Sexual Identity, Mental Health, and Risky Health Behaviors: New Evidence from Australia

Joseph J. Sabia
Department of Economics
San Diego State University

Mark Wooden
Institute for Applied Social and Economic Research
University of Melbourne

September 2014

Sexual Identity, Mental Health, and Risky Health Behaviors: New Evidence from Australia

Abstract

In 2012, respondents to the Household, Income, and Labour Dynamics in Australia (HILDA) Survey were, for the first time, asked to report their sexual identity. This study uses these newly-released nationally representative, longitudinal data to examine the relationship between sexual identity and a variety of risky health behaviors, including tobacco use, binge drinking, and exercise. We examine "level" differences in health behaviors, as well as differences in over-time trends in individuals' health behaviors, between sexual minorities and their heterosexual counterparts. In addition, we empirically explore a potentially important mechanism that may explain a relationship between sexual identity and risky health behaviors: mental health. Our empirical strategy examines the sensitivity of our estimated health effects to potentially important confounders, including family background characteristics and personality.

Sexual Identity, Mental Health, and Risky Health Behaviors:
New Evidence from Australia

Extended Abstract

Motivation. A myriad of empirical studies using U.S. data have found that sexual-orientation minorities are more likely to smoke (Corliss et al., 2013; McCabe et al., 2009; Needham and Austin 2010) to drink (Cochran et al., 2004; Ziyadh et al., 2002; Russell, Driscoll and Troung 2002; McCabe et al., 2009; Needham and Austin 2010) and to use illegal drugs (Drabble L, LT Midanik, K Trockim 2005; McCabe et al., 2009). Many of these researchers find larger associations for lesbian and bisexual women as compared to men (Ziyadh, 2002; Corliss et al., 2012).

In their recent working paper, Argys and Sabia (2013) outline a number of mechanisms through which sexual identity could affect later adolescent and adult risky health behaviors. First, if lesbian, gay, bisexual, and transgendered (LGBT) youth are less connected to their parents and other family members because they fear rejection from "coming out," this could lead to stresses that increase the risk of substance use (Ryan et al., 2009). Second, if LGBT youth are more likely to face violence and be bullied in school (Berlan et al. (2010), this could lead to increased substance use (Tharp-Taylor, Haviland and D'Amico, 2009). Related to these channels, a number of studies have established that sexual minorities are more likely to be depressed, contemplate suicide, and suffer from low self-esteem relative to their heterosexual counterparts (King et al. 2008; Almeida et al., 2009; McCabe et al., 2009). The mental health effect of sexual minority status has been identified as a central contributor to the gay-straight risky behavior differential. And finally, the "minority stress model" suggests that increased

substance use may arise as a response to a homophobic and hostile environment that causes sexual minorities to internalize negative social and cultural attitudes toward them (Baiocco, D'Alessio and Laghi, 2010).

There is at least some reason to expect that the effect of sexual minority status on risky health behaviors could differ in Australia as compared to the United States. There is evidence that acceptance of homosexuality is more widespread in Australia. A 2013 Pew Research Center poll found that 80 percent of Australians believed that "homosexuality should be accepted by society" as compared to 60 percent of Americans, consistent with broad evidence that secular and more affluent nations have more progressive attitudes toward gay rights. Moreover, while gay marriage continues to be banned in Australia, legal protections for same-sex unions have historically been more broadly protected. In August 2013, Australia became the first nation to criminalize discrimination against LGBT nationwide via the Sex Discrimination Amendment of 2013. Taken together, the more tolerant societal attitudes toward and legal protections of LGBT citizens in Australia could diminish the intensity of stress-related mechanisms through which sexual minority status could affect risky health behaviors, as compared to the United States.

Still, a number of studies of Australians have uncovered evidence that LGBT Aussies are more likely to suffer from adverse mental health and engage in risky health behaviors than their heterosexual counterparts. However, much of this research is based on non-representative data (Leonard et al. 2012; Jorm et al. 2002) or has simply examined unadjusted means in without adjusting for demographic or background characteristics (ABS 2008).

There are only two national datasets in Australia that have collected information on sexual identity: the 2007 National Survey of Mental Health and Well-being (SMHWB) and the 2001-02 Australian Study of Health and Relationships (ASHR). The latter is designed to be

representative of Australians aged between 16 and 59 years and the former between 16 and 85 years. Each of these studies is cross-sectional in nature.

Evidence using SMHWB find that those who identify as LGB reported higher levels of anxiety disorders, affective disorders (e.g., depressive episodes and bipolar disorder) and substance use disorders than the heterosexual population, with the differences being very similar to those reported in the international literature (ABS 2008, Table 5). The ABS, however, only reports population aggregates, and there is no adjustment for differences in the characteristics of the two sub-populations.

Contributions. One of our important contributions with this paper is to introduce new data to the sexual orientation-health literature: the Household, Income and Labour Dynamics in Australia (HILDA) Survey. The HILDA is a household-based panel study which began in 2001 and when weighted, is designed to be representative of the Australian population. In 2012, respondents to the Household, Income, and Labour Dynamics in Australia (HILDA) Survey were, for the first time, asked to report their sexual identity. This study uses these newly-released nationally representative, longitudinal data to examine the relationship between sexual identity and a variety of risky health behaviors, including tobacco use, binge drinking, and exercise. We examine "level" differences in health behaviors between sexual minorities and heterosexuals, as well as differences in over-time trends in individuals' health behaviors. In addition, we empirically explore a potentially important mechanism that may explain a relationship between sexual identity and risky health behaviors: mental health.

Moreover, the richness of the HILDA data allow us to examine the sensitivity of estimated health effects to potentially important confounders, including family background characteristics and personality. This may be particularly important if revelation of sexual

orientation on a survey—or even identification in one's own mind—is related to characteristics that may also affect mental health.

Sexual Orientation Measure. Following the approach of the UK Integrated Household Survey conducted by the UK Office for National Statistics, respondents to the Wave 12 HILDA survey were asked:

"Which of the following describes how you think of yourself?

- *Heterosexual or Straight;*
- *Gay or Lesbian;*
- *Bisexual;*
- *Other;*
- *Prefer not to say.*
- *Unsure/Don't Know"*

Table 1 below shows the response frequencies in the HILDA for the pooled sample by gender in the current Wave 12 sample (2012). The data show that 91.9 percent of Australians identified as heterosexual or straight, 1.4 percent as gay or lesbian, and 1.4 percent as bisexual. An additional 4.1 percent reported "Other," "Prefer not to say" or "Unsure/Don't know," while 1.2 percent did not respond to the survey item and were coded as missing. In Table 2, we compare the means in the HILDA to the UK Household Longitudinal Study (UKHLS) in 2001-2012 and the UK Integrated Household Survey (UKIS) in 2009-2010.

Health Outcomes. We will begin by measuring outcomes in Wave 12. The first outcome we will examine will be mental health using the so-called MHI-5, or Mental Health Inventory (MHI-5), which is comprised of five items that assess frequency (on a 6-point scale) of symptoms of anxiety and mood disturbance over the 4-week period preceding survey administration. The response options range from "all of the time" to "none of the time", with all

response options fully labelled. Like all SF36 sub-scales, raw scores on each item are summed and then standardized so that the scale values range from 0 to 100. Relatively low scores are indicative of a poor mental health state. Next, we will measure several measures of risky health behaviors, including tobacco use (last 30d), alcohol consumption (binge drinking last 30d), and frequent exercise using the Wave 12 survey. We will then examine these risky behavior outcomes (and alternate mental health outcomes) at multiple earlier points in time.

Empirical Approach. We will begin by using Wave 12 data and estimating a model of the following form:

$$H_i = \beta_0 + \beta_1 Sexual\ Identity_i + \beta_2 Age_i + \mathbf{X'}_i\delta + \mathbf{L'}_i\delta + \varepsilon_{ist} \qquad (1)$$

where *Hi* measures the health outcome of individual I, Sexual Identity is a set of indicator variables for the possible responses to the sexual identity question described above, Age is a set of categorical variables measuring age, $\boldsymbol{X_i}$ is a vector of individual demographic controls (age, race/ethnicity, gender, education, cognitive skills), $\boldsymbol{L_i}$ is vector of labor market and social interaction controls, including labor force participation, household income, and frequency of social interactions. We also will augment equation (1) with more detailed measures of family background characteristics and personality, which have been shown to be potential important confounders of the relationship between sexual orientation and health (Argys and Sabia 2013). However, we recognize that a number of these controls may themselves be affected by sexual orientation and therefore our estimates in the "saturated" specification could understate the effect of sexual identity on health behaviors. We will estimate equation (1) by gender and by age, as the effects of sexual orientation may differ along each dimension.

As noted above, an important advantage of the HILDA is that we are able to examine health behaviors of those who identify as sexual minorities not only at Wave 12 but also in past waves. This will allow us to move beyond a simple cross-sectional analysis as in (1) to an exploration of health behavior trajectories of sexual minorities and their heterosexual counterparts.

Preliminary Estimates. In Table 3, we show mean differences in the MHI-5 scores between sexual minorities and their heterosexual counterparts. Consistent with the results in the SMHWB, we find important unadjusted differences between the groups suggesting that sexual minorities are in worse mental health.

Preliminary estimates of equation (1) are shown in Table 4. Here, we find that while the magnitudes of the estimated relationship between sexual minority status and psychological health falls with the addition of age, demographic controls, and labor market controls—most substantially for bisexual identifying women—the results in the "saturated" model (Panel III) continue to suggest adverse mental health effects for LGB identifiers. These adverse mental health effects could suggest a relationship between sexual identity and risky health behaviors in the HILDA.

In future work on this paper, we will examine those risky health behaviors as well as exploit the longitudinal nature of the data by examining trajectories in health over time for heterosexuals and sexual minorities. The final version of the paper will also take detailed care in discussing the sensitive and important measurement issues surrounding sexual orientation (see Badgett 2009).

References

Australian Bureau of Statistics [ABS]. (2008). *2007 National Survey of Mental Health and Wellbeing: Summary of Result*s (ABS cat. no. 4326.0). ABS, Canberra.

Almeida, J, RM Johnson, HL Corliss, BE Molnar and D Azrael. 2009. "Emotional Distress among LGBT Youth: The Influence of Perceived Discrimination Based on Sexual Orientation." *Journal of Youth and Adolescence*, 38(7): 1001-14.

Argys, Laura and Joseph J. Sabia. 2013. "Sexual Orientation and Risky Behaviors among US Young Adults," Working Paper, San Diego State University.

Badgett, M.V. Lee. 2009. "Best Practices for Asking Questions about Sexual Orientation on Surveys," The Williams Institute, UCLA School of Law.

Bailey, Michael J. and Alan P. Bell. 1993. "Familiality of Female and Male Homosexuality," *Behavior Genetics* 23(4): 313-321.

Baiocco, R, M D'Alessio and F Laghi. (2010) "Binge Drinking among Gay and Lesbian Youths: The Role of Internalized Sexual Stigma, Self-disclosure, and Individuals' Sense of Connectedness to the Gay Community. *Additctive Behaviors* 35(10): 896-899.

Berlan, ED, HL Corliss, AE Field, E Goodman, and SB Austin. (2010). "Sexual Orientation and Bullying among Adolescents in the Growing Up Today Study." *Journal of Adolescent Health*, 46(4): 366-371.

Cochran, SD, D Ackerman, VM Mays, and MW Ross. (2004) "Prevalence of non-medical drug use and dependence among homosexually active men and women in the US population." *Addiction,* 99:989-998.

Drabble L, LT Midanik, K Trocki. (2005) "Reports of Alcohol Consumption and Acohol-related Problems among Homosexual, Bisexual, and Heterosexual Respondents: Results from the 2000 National Alcohol Survey." 66: 111-120

Corliss, HL, BM Wadler, H-J Jun, M Rosario, D Wypij, AL Frazier and SB Autsin. (2013). "Sexual Orientation Disparities in Cigarette Smoking in a Longitudinal Cohort Study of Adolescents." *Nicotine and Tobacco Research* 15(1); 213-222.

King, M., Semlyen, J., Tai, S.S., Killaspy, H., Osborn, D., Popelyuk, D. & Nazareth, I. (2008). A systematic review of mental disorder, suicide, and deliberate self harm in lesbian, gay and bisexual people. *BMC Psychiatry* 8(70).

McCabe, SE, TL Hughes, WB Bostwick, BT West and CJ Boyd. (2009). "Sexual Orientation, Substance Use Behaviors and Substance Dependence in the United States." *Addiction, Research Report,* 104: 1333-45.

Needham, Belinda L. and Erika L. Austin. (2010). "Sexual Orientation, Parental Support, and Health During the Transition to Young Adulthood," *Journal of Youth and Adolescence* 39(10): 1189-1198

Russell, ST, AK Driscoll, and N Truong. (2002). "Adolescent Same-Sex Romantic Attractions and Relationships: Implications for Substance Use and Abuse." *American Journal of Public Health,* 92(2): 198-202.

Ryan, C, D Huebner, RM Diaz and J Sanchez. (2009). "Family Rejection as a Predictor of Negatie Health Outcomes in White and Latino Lesbian, Gay and Bisexual Young Adults." *Pediatrics,* 123(1): 346-352.

Tharp-Taylor, S, A Haviland and EJ D'Amico. (2009). "Victimization from Mental and Physical Bullying and Substance Use in Early Adolescence." *Addictive Behaviors,* 34(6-7): 561-567.

Ziyadeh, NJ, LA Prokop, LB Fisher and M Rosari. (2007). "Sexual Orientation, Gender and Alcohol Use in a Cohort Study of US Adolescent Girls and Boys." *Drug and Alcohol Dependence,* 87: 119-130.

Table 1: Sexual Identity Response Frequencies

Sexual Identity	*Pooled*		*Men*		*Women*	
	Freq.	*Percent*	*Freq.*	*Percent*	*Freq.*	*Percent*
Heterosexual or Straight	14,133	91.9	6,644	92.7	7,489	91.18
Gay or Lesbian	218	1.4	120	1.67	98	1.19
Bisexual	208	1.4	64	0.89	144	1.75
Other	117	0.8	54	0.75	63	0.77
Unsure/don't know	136	0.9	62	0.87	74	0.9
Prefer not to say	379	2.5	161	2.25	218	2.65
Missing	189	1.2	62	0.87	127	1.55
Total	15,380	100	7,167	100	8,213	100

Table 2. Sexual Identify Responses in the United Kingdom

	UKHLS, Wave 3 (2011-2012)		*UK IHS, Apr 2009-Mar 2010*
	N	*%*	*%*
Heterosexual or straight	38008	93.4	94.2
Gay or lesbian	476	1.2	0.9
Bisexual	406	1.0	0.5
Other	424	1.0	0.5
Prefer not to say	1296	3.2	
Unsure / Don't know			
Don't know / Refusal	44	0.1	3.2
Missing	42	0.1	0.6
Total	40696	100.0	100.0

Table 3: MHI-5 Outcomes by sexual identity and sex (weighted)

Sexual Identity	*Mean MHI-5 score*		*% scoring 52% or less*		*% scoring 60% or less*	
	Male	*Female*	*Male*	*Female*	*Male*	*Female*
Heterosexual or Straight	76.2	73.8	10.8%	13.9%	18.4%	23.0%
Gay or Lesbian	72.0	67.2	17.3%	22.6%	31.2%	40.3%
Bisexual	66.8	66.0	26.1%	23.8%	34.1%	34.6%
Other	66.4	64.9	31.8%	25.6%	44.3%	41.8%
Unsure/don't know	67.1	62.0	27.8%	33.0%	35.3%	54.1%
Prefer not to say	67.8	69.1	21.1%	18.6%	33.5%	32.4%
Missing	71.9	71.2	19.6%	14.0%	27.2%	31.0%
Total	75.6	73.2	11.8%	14.6%	19.7%	24.1%

Table 4: Regressions of MHI-5 on sexual identity (weighted)

Sexual Identity	*Weighted least squares (MHI-5)*					
	I		*II*		*III*	
	Men	*Women*	*Men*	*Women*	*Men*	*Women*
Gay or Lesbian	-3.85*	-6.05**	-3.88*	-5.51**	-3.31#	-5.02**
	(1.78)	(2.03)	(1.83)	(1.97)	(1.87)	(1.63)
Bisexual	-9.34**	-6.88**	-8.37**	-4.66**	-7.54**	-4.60**
	(2.54)	(1.77)	(2.49)	(1.70)	(2.50)	(1.70)
Other	-9.82**	-9.36**	-7.93*	-7.33**	-6.36#	-6.04*
	(3.56)	(2.68)	(3.70)	(2.62)	(3.78)	(2.63)
Unsure/dont know	-9.13**	-11.94**	-8.10*	-9.51**	-7.59**	-9.15**
	(3.43)	(2.78)	(3.36)	(2.41)	(3.32)	(2.59)
Prefer not to say	-8.46**	-4.90**	-6.84**	-2.44	-4.36**	-1.45
	(1.57)	(1.60)	(1.40)	(1.55)	(1.44)	(1.54)
Missing	-4.87	-3.85#	-2.43	-1.48	0.24	-0.97
	(3.23)	(2.11)	(2.96)	(1.90)	(3.23)	(2.32)
Controls	Age only		Demographics		Demographics +Labor force participation +Household income +Frequency of social interaction	
N	7090	8105	7074	8085	6967	7971
R2/Pseudo R2	0.020	0.021	0.080	0.110	0.116	0.137

Notes: # p<.10, * p<0.05, ** p<0.01.

All regressions are weighted by the HILDA sample weight.