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Sexual Minority Health Behaviors and Potential Benefits of Same Sex Marriage

by

Caleb Cooley

A Thesis

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Master of Arts

Major: Sociology

The University of Memphis

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## DEDICATION

*To all of those out there who have experienced persistent discrimination, and have not had a voice to share their experiences.*

## ACKNOWLEDGEMENTS

I would like to first thank my committee chair and mentor, Dr. Joseph Lariscy, for all of his guidance and advice, continuous encouragement and support in any idea or project I develop. I would also like to thank my other committee members, Dr. Wesley James for his wisdom and advice not only for my thesis, but also my journey through Graduate school and academia. Dr. Jeni Loftus for her time, energy, and knowledge devoted to my research. I would also like to thank the rest of the faculty in the department of Sociology at the University of Memphis who have been critical in my graduate education. Finally, I would like to thank my partner, Brad Colonna, for his unwavering support through my journey in graduate school and life.

## ABSTRACT

Sexual minorities experience higher rates of negative health behaviors, yet little is known about the mechanisms which contribute to these experiences. Marriage has been shown to provide protective health benefits for those who opt in to the institution. Much of the previous research has primarily focused on marriage between different-sex couples, or estimated same-sex cohabitation. This study utilizes nationally representative secondary data from the National Health Interview Survey, to investigate the potential mediating influence of marriage on the elevated occurrence of negative health behaviors among same-sex couples. In terms of marriage, sexual minorities experience similar marital benefits to heterosexual couples in some respects. This research indicates that marriage is also beneficial for same-sex women, as those women who are married are significantly less likely to report having fair or poor health. Marriage also decreases sexual minority feelings of hopelessness significantly for both genders, although slightly more for women than men.

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## **Introduction**

Sexual minorities are characterized with regards to two distinguishing attributes: sexual orientation and gender identity. Sexual orientation is typically defined as having at least three dimensions: sexual self-identification, actual sexual behavior, and sexual attraction (Saewyc et al. 2004; Sell 1997). For the purposes of this study sexual minorities include lesbian and gay identifying individuals. Transgender individuals are not included, as the focus is not necessarily gender identity. A wide variety of sociological and psychological research indicates that sexual minorities have increased risk of substance and alcohol abuse, smoking as well as suicide ideation and attempt (Russell & Joyner 2001; Faulkner & Cranston 1998; Garofalo et al 1998; Gates 2015; Bearman et al 1997; Bearman & Moody 2004; Mueller et al. 2015).

In 1989 the US Secretary of Health and Human Services published a report which concluded that gay and lesbian youths are 2 to 3 times more likely to attempt suicide, and that they comprise approximately 30% of the total adolescent suicide rate (Gibson 1989). It is also widely accepted among the marriage and family literature that marriage between different-sex couples provide a number of benefits in terms of resources and health outcomes (Carr & Springer 2010; Waite & Gallagher 2000; Horwitz & White 1991; Gove et al. 1983; Ross et al. 1990; Frech & Williams 2007).

One significant limitation regarding the knowledge of sexual minority health behaviors is that until 2013 nationally representative survey research lacked explicit questions on sexual orientation. Previous research on sexual minority health (Liu et al.

2013; Reczek et al. 2013; Reczek et al. 2014; Denney et al. 2013; Heck et al. 2006) relied on household rosters to identify households having two members of the same sex living together in a cohabiting relationship. This limitation has excluded a significant portion of sexual minority individuals, who were not or did not report living in a same-sex cohabiting relationship. In light of nationally representative health surveys, which are beginning to ask questions regarding sexual orientation, this study will utilize this contemporary data. In June 2015, the Supreme Court found it unconstitutional to deny marriage rights to same-sex individual, legalizing gay marriage. Although some studies have investigated sexual minority cohabiting status, to the author's knowledge, none have directly measured same-sex marriage.

This research aims to investigate whether marriage accounts for health behavior differences between sexual minorities and heterosexuals. Drawing upon nationally representative health data, this study aims to measure the potential relationships among sexual orientation, marital status, sex, age, education and prevalence of negative health behaviors. This study also incorporates literature on minority stress and identity formation as a frame for investigation. This research aims to investigate the influence minority stressors may enact on higher rates of participation in negative health behaviors among sexual minorities, and the potential mediating role of marriage.

## Literature Review

### *Identity Formation*

During adolescence, most youth develop their sexual identity. Sexual identity development is conceptualized as a multifaceted experience, including an awareness of one's attraction to others, identification with a particular sexual orientation, engagement in romantic and sexual relationships, and processes such as disclosing one's sexual attractions to others and issues related to self-acceptance (Chung et al. 2012, Puckett et al. 2017).

A study by Mustanski et al. (2016) longitudinally examined 248 sexual minority-identifying participants in Chicago beginning in 2007. The authors of the study found that LGB youth experience exposure to higher rates of victimization and overt discrimination from adolescence and further into early adulthood, and were at a significantly higher risk for depression, substance abuse, and post-traumatic stress disorder.

A large portion of identity research, pioneered by Thoits, emphasizes the importance of merging identity theory and stress research, primarily the influence of successful role performance on the individual's formation of self-esteem. These expectations of normative roles are defined by Thoits as: "role identities are one's self-conceptions in terms of one's position within the larger social structure" (Thoits 1991). This concept is derived partly from a symbolic interactionist perspective, where

individuals shape their conceptions of self from others. “Role identities are based on enduring, normative, reciprocal relationships with other people” (Thoits 1991).

Given that role expectations attached to these identities are normative expectations, the ability of individuals' identity performance has implications for self-evaluation, and sanctions for failed performances (Hoelter 1983; Sieber 1974). When normative roles are not fulfilled, depending on the salience of that role, it can be detrimental to the well-being of an individual. A portion of identity research highlights that the centrality of the failed role to the individuals core identity can be severely detrimental. If the individual does not have multiple roles to compensate for this failed performance, it may be especially damaging. Many studies indicate that possessing many different role-identities can be beneficial for an individual's overall well-being (Thoits 1991; Emlet 2016).

When LGB adolescents begin the coming out process, they begin to reject a heteronormative role performance. If the significant others reject this role, it in turn may negatively alter their self-conception. Until the individual creates new social ties that are supportive of their identity, the damage of the rejected role may have long lasting effects. Herek and colleagues assert that:

Higher levels of felt or perceived stigma causes some individuals to conceal their sexual minority identity and attempt to pass as heterosexual. While attempting to pass in specific situations that carry a high risk for enacted stigma is adaptive, chronically concealing one's sexual orientation is likely to be associated with higher levels of self-stigma (Herek et al. 2009: 39).

If an individual continues to conceal their true identity for an extended period of time, they will likely face higher rates of chronic stress. Additionally, when individuals do not

satisfy role expectations, this failure to meet expectations can cause shame and incongruence among other roles.

### *Minority Stress, Stigma, and The Spoiled Identity*

Goffman (1963) defines stigma as a powerful social label, which stems from a discrediting characteristic of the individual, which in turn alters their social identity. That stigmatized identity can become internalized and shape behaviors and attitudes. A study conducted by Hasan et al. (2012) found that HIV patients have internalized the social stigma they face, and experience more poor health outcomes. That study also reviews the stigma literature and implies much of that literature divides stigma into two categories. The authors state that felt or perceived stigma is the result of the internalized stigma individuals feel as a result of their accumulated experiences and socialization and can create a fear of interacting in situations where they feel that they may be discredited. The second type is external or enacted stigma on the other hand are the result of actual experiences of discrimination. The authors also state that the two types of stigma are interacting and interlinked. The discrimination leads to internal stigma, and the internalized stigma again reinforces and legitimizes the discredited identity.

Minority stress is described as the unique stressors, which are experienced among sexual minorities; this stress has a significant impact on the mental health and well-being of this population. One minority stressor, internalized heterosexism also known as internalized homophobia, refers to incorporating stigma against sexual minorities into one's self-concept as a product of social rejection or condemnation of a sexual minority

identity (Puckett et al. 2017; Meyer 2003). This concept builds on the general stress literature and focuses on the stresses experienced particularly among sexual minorities and other minority groups.

The concept of minority stress is not based on one distinct theory but is comprised of several social and psychological theoretical orientations. Minority stress is described as being related to the juxtaposition of minority and dominant values and the resultant conflict with the social environment experienced by minority group members (Meyer 1995). Internalized homophobia refers to the direction of societal level negative attitudes in regard to same-sex orientation that macro level then funnels down toward individual's conception of the self. Before individuals begin to realize their own homosexuality, same-sex oriented people internalize societal anti-homosexual attitudes. When adolescents or young adults recognize their same-sex attraction, they begin to contemplate their presumed heterosexuality and apply the label homosexual or gay to themselves. Self-labeling takes place before public disclosure of their sexual orientation. As the phase of self-labeling begins, individuals also begin to apply negative attitudes and project the negative conceptions upon themselves, and the psychologically damaging effects of societal homophobia take effect (Meyer 1995).

Meyer, one of the forerunners in minority stress research, indicates that minority stressors can be best conceptualized by breaking the stressors into two categories. First, distal stressors refer to objective events, such as experiencing discrimination and harassment, whereas proximal stressors refer to experiences that are more subjective. Examples include expectations of rejection, identity concealment, and internalized heterosexism (Meyer 2003). These minority stressors partially explain the health

disparities experienced by sexual minorities relative to heterosexuals (Meyer 2003; Puckett et al. 2017) and thus are important processes to understand from a developmental perspective.

In the aforementioned study conducted by Herek et al. (2009), the authors discuss the societal level heterosexism separately from experiences at the individual level. As a macro structural occurrence, heterosexism is separable from the prejudice and discrimination of individual members of society. Herek and colleagues discuss the process in the following way:

It operates through at least two general processes. First, because individuals are initially presumed to be heterosexual, sexual minorities generally remain invisible and unacknowledged by society's institutions. Second, when sexual minorities become visible, they are problematized; that is, they are presumed to be abnormal, unnatural, requiring explanation, and deserving of discriminatory treatment and hostility (Herek et al. 2009: 39).

Heterosexuals, by contrast, are considered the "normal" orientation and others outside of that normal group are deserving of negative sanctions). A national survey of LGBT youth conducted by the advocacy organization Gay, Lesbian, and Straight Education Network (GLSEN 2014) reported the survey respondents (N= 261) experienced verbal harassments (61%), sexual harassment (47%), physical harassment (28%), and physical assault (14%). The overwhelming majority of LGBT youth (90%) sometimes or frequently heard homophobic remarks at their schools, with many (37%) reporting hearing these remarks from faculty or school staff (GLSEN 2014).

A branch of stress research concludes that coping strategies and resources such as higher self-esteem, a sense of personal control and perceived social support can act as a

buffer to elevated levels of stress. These buffers can enhance individual's ability to adjust and mediate their lower social status, and ultimately reduce the chances of experiencing significant psychological distress (Pearlin 1989; Rosenfield 1989; Kessler & McLeod 1985; Thoits 1991). Therefore, stress theory posits that there are increased instances of psychological distress experienced among individuals in lower-status groups (Thoits 1991). These lower status groups include minorities, the elderly, women, and unmarried individuals. "This phenomenon is explained by the combination of high exposure to stress and a relative lack of stress-buffering resources in these groups" (Thoits 1991: 105). Conversely, LGB identity may also be a source of strength, when it is associated with opportunities for affiliation, social support, and coping that can moderate the impact of stress (Branscombe, Schmitt, & Harvey 1999; Crocker & Major 1989; Gove 1984; Miller & Major 2000; Meyer & Bayer 2013). When the opportunities for integration are not present, the protective aspects of support and strength are removed.

### *Benefits of Marriage for Different-Sex Partners*

The notion that marriage provides individuals with protective physical and mental health benefits has been mostly accepted among sociological and psychological research (Bloom et al. 1978; Cherlin 2013; Ross et al. 1990; Umberson 1997; Waite & Gallagher 2000). This conception may be attributed to Durkheim's (1897/1951) work which illustrated that married individuals had lower rates of suicide due in part to higher levels of integration and stronger sense of purpose and accountability (Horowitz et al. 1996).



There are some who contest this notion and suggest that healthier and mentally stable people select in to marriage, and that marriage itself is not the protective factor (Horowitz et al. 1996; Mastekaasa 1993). Horowitz and colleagues (1996) also posit that research on gender differences in marital benefits (Dohrenwend & Dohrenwend 1976; Horowitz & Davies 1994) compare psychological wellbeing between men and women. These studies however do not take into account the measures of internalized symptoms of depression and anxiety, which are more likely to be experienced by women than men. This flaw may potentially alter the results and show women with lower levels of mental health, when the measures do not accurately take into account the gender differences and experiences of internalized symptoms. Regardless of selection effects, innumerable studies have shown that married individuals experience better overall health than those whom never marry.

A considerable amount of work investigates the differential gender experiences in marriage. A preeminent viewpoint is that men experience more benefits in terms of marriage. Married men generally do not leave their careers while having a reduced amount of household labor. On the other hand, women may be more likely to give up their occupational position, or have an occupation and yet still contribute more to household labor (Horowitz et al. 1996; Rosenfield 1992). This imbalance in distribution of labor and role identity may reduce the mental health benefits of marriage for women, but still provide financial resources and healthcare coverage. Little research has investigated the gender differences in same-sex married couples, and whether those couples still adopt heteronormative role identities.

### *Same-Sex Couples and Potential Education & Marriage Benefits*

Until the recent Supreme Court decision to legalize same-sex marriage in all 50 states, this topic has not been directly measurable. The ruling provides the opportunity to investigate the benefits of marriage, without gender differences in the relationship. A trend in researching same-sex couples in the pre-legalization era was to investigate how these couples frame and evaluate their relationship satisfaction. Cherlin (2013) states: “Studies that have compared gay, lesbian, and heterosexual couples have found no significant differences in love, satisfaction, or the partners' evaluations of the strengths and weaknesses of their relationships” (Cherlin 2013: 64). This research illustrates that there are little to no differences in the meanings and perceptions of love and marriage between same and different sex couples.

In Civettini's (2016) work, she investigates the gender differences of gay and lesbian couples' delegation of household labor. She found that although same-sex couples do breach the normative gender roles of household labor, they do so in different ways. Lesbians tended to incorporate a more masculine identity and avoid stereotypically feminine housework. On the other hand, gay men were found to adopt a more feminine approach to take on more household labor than would a stereotypical heterosexual male. Although these stereotypical notions of gender norms are somewhat outdated, they do show that same-sex couples are more likely to breach gender norms and take on a more egalitarian partnership in the home. This egalitarian relationship could be beneficial in allowing a more equal distribution of household and occupational labor. Despite these

findings, little research has explored whether this egalitarianism of same-sex couples may improve their health behaviors and outcomes.

A number of studies consistently show that sexual minorities experience higher rates of poor health outcomes and mortality (Liu et al. 2013; Reczek et al. 2013; Reczek et al. 2014; Denney et al. 2013; Heck et al. 2006). These studies also show that same-sex cohabitation may provide some health benefits similar to marriage, but were not able to directly measure marriage. Considering that different-sex married individuals experience better health than those in different-sex in cohabiting relationships, will the same be the case for same-sex married individuals?

A number of studies indicate a positive relationship between the quantity of education and better physical and perceived health. Ross and Mirowsky state:

Education increases the likelihood of having supportive relationships. Schooling may promote supportive and equitable relationships because it helps partners understand and negotiate with each other. Education develops cognitive flexibility, which includes the ability to see more than one side of an issue. Inflexible people respond to differences in preferences, opinions, and goals with anger, indignation, and punishment (Ross & Mirowsky 1999: 446).

Individuals with higher levels of educational attainment are likely to experience better self-rated health, and participate in negative health behaviors. Considering that sexual minorities tend to have higher rates of educational attainment, this could potentially act as a protective buffer to their higher rates of negative health behaviors such as smoking, and drinking. When taken together we may expect to see marriage and education working together to suppress the negative health outcomes, which predominately face sexual minorities.

## Methods

### Data

In this study, I will pool cross-sectional data from the 2013-2016 administrations of the National Health Interview Surveys (NHIS). The data set was downloaded through the Integrated Public Use Micro-Data Series (IPUMS), which is organized by The University of Minnesota in Minneapolis. The NHIS is a cross-sectional household survey conducted annually by the U.S. National Center for Health Statistics (NCHS). The NHIS is representative of the U.S. civilian non-institutionalized population in a given survey year (McCabe et al. 2010). One adult in each household is randomly selected to answer supplementary questions on smoking behavior and other additional health information contained in the Sample Adult questionnaire. The surveys have been fielded annually since 1957, making it the longest-running national health survey in the United States where data collection is carried out continuously throughout the year and producing national representative samples each quarter. Further information on the survey methodology on NHIS IPUMS can be found at <https://nhis.ipums.org/>. I pool data from these four years in an effort to obtain a larger sample of lesbian and gay respondents.

To obtain representative statistics using NHIS data, I use normalized sample weights in each model. To normalize the sample weights, first I computed a new weight variable ('WT4') by dividing the sample weight by the number of survey years ( $\text{PERWEIGHT} / 4$ ). Then, I calculated the sample size and the sum of the new variable 'WT4' for the four survey years. Finally, I created the normalized weight variable called

‘NORMWT,’ and used this variable to weigh descriptive statistic and regression results. All models only include individuals who have a valid response on all independent and dependent variables. The normalized weights ensure that my analysis is measuring only respondents with valid responses, and are comparable across all four years. After imposing these weights, it yields a sample size of (N=131,778), of which sexual minorities make up a sample size of (N=2,244) and heterosexuals make up a sample size of (N=129,534).

I do not restrict respondents from my sample based on age, which some previous research has done to reduce potential biases related to mortality selection (Christopoulou et al. 2011). In addition, because marriage, cohabitation, and same-sex relationships may hold different meanings for older adults (Reczek et al. 2009; Brown et al. 2008). I allow full age range in an effort to have the largest possible sample of LGB identifying individuals, given I am only able to pool data from four years to be able to measure for sexual orientation and marital status with statistical power. Any respondent who did not report sexual orientation was removed from the sample.

## **Measures**

### **Independent Variables**

#### *Sexual Orientation*

The second independent variable of interest is sexual orientation. In the NHIS, the responses are lesbian, gay, bisexual, straight, other, and unknown. In this study, I remove the other and unknown responses. In order to complete logistic regression, I dichotomize

the variable where heterosexual is the reference group. The variable for sexual orientation is collapsed where lesbian and gay are combined and heterosexual remains as the other attribute. I exclude respondents who identify as bisexual because they may be in opposite-sex marriages, and this study examines the association between sexual orientation and health behaviors when adjusting for marital status.

### *Marital Status*

The first independent variable of interest is marital status. The NHIS divides marital status into several different categories for married, separated, divorced, widowed and never married. I will recode the variable to include categories of married, separated and never married. I will also create dummy variables with married as the reference group for analysis using logistic regression.

### *Educational Attainment*

To measure the association education has with the dependent variables, I use the variable that classifies the level of education respondents have achieved. I recode the variable in categories of less than high school, high school graduate, Bachelor's Degree, and Graduate Degree. In the regression models, high school graduates are used as the reference group.

## Dependent Variables

### *Self-Rated Health*

For my first dependent variable, I investigate respondents' self-rated health. In the NHIS survey this question asks respondents to rate their health generally as excellent, very good, good, fair, or poor. I dichotomize the variable into good or fair / poor in order to conduct regression analyses. This variable will allow me to investigate whether the perceptions of health differ by sexual orientation, controlling for marital status and gender.

### *Usual Place of Care*

The variable usual place of care measures whether respondents report having a place they routinely go for healthcare. The responses are bifurcated and are either yes, I have no usual place of care, or no I have a usual place of care. For ease of analysis I recode the responses to yes, I have a usual place of care, or I have no place of usual care. For regression models, having a place of usual care is the outcome.

### *Smoking Status*

One of the dependent variable is self-reported cigarette use. The variable I utilize is the first in a series of questions regarding smoking behaviors. The survey asks

respondents if they have smoked 100 cigarettes throughout their lives, which is believed to be a threshold to determine if a respondent can be determined a smoker.

### *Alcohol Consumption*

To measure alcohol consumption, I utilize the survey question which asks if respondents have consumed more than 12 alcoholic beverages in the past year. Responses are either yes, I have consumed more than 12 alcoholic beverages, or no, I have not consumed more than 12 alcoholic beverages.

### *Mental Health*

To measure mental health, I utilize the variable which asks respondents whether they have felt hopeless in the past 30 days, and further how frequently they have this feeling. This variable is the strongest measure available of mental health, and will most closely estimate the potential influence of marriage on mental health for same-sex couples.

### *Insurance Status*

The second dependent variable of interest is the status of insurance coverage. This variable allows me to measure if marriage to a spouse with insurance extends that



coverage to individuals without insurance coverage. The responses are yes, I have no insurance coverage, or no I have insurance coverage. To clarify the language, I recode the variable to yes, I have coverage, and no, I do not have coverage.

### Control Variables

To measure sex differences, I create a bifurcated variable where females are the reference group. I also control for age in order to investigate the interaction between age and the dependent variables. Initially I planned to investigate racial and ethnic differences in regard to marriage and sexual minority health. When I introduced those controls of race, it yielded sample sizes as small as zero, rendering no statistical power. I ultimately had to remove race as a control, which is a major limitation of the available data.

### **Statistical Analysis**

The statistical analyses utilize SPSS analysis software, version 24. I first conduct elaboration models to investigate interactions among sexual orientation, marital status, and the various outcome variables to obtain basic descriptive statistics. I run cross tabulations to provide a basic outlook of the frequencies and interactions among the control and outcome variables, as well as providing demographic characteristics. I then conduct a series of logistic regression tables to measure the odds ratios of the self-rated health, smoking status, drinking status, having a usual place of care, feelings of

hopelessness, and insurance coverage status. In each table, I present four nested models. The first model introduces the interaction between the dependent variable and sexual minorities, where heterosexuals are the reference group. The second model introduces sex, where males are the reference group, and also introduces age. The third model introduces educational attainment, where high school graduates are the reference group. The fourth model introduces marital status, where married are the reference group.

## Results

### *Descriptive statistics*

Table 1. Descriptive Statistics for Sample, NHIS

	Lesbians/Gay Men	Heterosexuals
<i>Control variables</i>		
Age (mean)	44.4	49.9
Gender		
Female	45.90%	55.10%
Male	54.10%	44.90%
Education		
Less than high school	1.80%	5.30%
High school diploma	23.30%	34.50%
Bachelor's degree	56.60%	49.50%
Graduate degree	18.40%	10.90%
Marital status		
Separated	14.50%	29.10%
Currently married	17.80%	45.10%
Never married	67.70%	25.80%
<i>Outcome variables</i>		
Fair/poor health	13.20%	14.60%
No usual place of healthcare	15.60%	13.70%
Alcohol use in past 12 months	77.80%	63.30%
Smoked at least 100 cigarettes	48.20%	40.00%
Felt hopeless in past 30 days	20.10%	13.80%
No health insurance	12.30%	12.50%
Sample size	2,244	129,534

The average age for sexual minorities is approximately 44 years, and nearly 50 years for heterosexual respondents. For sexual minorities, the distribution of gender is approximately 54% male, and 46 % female. That distribution is essentially reversed for heterosexual respondents, where 55.1% identify as female and 44.9% identify as male.

Next looking at educational attainment, lesbian women and gay men (1.8%) are less likely than heterosexuals (5.3%) to have less than a high school education. Sexual minorities are also more likely to obtain a Bachelor's degree and even a Graduate or Doctoral degree than heterosexual respondents. 56.6% of lesbian and gay respondents received a Bachelor's degree, compared to 49.5% of heterosexuals. 18.4% of sexual minority respondents have achieved a graduate degree or above, compared to 10.9% of heterosexuals. Sexual minorities experience an educational advantage in every level of attainment in my measurements, which is consistent with the literature.

Now focusing on rates of marriage, I find that 14.5% of lesbian and gay respondents are separated or divorced from their spouse, compared to 29.10% of heterosexual respondents. Heterosexual respondents are far more likely to be currently married than gay and lesbian respondents. 45.1% of heterosexuals are currently married, where only 17.8% of sexual minorities are currently married. The relationship is flipped for those who have never married, where 67.7% of sexual minorities have never married compared to only 25.8% of heterosexual respondents. The relative novelty of nation-level legalization of same-sex marriage likely has some influence over these rates of marriage, and certainly warrants further investigation.

Moving to the outcome variables, we see that heterosexuals are slightly more likely to report fair or poor health at a rate of 14.6%, where 13.2% of sexual minorities report fair or poor health. Sexual minorities are slightly more likely (15.6%) than heterosexuals (13.7%) to report not having a usual place of care. A study by Hasan (2012) indicates that the stigma of sexual identity may influence sexual minorities to not seek needed healthcare. The results indicate that sexual minorities (77.8%) are more likely than heterosexuals (63.3%) to have consumed more than 12 alcoholic drinks in the past year. In terms of smoking, 48.2% of lesbian and gay respondents report smoking over 100 cigarettes. 40% of heterosexual respondents report smoking 100 cigarettes. Sexual minorities (20.1%) are also more likely than heterosexuals (13.8%) to report feelings of hopelessness in the past 30 days. Sexual minorities and heterosexual respondents report not having insurance at very similar rates, 12.3 % of sexual minorities and 12.5% of heterosexuals. This finding is especially interesting since many individuals are eligible for health insurance through their spouse's employment and marriage is much less common among sexual minorities relative to heterosexuals.

## **Odds Ratios**

### *Binary Logistic Regression Results*

Next, I discuss the results tables of the odds ratios calculated by binary logistic regression, and the series four models within those tables. In each of the tables, model 1 represents the weighted odds ratio of sexual minorities reporting fair/poor health, with heterosexuals as the reference group. Model 2 reports the weighted odds ratios for sexual orientation while adding the odds of gender, where male is the reference group. Model 2 also adds the weighted odds ratio for age. Model 3 presents the weighted odds ratios for the aforementioned variables, and adds the ratios for educational attainment, where high school graduates are the reference group. Model 4 presents to the previously mentioned odds and adds the weighted odds ratios for marital status, where currently married are the reference group.

Table 2. Odds ratios for fair/poor health

	Model 1	Model 2	Model 3	Model 4
<b>Sexual orientation</b>				
Gay/lesbian	0.89*	1.07	1.31***	1.21**
Heterosexual	ref.	ref.	ref.	ref.
<b>Gender</b>				
Female		1.03*	1.01	0.97**
Male		ref.	ref.	ref.
Age		1.03***	1.03***	1.03***
<b>Education</b>				
Less than high school			2.18***	2.19***
High school diploma			ref.	ref.
Bachelor's degree			0.36***	0.37***
Graduate degree			0.24***	0.25***
<b>Marital status</b>				
Separated				1.52***
Currently married				ref.
Never married				0.91***

Notes: \*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .001$

Table 2 presents the weighted odds ratios for self-reported fair and poor health, as well as the controls added by the four models. According to model 1, sexual minorities are 11% less likely to report having fair/poor health than the reference group, heterosexuals. This bivariate association produced slight statistical significance at the  $p < .10$  level. In model 2, when controlling for gender and age, sexual minorities become

7% more likely to report fair or poor health, however that interaction loses significance. This model shows that gender and age are better predictors of poor health, than sexual orientation alone. Females are 3% more likely to report fair or poor health, a slightly significant relationship. The second model also indicates that with every additional year of age respondents are 3% more likely to report fair or poor health, significant at  $p < .001$ .

According to model 3, educational attainment explains the gender difference in odds of reporting fair or poor health. This model indicates that when controlling for education, sexual minorities are 31% more likely than heterosexuals to report fair or poor health, significant at the level of  $p < .001$ . Respondents with less than a high school education are 118% more likely to report fair or poor health. Those with a Bachelor's degree are 64% less likely to report fair or poor health than high school graduates. Further, those with a Graduate degree or higher are 76% less likely to report fair or poor health.

Model 4 shows that when controlling for education and marital status that sexual minorities are 21% more likely than the reference group to report fair or poor health, significant at the level of  $p < .05$ . In this model women are 3% less likely to report fair or poor health, which is a significant change from the previous model, at the level of  $p < .05$ . This model reports similar odds, in terms of educational attainment as the previous model. Respondents with less than a high school education are 119% more likely to report fair or poor health. Those with a Bachelor's degree are 63% less likely to report fair or poor health than high school graduates. Further, those with a Graduate degree or higher are 75% less likely to report fair or poor health. Adding the control of marital status, the results indicate that those respondents who are separated are 52% more likely



than the married reference group to report fair or poor health, significant at  $p < .001$ . Those who are never married are 9% less likely to report fair or poor health, also significant at the level of  $p < .001$ .

Table 3. Has no usual place of care

	Model 1	Model 2	Model 3	Model 4
Sexual orientation				
Gay/lesbian	1.15**	0.92	0.98	0.91
Heterosexual	ref.	ref.	ref.	ref.
Gender				
Female		0.48***	0.48***	0.48***
Male		ref.	ref.	ref.
Age		0.96***	0.96***	0.96***
Education				
Less than high school			2.04***	2.09***
High school diploma			ref.	ref.
Bachelor's degree			0.79***	0.83***
Graduate degree			0.66***	0.71***
Marital status				
Separated				1.46***
Currently married				ref.
Never married				0.91**

Notes: \*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .001$

Table 3 presents the weighted odds ratios for having no usual place of care, as well as the controls added by the four models. Model 1 shows that gay and lesbian respondents are 15% more likely to report having no usual place of care than the reference group, significant at the level of  $p < .05$ . When adding the controls of sex and age in model 2, the significance of sexual orientation is removed. Females are 52% less likely than men to report not having a usual place of care, significant at the level of  $p < .001$ . Also with every year of age respondents are 4% less likely to report not having a place of care, a highly significant relationship.

According to model 3, when controlling for educational attainment, sexual orientation is not associated with having a usual place for care. Educational attainment also does not alter the odds for sex and age. This model shows that for those with less than a high school diploma, they are 104% more likely than the reference group to report not having a usual place of care, significant at the level  $p < .001$ . For those who have a Bachelor's degree, they are 21% less likely to report not having a usual place of care than the reference, producing a highly significant relationship. Those with a Graduate degree are 34% less likely to report not having a usual place of care.

Model 4 shows that when controlling for marital status, sexual minorities still do not significantly differ in not having a usual place of care relative to the reference group. Again, in model 4 the odds ratios for sex and age are unchanged by controlling for education and marital status. Adding the control for marital status increases the likelihood of a respondent to report no usual place of care to 109%, which produced statistically significance. Those with Bachelor's degree are 17% less likely to report not having a usual place of care, a highly significant association. Those with a Graduate degree are 71

% less likely to report not having a usual place of care, significant at the  $p < .001$  level.

Those who are separated are 46% more likely to report not having a usual place of care than the reference group, which was highly significant. Those who are never married are 8% less likely than those who are currently married, significant at the  $p < .05$  level.

Table 4. Odds ratios for consumed Alcohol in the past year (More than 12 Drinks)

	Model 1	Model 2	Model 3	Model 4
Sexual orientation				
Gay/lesbian	2.032***	1.81***	1.64***	1.73***
Heterosexual	ref.	ref.	ref.	ref.
Gender				
Female		0.45***	0.45***	0.44***
Male		ref.	ref.	ref.
Age		0.99***	0.99***	0.99***
Education				
Less than high school			0.45***	0.46***
High school diploma			ref.	ref.
Bachelor's degree			1.85***	1.86***
Graduate degree			1.93***	1.94***
Marital status				
Separated				1.11***
Currently married				ref.
Never married				0.79***

Notes: \*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .001$

Table 4 presents the weighted odds ratios for having consumed alcohol in the past 12 months, as well as the controls added by the four models. Every odds ratio produced in this table yielded highly significant relationship, at the level of  $p < .001$ . In model 1, sexual minorities are 103% more likely to have consumed more than 12 drinks in the past year, than the reference group. Results from Model 2 show that sex and age do not account for the sexual minority levels of alcohol consumption. This model also shows

that women are 55% less likely than men to have consumed more than 12 drinks in the past year. We also see that with every year of age respondents are 1% less likely to drink.

According to the data in model 3, when controlling for educational attainment, sexual minorities are still 64% more likely to report having consumed more than 12 drinks. Educational attainment also does not alter the odds for sex and age. This model shows that for those with less than a high school diploma, they are actually 56% less likely than the reference group to report having consumed more than 12 drinks. For those who have a Bachelor's degree, they are 85% more likely to report drinking than the reference, producing a highly significant relationship. Those with a Graduate degree are 93% more likely to report having consumed more than 12 drinks in the past year.

Odds ratios from model 4 introduce marital status as a control, but do not account for the higher rates of drinking among sexual minorities. When controlling for marital status, sexual minorities are 73% more likely than heterosexual respondents to consume more than 12 drinks. Sex and age are unaffected by the measures of marital status. Those respondents with less than a high school diploma are 64% less likely than the reference to drink. Those with a Bachelor's degree are 86% more likely to drink, and respondents with a Graduate degree are 94% more likely to drink. The respondents who are separated are 11% more likely to drink, and those who never married are 21% less likely to have consumed 12 drinks in the past year.

Table 5. Odds ratios for smoked 100 or more cigarettes

	Model 1	Model 2	Model 3	Model 4
Sexual orientation				
Gay/lesbian	1.39***	1.48***	1.66***	1.75***
Heterosexual	ref.	ref.	ref.	ref.
Gender				
Female		0.59***	0.58***	0.55***
Male		ref.	ref.	ref.
Age		1.02***	1.02***	1.01***
Education				
Less than high school			0.59***	0.59***
High school diploma			ref.	ref.
Bachelor's degree			0.51***	0.52***
Graduate degree			0.40***	0.42***
Marital status				
Separated				1.44***
Currently married				ref.
Never married				0.64***

Notes: \* p < .10, \*\* p < .05, \*\*\* p < .001

Table 5 presents the weighted odds ratios for having smoked at least 100 cigarettes, as well as the controls added by the four models. Every odds ratio produced in this table also yielded highly significant relationship, at the level of  $p < .001$ . In model 1, sexual minorities are 39% more likely to have smoked more than 100 cigarettes, than the reference group. Results from Model 2 show that sex and age do not account for the sexual minority levels of cigarette smoking. This model also shows that women are 41% less likely than men to have smoked at least 100 cigarettes. We also see that with every year of age respondents are 2% more likely to smoke 100 cigarettes.

According to the data in model 3, when controlling for educational attainment, sexual minorities are still 66% more likely to report smoking. Educational attainment also

does not alter the odds of smoking for sex and age. This model shows that for those with less than a high school diploma, they are actually 41% less likely than the reference group to report smoking 100 cigarettes. For those who have a Bachelor's degree, they are 49% less likely to report smoking than the reference, producing a highly significant relationship. Those with a Graduate degree are 60% less likely to report smoking 100 cigarettes. This model shows that the higher educated the respondents are, the less likely they are to smoke. Considering sexual minorities experience higher rates of educational attainment, this creates a suppression effect. Although they smoke at higher rates, they higher levels of education may be protective for those who have achieve higher educational attainment.

Odds ratios from model 4 introduce marital status as a control, but do not account for the higher rates of smoking among sexual minorities. When controlling for marital status, sexual minorities are 75% more likely than heterosexual respondents to smoke 100 cigarettes. Sex and age are mostly unaffected by the measures of marital status. Those respondents with less than a high school diploma are 41% less likely than the reference to smoke. Those with a Bachelor's degree are 48% less likely to smoke, and respondents with a Graduate degree are 58% less likely to smoke. The respondents who are separated are 44% more likely to smoke, and those who never married are 36% less likely to have smoked 100 cigarettes.

Table 6. Odds ratios for felt hopeless in the past 30 days

	Model 1	Model 2	Model 3	Model 4
Sexual orientation				
Gay/lesbian	1.57***	1.58***	1.74***	1.63***
Heterosexual	ref.	ref.	ref.	ref.
Gender				
Female		1.37***	1.37***	1.31***
Male		ref.	ref.	ref.
Age		0.99***	0.99***	0.99***
Education				
Less than high school			1.67***	1.69***
High school diploma			ref.	ref.
Bachelor's degree			0.58***	0.61***
Graduate degree			0.53***	0.58***
Marital status				
Separated				1.82***
Currently married				ref.
Never married				0.77***

Notes: \*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .001$

Table 6 shows the odds ratios for the measure of mental health, having feelings of hopelessness in the past 30 days. All interactions in this model also produced highly significant interactions. Model 1 shows that gay and lesbian respondents are 57% more likely than heterosexuals to report feeling hopeless. Model 2 shows that controlling for age and sex do not explain the sexual minority disadvantage of feeling hopeless. Females are 37% more likely than men to report feelings of hopelessness, and with every additional year of age respondents are 1% less likely to report feeling hopeless.

Model 3 shows that there is another suppression effect in terms of the sexual minority educational attainment advantage, where education is a protective factor for sexual minorities. When adding this control for education the results show that sexual

minorities are still 74% more likely to experience feelings of hopelessness. This control, does not alter the outcome for sex and age. This model also shows that those respondents with less than a high school education are significantly more likely to experience feelings of hopelessness, 67% more likely than high school graduates. Respondents with a Bachelor's degree are 42% less likely than the reference to experience feeling hopeless. Those respondents with a Graduate degree are 47% less likely than the reference group to report feelings of hopelessness in the past month.

Odds ratios from model 4 introduce marital status as a control, but do not entirely account for the higher rates of feeling hopeless among sexual minorities. When controlling for marital status, sexual minorities are 63% more likely than heterosexual respondents to report feeling hopeless. Age is unaffected when controlling for marriage, but marriage reduces female feelings of hopelessness from 37% to 31%. Those respondents with less than a high school diploma are 61% more likely than the reference to feel hopeless. Those with a Bachelor's degree are 39% less likely to feel hopeless, and respondents with a Graduate degree are 42% less likely to report feeling hopeless. The respondents who are separated are 82% more likely to report feeling hopeless, and those who never married are 33% less likely to have reported feeling hopeless in the past 30 days.



Table 7. Odds ratios for has no insurance

	Model 1	Model 2	Model 3	Model 4
Sexual orientation				
Gay/lesbian	1.02	1.23**	1.05	1.04
Heterosexual	ref.	ref.	ref.	ref.
Gender				
Female		1.30***	1.30***	1.34***
Male		ref.	ref.	ref.
Age		1.04***	1.04***	1.05***
Education				
Less than high school			0.30***	0.29***
High school diploma			ref.	ref.
Bachelor's degree			2.76***	2.69***
Graduate degree			4.49***	4.29***
Marital status				
Separated				0.67***
Currently married				ref.
Never married				1.40***

Notes: \*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .001$

Table 7 presents the odds ratios for having insurance. Model 1 shows that sexual minorities are 2% more likely to report having insurance, which produced no significance. Looking at model 2, when controlling for age and sex, sexual orientation becomes a significantly related to health insurance. Sexual minorities are 23% more likely to report having insurance, significant at the level  $p < .05$ . This model also indicates that women are 30% more likely to report having insurance, which was a highly significant interaction. The model also indicates that with every year of age, respondents are 4% more likely to have insurance coverage.

Model 3 indicates that education partially attenuates the difference in health coverage among sexual minorities. When controlling for education, gay and lesbian respondents are only 5% more likely to report having insurance, which was not statistically significant. Controlling for education did not however alter the sex and age odds ratios, they remained constant. Respondents with less than a high school diploma are 70% less likely to report having insurance, significant at the level of  $p < .001$ . Respondents with a Bachelor's degree are 176% more likely than the reference group to report having insurance coverage. Respondents with a Graduate degree are 349% more likely than the reference group to have insurance coverage.

In model 4, controlling for marital status, the measures of sexual orientation do not maintain significance. We see that sexual minorities are 4% more likely to report having insurance. Women are 34% more likely to report having insurance when controlling for marital status, significant at the level of  $p < .001$ . Respondents with less than a high school diploma are 71% less likely to report having insurance coverage than high school graduates, significant at the level of  $p < .001$ . Respondents with a Bachelor's degree are 169% more likely to report having insurance, and those with a Graduate degree are 329% more likely than the reference group to report having health insurance. Both of those interactions were highly significant. Those respondents who are separated are 33% less likely than those who are currently married to report having health insurance, significant at  $p < .001$ . Those who have never married are 40% more likely than the reference group to report having health insurance, also highly significant.

## **Discussion & Conclusions**

This study finds a significantly higher rate of negative health behavior participation among sexual minorities. Sexual minorities are significantly more likely to report smoking cigarettes, drinking alcohol, and experiencing feelings of hopelessness. Despite participating in higher levels of negative health behaviors, sexual minorities experience higher levels of educational attainment. This education advantage acts as a protective factor for sexual minorities for every outcome, except alcohol consumption. The results indicate that with every level of educational attainment their likelihood of experiencing the negative health outcome is significantly reduced. Sexual minorities who do not achieve high levels of education are perhaps significantly disadvantaged in terms of health, without the education advantage they are far more likely to experience poor health outcomes. This finding is interesting considering that sexual minority youth report much higher rates of bullying and discrimination in school (GLSEN 2014). Further research should certainly investigate this seemingly paradoxical relationship between hostility within a school environment and higher rates of educational attainment among sexual minorities.

This research builds on a body of research that shows that sexual minorities face significant discrimination throughout the life course, which potentially leads to higher rates of negative health behaviors. This research also finds that some groups, despite their sexual minority status, follow a heteronormative pattern of health behaviors.

In terms of marriage, sexual minorities do experience similar marital benefits to heterosexual couples in some respects. Marriage provides an advantage to both same-sex and different-sex married couples in terms of having a usual place of care. This research indicates that marriage is also beneficial for same-sex women, as those women who are married are significantly less likely to report having fair or poor health. Marriage also decreases sexual minority feelings of hopelessness significantly for both genders, although slightly more for women than men. The results from this study indicate that those who are separated and divorced are significantly more likely to experience worse health outcomes, when compared to those who are married, and even those who have never married. Those who are separated are significantly, more than 50% more likely to report having fair or poor health, more likely to report having no usual place of care, more likely to drink and smoke cigarettes, and far more likely to report feelings of hopelessness. Those who are currently married see significantly better health outcomes than those who separate, but not necessarily those who have never married. Age likely plays an important role in the health outcome variability between those who have never married and those who are currently married, but further research is needed to investigate those differences.

### **Limitations**

This study is limited in the fact that it utilizes cross-sectional data which only shows health at a particular point in time. Longitudinal data would certainly provide a more in-depth description of the benefits of marriage, and at what point in marriage do those benefits take place. This study is also limited in the sense that controlling for

demographic factors such as sexual orientation, gender, and race yield smaller sample sizes which reduce statistical power for analysis of some groups.

A significant limitation with this study, and data regarding sexual minorities in general, are small sample sizes. I am not able to control for common demographic attributes such as race, because when controlling for sex, gender, race and marital status the results yield sample sizes of zero in some cases. These subgroups within these samples are usually the most disadvantaged in terms of socioeconomic status and health. For example, I found a sample size of 0 when controlling for black, gay, married men. Data collection needs to be tailored to better understand how to find these seemingly “invisible” populations. Without this more intersectional view, this research provides a very homogeneous analysis of a very diverse group of individuals. A more qualitative approach may more effectively investigate the specific mechanisms which affect sexual minority health behaviors. Further research should also investigate which groups of sexual minorities are likely to opt into marriage, as the current data cannot effectively measure these differences. Also, NHIS does not include measures of minority stress that could be controlled for.

## **Conclusion**

Drawing upon nationally representative health data, this study aims to measure the potential relationships among sexual orientation, marital status, sex, age, education and prevalence of negative health behaviors. This study also incorporates literature on minority stress and identity formation as a frame for investigation. This research aims to

investigate the influence minority stressors may enact on higher rates of participation in negative health behaviors among sexual minorities, and the potential mediating role of marriage.

This research builds on the literature that shows the high rates of negative health behaviors experienced by sexual minorities. This study uses a theoretical frame of stigma and minority stress to discuss the processes which may contribute to the negative health outcomes of the lesbian and gay population. This study also builds on previous research which has not been able to directly measure the influences of same-sex marriage, but instead had to creatively measure cohabitation.

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