent three-wave panel, the 2010–2012–2014 GSS panel is the only one allowing for observations of sexual identity at three points in time. In 2010, the GSS interviewed 2044 individuals, of which 1551 were re-interviewed in 2012 and 1304 in 2014. Excluding cases that were not asked or otherwise missing valid responses on our key questions, our analytical sample consisted of 1034 individuals. The sexual identity composition of the sample was 96.91% heterosexual, 1.45% bisexual, and 1.64% gay, lesbian or homosexual.⁴ The sex distribution of the sample was 54.96% female, 45.04% male. The racial composition of the sample was 78.73% White, 13.52% Black, and 7.74% Other. Addi-

⁴ These are the wording of the response categories to the sexual identity question in the General Social Survey, so we utilize them in this research.

tional descriptive statistics are shown in Table 1. In our analyses, we used the WTPANNR123 weight variable.⁵ This weight adjusted the estimates to account for the design of the GSS and for non-response patterns (Release Notes for GSS Panel 2010-Sample Wave 3, 2015).

Measures

Our measure of sexual identity was a question asking participants, “Which of the following best describes you?” with the potential response options of (1) gay, lesbian, or homosexual, (2) bisexual,

⁵ Analyses were conducted using Stata and its SVY commands.

Table 2 Distribution of sexual identities among participants across three observations (2010, 2012, 2014 General Social Survey Panel; $N = 1034$)

	2010	2012	2014
Heterosexual or straight	97.30% (1002) [96.07–98.15]	97.05% (1001) [95.76–97.95]	96.74% (997) [95.41–97.69]
Bisexual	1.24% (15) [0.71–2.16]	1.62% (18) [0.99–2.64]	1.44% (16) [0.86–2.40]
Gay, lesbian, or homosexual	1.46% (17) [0.87–2.45]	1.33% (15) [0.77–2.30]	1.82% (21) [1.14–2.90]

Unweighted N s in parentheses. 95% confidence intervals in brackets. Percentages based on weighted data

or (3) heterosexual or straight.⁶ Participants could also refuse to answer or state that they “don’t know.” In the first wave of our data, nine participants provided a “don’t know” response while 26 refused to answer. For our purpose of looking at adopted labels, we excluded both of these categories from our analysis and focused on those who provided one of the first three responses.

We utilized several measures to predict the number of sexual identity changes observed across the three observations, including the participant’s sex, age, race, educational attainment, marital status, how religious he or she identifies, and the liberalism of his or her religious tradition. All of these were based on the 2010 observation. Sex was coded (0) male and (1) female. The age measure was continuous, although the last category included 89 and above. Race was measured with dichotomous indicators representing White, Black, or Other. Educational attainment was measured in five categories ranging from (0) less than a high school degree to (4) graduate degree. Marital status was measured as not currently married and currently married. This is a recoded measure on the original question that included five response categories: currently married, widowed, divorced, separated, and never married.⁷

The religiosity measure was a question asking, “To what extent do you consider yourself a religious person? Are you... (1) very religious, (2) moderately religious, (3) slightly religious, (4) not religious at all.” We reversed the coding of these responses so that higher values represent higher religiosity. The liberalism of the participant’s religious tradition was a measure created by the GSS based on the participant’s responses to a series of questions asking about his or her broad religious affiliation and specific denominational tradition. Based on these responses, participants were coded as belonging to religious tradition that is either (1) fundamentalist, (2) moderate, or (3) liberal (for more information see Smith 1987).⁸

⁶ Although the GSS on the whole is administered through a face-to-face interview, the sexual identity question and other potentially sensitive questions were collected through a computer-assisted self-administered questionnaire during the face-to-face interview.

⁷ Since 1982, GSS interviewers have been instructed to accept the participant’s definition of marriage. This includes accepting a response like “living together as married” as being married. In short, if a participant responded in some ways that they were married, then they were coded as “currently married.” For more information, see Appendix B of the GSS codebook at http://gss.norc.org/documents/codebook/GSS_Codebook.pdf.

Results

Summary statistics for all of our measures are shown in Table 1. We began our analysis by simply examining the overall distribution of sexual identity responses among the panelists across the three waves. This is shown in Table 2. In the 2010 wave, 97.30% of the panel identified as heterosexual, 1.24% identified as bisexual, and 1.46% identified as gay, lesbian, or homosexual. As we compare these percentages with those observed in 2012 and 2014, we see that the percentages for the heterosexual category decreased slightly with each observation while those for the gay, lesbian or homosexual category increased slightly with each observation. These changes were not, however, statistically significant.⁹ The bisexual category increased between 2010 and 2012 and decreased slightly between 2012 and 2014, but these percentages were not statistically different from the 2010 percentage. The overall distribution of sexual identities, then, was statistically identical in each wave.

We added more detail to the analysis in Table 3 by comparing panelists’ 2010 sexual identity with their sexual identity in 2012 and 2014. Looking first at the 2010–2012 comparisons, we found that 99.1% of those who identified as heterosexual in 2010 remained heterosexual in 2012. The equivalent percentages for those who remained bisexual and lesbian or gay were 58.9 and 83.4%, respectively. We can determine from the non-overlapping confidence intervals that both sexual minority categories were significantly more likely to change identities from 2010 to 2012 than heterosexual participants. We came to the same conclusion when comparing 2010–2014 identities. Just over 99% of participants who identified as heterosexual in 2010 still identified with that label in 2014. This percentage is 42.39% for participants who identified as bisexual in 2010 and 85.71% for participants who identified as gay, lesbian, or homosexual in 2010. Looking further at the 2014 section of this

⁸ Those who say they do not belong to a religion (“None”) were assigned to the liberal religious tradition by the GSS. The “fundamentalist” label would be considered outdated or at least imprecise by many sociologists of religion, but since this is the label used by the GSS, we keep it here.

⁹ To some extent, this can be seen in the highly overlapping confidence intervals, but comparing confidence intervals does not always produce accurate conclusions regarding the statistical significance of a difference between two estimates since in some cases confidence intervals can overlap, but there can still be significant differences between the two estimates. Given this, we also conducted logistic regressions with each sexual orientation as the outcome and the three years of observations as predictors (with 2010 as the comparison group). This confirmed the non-significance of these changes.

Table 3 Participants' sexual identity in 2012 and 2014 by their sexual identity in 2010 (2010, 2012, 2014 General Social Survey Panel; $N = 1034$)

	Sexual identity in 2010		
	Heterosexual or straight	Bisexual	Gay, lesbian, or homosexual
<i>Sexual identity in 2012</i>			
Heterosexual or straight	99.14% (993) [98.31–99.57]	36.40% (6) [15.30–64.46]	8.84% (2) [1.84–33.44]
Bisexual	0.80% (8) [0.39–1.63]	58.96% (8) [31.86–81.53]	7.67% (2) [1.78–27.56]
Gay, lesbian, or homosexual	0.05% (1) [0.01–0.39]	4.64% (1) [0.62–27.34]	83.4% (13) [60.09–94.44]
<i>Sexual identity in 2014</i>			
Heterosexual or straight	99.01% (992) [98.12–99.48]	32.84% (4) [12.87–61.81]	0.00% (0) [0–0]
Bisexual	0.72% (7) [0.33–1.57]	42.39% (6) [19.3–69.35]	14.3% (3) [4.27–38.36]
Gay, lesbian, or homosexual	0.27% (3) [.08–0.83]	24.77% (5) [8.10–55.17]	85.71% (14) [61.64–95.73]

Unweighted N s in parentheses. 95% confidence intervals in brackets. Percentages based on weighted data

table, we found that the two participants who originally identified as gay or lesbian in 2010 and moved to a heterosexual identity in 2012 no longer identified as heterosexual in 2014.

While the data in Tables 2 and 3 are interesting, they could also hide movement between the categories. That is, if two people move in opposite directions their contribution to the overall fluidity will be canceled out in these percentages. Given this, we turned to Table 4 where we examined every possible combination between the three waves of observation. Since there were three sexual identity categories being considered and three observation time points, there were a total of 27 potential combinations. These are shown in Table 4. The first three rows in this table represent the stable or non-fluid combinations. We found that 95.94% ($N = 987$) of the participants were heterosexual in all three waves, 1.22% ($N = 13$) were lesbian or gay in all three waves, and 0.44% ($N = 5$) were bisexual in all three waves.

If we look below the three stable categories, we see the 24 potential fluid combinations. As seen in the first three rows for this group, the most commonly observed fluid combinations were for individuals fluctuating between the bisexual and heterosexual categories in some way or another. The most common combination involving the gay or lesbian category was for individuals who started the observation period identifying as heterosexual and ended the observation period identifying as gay or lesbian. On the other hand, there were no cases of individuals starting the observation period as gay or lesbian and ending the observation period as heterosexual.

We now turn to an analysis of what characteristics of a participant predicted more or less sexual identity fluidity across the next two observations. We created a count measure for the number of changes observed for each participant. As shown in Table 1, the large majority of participants (97.60%, $N = 1005$) experienced no changes in sexual identity across the three waves of observation. Of the 2.40% ($N = 29$) of participants who reported some sexual identity change, about two-thirds ($N = 19$) experienced one change and about one-third ($N = 10$) experienced two changes.

Table 4 Observed frequency of 27 possible sexual identity statuses across three observations (2010, 2012, 2014 General Social Survey Panel; $N = 1034$)

Wave 1	Wave 2	Wave 3	Raw number of cases	Weighted percentage of cases
<i>Stable</i>				
H	H	H	987	95.94
LG	LG	LG	13	1.22
B	B	B	5	0.44
<i>Fluid</i>				
H	B	B	4	0.44
H	B	H	4	0.34
H	H	B	3	0.26
H	H	LG	3	0.26
B	B	H	2	0.24
B	H	LG	2	0.20
B	H	H	3	0.17
LG	B	B	2	0.11
LG	H	B	1	0.09
B	H	B	1	0.08
B	LG	LG	1	0.05
H	LG	H	1	0.05
B	B	LG	1	0.05
LG	H	LG	1	0.03
H	B	LG	0	0
H	LG	B	0	0
H	LG	LG	0	0
LG	LG	B	0	0
LG	LG	H	0	0
LG	H	H	0	0
LG	B	LG	0	0
LG	B	H	0	0
B	LG	B	0	0
B	LG	H	0	0

H heterosexual or straight, *LG* gay, lesbian, or homosexual, *B* bisexual

Table 5 Negative binomial count models predicting fluidity in sexual identity across three waves of observation (2010, 2012, 2014 General Social Survey Panel; $N = 1034$)

Outcome: count of sexual identity changes, 2010–2014	Negative binomial regressions			
	Model 1	Model 2	Model 3	Model 4
Sexual identity in 2010				
Heterosexual or straight (ref.)	–	–	–	–
Bisexual	4.30**	4.51**	3.59*	3.49**
Gay, lesbian, or homosexual	2.92**	2.93**	–2.19	4.10**
Married in 2010	–.34	–.53	–.43	–.63
Age in 2010	–.01	–.02	–.02	–.02
Female in 2010	1.26*	1.08	1.27*	1.12*
Race in 2010				
White (ref.)	–	–	–	–
Black	.19	.04	–.01	–.07
Other	.17	.02	–.03	.02
Highest degree in 2010	–.45	–.46	–.49	–.39
Religiosity in 2010	–	.59*	.39	.62*
Liberalism of religion in 2010	–	.09	.09	.04
Sexual identity in 2010 \times religiosity in 2010				
Heterosexual or straight \times religiosity (ref.)	–	–	–	–
Bisexual \times religiosity	–	–	.34	–
Gay, lesbian, or homosexual \times religiosity	–	–	1.85*	–
Sexual identity in 2010 \times liberalism of religion in 2010				
Heterosexual or straight \times liberalism of religion (ref.)	–	–	–	–
Bisexual \times liberalism of religion	–	–	–	.47
Gay, lesbian, or homosexual \times liberalism of religion	–	–	–	–.66
Constant	–4.74	–5.89	–5.53	–5.96

* $p < .05$; ** $p < .01$

We utilized negative binomial regression models to examine the count of changes ranging from 0 to 2 ($M = .032$; Lin. S.E. = .006).¹⁰ In our first model, we included measures of participants' initial sexual identity, marital status, race, age, sex, and education. As shown in Table 5, we found that gay or lesbian and bisexual participants had significantly higher counts of sexual identity changes compared to heterosexual participants. Adding to the mixed literature regarding gender and sexual identity fluidity, we found that women have significantly higher counts of sexual identity changes compared to men. Marital status, educational attainment, age, and race did not have any significant association with sexual identity changes.

In Model 2, we added our measure of participants' self-defined religiosity and our measure of liberalism of the participants' religious tradition. We found that self-defined religiosity was a significant positive predictor of sexual identity changes. That is, participants who defined themselves as more religious in 2010 experienced more sexual identity changes over the next 4 years

compared to those who defined themselves as less religious.¹¹ The liberalism of a participant's religion, however, had no significant association with the number of sexual identity changes.¹² Interestingly, the gender difference in sexual identity changes became nonsignificant once we control for religiosity, although it was still close to significance ($p = .054$).

In Model 3, we examined Hypothesis 1, which proposed that the effect of religiosity on future sexual identity changes would be moderated by whether an individual was a sexual minority. Specifically, we hypothesized that individuals who were both religious and a sexual minority would experience greater future sexual identity

¹¹ Among all participants, 15.69% reported being very religious, 39.07% moderately religious, 25.31% slightly religious, and 19.93% not religious at all. Among gay and lesbian participants, these percentages were 6.85, 32.32, 52.54, and 8.29%. Among bisexual participants, these percentages were 4.24, 38.63, 20.2, and 36.92%. Among heterosexual participants, the percentages were 15.97, 39.18, 24.96, and 19.89%.

¹² Among all participants, 34.62% belonged to a liberal tradition, 41.46% belonged to a moderate tradition, and 24.14% belonged to a fundamentalist tradition. Among gay and lesbian participants, these percentages were 32.36, 54.39, and 13.25%. Among bisexual participants, these percentages were 30.7, 49.66, and 19.65%. Among heterosexual participants, these percentages were 34.70, 41.16, and 24.14%.

¹⁰ We first considered a Poisson model, but this model is based on the assumption that the mean of the outcome is equal to its variance. This was not the case with our outcome ($M = .032$, Var. = .056).

fluidity as they will have more struggle in reconciling to the two identities. Model 3 included interaction terms between sexual identity and religiosity. We found that religiosity had no significant association with future sexual identity changes for heterosexual participants. For gay and lesbian participants, however, identifying as more religious in 2010 was associated with more sexual identity changes over the next 4 years. Indeed, for participants reporting low religiosity there was not a significant difference in the count of sexual identity changes between heterosexual and gay or lesbian participants. We did not find a significant moderating effect for bisexual participants. Our final model examined whether the liberalism association, which was non-significant in Model 2, might also be moderated by sexual minority status. In Hypothesis 2, we suggested that sexual minorities in fundamentalist religious traditions would experience more sexual identity changes compared to those in liberal religious traditions. As seen by the nonsignificant interaction terms in Model 4, however, we did not find any evidence of this.

Discussion

The results can be divided into two components. In the first, we examined sexual identity fluidity across three waves of observation in a representative sample of U.S. adults, whereas much of the prior research has utilized two waves or samples representing narrower populations. We found that just over one-third ($N = 10/29$) of the participants who changed their sexual identity from Wave 1 to Wave 2 changed their sexual identity again between Wave 2 and Wave 3. As shown in Table 4, of these 10 participants who reported two changes over the 4 years, seven (70%) changed back to their Wave 1 identity in Wave 3, while three participants (30%) changed to the third available identity in Wave 3. If Wave 2 had not existed, then, that first group of participants would have appeared stable in their sexual identity. Congruent with Ott et al. (2011), this highlights the fact that the measurement of sexual identity fluidity will be sensitive to the number and the timing of observations. More broadly, our analysis showed that sexual identity among heterosexual US adults is quite stable, with about 99% of individuals identifying as heterosexual remaining in that category in later waves of observation. Gay and lesbian individuals are somewhat more fluid in their identities, with this stability percentage dropping to around 85%. Bisexual individuals show the most fluidity, with a stability percentage around 50%.

Our second contribution was to consider the role of participants' religion in producing or inhibiting sexual identity fluidity. While previous research using national survey data has shown that sexual minorities are more likely to report sexual identity changes (Everett, 2015; Savin-Williams et al., 2012), findings that were confirmed in our own analysis, research looking at the role of religion in sexual identity fluidity has primarily been qualitative in nature (Barton, 2010; Lapinski & McKirnan, 2013; Mahaffy, 1996; Pietkiewicz & Kołodziejczyk-Skrzypek, 2016; Subhi & Geelan, 2012). We found that having a strong religious identity in

the first wave of observation increased future sexual identity fluidity, but only for those who also initially identified as gay, lesbian, or homosexual. These results reinforce the findings of prior research examining how religiosity shapes sexual identity development, particularly for sexual minorities. Specifically, sexual minorities who have a strong preexisting religious identity often experience internal conflict that can lead to increased sexual identity fluidity and prolonged sexual identity development (Levy & Reeves, 2011; Schuck & Liddle, 2001).

In addition to looking at self-perceived religiosity, we also considered how the liberalism or conservatism of participants' religious traditions affects sexual identity fluidity. Previous research suggests that a more conservative religious background also breeds a more homophobic/biphobic environment (Finke et al., 2006; Olson et al., 2006; Scheitle & Adamczyk, 2009). We hypothesized that such environments would be related to more sexual identity fluidity for sexual minorities as they try to reconcile anti-sexual minority messages from their religion and their sexual identity. Our findings that the liberalism of participants' religious tradition was not significantly related to the number of times one changed his or her sexual identity did not support our Hypothesis 2. This result may suggest that it is not necessarily the degree of anti-sexual minority rhetoric one encounters within one's religion that leads to changing one's sexual identity multiple times—rather, it may be the degree to which one wants to reconcile his or her sexual identity with his or her conflicting religious identity. In other words, perhaps one who was raised in a conservative religion and does not see him or herself as strongly religious is able to more easily relinquish his or her religious identity and adopt his or her sexual minority identity. Regardless of whether a sexual minority reports a conservative or liberal religion, if they are not intimately tied to it, there might be less “social identity complexity” and less cognitive dissonance to address (Roccas & Brewer, 2002).

Our analysis has its own limitations, of course. Although we were able to measure sexual identity at three points in time, these three points only encompassed 4 years of observation. It would obviously be ideal to have more observations that also cover a longer time period. Our measurement of religion and sexuality was limited as well. Ideally, there would be enough cases in our data to allow for the inclusion of measures of religious tradition, behaviors (e.g., frequency of religious service attendance), and beliefs (e.g., strength of belief in God) along with measures of sexual attraction/feelings and behaviors. We focused on the self-defined religiosity and sexual orientation measures since they appeared to best represent the potential internal struggle or conflict between consciously labeling one's religious identity and sexual identity. Additionally, although only nine participants reported “don't know” to the sexual identity question, it may be possible that they were in an identity transition period (i.e., indicating some type of fluidity) rather than indicating that they genuinely did not understand the question. The lack of a follow-up, clarifying question, which would have been helpful in determining whether including them in the analyses would have been appropriate, prompted us to

follow previous studies in excluding those participants (Mock & Eibach, 2012; Savin-Williams et al., 2012). Finally, the mean age of the participants was 45, as the GSS is meant to represent U.S. adults. Although this allows us to speak of sexual identity changes within this target population, it may not represent the primary age range in which sexual identity changes are occurring.

There are some clear implications and directions for future research based on these findings and the limitations of this particular analysis. First, these results suggest that sexual minorities who are struggling with their sexual and religious identities may need more informal or formal support in integrating the two identities, particularly if they have a strong affiliation to their religion. Subhi and Geelan (2012) suggested educating mental health professionals on the adverse mental conditions felt by those dealing with Christianity and homosexuality. Creating peace between these two conflicting identities may potentially lessen negative mental health symptoms—a relationship that needs further study. Additionally, future research should examine how sexual identity corresponds to changes in other identities. While our particular research question concerned how the characteristics of a person at one point in time can produce future fluidity, it is a natural question to ask how fluidity in sexual identity might overlap fluidity in religious, political, or other identities. Future research could also build upon these findings by considering sexual fluidity beyond identity, such as fluidity in sexual behavior or attraction.

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Compliance with Ethical Standards

Ethical Approval The data used in this research come from the General Social Survey (GSS), which is publicly available at gss.norc.org. Informed consent is obtained from all GSS participants. This research is in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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