

SEXUAL MINORITY STATUS:  
A CALL FOR STANDARD MEASURES

A Dissertation

by

SHARON WIEDERSTEIN BAKER-HUGHES

Submitted to the Office of Graduate and Professional Studies of  
Texas A&M University  
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Chair of Committee,	Dudley L. Poston, Jr.
Co-Chair of Committee,	Mary Campbell
Committee Members,	Mark Fossett Bethany DeSalvo
Head of Department,	Jane Sell

August 2019

Major Subject: Sociology

Copyright 2019 Sharon Baker-Hughes

## ABSTRACT

This study is an analysis of the scientific knowledge of sexuality research in demography. Holding a sexual majority status theoretically provides advantages to individuals who claim it. Sexual minority status, on the other hand, potentially subjects people to discrimination, harassment, and harm if disclosed. The analyses contained in this study highlight and reinforce the key role that theory plays in guiding both the variables studied in demographic research, as well as the analytical methods employed. This project serves as a building block for a coherent, systematic body of knowledge dealing with the measurement, collection, and analysis of information about sexual minority status on life outcomes.

I analyzed the GSS, NHANES, NHIS, and NSFG, both female and male Examination Survey, to evaluate five hypotheses. First, using more inclusive measures of sexual minority status, rather than the traditional lesbian, gay, and bisexual options resulted in identifying more people with sexual minority status. Secondly, I tested both logit and linear regression models to determine whether the theoretically superior (logit) model was sufficiently different to warrant its use as the standard of analysis. My results show clearly that logit regression should be used when the dependent variables are dichotomous. Thirdly, I tested the model fit of various combinations of measures. Consistently, the trifecta of sexuality measures provides the best model fit for examining outcomes. My last two hypothesis dealt with sex specific effects. While consistent patterns did not develop, it is clear that outcomes are differentially affected by sex.

Future research should incorporate the trifecta of sexual minority status with other demographic measures in all data sets, not just ones focused on health. Sexuality is as relevant as other demographic characteristics in understanding population actors and demographic outcomes and good measurement techniques are essential to keeping demography at the forefront of information on which policy makers and the general public rely to make informed decisions. Just as modern demographers would never consider completing a study which did not include measures for race, ethnicity, sex, and age, we should do the same with measures of sexual attraction, sexual behavior, and self-identity.

## DEDICATION

This dissertation is dedicated to my wife and children, for the sacrifices they made during my time in the program and working on this dissertation. Without my wife and her dedication to me and this process, I would not have been physically able to make it to graduation. I would have lost sight of my goals in going back to school and forgotten there is more to life than classes and writing. Our family would have starved to death, and we would have had far fewer puppies if she did know they were a motivating reward source for me.

Tonya, you have earned my eternal gratitude for being a true partner in this process, reading countless versions of papers, providing excellent insight and suggestions which improved their quality, and providing me with Dr. Pepper when I grumbled too much. Our children seldom complained that I was working instead of playing with them, or when I had to miss an event for them because I was busy pursuing my dream. My daughter often expressed her admiration for my dedication to my work, and my son for my ability to concentrate and study with their noise and chaos. I hope my example will encourage them to never stop learning, and not to settle for a life which does not bring them joy and purpose. I love you all - Tonya, Maddie, and Jack.

## ACKNOWLEDGEMENTS

There are so many people that I owe thanks to for their assistance in this endeavor. First, my committee chair, Dr. Poston for his illustration of how powerful both Demography and a great Professor can be; I will consider my life's work a success if I can have one-quarter his impact on my students and discipline. My co-chair, Dr. Campbell, for her extraordinary and tireless reviewing skills. No matter the project, she was always willing to brainstorm ideas and her suggestions immensely impacted my writing. She also served as a much-needed sounding board and source of support for both grad school and life.

My committee member, Dr. Fossett, who nurtured me through my master's thesis and never stopped encouraging me to return and earn my PhD. His courses and council broadened my knowledge and skill base and he has always challenged me to do amazing research, supporting me and having faith, even when sometimes I did not. Finally, I thank my committee member, Dr. DeSalvo, for her suggestions on ways to expand my current research and think beyond the dissertation to a research agenda for years to come.

I must also thank Dr. D'Lane Compton for her invaluable advice in setting up this project. She spent countless phone calls brainstorming components of my dissertation, keeping me current on the ever evolving "lingo" for sexual and gender minority communities, and providing advice on how to be successful in grad school, when submitting and presenting at conferences, and as a professor at a research

institution. Her guidance was entirely provided based on her goodwill, and her work has inspired much of my own.

I would like to thank Dr. Amanda Baumle, the editor of the first article I submitted for publishing. Looking at it now, it was embarrassingly obvious it was written by a new graduate student. Instead of simply dismissing my article out of hand, Dr. Baumle provided detailed feedback and suggestions for modification that ultimately improved not only that article, but my subsequent writing. I am grateful that someone so well known in the field would take the time to teach me how to improve my writing.

I also thank Anthony Bogaert, Dr. Davis, Dr. Gates, Dr. Laumann, Dr. Farris, Dr. Hummer, Dr. Riley, and all of the other well-known experts in demography who appeared as Skype visitors and agreeing to be interviewed in Dr. Poston's Demography of Sexuality and Social Demography courses. To learn about their research and have them present to answer questions and discuss motivations, political climates, and the reality of focusing on research dealing with sex and sexuality was inspirational and life altering. Very few graduate students are afforded this opportunity and I am truly grateful.

I must also thank the department faculty and staff for making my time at Texas A&M University a great experience. Without Ms. Christi B, I would have been completely lost in the bureaucracy that is necessary to run such a large institution. I feel certain she assisted me with queries that were not in her job description, but she always warmly and competently directed me in the proper direction and provided piece of mind that I would not get lost in the process!

## CONTRIBUTORS AND FUNDING SOURCES

### **Contributors**

This work was supervised by a dissertation committee consisting of Professor Poston, my advisor, Dr. Campbell, my co-advisor, and Dr. Fossett of the Department of Sociology and Dr. DeSalvo of the Department of Health Policy and Management.

All work and analysis conducted for this dissertation was completed by Sharon Baker-Hughes independently.

### **Funding Sources**

My graduate study was supported by a fellowship from Texas A&M University, an assistantship from the Department of Sociology at Texas A&M University and a scholarship provided generously by Dr. Poston.

## NOMENCLATURE

ACASI	Audio Computer-Assisted Self Interview
ACS	American Community Survey
Add Health	National Longitudinal Study of Adolescent to Adult Health
AIDS	Acquired Immunodeficiency Syndrome
APA	American Psychological Association
CAPI	Computer Assisted Personal Interviewing
CDC	Center for Disease Control and Prevention
EEOC	Equal Employment Opportunity Commission
ENDA	Employment Non-Discrimination Act
GRID	Gay-related Immune Deficiency
GSS	General Social Survey
HEDIC	Healthcare Effectiveness Data and Information Set
HHS	Health and Human Services
HIV	Human Immunodeficiency Virus
LGB(S)	Lesbian, Gay, Bisexual (Something Else)
LGBT	Lesbian, Gay, Bisexual, Trans
LGBTQ+	Lesbian, Gay, Bisexual, Trans, Queer, Plus
LGBTQQIP2SA	Lesbian, Gay, Bisexual, Trans, Questioning, Queer, Intersex, Pansexual, Two-Spirit, Asexual
NCHS	National Center for Health Statistics
NHANES	National Health and Nutrition Examination Survey



NHIS	National Health Interview Survey
NHSLS	National Health and Social Life Survey
NIH	National Institutes of Health
NIHCD	National Institute of Child Health and Human Development
NIMH	National Institute of Mental Health
NISVS	The National Intimate Partner and Sexual Violence Survey
NORC	National Opinion Research Center
NSFG-F	National Survey of Family Growth – Female Survey
NSFG-M	National Survey of Family Growth – Male Survey
NSHAP	National Social Life, Health, and Aging Project
NSSHB	National Survey of Sexual Health and Behavior
OYSUP	Oregon Youth Substance Use Project
SJS	Social Justice Sexuality Project
SCOTUS	Supreme Court of the United States
SM	Sexual Minority
SM-AND	Sexual Minority AND Indices (affirmative responses to all included variables)
SM-OR	Sexual Minority OR Indices (affirmative responses to one or more included variables)
SMIB-OR	Sexual Minority Index for Identity and/or Behavior

## TABLE OF CONTENTS

	Page
ABSTRACT.....	ii
DEDICATION.....	iv
ACKNOWLEDGEMENTS.....	v
CONTRIBUTORS AND FUNDING SOURCES.....	vii
NOMENCLATURE.....	viii
TABLE OF CONTENTS.....	x
LIST OF FIGURES.....	xiii
LIST OF TABLES.....	xiv
CHAPTER I INTRODUCTION.....	1
Demographic Concerns.....	4
Data Limitations.....	6
Limited Data Sources.....	6
Lack of Intersectionality.....	7
Proposed Solution.....	8
CHAPTER II LITERATURE REVIEW.....	10
Sex in Early America.....	10
Enforcement Begins.....	11
In the Closet.....	12
The Kinsey Report.....	12
The Latter Twentieth Century.....	13
Police Raids.....	14
Sexual Research.....	15
A Deadly Epidemic.....	15
A New Era.....	17
Towards Equality.....	17
Backlash.....	19
Theoretical Perspectives on Sexual Minorities.....	22
Biological Determinism.....	22
Social Constructionism.....	22

Identity Development.....	23
Role of Demography.....	25
Demography of Sexuality .....	25
CHAPTER III DATA AND METHODS .....	28
Research Design .....	28
Analysis of Current Studies .....	29
Excluded Data Sets .....	30
Included Data Sets .....	35
Sampling Design.....	37
Question Placement.....	37
Sexual Minority Status.....	41
Hypotheses.....	42
CHAPTER IV DESCRIPTION OF THE DATA .....	46
Total Respondents.....	46
Preparing the Datasets .....	53
GSS .....	53
NHANES .....	55
NHIS .....	57
NSFG .....	58
Independent Variables .....	60
Dependent Variables.....	62
Control Variables.....	68
CHAPTER V RESULTS AND ANALYSES.....	71
Hypothesis One.....	71
GSS .....	72
NHANES .....	74
NHIS .....	75
NSFG-F.....	77
NSFG-M.....	79
Hypothesis Two .....	81
GSS .....	82
NHANES .....	84
NHIS .....	86
NSFG-F.....	88
NSFG-M.....	93
Hypothesis Three .....	96
GSS .....	97
NHANES .....	99
NHIS .....	101
NSFG-F.....	101

NSFG-M.....	106
Hypotheses Four and Five .....	111
GSS .....	112
NHANES .....	112
NHIS .....	115
NSFG (F&M).....	116
Summary .....	119
CHAPTER VI CONCLUSION AND RESULTS .....	120
REFERENCES .....	128
APPENDIX A.....	144

## LIST OF FIGURES

	Page
Figure 1 Highest Level of Education Across Survey Subsets .....	64
Figure 2 Percentage of Respondents in Sample Subsets by Sex .....	68
Figure 3 NHANES: Venn Diagram of Significant Logistic Regression Equations .....	85
Figure 4 NHIS: Venn Diagram of Significant Logistic Regression Equations .....	88
Figure 5 NSFG-F: Venn Diagram of Significant Logistic Regression Equations.....	89
Figure 6 NSFG-M: Venn Diagram of Significant Logistic Regression Equations .....	94

## LIST OF TABLES

	Page
Table 1 A Timeline of Selected Legal Changes in Sexual Minority Status .....	18
Table 2 Sexuality as a Social Problem.....	31
Table 3 Single Collection Surveys.....	32
Table 4 Other Survey Concerns .....	34
Table 5 Selected Surveys: Overview .....	36
Table 6 Selected Surveys: Focus and Sampling Techniques.....	38
Table 7 Selected Surveys: Sexual Minority Question Placement.....	40
Table 8 Selected Surveys: Measurement of Sexual Minority Status .....	41
Table 9 Survey Sets: Descriptive Statistics of Independent Variables .....	47
Table 10 Survey Sets: Descriptive Statistics of Dependent Variables .....	49
Table 11 Survey Sets: Descriptive Statistics of Demographic Controls.....	52
Table 12 GSS: Sample Sizes Per Variable .....	55
Table 13 NHANES: Sample Sizes Per Variable.....	56
Table 14 NHIS: Sample Sizes Per Variable .....	57
Table 15 NSFG-F: Survey Sizes Per Variable.....	58
Table 16 NSFG-M: Sample Sizes Per Variable.....	59
Table 17 Sample Subsets: Descriptive Statistics of Independent Variables.....	61
Table 18 Sample Subsets: Descriptive Statistics of Dependent Variables .....	66
Table 19 Sample Subsets: Descriptive Statistics of Demographic Controls .....	69
Table 20 GSS: Comparing Measures of Sexuality .....	73
Table 21 NHANES: Comparing Measures of Sexuality .....	75

Table 22 NHIS: Comparing Measures of Sexuality .....	76
Table 23 NSFG-F: Comparing Measures of Sexuality.....	77
Table 24 NSFG-M: Comparing Measures of Sexuality .....	79
Table 25 Sexual Minority Measures Across Five Nationally Representative Surveys ...	81
Table 26 GSS: Comparison of Ordered Logistic and OLS Regression Coefficients on Sexual Minority Status Models .....	83
Table 27 NHANES: Comparison of Ordered Logistic and OLS Regression Coefficients on Sexual Minority Status Models.....	83
Table 28 NHIS: Comparison of Ordered Logistic and OLS Regression Coefficients on Sexual Minority Status Models .....	87
Table 29 NSFG-F: Comparison of Ordered Logistic and OLS Regression Coefficients on Sexual Minority Status Models .....	90
Table 30 NSFG-M: Comparison of Ordered Logistic and OLS Regression Coefficients on Sexual Minority Status.....	90
Table 31 Sexual Minority Status Relationships to Dependent Variables Across Five Nationally Representative Surveys .....	95
Table 32 GSS: Likelihood Ratio Tests of Sexual Minority Status Models on Education.....	97
Table 33 GSS: Likelihood Ratio Tests of Sexual Minority Status Models on Household.....	98
Table 34 NHANES: Likelihood Ratio Tests of Sexual Minority Status Models on Education.....	99
Table 35 NHANES: Likelihood Ratio Tests of Sexual Minority Status Models on Household.....	100
Table 36 NHANES: Likelihood Ratio Tests of Sexual Minority Status Models on General Health.....	101
Table 37 NSFG-F: Likelihood Ratio Tests of Sexual Minority Status Models on Education.....	102
Table 38 NSFG-F: Likelihood Ratio Tests of Sexual Minority Status Models on Household.....	103

Table 39 NSFG-F: Likelihood Ratio Tests of Sexual Minority Status Models on General Health.....	105
Table 40 NSFG-F: Likelihood Ratio Tests of Sexual Minority Status Models on Income .....	106
Table 41 NSFG-M: Likelihood Ratio Tests of Sexual Minority Status Models on Education.....	107
Table 42 NSFG-M: Likelihood Ratio Tests of Sexual Minority Status Models on Household.....	108
Table 43 NSFG-M: Likelihood Ratio Tests of Sexual Minority Status Models on General Health.....	109
Table 44 NSFG-M: Likelihood Ratio Tests of Sexual Minority Status Models on Income .....	110
Table 45 GSS: Percent Change in the Sex Specific Odds Ratios of Dependent Variables.....	113
Table 46 NHANES: Percent Change in the Sex Specific Odds Ratios of Dependent Variables.....	114
Table 47 NHIS: Percent Change in the Sex Specific Odds Ratios of Dependent Variables.....	117
Table 48 NSFG (F&M): Percent Change in the Sex Specific Odds Ratios of Dependent Variables .....	118
Table A.1 GSS: Odds Ratios of Sexual Minority Status on Education and Children in the Household.....	145
Table A.2 NHANES: Odds Ratios of Sexual Minority Status on Education and Children in the Household.....	146
Table A.3 NHANES: Odds Ratios of Sexual Minority Status on General Health.....	146
Table A.4 NSFG-F: Odds Ratios of Sexual Minority Status on Education and Children in the Household.....	147
Table A.5 NSFG-F: Odds Ratios of Sexual Minority Status on General Health and Income.....	148
Table A.6 NSFG-M: Odds Ratios of Sexual Minority Status on Education and Children in the Household.....	149



Table A.7 NSFG-M: Odds Ratios of Sexual Minority Status on General Health  
and Income.....150

## CHAPTER I

### INTRODUCTION

My dissertation is an attempt to investigate and synthesize the current state of demographic knowledge regarding sexuality and sexual orientation: the methods of measurement, the estimates of population size and composition, and the impact of different sexuality statuses for both individuals and their life outcomes, and the implications for the larger society. This dissertation is primarily a secondary analysis of empirical data from nationally representative studies which have investigated the role of sexuality in people's lives. Of particular interest are surveys which have multiple data collection points and are still currently being collected, so that my results are as current as possible and can updated as new results become available.

I begin by placing the study of sexuality within the wider scientific context in America and then review the literature: the history of scientific research on sexuality, past and current legal conditions which may have impacted research decisions, and the theoretical underpinnings of past and present research designs. Then I search for surveys which include measurement of sexuality in adults, preferably with more than one way to measure sexual orientation.

After selecting the nationally representative surveys to include in my dissertation, I explore the structure of each instrument: how sexuality is operationalized, which components of sexuality are included in the measurement items, and where the questions are located (within the general demographic data, in separate sections completed on a computer, or somewhere else). Then, I develop estimates regarding the size of the

relevant populations in American society, based on the definitions used in each study. Finally, I will test whether sexuality has a significant relationship to multiple life outcomes.

As I begin this dissertation, I must address several issues with the commonly used LGBT(Q+) acronym which is often found in discussions of sexuality. First, lesbian (L), gay (G), and bisexual (B) are forms of sexual orientation, but they are not the totality of sexual identities which people claim, explore, and experience in the world. If the Q+ is added, then the term is more inclusive and is generally understood as shorthand for LGBTQQIP2SAA which includes the aforementioned LGB plus those who are queer (Q), questioning (Q) or unsure of their sexuality (Cohen and Byers 2014), pansexual (P) or attracted to others without regard to sex or gender (Galupo, Mitchell, and Davis 2015), and asexual or ace (A) those with low to no sexual desire for others (Bogaert 2013; Poston and Baumle 2010) .

The remaining portion of the acronym however, the trans (T) (Brydum 2015; Testa et al. 2015), queer (Q) - which can be used to indicate non-normative sexuality and/or gender identity (Bucholtz and Hall 2004; Steven Seidman; Nancy Fischer; Chet Meeks 2011), intersex (I) (Davis 2015), two-spirit (2S) and androgynous (A), actually reference a second category of measurement, that of gender identity (see Killermann 2019 for a truly insightful glossary and explanation of both sexual and gender identities). The acronym combines sexuality and gender identity/expression as if they are interchangeable; they are not. People have both a sexual orientation and a gender identity and they can and do vary separately from one another (Auer et al. 2014).

Researchers in the field of sexuality and gender research have adopted the terms sexual minority and gender minority to differentiate these two concepts, as well as to provide a more inclusive method of studying and discussing identities beyond those which fit in the “alphabet soup” (Galupo et al. 2015; Katz-Wise 2014; Young and Meyer 2005). This language shift is important as it is inclusive of a greater variety of people who may suffer differential effects based on their sexuality and/or gender status, and it provides a more meaningful description for those who view their identities as more fluid than or outside the scope of the identities specified in the acronyms (Epstein et al. 2012; Galupo et al. 2015; Katz-Wise 2014).

I believe that both sexual and gender minority status are important avenues of research, but there are currently no nationally representative surveys which collect information on gender, although the question collecting biological sex data is sometimes mislabeled as such. The National Center for Transgender Equality has completed large scale surveys on trans status and gender identity using convenience and snowball sampling methods; unfortunately these results cannot be generalized to the population as a whole (National Center for Transgender Equality 2016). Therefore, while I believe gender minority status is an essential line of inquiry, I have no choice but to exclude it from my dissertation.

There are many reasons that my dissertation, focused on sexual minority status is both timely and of great importance, not only for people with a sexual minority identity, but for our society as a whole. One major justification for my undertaking such a dissertation is the current political climate where elections and rhetoric are focused on vilifying people with sexual minority status in much of the country. Politically motivated

legislation is being introduced, debated, and voted on at both the state and federal level which affects the daily lives of American citizens, including whether they can adopt children, whether they are entitled to healthcare, and if public and government entities should have the right to refuse people service, based on others' *perception* of their sexuality (see Chapter II for a selection of these bills introduced in Texas).

Since the results of scientific research on sexuality are often inconclusive or inconsistent, these maneuvers and political machinations tend to be based on stereotypes and the personal beliefs of the politicians who are involved. As an out and openly identified lesbian, one who is active in my community, it has been traumatic and frightening to experience the hate and vitriol spewed online, on “news” programs, and by some of the general public, reminiscent of earlier decades when being out was always dangerous. As someone who can “pass” as straight, I have a lot of public privilege. I can move through my daily life with limited fear about what I might encounter. Many of my friends are not so lucky. They live with a constant fear of physical violence and verbal confrontations, simply for being present in public spaces. Unfortunately, all too often those fears are well founded.

### **Demographic Concerns**

As a demographer, I know the role that objective, quantitative research results, grounded in sound theoretical discourse and quality data sources can play in educating the wider public and creating effective policy decisions. A field of knowledge, similar to the known effects of sex, race and ethnicity, and education, cannot begin to develop until

demographers and other researchers agree on a standardized operationalization for sexual minority status.

As demographers, our first step should be an exploration of the size and make-up of the sexual minority population in the United States. Current estimates of the size of the population vary widely based on the definition of sexual minority which is used, the data source consulted, and often the political leanings of the group who is asking. At a minimum, most researchers agree that around two percent of the male population identify as gay, and two percent of the female population identify as lesbian (Laumann et al. 1994). Conservatively then, if two percent of the US population has a sexual minority status, we are talking about the lives of more than 3.5 million people.

If estimating the number of people with a sexual minority status is problematic, exploring the composition of this population is even more troublesome. Research on sexual minorities is still relatively new in the field of demography and the definition of who is gay (to say nothing of the lesser known sexualities) varies from one study to the next. Further complicating this issue, different disciplines often define sexual minority status based on different measures of sexuality, some using behavior, others using self-identification or sexual attraction, and some disciplines, like sociology, prefer using all three. Effectively then, different fields, and sometimes different studies within the same field, are researching different populations and, unsurprisingly, obtaining inconsistent results.

Ultimately, there are two demographic questions I am asking in my dissertation. Should sexuality status be included with other demographic variables such as race, ethnicity, age, and sex; are there differences in status which would label some sexuality

responses as belonging to the majority and others as signifying minority status? And if there are sexual majority and minority statuses, do they impact life outcomes in a meaningful way, which would support their inclusion in more studies?

## **Data Limitations**

### Limited Data Sources

For multiple reasons, the field of sexual minority research has a relatively short history. Non-reproductive sexual activity was illegal in parts of the United States into the twenty-first century, making scientific research difficult, if not impossible in large portions of the country. In the 1940s both Hollywood and Washington DC decided that anything which portrayed, discussed, or acknowledged sexual behavior outside of marital, heteronormativity was verboten (Michael et al. 2003:8). Even the rapid spread of a lethal disease beginning in the early 1980s, originally called Gay-Related Immune Deficiency (GRID) was not enough for the government to allow national research on the topic (HIV.gov 2018). It was not until the disease was proven to be an equal opportunity killer of epidemic proportions and renamed Acquired Immunodeficiency Syndrome (AIDS) that the federal government allowed Edward Laumann and his team of researchers at the University of Chicago to complete their national study on the topic of sexuality (Laumann et al. 1994).

Published in 1994, the groundbreaking study by Laumann and his associates, set the standard for measurement options in studies of sexuality. It also set the precedent for studies of sexuality to be viewed as legitimate primarily when tied to research on health and health outcomes; see the Data and Methods (Chapter III) and Description of the

Data (Chapter IV) chapters of this dissertation for a more thorough discussion of these studies. There are no nationally representative surveys which focus on sexual minority status *per se*.

The U.S. Census Bureau was testing a series of questions on sexuality for possible inclusion in the 2020 Census, which would have created the first population-based study of individuals with information on sexual minority status by specifically asking about sexual identity (Green 2017). The American Community Survey (ACS) was scheduled to begin asking these questions in 2018. To have information on the entirety of the nation's population from these surveys would have allowed for the scientific study of the representation of these communities in financial sectors, public services, access to representatives, and improved the ability to analyze discrimination in the private and public sector (Lee 1993; Rodriguez 2000; Snipp 2003). Unfortunately, a decision was made to exclude this information; hence, the primary method for ensuring progress and exposing inequality in our society will again be denied to this community (Wang 2017).

### Lack of Intersectionality

Another concern in sexual minority research is the centering of non-Hispanic whites as “the” story of sexuality research. People of color have been explicitly excluded from studies on sexual orientation. For example, the first study on sexuality had an entirely white sample (Kinsey et al. 1948). The terminology used in both questions and the answer choices for sexuality research has not evolved much from the original studies. Terminology such as homosexual, gay, and lesbian are problematic in some communities of color where “down low” is more accepted (Killermann 2019). More



recent studies, including qualitative data suffer from the same limitations, often excluding members of racial and ethnic minority groups due to the terminology utilized and sample recruiting techniques. While there are some qualitative studies which focus specifically on people of color who are also sexual minorities (see for examples Parks, Hughes, and Matthews 2004; Ro et al. 2013), research which is sensitive to and encapsulates the experiences of all people with sexual minority status, regardless of race or ethnicity, is lacking in the current literature.

### **Proposed Solution**

My dissertation is a first step towards examining the current measurement options for identifying sexual minorities and providing a scientific basis for adopting a standardized process of approaching sexuality research. I do this by providing an analysis of several nationally representative surveys which currently provide a measure or measures of sexual minority status. I begin by exploring the existing operationalization and measurement items currently used to study sexual minority status in each survey. I consider question location and mode of delivery, whether questions are delivered in the standard survey instrument or whether they are segregated into Audio Computer-Assisted Self-Interview (ACASI) software, completed with the respondent while the interviewer is not present. I also analyze the possible combinations of sexual minority measurement available within a single survey to determine if variations in sexual minority operationalization differentially affect conclusions about life outcomes within and between surveys. An analysis of this magnitude has not yet been attempted and will provide an understanding of the current state of major research studies in

demography, including which sexual minority groups are included and which may be excluded by the surveys. (We know already that gender minority status is excluded from all national surveys.) My main goal is to illuminate what is known about people with sexual minority status(es) based on current measures, to explore and discuss the complex components of sexual minority status, and to examine the impact this status has on individuals and society.

Chapter II of this dissertation will review the history of research on sexuality and sexual behavior in the United States. What research has already been conducted on this topic? What have been the theoretical approaches for analyses of sexuality? The chapter will further describe the concept of a sexual minority and will outline the argument for a demography of sexuality, separate from considerations of health.

Chapter III will provide information on the criteria for survey inclusion, the original data collection methods of each survey, and the operationalization of the independent, dependent, and control variables utilized in each study. Chapter III will conclude with a presentation of my research hypotheses.

Chapter IV will provide information on the general demographic composition of each survey for all relevant variables and then provide descriptive statistics specific to each subsample used to analyze the research questions in this dissertation.

Chapter V will present the results of regression analyses and other statistical results for each survey and each hypothesis. Finally, Chapter VI will summarize the overall findings, draw conclusions about the current state of the research and its limitations, and propose directions for future research studies on this important topic.

## CHAPTER II

### LITERATURE REVIEW

How have sex and sexual behavior been viewed throughout different time periods in American society? Have legal issues caused any delay or detriment to research on sexual topics? How has theory guided the research studies on this topic? By completing a thorough review of the literature which already exists in the field of sexual minority status, we gain insight into approaches which have been successful, and those which have had more difficulty. We also need to consider how the study of sexuality fits into the field of demography and whether the inclusion of these variables adds value to demographic analyses. A thorough understanding of where the field began and where it is now is an invaluable step in the research process.

#### **Sex in Early America**

British common laws prohibiting non-reproductive sexual behavior were the rule in the early American colonies. Evidence suggests, however, that these laws were largely ignored both within the United States and throughout Europe until the early 1900s; photographs, letters, and historical accounts show that cross dressing, especially by women taking on men's appearance, and same-sex couples were not unusual nor judged particularly harshly (Weeks 2015; Weinmeyer 2014). Walt Whitman's poetry speaking of love between two men was considered inspiring (Rothblum and Brehony 1993; Weeks 2015). The phenomenon of Boston Marriages, that is, two educated and wealthy women living together in a romantic relationship, was fairly commonplace.

## Enforcement Begins

According to Stephanie Coontz (2016), American attitudes began to change in the early 1900s beginning with the trial of Whitman for sodomy and the introduction of Freud's theories on sexuality (Weeks 2015). By the early- to mid-twentieth century, being suspected of homosexuality, especially for men, was enough to "render a person unemployable and destitute" (Wolfe 2017:1). Suspects who were arrested on such charges had their arrest record printed in local papers. This ensured both their public humiliation and an end to their employment, including the revocation of any licensing required for specific professions<sup>1</sup>.

Cross dressing for both men and women was specifically prohibited, and, moreover, engaging in "nonreproductive sex" would often result in punishments including imprisonment, commitment to a mental hospital, or even castration. While women were often exempt from the public humiliation and incarceration to which men were vulnerable, "lesbian tendencies" did not escape punishment. Women were much more likely to be confined to mental hospitals, which were known to employ methods of torture, such as "performing electroshock and other draconian 'therapies' on [both] lesbians" and gay men (Wolfe 2017).

---

<sup>1</sup> In the 2019 legislative session, the state of Texas is considering bills which would make it legal for licensed professionals to discriminate against people with (perceived) sexual and gender minority statuses, even if such discrimination violates the requirements of the licensing agency (SB 17, SB 1107 HB 2827, HB 2892) (Texas Legislature 2019).

## **In the Closet**

In the latter half of the twentieth century, enforcement of the laws already on the books expanded and social sanctions increased, until a person suspected of homosexuality had very few rights in the eyes of the law or society. In 1952, the American Psychological Association (APA) added homosexuality to the list of mental illnesses that could be diagnosed using the Diagnostic and Statistical Manual of Mental Disorders. This decision was based largely on Freud's (now debunked) theories of sexuality<sup>2</sup>.

The following year, President Eisenhower issued a blanket Executive Order banning federal employment of homosexuals because they were deemed to be security risks (Michael et al. 2003:8). In such an era, people often lived in the closet, engaged in opposite-sex marriages, and hid who they really were for fear of persecution. The scientific study of homosexuality was very rare, except in institutions designed to punish or "cure" those with such afflictions, like the aforementioned mental institutions and the beginning of conversion therapy (Conley 2016).

### The Kinsey Report

The single exception to this scientific abyss was the work of a famous biologist, Alfred Kinsey, and his team of researchers. Their research was conducted in the late 1940's and marked the beginning of the scientific study of sexual behavior and sexuality. Kinsey and colleagues focused on acts of sexual behavior, *specifically defined*

---

<sup>2</sup> This was in spite of Freud himself writing "Letter to an American Mother urging compassion and tolerance for homosexuality" (Michael et al. 2003:8).

*as experiencing an orgasm* (Michaels 2013). His rationalization was that behavior was the easiest phenomenon to study, and illustrated the actual actions and activities of the subjects involved (Kinsey et al. 1948). This conceptualization of sexuality as only or primarily involving behavior leading to orgasm was widely accepted as the measurement standard for research and continues to be utilized in some fields today (e.g., demography).

Kinsey, Pomeroy, Martin, and Gebhard (1948, 1953) published two separate volumes on the sexual behavior of men and women in America, detailing for the first time the sexual activities and proclivities of the country. Kinsey and colleague's research illustrated the wide variety of sexual acts prevalent in the US, dispelling the myth that married, male-female, missionary position sex was the only kind of sexual behavior in which Americans were engaging. The Kinsey Report was revolutionary in introducing sex and sexual behavior as a valid topic for scientific study, but the work was harshly criticized for methodological issues, including his use of a convenience sample rather than a representative one. The media and public have often misrepresented his findings (the oft cited "10% of the population is gay" statistic, for example), and Kinsey paid a personal price for his research as well (Brown and Fee 2003). However, the field of sexuality research owes his team a debt of gratitude for being the first to investigate such a taboo topic from a scientific and quantitative perspective.

### **The Latter Twentieth Century**

During the sexual revolution of the 1960s-1970s, gay friendly neighborhoods and nightclubs began to spring up in many large cities. These enclaves were considered

relatively safe places for sexual minorities to live and shop, and the nightclubs a place to drink, relax, and be with others who were like themselves. While enclaves provided some protection, sexual minorities were still not free from persecution because being gay was still illegal in most of the United States.

### Police Raids

On June 28, 1969, per usual procedure, police entered the Stonewall Inn in New York City, a known gay bar, and began arresting people. Some officers became violent with patrons, a common occurrence during these raids. On this particular night, a butch lesbian was treated roughly while being arrested, and she fought back (Wolfe 2017). Other patrons quickly joined in, trapping the police squad inside the Stonewall Inn. These violent interactions between police and citizens were repeated for the next six days, as people with sexual and gender minority statuses poured into Greenwich Village from across the country to join the fight, eventually pushing the police presence out of the “gayborhood” (Armstrong and Cragg 2006; Shepard 2004).

Political activists organized, and a social movement was born, arguing that sexual minorities should come out, openly tell other people about their sexual orientation, and live authentically, forcing the rest of America to deal with them as they truly are (Shepard 2004; Wolfe 2017). The first Pride parade, held in 1970, was both a defiant reminder of the riots the year before and a political statement that people who were outside the sexual majority were willing to fight for their basic rights (Armstrong and Cragg 2006; Talusan 2014). For many in the community, Pride is still more a reminder of this counter-culture movement and the fight for equal rights than a celebration of being a sexual minority.

## Sexual Research

While the 1960's and 1970's were a time of questioning the status quo, the wisdom of war, and oppression based on race, sexual acts outside of heteronormativity were still illegal in most states. Not surprisingly, research on sexual minorities was still quite sparse. Multiple studies were denied funding because they included information on sexual orientation or sexual identity, or they were blocked altogether (Laumann et al. 1994). There were some exceptions to these limitations however.

Masters and Johnson (1966), another team of biologists, completed a study on the biological process of the sexual response cycle. While their focus was not on sexual minorities, they did discover new information on the biological causes of sexual dysfunction, and dispelled many myths about female sexuality, including the idea that women could not and/or should not experience an orgasm (Masters and Johnson 1966).

The next major research study on sexuality was conducted by Sheree Hite (1976). Her focus was on the female perspective of sexuality and illustrated the complex nature of human sexuality. For instance, her research indicated that 70 percent of women do not experience orgasm from intercourse alone (Hite 1976). Therefore, if sexual behavior was defined by orgasm, men were often having sex alone, even if they had a partner present! Hite's research was instrumental in researchers looking for better, more inclusive measures for sexual experiences and sexuality.

## A Deadly Epidemic

As mentioned in Chapter I, the AIDS epidemic started in 1981 and was originally thought to affect only gay men. As AIDS spread, rapidly and lethally, women, children,



and actors started contracting and dying from the disease as well. In 1990-1991, once it was clear that HIV/AIDS was a risk to large portions of Americans, the federal government determined a national study on the HIV/AIDS crisis would be allowed (HIV.gov 2018). Governmental agencies including the National Institute of Child Health and Human Development (NIHCD), the National Center for Health Statistics, (NCHS) the Centers for Disease Control and Prevention (CDC), and the National Institute of Mental Health (NIMH) all immediately offered grant money for AIDS research (Miller 1995). However, at the last minute, Congress blocked federal agencies from providing financial support to such research (Miller 1995).

In spite of this congressional interference and the pulling of funding for the study at the last minute, Edward Laumann and his colleagues managed to find private funding and complete their survey (Laumann et al. 1994). Conducted in 1992, the National Health and Social Life Survey (NHSLs) was the first quantitative, nationally representative, survey completed to ask about sexual activities, sexual identification, and other sexual concerns (Laumann et al. 1994). The researchers specifically rejected the “normative definition of sex as heterosexual, vaginal intercourse” and instead sought to define sex in a way that applied to both men and women (Michaels 2013:14). Laumann and his colleagues (1994) expanded on Kinsey’s methods by also asking about sexual behavior, sexual desire, and the self-identification of sexual orientation (see also Bauble 2013). For the first time, nationally representative, quantitative data were available regarding sexuality and sexual behavior in the United States.

## **A New Era**

The gay rights movement has been particularly successful, and made tremendous strides for public and legal change, in a very short amount of time, when compared to the civil rights and women's movements (Bernstein 1997; Bond and Compton 2015; Hopkins 2007). This "politically powerful, well-funded" (Cahill 2007:174) political machine has used ad campaigns, political campaigns, door knocking, and other informational programs to change the hearts and minds of the American population.

### **Towards Equality**

As more people came out, or were outed, as people with sexual minority statuses (Baumle and Compton 2015; Bernstein 1997; Bond and Compton 2015; Hopkins 2007), the twenty-first century, has witnessed massive increases in public support for those who are gay males and lesbians, and legal victories moving towards equal rights and protections under the law, based on sexual minority status. As illustrated in Table 1, legal decisions have primarily supported increasing legal protections for people with sexual minority identities.

The years between 2000 and 2016 were particularly progressive. In 2003, the Supreme Court decriminalized same sex behavior in the court case *Lawrence v. Texas*, essentially making it legal to be a sexual minority throughout the US (Michael et al. 2003:8). Several years later, in 2011, the "Don't Ask Don't Tell" practice was repealed, allowing members of the military to serve openly, regardless of their sexual orientation (PBS 2011). In 2015, *Obergefell vs. Hodges*, declared marriage a civil right available to consenting adults, without regard to gender (Frost 2015).

**Table 1 A Timeline of Selected Legal Changes in Sexual Minority Status**

Year	Legal Action
2003	Sodomy laws overturned (SCOTUS: Lawrence v. Texas)
2004	First legal marriage (Massachusetts)
2008	Proposition 8 defines marriage as one man and one woman (California)
2009	Matthew Shepard and James Byrd Jr. Hate Crimes Prevention Act adds sexual orientation, gender identity, and disability status to 1969 federal statute as (Signed by President Obama)
2011	Military allows sexual minority service members (US Congress)
2013	Federal recognition of same sex marriage (SCOTUS: United States v Windsor)
2013	Proposition 8 repealed by vote; legalizes same sex marriage (California)
2015	Marriage is a civil right; same sex marriage is a legal right for consenting adults (Obergefell v Hodges)
2016	Trans service members allowed in military (Defense Secretary Ashton Carter)
2017	Sexual orientation, gender identity, and trans status are protected categories under EEOC law (EEOC commission, SCOTUS cases, additional court decisions)
2019	Trans service members not allowed in military (President Trump and SCOTUS)

<sup>a</sup>Source: <https://www.gsafewi.org/wp-content/uploads/US-LGBT-Timeline-UPDATED.pdf>

<sup>b</sup>Source: <https://www.pbs.org/wgbh/americanexperience/features/stonewall-milestones-american-gay-rights-movement/>

The Gay Right’s movement asking people with a sexual minority status to be “out” about their status and to live openly as a sexual minority means that most Americans know someone, possibly love someone, who is not straight (Gates 2011). This willingness to share publicly an intimate part of life is key to changing people’s minds about sexuality. Research has shown that knowing someone who is a sexual minority is the most common reason people change their opinion to support equality (Pew Research Center 2016).

Scientific research has also been a cornerstone in these changes in popular opinion and legal status. Compelling qualitative studies illustrate the lived experiences of people with sexual minority statuses, showing they are very similar to everyone else (Beam 2007; Davis 2015; Kailey 2005; Meyerowitz 2002). Extensive, long term research of children raised in households with sexual minority parents repeatedly have found no difference in outcomes for their children. Research focusing on the lived experiences of families with various sexual minority have entered the mainstream by way of popular books (Baumle and Compton 2015; Baumle, Compton, and Poston 2009; Bogaert 2012; Rubel and Bogaert 2015) and media portrayals of sexual minorities is often positive, if somewhat stereotypical.

## Backlash

While many judicial decisions have improved the legal standing for people who are sexual minorities, there has also been vocal and legislative backlash. In 2016, a United States Congressman called for the death of homosexuals prior to voting on a bill that would have protected people from discrimination based on gender identity or sexual orientation (Shutt 2016). The Employment Non-Discrimination Act (ENDA), which would prohibit discrimination in employment based on sexual minority status has been introduced and then steadfastly died in Congress in each of the last 25 years, leaving members of these minority groups dependent on state action for legal protection (Human Rights Campaign 2016)<sup>3</sup>.

---

<sup>3</sup> On May 17, 2019 the federal House of Representatives passed “The Equality act, which would prohibit discrimination based on sexual orientation and gender identity in housing, employment, credit, and

On June 12, 2016, the deadliest mass shooting in America at the time occurred on Latino night at the Pulse Nightclub, a gay bar in Orlando, Florida. This massacre ended 49 lives and sent another 53 people to the hospital (Zambelich 2016). Reactions to the news varied immensely, but all were powerful. Six hours after the massacre, while police were still trying to get an accurate count of those killed in the shooting, Texas Lieutenant Governor Dan Patrick, tweeted

Do not be **deceived**:

God cannot be **mocked**.

A man **reaps** what he **sows**.

Galatians 6:7

(Whittaker 2016:1). Of course, a political strategist hired by the Lieutenant Governor denied any connection between the post and the shooting. For others, a mass shooting in a place where new generations believed they were safe, reignited terror and fear of violence within the community (Eliason 1996; Greer 2016; Haslop, Hill, and Schmidt 1998; Hottes, Gesink, et al. 2016; Hughes 2005; Satterly and Dyson 2008).

The selection of Donald Trump as President in 2016 initiated additional concern for many Americans, including those with a sexual minority status. A Republican led congress promised anti-LGBT legislation, thinly veiled as religious protection bills, under the new administration (Human Rights Campaign 2016). The State of Texas spent both its 2017 and 2019 legislative sessions considering a substantial number of bills in that would legalize discrimination against people whose sexual orientation, gender

---

federally funded programs, among other areas” (Rainey 2019:1). It is unlikely the bill will pass the senate and/or be signed by the President.

identity, or gender expression or *the perception of* the same offended another persons' religious beliefs (Westcott 2017; Zielinski 2017). In the 2019 legislative session, 28 bills were introduced related to discriminating against LGBT people, providing everyone the legal right to discriminate against sexual (and gender) minorities - from individuals (SB 151; HB 1035) to mental health providers and counselors (SB 85; HB 4357), healthcare workers (HB 1107), counties and county employees (HB 4512), public accommodations such as hotels, private and public businesses (SB 888), housing (HB 188) and the state itself (HB 4497) – while specifically prohibiting any recourse - legal or civil - to the victims of said discrimination (Texas Legislature 2019).

Under President Obama's administration, improvements in equality for LGBT people were specifically listed as a goal for 2020, and sexual orientation, gender identity, and abortion rights were visibly and prominently displayed on governmental websites, including the official Whitehouse page. There were concerns that the Trump administration would not focus on these topics and in fact might actively restrict and remove research related to these topics (Agerholm 2016). These fears have proven well founded.

A search on the Whitehouse website returns no results related to LGBT issues. Other governmental websites such as the Health and Human Services (HHS) website, the Justice Department, the Department of Education, and Housing and Urban Development have all erased, removed, or archived pages dealing with services and support for LGBT people (Sun and Eilperin 2017). The CDC has been banned from using "controversial" words such as evidence-based, science-based, diversity, vulnerable, entitlement, fetus, and transgender in governmental budget reports (Sun and

Eilperin 2017), and a question that was being tested for the 2020 census to ask about sexual orientation has been removed (Wang 2017). The HHS has removed questions on sexual and gender minorities from several surveys (Sun and Eilperin 2017). These reactionary, political decisions make scientific research even more important for providing fact-based data to the general public as often as possible.

## **Theoretical Perspectives on Sexual Minorities**

### Biological Determinism

Biological determinism is the idea that some inherent biological difference, structure, or hormone variation separates people into definitive, separate categories which can easily be classified, measured, and analyzed (Spanier 1995). If this theoretical perspective were correct, people could be definitively classified as a member of a sexual majority group (e.g. straight) or a sexual minority group (e.g. everyone else) based on biology. While research into sexual behavior began with biologists and an expectation of biological determinism or essentialism, the data have shown behavior and sexual and gender identities are more complicated than this either/or perspective.

### Social Constructionism

In contrast, social constructionism believes the variables we use to measure and assign statuses to people vary over time and place (Khanna and Harris 2009). The simple fact that there is not one accepted way to measure sexual minority status, gender minority status, or even racial and/or ethnic minority status, highlights the socially constructed nature of such variables. Indeed, as demographers, the conceptualization of

most variables currently used in empirical research is dependent on where and when we complete the study, the very definition of social constructionism.

Logically, if statuses can vary, then as scientists, we must be able to operationalize and measure these variables to determine if they are meaningful beyond the individual experience. However, determining the appropriate way to measure these variables is a more complicated matter than it first appears. The theoretical struggle about how to define sexual orientation began with the first research on the subject, Alfred Kinsey and colleague's study of sexual behavior in men and women. His research introduced the American public to the vast variety of sexual activities engaged in by "normal" adults, at a time when sex was not discussed in the United States, even between married couples. Fittingly, Baumle (2013a) describes Kinsey's approach as novel and the beginning of challenging the essentialist understanding of sex. With new scientific improvements and updates in the understanding of sexual identities, most social scientists and scholars have adopted the social constructionist perspective, which will also be my perspective in designing and undertaking the research in my doctoral dissertation (Johnston-Guerrero and Tran 2016).

### Identity Development

There is wide variation in the measures used to analyze sexual identities and sexual behaviors both within and across surveys. Research on stigmatized identities, such as sexual minority statuses, suggests that members of these devalued groups tend to distance themselves from their minority identities, unless they have strong, close ties to others within their group (Hughes et al. 2015). Research from the field of racial and ethnic studies which focuses on determining whether respondents will claim a



stigmatized identity, include the three main conceptions of self-categorization (understanding of whether and where they fit within the community), affective commitment (emotional attachment), and group self-esteem (valuation of the identity as positive or negative) (Ellemers, Kortekaas, and Ouwerkerk 1999).

These components are also relevant for considering the self-identification of minority sexual statuses. Sexual minority identities are also often more “optional” to claim than those based on perceived phenotypical characteristics such as race. Further complicating matters, people with a sexual minority status may self-identify, and be “out” in some situations, but not others. This adds another potential layer of complication to the proper identification of sexual minority populations.

For sexual minority statuses, there is a process for recognizing and forming a sexual minority identity, including learning how to manage sexual feelings, navigate sexual situations, developing new forms of romantic attachment, and then learning how to display that identity to others when desired (Sells 2013). Using a combination of social constructionist and social identity theoretical framework also helps account for the wide-ranging estimates in the prevalence of people with sexual minority identities. According to Gates and Ost (2004:12), “the size of these estimates varies tremendously [based on] how homosexuality is defined (attraction, behavior, or identity)” and how comfortable research participants are in revealing their sexual minority statuses.

## **Role of Demography**

“Demography is concerned with how large (or how small) are the populations; how the populations are composed according to age, sex, race, marital status, and other characteristics; and how the populations are distributed in physical space” (Poston and Bouvier 2017:3). Poston and Bouvier (2017) define age, sex, and racial identity as crucial for the understanding of population growth and decline and for creating policy recommendations based on said population characteristics. Similarly, accurate data on sexual minority statuses, across several dimensions, are vital because of their impact on multiple issues related to the study of population, including migration, fertility, and morbidity (Baumle 2013a) and mental and physical health outcomes (Durso and Gates 2013).

### **Demography of Sexuality**

Embracing a more inclusive understanding of sexual minority status is important in my research for more than theoretical consistency. Many researchers have found significant differences in outcomes and experiences for members of sexual minority communities outside the gay male/lesbian consideration. People who are bisexual often experience discrimination both from the larger sexual majority community, and from within the sexual minority community. They are often excluded from research activities and measurement, but are then “included” in the “LGBT” results (Gates and Ost 2004). Research, and society, may trivialize or erase their bisexual identities if they happen to currently be in a relationship with someone of a different sex (Gates and Ost 2004; Hottes, Bogaert, et al. 2016). For people with bisexual identities, the effects of biphobia,

mono-sexism, homophobia, and heterosexism may combine to have a greater impact on their physical and mental health when compared to gay males and lesbians (Hottes, Bogaert, et al. 2016; Hottes, Gesink, et al. 2016)

I believe that sexual minority status is as important to understanding population actors as any other demographic variable, and should be included with general demographic data, as well as form a demographic specialty in its own right. Along these lines, I must note that I am in excellent company; see Baumle 2013a; Durso and Gates 2013; Gates and Ost 2004; Michaels 2013; Poston and Baumle 2010; Walther, Poston, and Gu 2011 for similar statements. Sexuality is about more than a relationship to health or sexually transmitted infections. Durso and Gates (2013:34) concur, stating that “measuring and accounting for these additional factors provides a frame through which study findings about sexual orientation and the variability of constructed sexual identities can be better understood.”

As previously discussed, the operationalization of sexual minority status as behavior alone, currently the preferred mode in demography, seems problematic in that it reflects an essentialist straight/not straight dichotomy, which is an oversimplification of the nature of sexuality. Secondly, behavior alone is an incomplete measure of sexual status, because it does not consider the attractions, desires, fantasies, or sexual opportunities of the respondents. People may not engage in sexual activity for a variety of reasons (religious, health, lack of opportunity). But a lack of behavior does not negate a sexual identity (Bogaert 2004).

Self-identification as a sexual minority is the preferred single measure for sociologists, but may elicit lower responses than other measures, such as behavior or

attraction, due to the complex nature of sexuality and social sanctions associated with minority identities. Using multiple, inclusive measures that consider various dimensions of sexuality then seem a logical alternative to using a single measure alone (Laumann et al. 1994).

Gates and Ost (2004) affirm the importance of demographic research within the field and also remark on the impact for broader social science applications, including family dynamics, economic decision making, the impact of children in relationships, the benefits of marriage, and theories about relationship formation and dynamics. Clearly, information on sexual minorities offers a wealth of new avenues for exploration and should not be ignored.

In the next chapter of this dissertation, I provide information on surveys which include a question or questions regarding sexual minority status, consider the criteria for inclusion in this project, and discuss each study which will be utilized in this analysis. The third chapter concludes with a presentation of my research hypotheses.

## CHAPTER III

### DATA AND METHODS

In this third chapter of my dissertation, I discuss the data and methods employed in my research. I begin with a discussion of overall research design and its importance to measuring sexual minority statuses. Next, I provide an overview of each survey I considered which includes at least one measure of sexual minority status and explain my rationale for its inclusion or exclusion. Since my primary interest is exploring the current status of nationally representative studies, I focus on surveys which are recent, repeated, and those where sexuality is not viewed as a social problem or issue, which might impact question phrasing, location, or results. Finally, I provide information on the surveys analyzed in my dissertation, including the focus, sampling design, most recent data collection, and normal sample size. The chapter ends with the introduction of the hypotheses I will use these selected surveys to test.

#### **Research Design**

As previously discussed, questions about sexual minorities are not routinely included in nationally representative surveys. Thus, much of what the general public “knows” about these groups is based on stereotypes and individual beliefs. As Gates and Ost (2004:19) remind us, “there is no consensus definition of who is actually gay or lesbian,” or who might be included in the less researched subsets of sexual minority identities. Even when questions on sexual minority status are included in surveys, the data are often incomplete or classified as too sensitive for release. During the 2011-2013

data collection cycle, the NSFG collected data on same sex couples who reported they were married, or cohabiting and the results were reported as cohabiting in the 2013 release. The 2013-2015 cycle collected the same data but when the data was released in 2015, *after* the date of the Obergefell ruling making same sex marriage legal, respondents who reported a same sex marriage were recoded as “never married” (Centers for Disease Control and Prevention n.d.). In the 2015-2017 cycle, the NSFG specified that the marital relationship question and cohabiting question applied only to opposite sex couples. Response options for same sex couples were removed from the survey and the notes provided no indication of how same sex couples were handled.

As established in the introductory and literature review chapters of my dissertation, having accurate and appropriately operationalized measures of sexual minority identities is necessary if we want to “...improve the health, safety, and well-being of lesbian, gay, bisexual, and transgender (LGBT) individuals” (Office of Disease Prevention and Health Promotion 2016). Current research projects have established that sexual minority status has negative impacts on individual’s economic characteristics (Baumle 2013b), health outcomes (Parker 2007) and, moreover, they often lead to the denial of basic civil and human rights (Durso and Gates 2013). These results certainly suggest that sexual minority status is an integral component of improving these conditions.

### **Analysis of Current Studies**

I began preparing for my dissertation by searching for existing surveys which included information about sexual and/or gender minority status. As suggested by my

literature review, most of the nationally representative surveys which include information on sexuality are those that focus primarily on health outcomes of sexual behavior, and none of them included questions about gender minorities. This focus on justifying the field of sexuality research in terms of health impacts may have limited the conceptualization and measurement of sexuality variables (Michaels 2013). The Public Health Reports was a promising source of additional surveys which considered sexual minority status, but many were eventually excluded from my research design (Ivankovich et al. 2013).

#### Excluded Data Sets

The National Longitudinal Study of Adolescent to Adult Health (Add Health), sponsored by the Carolina Population Center and the University of North Carolina, and the Oregon Youth Substance Use Project (OYSUP), sponsored by the National Institute of Drug Abuse were both suggested as sources of data in The Public Health Reports (Ivankovich et al. 2013). Since the initial focus of these studies were youth under the age of 18, they viewed sexual activity as “problematic” in their respondents. Since this is an entirely different perspective than my focus on establishing sexual minority status as another demographic variable, these surveys were excluded. Table 2 provides more information on both of these studies.

As an exciting update, the researchers working on the Add Health survey are currently in the process of testing and adding questions which will allow sexual minorities, and possibly gender minorities, to be identified in their study now that the cohort are adults. Unfortunately, that data will not be available some time yet (Correspondence between Robert Hummer and SB-H, 3-4-2019).

**Table 2 Sexuality as a Social Problem**

Survey (Abbreviation)	Sponsor	Focus	Exclusion basis
National Longitudinal Study of Adolescent Health (Add Health) <sup>a</sup>	Carolina Population Center; University of North Carolina	Adolescent health; now expanded with additional goals as respondents age.	Subjects initially under 18; sexuality viewed as a social problem.
Oregon Youth Substance Use Project (OYSUP) <sup>b</sup>	National Institute of Drug Abuse	Longitudinal study of first through fifth graders in one school district.	Subjects initially under 18; sexuality viewed as a social problem.

<sup>a</sup>Source: <http://www.cpc.unc.edu/projects/addhealth>

<sup>b</sup>Source: <http://www.icpsr.umich.edu/icpsrweb/NAHDAP/studies/34263>

The Public Health Reports also suggested several surveys on sexual minorities which were collected only once (Ivankovich et al. 2013). While these studies are important and provide a useful snapshot of the sexual minority landscape at a given time point, this is a field which is constantly evolving. These are not ongoing projects which I could appropriately use as a benchmark for the current state of sexual minority status research.

See Table 3 for information regarding A Survey of LGBT Americans, completed by the Pew Research Center and the NHSLs, sponsored by the National Opinion Research Center (NORC) at the University of Chicago. Project STRIDE, jointly funded by the National Institute of Health and the NIMH, and the Social Justice Sexuality Project (SJS Project), were also excluded on this basis.



**Table 3 Single Collection Surveys**

Survey (Abbreviation)	Sponsor	Focus	Exclusion basis
A Survey of LGBT Americans <sup>a</sup>	Pew Research Center	Attitudes about sexual orientation and identity	Completed once (2013)
National Health and Social Life Survey (NHSLs) <sup>b</sup>	The National Opinion Research Center at the University of Chicago (NORC)	Representative survey of adult sexual behavior	Completed once (1992)
Project STRIDE <sup>c</sup>	National Institute of Health; National Institute of Mental Health	Intersection of minority identities and sexual orientation	Completed once (2006)
The Social Justice Sexuality Project (SJS Project) <sup>d</sup>	No sponsor listed; approved by the CUNY-Graduate Center Institutional Review Board	Document and celebrate experiences of lesbian, gay, bisexual and transgender people of color	Completed once (2010)

<sup>a</sup>Source: <https://www.pewsocialtrends.org/2013/06/13/a-survey-of-lgbt-americans/>

<sup>b</sup>Source: <http://www.lgbtdata.com/national-health-and-social-life-survey-nhsls.html>

<sup>c</sup>Source: <http://www.columbia.edu/~im15/>

<sup>d</sup>Source: <http://socialjusticesexuality.com/>

These final two surveys, Project STRIDE and the SJS Project focused specifically on the intersection of race, ethnicity, and sexual minority status. As discussed in the literature review this is a neglected and important avenue to explore in the future of sexual minority research. The majority of these research studies are between ten and twenty years old. Given how rapidly attitudes, opinions, and even the legal standing of sexual minorities has changed, data are quickly out of date in this field.

Finally, there were other selection factors to consider in determining which data sets to include. Again, my research focus is on studies which are representative of the national population, have collected data multiple times, and enable me to develop an understanding of how sexual minority status is currently studied. The ACS is an annual survey collected by the Census Bureau which replaced the long form census in 2010. It uses a representative sample to collect detailed socioeconomic, population, and housing data. It also asks respondents to indicate their relationship to the householder with whom they share a residence. With answer choices for same-sex marriage and same sex cohabiting, it is possible to infer the sexuality status of some respondents.

But one cannot identify with ACS data anyone with a sexual minority status who is not currently living with a same-sex romantic partner. For these reasons, I chose to exclude the ACS from my dissertation analysis (see Table 4). The Decennial Census which enumerates the current population of the United States once per decade and is also administered by the Census Bureau, provides the same measure of sexual minority status as the ACS and was also excluded based on indirect measurement of sexual minority status (based on relationship to the head of household).

The Healthcare Effectiveness Data and Information Set (HEDIS), sponsored by the non-profit National Committee for Quality Assurance is focused on evaluating health care, insurance, and physician treatment decisions. It is not a population study but a voluntary collection site of healthcare data to evaluate the services provided by the medical agencies which supply their data.

**Table 4 Other Survey Concerns**

Survey (Abbreviation)	Sponsor	Focus	Exclusion basis
American Community Survey (ACS) <sup>a</sup>	United States Census Bureau	Detailed population and housing information	Sexuality measured indirectly; same sex cohabiting or marriage
Healthcare Effectiveness Data and Information Set (HEDIS) <sup>b</sup>	National Committee for Quality Assurance	Studies health plans, doctors, and health care	Not a population survey
National Social Life, Health, and Aging Project (NSHAP) <sup>c</sup>	NORC; University of Chicago	Health and social factors for older adults	Longitudinal study with three data collection points
The National Intimate Partner and Sexual Violence Survey (NISVS) <sup>d</sup>	Center for Disease Control and Prevention (CDC)	Intimate partner violence, sexual violence, and stalking victimization	Not a population survey; focused on sex as a social problem
Decennial Census <sup>e</sup>	United States Census Bureau	Population count	Sexuality measured indirectly; same sex cohabiting or marriage

<sup>a</sup>Source: <https://www.census.gov/programs-surveys/acs/>

<sup>b</sup>Source: <http://www.ncqa.org/hedis>

<sup>c</sup>Source: <http://www.norc.org/Research/Projects/Pages/national-social-life-health-and-aging-project.aspx>

<sup>d</sup>Source: <http://www.cdc.gov/violenceprevention/datasources/nisvs/index.html>

<sup>e</sup>Source: <https://www.census.gov/programs-surveys/decennial-census/>

The National Intimate Partner and Sexual Violence Survey (NISVS) is collected by the CDC but is focused on studying intimate partner violence and sexual violence. In addition to not being a study that is representative of the national population, it is also focused on sexuality as a social problem rather than a demographic characteristic. The National Social Life, Health, and Aging Project (NSHAP) includes questions about sexual minority status but is a longitudinal data set, focused on elderly Americans with

three current data points for comparison. It therefore studies a subset of the population and was thus excluded.

Finally, the National Survey of Sexual Health and Behavior (NSSHB), sponsored by the Center for Sexual Health and Indiana University was originally completed in 2009 and designed to be a snapshot of sexual behaviors. In reviewing and updating this chapter, I discovered that the NSSHB is now listed as an “ongoing multi-wave study with data collected in 2009, 2012, 2013, 2014, 2015, 2016, and 2018” but the majority of publications are still from the 2009 study, and the data set does not appear to be accessible to the public (Anon n.d.). I am comfortable with continuing to exclude this survey from my analyses based on these factors.

### **Included Data Sets**

My criteria for inclusion of surveys in this dissertation analysis are outlined in the previous sections related to decisions for survey exclusion. In the end, I decided that five surveys met all of my criteria and thus were selected for inclusion in this dissertation. The General Social Survey (GSS), sponsored NORC at the University of Chicago is one of the selected surveys. It is a nationally representative survey which includes adult respondents aged 18 and older. The remaining four surveys which are included in my dissertation are all sponsored by the CDC and the NCHS.

As outlined in Table 5, these surveys have nationally representative samples focusing primarily on adults.

**Table 5 Selected Surveys: Overview**

Survey (Abbreviation)	Scope	Sexes Included	Age Range
General Social Survey (GSS) <sup>a</sup>	National	Male/Female	18+
National Health and Nutrition Examination Survey (NHANES) <sup>b</sup>	National	Male/Female	14-69 <sup>c</sup>
National Health Interview Survey (NHIS) <sup>b</sup>	National	Male/Female	18+ <sup>c</sup>
National Survey of Family Growth, Female Version (NSFG-F) <sup>b</sup>	National	Female	15-49 <sup>d</sup>
National Survey of Family Growth, Male Version (NSFG-M) <sup>b</sup>	National	Male	15-49 <sup>d</sup>

<sup>a</sup>Sponsored by National Opinion Research Center; University of Chicago.

<sup>b</sup>Sponsored by Center for Disease Control and Prevention (CDC).

<sup>c</sup>Selected age range for sexual questions, if different than survey population as a whole.

<sup>d</sup>In 2015 the NSFG expanded the age range from 15-44 to 15-49.

These surveys include the National Health and Nutrition Examination Survey (NHANES), the National Health Interview Survey (NHIS), and The National Survey of Family Growth (NSFG), both the female and male versions, which are two similar but distinct surveys.

The NHANES asks sexual minority questions of respondents aged 14-69 but only responses for those aged 18-69 are available in the public use data set; hence the modified age notation in the table. The NHIS also includes respondents as young as 5 years old in the survey but only provides sexual minority information on respondents aged 18 and older. Both versions of the NSFG, expanded their age range from 15-44 to 15-49 beginning in 2015, and sexual minority questions are asked of all respondents in the surveys.

## Sampling Design

The NHANES and both versions of the NSFG are continuous surveys with approximately 5,000 respondents in each wave of the survey (see Table 6). The NHIS is conducted annually, with around 42,000 respondents. The GSS is completed every even year and includes approximately 4,500 respondents. They all use nationally representative survey design methods, many with complex stratified sampling designs.

The NHIS and both versions of the NSFG oversample Black and Hispanic respondents. The NHANES oversamples people 60 and older who are African American or Hispanic respondents. The NHIS oversamples Asian respondents and adults 65 and over who are also members of minority groups. Both versions of the NSFG oversample teens. The GSS does not oversample and has been using a three-wave rolling panel sampling design since 2002. There are tools built into the Stata software which allow me to account for the stratified random sample design so that data is weighted appropriately, and results can then be used to estimate results in the national population.

## Question Placement

Demographers are currently debating whether questions related to sexuality should be included with all the other demographic questions (Durso and Gates 2013; Michaels 2013) or remain relegated to “sensitive” portions of the surveys which use Audio Computer-Assisted Self Interview (ACASI) methods.

**Table 6 Selected Surveys: Focus and Sampling Techniques**

Survey	Focus	Survey Method	Sample stratification	Frequency	Current Release
GSS	Social characteristics and attitudes	Personal Interviews	Two stage sub-sampling design for non-response	Biennial	2018
NHANES	Health and nutritional status of adults and children	Personal interviews, physical exams, lab test	Oversamples people 60+, people who are black, or Hispanic	Continuous <sup>b</sup>	2015-2016
NHIS	Tracks health status, health care access, and progress towards national health objectives	Personal interviews	Oversamples people who are black, Hispanic, or Asian and adults 65+ in these categories	Annual	2017
NSFG-F	Information on family life, marriage and divorce, contraception, and health	Personal interviews	Oversamples people who are black, Hispanic or teens	Continuous <sup>e</sup>	2015-2017
NSFG-M	Information on family life, marriage and divorce, contraception, and health	Personal interviews	Oversamples people who are black, Hispanic or teens	Continuous <sup>e</sup>	2015-2017

<sup>a</sup>GSS begins asking about sexual behavior and orientation in 1988.

<sup>b</sup>NHANES changed to continuous measurement in 1999.

<sup>c</sup>NHIS includes three questions on sexual orientation.

<sup>d</sup>NHIS reduces questions on sexual orientation to one.

<sup>e</sup>NSFG changed to continuous measurement in 2006.

ACASI methods have the respondent answer questions on a computer, out of view of the interviewer and separately from the rest of the survey instrument. ACASI methods are often used for questions regarding illicit drug use, sexual assault, abortion, and historically, sexual minority status.

Recent testing with regard to question placement from the NHIS in 2013-2014 found “no significant differences...by mode for the percentage of adults identifying as gay/lesbian or bisexual...” irrespective of whether questions were placed separately [ACASI] or included in the Computer Assisted Personal Interviewing (CAPI) section with the other demographic variables (Centers for Disease Control and Prevention 2016). Gates (2011) strongly prefers moving questions on sexual minority status to the beginning of surveys, along with all other demographic data to avoid the appearance of sexual minority status as somehow different than race, ethnicity, and other individual and household characteristics which might reasonably affect life outcomes.

Table 7 summarizes the issue of question placement for the sexuality measures. The GSS and NHIS both include questions regarding sexuality within their CAPI portion of the interview process. The NHIS segregates these questions in the adult version, along with questions about health care, financial issues, sleep trouble, and HIV testing. The sexual identity question is treated the same as all other adult based measures.

The GSS asks about self-identification as well and also includes a question about same sex behavior. Like the NHIS, these questions are simply presented within the text of the survey.



**Table 7 Selected Surveys: Sexual Minority Question Placement**

Survey	Technique	Question Location	Relevant Notes
GSS	CAPI <sup>a</sup>	Abortion, extramarital sex, pornography	---
NHANES	ACASI <sup>b</sup>	Alcohol, drug, tobacco, sexual behavior	---
NHIS	CAPI <sup>a</sup>	Health care, financial worries, sleep, HIV testing	In items only provided to adults
NSFG-F	ACASI <sup>b</sup>	Substance Abuse, Nonvoluntary intercourse, STD/HIV Risk behaviors	Male-female rape
NSFG-M	ACASI <sup>b</sup>	Substance Abuse, Nonvoluntary intercourse, STD/HIV Risk behaviors	Female-male rape, male-male rape, STD/HIV behavior with males

<sup>a</sup>Computer assisted personal interviewing (CAPI).

<sup>b</sup>Audio Computer-Assisted Self Interview (ACASI).

The NHANES, and both versions of the NSFG, relegate questions about sexuality to separate ACASI sections of their survey. The supporting idea for this decision is that people might have higher rates when reporting behavior that is viewed as undesirable if they are responding without the presence of an interviewer. However, recent research suggests this may not be the best procedure.

Durso and Gates (2013:29) specifically note that questions about sexual orientation or same-sex sexual behavior should not follow questions about sexual violence or abuse, because of the possibility of lower response rates. However, this is exactly what happens in both versions of the NSFG. The section on substance abuse, nonvoluntary intercourse, and STD/HIV risk behaviors includes questions on sexual orientation and behavior. The NHANES placement is slightly improved, with sexuality placed with alcohol, drug, and tobacco use.

## Sexual Minority Status

The GSS, NHANES, and both versions of the NSFG contain one or more questions about same-sex sexual behavior. The NSFG-F and NSFG-M both also include a measure of sexual attraction. As Table 8 illustrates, all five surveys allow for self-identification of a limited number of sexual identities (straight, lesbian, gay, bisexual, and in the NHIS an additional category of “something else”). The 2015-2017 versions of the NSFG (both male and female) tested the self-identity responses used in the NHIS, specifically adding the option of “something else” for half of their respondents, while the other half received the traditional NSFG options. The inclusion of self-identification reflects the operationalization of most sociological research as the key component of sexual minority status. Two additional surveys include the demographic standard of sexual behavior.

**Table 8 Selected Surveys: Measurement of Sexual Minority Status**

Measure	GSS <sup>a</sup>	NHANES	NHIS	NSFG-F	NSFG-M
Sexual Attraction	---	---	---	Yes	Yes
Sexual Behavior	Yes	Yes	---	Yes	Yes
Self-identification	Yes <sup>b</sup>	Yes <sup>b</sup>	Yes <sup>c</sup>	Yes <sup>bc</sup>	Yes <sup>bc</sup>

<sup>a</sup>In 2006 the GSS focused on sexuality, but the standard survey has limited information.

<sup>b</sup>Response categories include straight, lesbian, gay, and bisexual.

<sup>c</sup>Response categories include straight, lesbian, gay, bisexual, and something else.

## Hypotheses

My analysis is focused on examining the data which are currently available in long-term, nationally representative data, with multiple repetitions, and data sets which are widely available to researchers. To that end, I present the hypotheses I will endeavor to test with these data. I will compare how sexual minority status is operationalized in each existing survey data, create indices combining measures where appropriate, and test all of these independent variables to determine what impact different definitions of sexual minority status may have on the demographic outcomes both in my dissertation research and in the lived experiences of people with this minority status.

In surveys with more than one measure of sexual minority status, I will create two sets of indices, one where a sexual minority response in any of the included categories adds the respondent to the index (which I will refer to as OR indices). The second set of indices will be AND indices where respondents must provide a sexual minority response to both categories to be included. Logic dictates that the OR indices, which provide the most opportunity to provide a sexual minority response will identify the largest number of sexual majority respondents. Thus, I hypothesize:

*Hypothesis 1 (H1):* Using OR indices as measures of sexuality (e.g. indices that accept an affirmative response from a selection of individual responses) will result in the identification of an increased proportion of sexual minority respondents compared to using a single measure.

As discussed in the literature review, it is established that sexual minority status impacts education outcomes (Houdenove et al. 2014; Savin-Williams and Diamond 2000; Ueno, Roach, and Peña-Talamantes 2013), health outcomes (Everett 2013; Goldfried and Goldfried 2001; Laurent 2005; McAndrew and Warne 2012), levels of income (Badgett 1996; Baumle 2013b; Berg and Lien 2002; Blandford 2003; Carpenter 2008), and the likelihood of sharing a household with children (Baumle 2009; Baumle and Compton 2015; Baumle et al. 2009; Goldfried and Goldfried 2001; Hopkins 2007). What is less clear is the direction of these relationships – is having a sexual minority status associated with an increase or decrease in education level? Does the measurement variable which is used make a difference? I will explore these relationships in my second hypothesis:

*Hypothesis 2 (H2):* Reporting a sexual minority status will have a significant impact on education, health, income, and the presence of children in the household compared to people who identify as straight.

When considering the amount of variance in the dependent variables which is explained by sexual minority status, the AND indices should offer more explanatory power, The more consistent a person's sexual minority identity, the greater the chance it would affect both public and private life (Eliason 1996; Savin-Williams and Diamond 2000; Veenstra et al. 2011).

*Hypothesis 3 (H3):* Using the more inclusive indices will explain an increased proportion of the variance in the dependent variables than using behavior, self-identity, or sexual attraction alone.

There are also explorations into the disparate effect that sexual minority status may have for men and women, compared to their straight counterparts. Some studies show a wage penalty for sexual minority men, compared to straight men, and some show a wage benefit to sexual minority women (Everett 2013; Laumann et al. 1994; Mize 2016; Tiefer 2000). However, these relationships are not consistent enough to predict a positive or negative relationship for each variable at this time, so I am simply testing to see whether sex impacts the role of sexual minority status on my dependent variables. Thus, I hypothesize:

*Hypothesis 4 (H4):* For men, reporting a sexual minority status will result in different outcomes in education, income, general health, and likelihood of sharing a residence with children, compared to men who are straight.

*Hypothesis 5 (H5):* For women, I hypothesize that reporting a sexual minority status will result in differential outcomes in education, income, and health, and the likelihood of sharing a residence with children, compared to women who are straight.

Of the five surveys I have selected for inclusion in my dissertation, four are sponsored by the CDC, but each operationalizes sexual minority status using different questions and response options. The GSS also uses a different set of questions to operationalize sexual minority status. My analysis of these surveys will allow me to provide a base of knowledge of the currently available, nationally representative data which include sexual minority status as a demographic variable. In Chapter IV, I will provide in depth descriptions of each survey and relevant variables utilized to test my hypotheses.

## CHAPTER IV

### DESCRIPTION OF THE DATA

Now that I have identified and discussed the collection and survey techniques of the five nationally representative surveys that I will use in my dissertation research, I will provide descriptive statistics of the key variables in the data sets. I begin with summary descriptions of the total respondent set for each survey, and then provide similar details about the sample used for my analyses. The chapter begins with a discussion of the variables which will be used as controls and ends with a consideration of the independent and how they are operationalized.

#### **Total Respondents**

As outlined in the tables presented in Chapter III, the intended collection sizes for each of the five included surveys vary substantially. I use the most recent version of each survey which is currently available for analysis in my dissertation. The GSS is collected in even years; the most recently released data are from 2018, with a total sample size of 2,348 respondents. The NHANES data utilized are from 2016, with a total respondent size of 9,971. The NHIS data is the largest sample by far, with 60,005 participants in 2017. The NSFG is collected on a continuous basis, with the most recent set of results from the 2015-2017 cycle. The NSFG collects data for men and women separately with two distinct but similar surveys. The female data set, which I will refer to as NSFG-F includes 5,554 respondents. The male data set, the NSFG-M, has a sample

size of 4,540. Several surveys, as outlined in Table 9, ask sexual minority questions of limited respondents.

**Table 9 Survey Sets: Descriptive Statistics of Independent Variables**

Variable	GSS	NHANES	NHIS	NSFG-F	NSFG-M
Data Year	2018	2016	2017	2017	2017
Sample Size	2,348	9,971	60,005	5,554	4,540
<i>Behavior<sup>a</sup></i>	<i>n=1,187</i>	<i>n=4,257</i>		<i>n=5,493</i>	<i>n=4,501</i>
Any same sex	7.2	7.5	---	19.2	7.0
No same sex	92.8	92.5	---	80.9	93.0
<i>Sexual Attraction<sup>b</sup></i>				<i>n=5,523</i>	<i>n=4,526</i>
Gay male/lesbian	---	---	---	1.5	2.1
Bisexual	---	---	---	---	---
Something else	---	---	---	19.8	6.9
Straight	---	---	---	76.3	89.4
Don't know/not sure	---	---	---	1.9	1.1
Refused	---	---	---	0.6	0.5
<i>Sexual Identity</i>	<i>n=1,406</i>	<i>n=3,420</i>	<i>n=58,745</i>	<i>n=5,523</i>	<i>n=4,526</i>
Gay male/lesbian	2.2	2.0	1.4	2.5	2.8
Bisexual	3.6	3.5	1.2	7.7	2.6
Something else	---	1.2	0.4	1.7	1.0
Straight	91.8	87.5	95.9	87.1	92.7
Don't know/not sure	0.4	5.6	0.8	0.3	0.2
Refused	1.9	0.2	0.5	0.7	0.7

<sup>a</sup>Responses to the same sex behavior question on the GSS were coded as any same sex behavior or no same sex behavior to match the coding of the NSFG (F & M).

<sup>b</sup>The NSFG (F&M) allows respondents to indicate sexual attraction to both males and females in varying degrees. These responses were combined and coded as something else since bisexual was not a specified option.



Logically then, the samples used in my analyses reflect only respondents who were asked the applicable questions, which in some instances, dramatically drops my overall samples sizes.

The GSS for instance, includes a question about same sex sexual behavior (n=1,187) and an option for respondents to indicate their sexual orientation or identity (n=1,406) which were asked of only about half the sample. The smaller sample sizes identified for each question include people who chose not to answer the questions and excludes only those respondents who were not asked. Clearly, the resultant sample which I use in my analysis cannot be larger than the population who were surveyed on my independent variables. The NHANES was similarly limiting; with a total sample size of nearly 10,000, the same sex behavior question (n=4,257) and the identity question (n=3,420) cut the available sample for my analysis by more than half.

However, given the concerns many researchers have about respondents' willingness to answer questions of a sexual nature (Durso and Gates 2013; Gates 2011; Laumann et al. 1994), I feel it is important to note that questions about sexual minority status are not the only questions with severely limited sample size, nor are they the questions with the largest proportion of respondents who declined to answer. As illustrated in Table 10, the question regarding individual income has the lowest response rate.

**Table 10 Survey Sets: Descriptive Statistics of Dependent Variables**

Variable	GSS	NHANES	NHIS	NSFG-F	NSFG-M
Data year	2018	2016	2017	2017	2017
Sample size	2,348	9,971	60,005	5,554	4,540
<i>Level of education</i>	<i>n=2,348</i>	<i>n=5,714</i>	<i>n=56,191</i>		
less than HS	11.2	23.9	26.7	20.7	22.2
High school diploma or GED	50.2	21.6	20.8	25.6	27.5
Some college/associate degree <sup>a</sup>	8.4	29.6	25.5	27.6	26.8
Bachelor degree <sup>b</sup>	19.8	24.9	16.8	17.0	16.1
Graduate degree	10.5	---	10.2	9.2	7.4
<i>Children in household</i>	<i>n=2,331</i>				
Yes	25.1	66.6	46.4	50.3	28.0
No	74.9	33.4	53.6	49.7	72.1
<i>Physical health rating</i>	<i>n=1,569</i>	<i>n=6,166</i>	<i>n=59,959</i>	<i>n=5,520</i>	<i>n=4,525</i>
Excellent or very good	22.9	36.6	65.4	63.6	68.9
Good	49.1	40.4	24.0	26.1	23.9
Fair	22.6	19.7	8.2	8.7	6.1
Poor	5.4	3.3	2.4	1.5	1.1

**Table 10 Survey Sets: Descriptive Statistics of Dependent Variables cont.**

Variable	GSS	NHANES	NHIS	NSFG-F	NSFG-M
<i>Individual income</i>	<i>n=1,363</i>			<i>n=4,953</i>	<i>n=4,118</i>
\$0-\$24,999	34.0	---	---	53.7	40.4
\$25,000-\$29,999	5.4	---	---	7.4	7.3
\$30,000-\$34,999	7.0	---	---	5.9	6.5
\$35,000-\$39,999	5.9	---	---	4.9	5.7
\$40,000-\$49,999	10.0	---	---	6.6	8.2
\$50,000-\$59,999	8.4	---	---	5.1	6.1
\$60,000-\$74,999	9.4	---	---	4.7	7.0
\$75,000-\$89,999	5.9	---	---	3.6	6.8
\$90,000-\$109,999	4.9	---	---	---	---
\$110,000-\$129,999	3.2	---	---	4.2	8.0
\$130,000-\$149,999	2.4	---	---	---	---
\$150,000+	4.6	---	---	---	---

<sup>a</sup>The NHANES education level includes bachelor's degree and above.

We see similar limits in the number of respondents who were asked ‘non-controversial’ questions such as their level of education (a sample size of 56,191 in the NHIS), their general rating of their current physical health (in the NHANES, 6,166 respondents), and whether they shared a residence with children (only 2,331 people who answered the GSS).

While the NHANES and NHIS did not provide an individual income question and are thus excluded from economic analyses in my dissertation, the GSS, NSFG-F, and NSFG-M, all had more respondents answer questions about sexual minority status than the individual income question. This is consistent with findings of other researchers that discussing income is the strongest remaining taboo in our society (Baumle 2013a; Durso and Gates 2013; Michaels 2013).

Even the most basic of demographic questions were not asked of nor answered by all respondents across the five surveys (see Table 11). The GSS is missing responses to questions of age, ethnicity, and race. The NHANES did not include a separate question for ethnicity, instead including Hispanic as a racial measurement only. The NSFG-F and NSFG-M both have respondents who failed to provide their race as well. As indicated previously, the number of respondents who failed to answer questions about sexual minority status, and the number of respondents who refused to answer the question(s) or did not know the answer are comparable to those of all other relevant questions on the surveys. This should boost confidence in Durso and Gate’s (2013) theory that people answer sexual minority questions similarly to all other demographic data questions.

**Table 11 Survey Sets: Descriptive Statistics of Demographic Controls**

Variable	GSS	NHANES	NHIS	NSFG-F	NSFG-M
Data year	2018	2016	2017	2017	2017
Sample size	2,348	9,971	60,005	5,554	4,540
<i>Sex</i>					
Female	55.2	50.9	51.6	100.0	---
Male	44.8	49.1	48.4	---	100.0
<i>Age</i>					
	<i>n=2,341</i>				
Sample Age <sup>a</sup>	49.0	31.9	40.5	31.0	30.5
Female <sup>b</sup>	48.7	32.2	41.5	31.0	30.5
Male <sup>b</sup>	49.3	31.6	39.3	---	---
<i>Ethnicity</i>					
	<i>n=2,333</i>				
Hispanic <sup>c</sup>	15.0	---	16.0	21.9	21.7
Non-Hispanic	85.0	---	84.0	78.1	78.3
<i>Race</i>					
	<i>n=2,348</i>			<i>n=5,543</i>	<i>n=4,532</i>
White	72.1	30.8	79.2	49.6	53.2
Black	16.4	21.4	10.7	24.5	20.3
Asian	---	10.5	5.9	---	---
Native American/ Alaskan Native	---	---	1.3	---	---
Hispanic <sup>d</sup>	---	32.4	---	20.6	20.5
Other	11.5	5.1	3.0	5.4	6.0

<sup>a</sup>Mean age for all respondents.

<sup>b</sup>Sex specific mean age.

<sup>c</sup>Hispanic responses provided to the ethnicity question.

<sup>d</sup>Hispanic responses provided to the race question.

After completing the process of finding relevant surveys, determining which were nationally representative and met my requirements, and investigating the overall demographic characteristics and response patterns, it is finally time to prepare the data,

by creating variables which compare across the five surveys as much as possible, to actually start the business of my dissertation analyses.

### **Preparing the Datasets**

#### GSS

I began with the data from the GSS. The sexual behavior question was asked of both men and women and included possible responses of men, some combination of men and women, and women. This made the initial question impossible to identify same sex behavior since a response of men could come from women and indicate behavior of someone who was straight, or it could come from a man, indicating same sex behavior. To solve this problem, I recoded the sex variable and created a new variable, copying the sexual behavior responses of only the men. I then recoded these behaviors into same sex or different sex. I repeated the process for the women and then combined the two variables, providing a final behavioral measure which indicated whether the respondent had engaged in sexual minority behavior or not.

The GSS also provides a second measure of sexual minority status, that of self-identity, often referred to as sexual orientation. Respondents were able to choose from gay male, lesbian, bisexual and straight for sexual identities. Those who refused to answer or said they did not know were included as affirmative responses. This is consistent with the logic using the term sexual minority rather than the more limiting sexual orientation. Questioning is an identity included in the term sexual minority and would be an appropriate label for those who responded they do not know or are unsure of their sexual identity or attraction. In a similar vein, it is reasonable to assume that

those who refused to answer the question are also likely sexual minorities in some form. The response of 'straight' identifies someone as a member of the sexual majority, an accepted identity without stigma. If the respondent were straight, there would be no logical reason to refuse to claim this majority identity. Sexual minority statuses on the other hand do come with bias and discrimination, both internal and external, so a person who fails to identify likely belongs in this category. For the sake of comparison, I have also included a comparison coding of LGB(S) which includes only those sexual minority responses which are affirmative in more traditional research, those who responded gay male, lesbian, bisexual, or straight. In this scheme, those who reported they did not know or refused to answer were coded as missing data.

I checked the coding scheme for the highest level of education received in the GSS; it is an ordinal variable which includes answer choices for less than high school, high school diploma or GED, some college or an associate degree, a bachelor's degree, and finally a graduate degree. I created a dichotomous variable, based on the household type, which indicated whether or not survey respondents shared a residence with one or more children, regardless of the biological connections between them. Due to sample size concerns, the general health rating variable and the individual income data were eliminated from consideration in the GSS analyses. See Table 12 for specific sample sizes for each variable in the study.

The 2018 GSS data began with a sample size of 2,348 respondents. I first removed from the data set anyone who had not been asked the sexual behavior question and the sexual identity question. The sample size was thus reduced to 1,187 respondents.

**Table 12 GSS: Sample Sizes Per Variable**

Variable	Sample Size
Original Sample	2,348
Final Sample	1,173
Sexuality Variables	
Attraction	---
Behavior	1,187
Identity	1,406
Dependent Variables	
Children	2,331
Education	2,348
Health	1,569
Income	1,363

I then removed from the data set anyone who had not provided complete information for the control variables, meaning their sex, age, and race or ethnicity, a minor change which resulted in a sample size of 1,180. Seven people remaining in the data had failed to answer the dependent question regarding whether or not they had children living with them and were eliminated. The remaining two questions dealing with individual income and physical health seemed to be asked of different segments of the population. Removing respondents with missing data on all of these questions would have reduced my sample size to 478. I decided therefore to exclude the measures of health and income from the analysis, for a final sample size of 1,173 respondents in the GSS.

## NHANES

The NHANES data provided similar challenges to the GSS. In this case, the sexuality questions were asked separately of men and women. I needed one variable for each question which provided data for both men and women. So, I created a new variable for sexual behavior (which was asked of respondents aged 18-59) and combined



the responses for men and women in a similar fashion to the methods for the GSS. The sexual identity question was also limited by age in this adult sample and was asked only of persons aged 18 to 69.

**Table 13 NHANES: Sample Sizes Per Variable**

Variable	Sample Size
Original Sample	9,971
Final Sample	3,184
Sexuality Variables	
Attraction	---
Behavior	4,257
Identity	3,420
Dependent Variables	
Children	9,971
Education	5,714
Health	6,166
Income	---

I thus began by reducing the age of my sample to respondents between the ages of 18 and 69 as they were the subsample which had been asked the appropriate questions for my independent variables. This reduced the sample size of the NHANES from 9,971 to 4,931. See Table 13 for the sample sizes of respondents who answered all of the questions regarding the included variables. Removing respondents who had not been asked the control variables of sex, race and ethnicity, and the dependent variables of whether there were kids in the household, and their general rating of health further reduced my sample size to 3,174 participants. While the NHANES includes measures

for family and household income, there was no measure of individual income, and thus it is excluded from the analyses here.

## NHIS

To continue the theme, the NHIS asked the sexual minority identity question separately of men and women, so these variables were recoded into a single variable.

**Table 14 NHIS: Sample Sizes Per Variable**

Variable	Sample Size
Original Sample	60,005
Final Sample	45,482
<i>Sexuality Variables</i>	
Attraction	---
Behavior	---
Identity	3,420
<i>Dependent Variables</i>	
Children	60,005
Education	56,191
Health	45,482
Income	---

Sexual identity is the only measure of sexual minority status available in the NHIS, and it is housed in the sample adult survey, which is asked of respondents aged 18 and over. I thus removed from the data set anyone under age 18, removing 13,246 children from the sample (see Table 14). The sample was further reduced for people with incomplete data for their sex, ethnicity and/or race, whether they had children living in their home, their health, and their level of education. Thus, my final sample size for the NHIS is

45,485. Additionally, the only income variables available are family based, so individual income is also excluded from these analyses.

## NSFG

The surveys for men and women provided by the NSFG are distinct surveys with variables which are often similar but are not identical. However, since the purpose of preparing the data from all five surveys was to make the analyses across surveys as seamless as possible, it is reasonable to discuss the preparation of the NSFG-F and NSFG-M for analyses within the same section. The NSFG surveys are the only ones which provide data on all three measures of sexual minority status which are considered the “trifecta” by sociologists. They ask about sexual minority behavior, sexual minority attraction, and sexual minority identity.

**Table 15 NSFG-F: Survey Sizes Per Variable**

Variable	Sample Size
Original Sample	5,554
Final Sample	4,918
<i>Sexuality Variables</i>	
Attraction	5,523
Behavior	5,493
Identity	5,523
<i>Dependent Variables</i>	
Children	5,554
Education	5,554
Health	5,520
Income	4,953

In the 2015-2017 iteration, the NSFG surveys tested new response options for the sexual identity question. Approximately half of respondents in each survey were given option A, with the standard NSFG response categories of Straight, Lesbian or Gay, Bisexual. The other half were provided with option B, which are the categories used in the NHANES version of the question and include answers of Straight, Lesbian or Gay, Bisexual, or Something else. For each version of the survey, I combined the responses for options A and B into a single variable for orientation.

As shown in Tables 15 and 16, retaining respondents who provided answers to these three questions left a sample size of 5,523 female respondents 4,526 male respondents. For each survey, I then excluded people with missing data on the variables of interest. The sample size which remained for analysis in the NSFG-F is 4,918 women and the NSFG-M survey houses complete responses from 4,088 men.

**Table 16 NSFG-M: Sample Sizes Per Variable**

Variable	Sample Size
Original Sample	4,540
Final Sample	4,088
<i>Sexuality Variables</i>	
Attraction	4,526
Behavior	4,501
Identity	4,526
<i>Dependent Variables</i>	
Children	4,540
Education	4,540
Health	4,525
Income	4,118

## **Independent Variables**

The independent variables in my analyses are the questions which measure sexual minority status. I assume that having a sexual minority status according to one or more of these variables will impact the dependent variables included in my dissertation analyses.

Table 17 provides the descriptive data for each of the five surveys included in this dissertation for these independent variables. The first item of note, as previously discussed, is that the sample sizes for each survey are subsets of the complete survey as they include only respondents with complete information on all relevant variables. Of the five included surveys, all but the NHIS include a measure of same sex behavior, the preferred sexual minority variable of demographers. All five surveys include a measure of self-identity for sexual minority status, and sexual minority attraction is only available in the NSFG-F and NSFG-M.

Sexual minority behavior is actually fairly common in the general population. Seven percent of the respondents to the GSS, almost eight and a half percent of the NHANES sample, seven and a half percent of the NSFG-M and a full 20 percent of the NSFG-F respondents indicated some form of same sex sexual behavior. Thus, if I were estimating the size of the sexual minority population in the US based on these completed nationally representative studies, I would suggest the size to be between seven and 20 percent of the population, well above the rates for people who identify as sexual minorities.

**Table 17 Sample Subsets: Descriptive Statistics of Independent Variables**

Variable	GSS	NHANES	NHIS	NSFG-F	NSFG-M
Data Year	2018	2016	2017	2017	2017
Sample Size	1,173	3,174	45,482	4,918	4,088
<i>Behavior<sup>a</sup></i>					
Any same sex	7.0	8.4	---	20.0	7.4
No same sex	93.0	91.7	---	80.0	92.6
<i>Sexual Attraction<sup>b</sup></i>					
Gay male/lesbian	---	---	---	1.6	2.2
Bisexual	---	---	---	---	---
Something else	---	---	---	19.6	6.8
Straight	---	---	---	77.1	89.9
Don't know/not sure	---	---	---	1.6	1.0
Refused	---	---	---	0.1	0.2
<i>Sexual Identity</i>					
Gay male/lesbian	2.4	1.8	1.6	2.6	3.0
Bisexual	3.9	3.4	1.1	7.2	2.5
Something else	---	1.2	0.4	1.6	1.0
Straight	91.7	87.4	95.5	88.1	93.0
Don't know/not sure	0.4	6.0	0.8	0.2	0.2
Refused	1.5	0.2	0.5	0.3	0.4

<sup>a</sup>Responses to the same sex behavior question on the GSS were coded as any same sex behavior or no same sex behavior to match the coding of the NSFG (F & M).

<sup>b</sup>The NSFG (F&M) allows respondents to indicate sexual attraction to both males and females in varying degrees. These responses were combined and coded as something else since bisexual was not a specified option.

More commonly, sociologists and psychologists estimate the size of the sexual minority population based on the number of people who identify as sexual minorities. For the stigmatization reasons discussed earlier (and see Gates for a more robust discussion) it is reasonable to assume that sexual minority status identification is going

to occur in a smaller proportion of the population, those who feel comfortable and safe in disclosure and for those whom claiming a sexual minority identity is important. A more conservative estimate of the size of the sexual minority population which identifies as such would be around three percent (NHIS) of the population to 10 percent (NSFG-F). Again, these are not small or insignificant proportions of the population to consider when examining the impact that this one demographic characteristic might have on their lives.

Only the NSFG-F and NSFG-M surveys include questions about sexual attraction. Here we see the largest percentage of respondents who indicate they are not 'straight' but instead have a sexual minority status. In the NSFG-F, 77 percent of women report being sexually attracted to only men. Thus, for women in the NSFG-F, nearly 23 percent have a sexual minority status that is more varied than predicted by most measures of sexuality. I would be very interested to see if the increased variance in sexual attraction held across surveys, but the data in the NSFG-F and NSFG-M suggest these are important lines of questioning for future studies. These results also reflect the common finding that more women than men report sexual minority status when surveyed (Baumle et al. 2009; Bogaert 2013; Gates 2013; Laumann et al. 1994)

### **Dependent Variables**

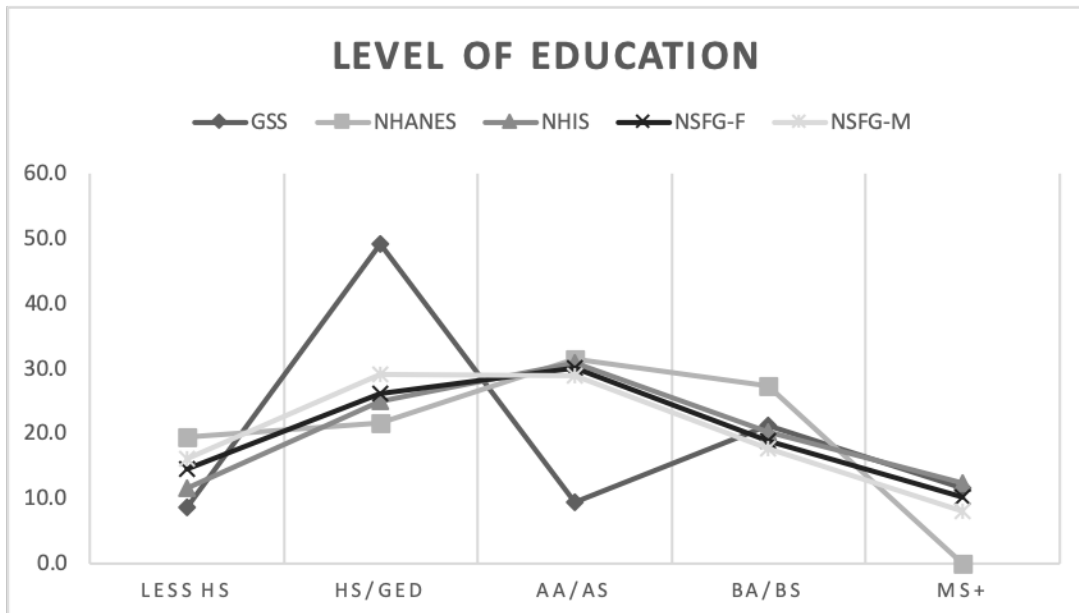
Prior research in this burgeoning area of the demography of sexuality have uncovered differences in educational attainment, the presence of children in the household, general health outcomes, and income, according to whether or not the respondent is a sexual minority (Gates and Ost 2004; Poston and Bouvier 2017). So far,

the results have sometimes proven inconsistent, with some surveys finding a wage penalty and others a wage boost based on sexuality. This is likely because most data sets which include measurements for sexual minority status are small and define that status in different ways. I have done my best to standardize the operationalization of the variables included in this dissertation in an attempt to overcome these issues.

Using the variable for the respondent's highest educational attainment, data on education were coded and compiled as similarly as possible across the surveys. The data from the NHIS, NSFG-F and NSFG-M were unchanged. Possible ordinal responses included less than high school, high school, some college/associate degree, bachelor's degree, and graduate degree. Data from the NHANES ended with bachelor's degree and above, so graduate degrees are included in that category. The GSS response category specified junior college degree, so it is possible some people who attended college, but did not graduate are missing from the "some college/associate degree" category. The NHIS had individual categories for each grade of education where a respondent could have left the public-school system. These categories were collapsed into results identical to the ones on the other surveys, with all respondents who did not graduate high school included in the same category, regardless of the age they left school.

The results of these descriptive statistics show fairly comparable results in the levels of education across the NHANES, NHIS, NSFG-F and NSFG-M with the GSS revealing some differences in the lower levels of education.





**Figure 1 Highest Level of Education Across Survey Subsets**

According to Figure 1 about 15 percent of people, on average have less than a high school education. In the GSS, 57.8 percent have a high school diploma, GED, or lower level of education. For the NHANES, about 41 percent of the sample, 36 percent of the NHIS sample, 40 percent of the NSFG-F and 45 percent of the NSFG-M have similar levels of education. The rates of graduate school completion are similarly clustered, with approximately 12 percent of respondents in the GSS and NHIS having completed a graduate degree, and 10 and eight percent of the NSFG-F and NSFG-M respectively doing the same.

Additionally, all five surveys, the GSS, NHANES, NHIS, NSFG-F and NSFG-M ask about the presence of children in the household and refers to the presence of one or more child under the age of 18 who resides with the respondent in their household. No distinction is made in this dichotomous variable for whether the child is biologically related to the respondent or not, as that information was not available in all surveys.

Respondents in the NSFG-M were least likely to have children in the household, with slightly more than 30 percent of men answering in the affirmative. Slightly less than one-third of participants in the NHIS live with children. Respondents to both the NHANES and NSFG-F were slightly more likely to live with children, than without, and only respondents in the GSS were substantially likely to share a residence with kids (73 percent).

The NHANES, NHIS, and both versions of the NSFG (F & M) ask about the general physical health of respondents and allowed them to classify their health on an ordinal scale of excellent or very good, good, fair, and poor. Respondents to the NSFG-F and NSFG-M surveys were more likely to rate their health as excellent or very good, with more than 60 percent of respondents in each category choosing this rating. NHIS results were similarly high at 59.9 (see Table 18). This is likely due in part to the relatively younger age of respondents in these surveys. In comparison, slightly more than 35 percent of respondents in the NHANES indicated their health was excellent or very good.

Income is the last dependent variable for which I obtained information. Frankly, the ordinal categories are inconsistent and irregular in their detail. Each survey operationalizes income into different categorical responses so that direct comparisons across surveys are impossible.

I have placed the percentage of respondents in each survey in the closest approximate income category. The NHANES and NHIS both had family as the “lowest” level of income; individual income was not available. For that reason, the GSS and both NSFG (F&M) surveys will be the only ones included in the income analyses.

**Table 18 Sample Subsets: Descriptive Statistics of Dependent Variables**

Variable	GSS	NHANES	NHIS	NSFG-F	NSFG-M
Data year	2018	2016	2017	2017	2017
Sample size	1,173	3,174	45,482	4,918	4,088
<i>Level of education</i>					
less than HS	8.6	19.4	11.5	14.5	16.1
High school diploma or GED	49.2	21.7	25.0	26.3	29.1
Some college/associate degree <sup>a</sup>	9.4	31.5	30.9	30.2	29.0
Bachelor degree <sup>b</sup>	21.2	27.4	20.3	18.9	17.7
Graduate degree	11.6	---	12.3	10.3	8.1
<i>Children in household</i>					
Yes	72.8	56.0	31.3	52.9	30.6
No	27.2	44.1	68.7	47.1	69.4
<i>Physical health rating<sup>c</sup></i>					
Excellent or very good	---	35.5	59.9	63.5	68.6
Good	---	41.9	27.2	26.2	24.3
Fair	---	19.6	10.0	8.7	5.9
Poor	---	2.9	2.9	1.5	1.1

**Table 18 Sample Subsets: Descriptive Statistics of Dependent Variables cont.**

Variable	GSS	NHANES	NHIS	NSFG-F	NSFG-M
<i>Individual income<sup>d</sup></i>					
\$0-\$24,999	---	---	---	54.0	40.6
\$25,000-\$29,999	---	---	---	7.4	7.3
\$30,000-\$34,999	---	---	---	5.9	6.5
\$35,000-\$39,999	---	---	---	5.0	5.8
\$40,000-\$49,999	---	---	---	6.7	8.3
\$50,000-\$59,999	---	---	---	5.1	6.1
\$60,000-\$74,999	---	---	---	4.7	7.1
\$75,000-\$89,999	---	---	---	3.5	6.8
\$90,000-\$109,999	---	---	---	---	---
\$110,000-\$129,999	---	---	---	4.3	8.0
\$130,000-\$149,999	---	---	---	---	---
\$150,000+	---	---	---	---	---

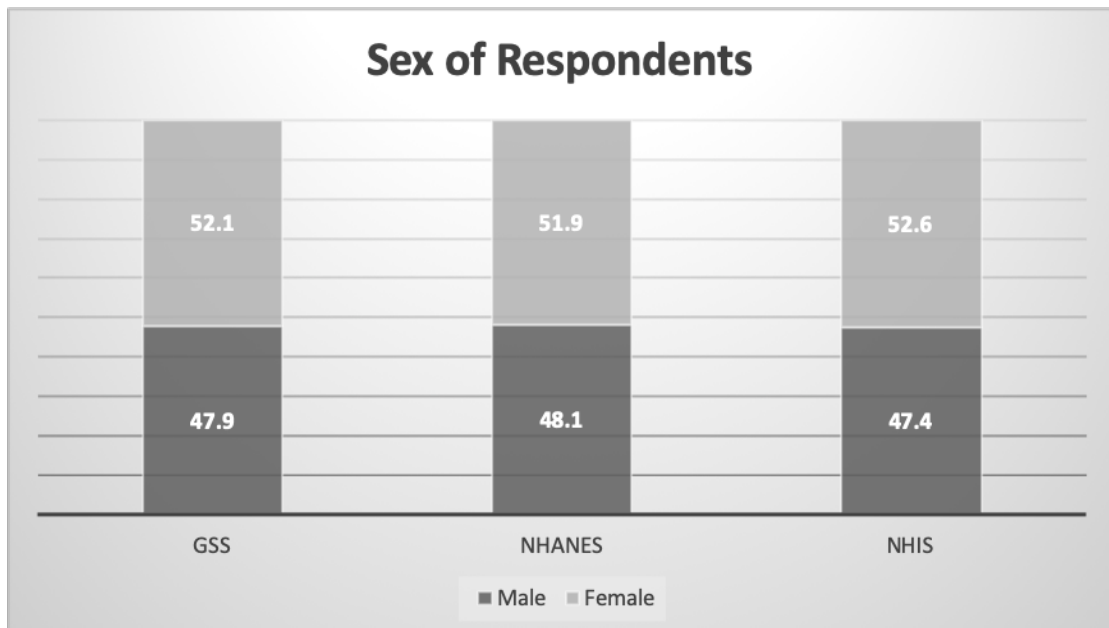
<sup>a</sup>The NHANES education level includes bachelor's degree and above.

<sup>b</sup>The NHANES survey does not ask a similar health question of respondents.

<sup>c</sup>Income ranges are placed in approximately similar categories.

## Control Variables

As highlighted in the literature review, statuses such as sex, age, and ethnicity and/or race may impact people's willingness to identify as a sexual minority, regardless of which questions we ask. Additionally, since these are all potentially statuses in which one could have a minority identity, they could be correlated with differences in life outcomes, vis a vi the dependent variables used in my dissertation. Therefore, I include these stratifying variables as controls in my analysis so that I can increase the certainty that any variation I find is due to sexual minority status.



**Figure 2 Percentage of Respondents in Sample Subsets by Sex**

Sex is operationalized as a nominal variable with response options of male or female in all of the included surveys. The NSFG has separate questionnaires for men and women, and the GSS, NHANES, and NHIS all have slightly more female respondents

than male, but the variance is fairly limited, as illustrated in Figure 2. Age is also operationalized in years in all five responses. The overall mean for the NSFG-M survey is youngest at approximately 32 years of age, which is very similar to the NSFG-F mean of 32.1 years. NHANES respondents have an overall mean age of 39.3 and the GSS (45.6) and NHIS have the oldest respondents with a mean age of 52 years (see Table 19).

**Table 19 Sample Subsets: Descriptive Statistics of Demographic Controls**

Variable	GSS	NHANES	NHIS	NSFG-F	NSFG-M
Data year	2018	2016	2017	2017	2017
Sample size	1,173	3,174	45,482	4,918	4,088
<i>Sex</i>					
Female	52.1	51.9	52.6	100.0	---
Male	47.9	48.1	47.4	---	100.0
<i>Age</i>					
Sample Age <sup>a</sup>	45.6	39.3	49.4	32.1	31.6
Female <sup>b</sup>	44.2	39.4	50.0	32.1	31.6
Male <sup>b</sup>	47.1	39.2	48.8	---	---
<i>Racial and/or Ethnic Minority</i>					
Yes	33.7	31.3	31.5	29.7	26.1
No <sup>c</sup>	66.3	68.8	68.5	70.3	73.9

<sup>a</sup>Mean age for all respondents.

<sup>b</sup>Sex specific mean age.

<sup>c</sup>Non-Hispanic white.

While race and ethnicity are important independent variables in their own right, I established in the literature review that most of the large-scale data we have on sexual

minority status is white-centric and has a bias issue. I decided therefore to treat race and ethnicity as one variable, with a minority response for either category identifying the respondent as an ethnic or racial minority member. This coding decision resulted in around 30 percent of my samples being identified as racial and/or ethnic minorities across the five surveys, which I hope will yield some interesting results in the final analyses.

Relationships between demographic variables have very real policy implications for nearly every issue in the current debates on the rights of sexual minorities (Gates and Ost 2004). In this chapter, I have outlined the sample sets which will be utilized in my dissertation and provided descriptive details of both the total response sets of the surveys and the specific response sets which will be the focus of my analyses.

In Chapter V, I will use Stata statistical software algorithms to ensure that the weights and sampling variances utilized in each survey method are correctly considered, using the survey suite of commands. Then I will analyze my hypotheses using appropriate statistical techniques to study the currently available national data on sexual minority status.

## CHAPTER V

### RESULTS AND ANALYSES

The last chapter (Chapter IV) provided descriptions of the full data sets for each survey I have included in this dissertation, as well as the subsets utilized in the analyses; the data are for all the respondents, not only those who provided responses to all the relevant variables under consideration. In this chapter I will now begin the demographic analysis of the data which will allow me to test my hypotheses presented at the end of Chapter III. Except where otherwise noted, data in this section utilize the Stata survey set suite of commands, which controls for the differential weighting and oversampling within the stratified sampling design used in each survey. Therefore, I will be able to report that my findings will be representative of the U.S. population as a whole.

#### **Hypothesis One**

My first hypothesis is that using more inclusive measures of sexuality will result in the identification of an increased proportion of sexual minority respondents compared to using only a single measure. To test this hypothesis, I created frequency charts for each of the five surveys which allowed me to analyze the number of respondents who would be identified as sexual minorities using the traditional coding scheme, including those who responded affirmatively as lesbian, gay, bisexual, or something else (LGB(S)) in the model compared to the number of respondents identified under my SM coding scheme, which includes lesbian, gay, bisexual, something else, questioning, and refused



to answer. Logically, the SM measures should identify more positive responses than the LGB measure.

I then built two sets of indices to identify participants across multiple measures of sexuality. The OR indices identify those respondents who responded affirmatively to one *or more* individual measure of sexuality – identity, behavior, and/or attraction. Then I built AND indices to identify respondents who responded affirmatively to multiple individual measures of sexuality. The AND indices provide a snapshot of the internal consistency of SM respondents in each survey. Logic again dictates that the OR indices should identify more respondents than the AND indices mainly because the requirements are less stringent. Of special interest, I want to compare the number of respondents identified by the SM individual measures and the SM OR indices to determine if the multiple measure indices identify larger percentages of the population as having a sexual minority status.

## GSS

In the GSS, almost 6.5 percent of the respondents identify as LGB(S), compared to more than 8 percent using the SM measure, which identifies 20 additional respondents as sexual minorities. The behavior responses are identical as the coding identifies people who have had same sex activity and those who have not, so LGB(S) responses cannot be distinguished from SM responses. Seven percent of respondents (82 people) report a sexual minority status based on behavior (see Table 20).

Since the measures used in the GSS to identify sexual minority individuals are separate measures, I decided to combine them and consider how many respondents would be identified by multiple measures and how many would be identified by one or

more measure. I thus created two indices to answer these questions. The SM-AND indices identify participants who responded affirmatively across multiple dimensions of sexuality.

**Table 20 GSS: Comparing Measures of Sexuality**

Sexuality Measures	Frequency	Percent
<i>Lesbian, Gay, Bisexual (Something Else) Individual Measures</i>		
Identity	74	6.4
Behavior	82	7.0
Attraction	---	---
<i>Sexual Minority Individual Measures</i>		
Identity	97	8.3
Behavior	82	7.0
Attraction	---	---
<i>Sexual Minority AND Indices</i>		
Identity and Behavior	61	5.2
Identity and Attraction	---	---
Attraction and Behavior	---	---
Identity and Attraction and Behavior	---	---
<i>Sexual Minority OR Indices</i>		
Identity and/or Behavior	118	10.1
Identity and/or Attraction	---	---
Attraction and/or Behavior	---	---
Identity and/or Attraction and/or Behavior	---	---

Therefore, the SM identity and behavior category includes respondents who identified as sexual minorities on both the identity and behavior individual measures, which turned out to be slightly more than five percent of the sample. As expected, this

index identifies fewer respondents than either of the individual measures, but it does show internal consistency for more than half the sexual minority respondents in the study.

The SM-OR index for Identity and/or Behavior by comparison reveals the number of respondents who answered affirmatively to the Identity question, or the behavior question, and also includes the respondents identified in the SM-AND above. This index provides the most inclusive result, with slightly more than 10 percent of the GSS respondents classified as sexual minorities based on one or more individual measure. Thus, the GSS data provide support for my first hypothesis that using more inclusive measures of sexual minority status will tend to identify more individuals than would individual measures alone.

## NHANES

In the NHANES, approximately seven percent of the sample is identified as LGB(S), and 12.6 percent identify as sexual minorities (see Table 21). Approximately eight percent of the sample, or 265 respondents reported sexual minority behavior, again with either the LGB(S) or SM classification scheme. The SM-AND index reveals that 4.5 percent of the respondents in the NHANES identified as sexual minorities and reported same sex sexual behavior. The SM-OR index, discussed previously as identifying respondents who indicated a sexual minority identity and/or a sexual minority behavior, resulted in 522 affirmative respondents, representing 16.5 percent of the sample.

The NHANES survey data also provide support for my first hypothesis that using more inclusive definitions will identify more sexual minority respondents than individual measures alone.

**Table 21 NHANES: Comparing Measures of Sexuality**

Sexuality Measures	Frequency	Percent
<i>Lesbian, Gay, Bisexual (Something Else) Individual Measures</i>		
Identity	203	6.8
Behavior	265	8.4
Attraction	---	---
<i>Sexual Minority Individual Measures</i>		
Identity	401	12.6
Behavior	265	8.4
Attraction	---	---
<i>Sexual Minority AND Indices</i>		
Identity and Behavior	144	4.5
Identity and Attraction	---	---
Attraction and Behavior	---	---
Identity and Attraction and Behavior	---	---
<i>Sexual Minority OR Indices</i>		
Identity and/or Behavior	522	16.5
Identity and/or Attraction	---	---
Attraction and/or Behavior	---	---
Identity and/or Attraction and/or Behavior	---	---

## NHIS

The NHIS collects only a single measure of sexuality, namely, self-identity (see Table 22). Therefore, no sexual indices can be created, and the only measure which can

be used to test hypotheses using NHIS data is that of sexual identity. Slightly more than three percent of the sample is identified using the LGB(S) standard, compared to four and a half percent of the sample using the SM standard. Once again, using more inclusive measures results in the identification of more sexual minority respondents.

**Table 22 NHIS: Comparing Measures of Sexuality**

Sexuality Measures	Frequency	Percent
<i>Lesbian, Gay, Bisexual (Something Else) Individual Measures</i>		
Identity	1,451	3.2
Behavior	---	---
Attraction	---	---
<i>Sexual Minority Individual Measures</i>		
Identity	2,037	4.5
Behavior	---	---
Attraction	---	---
<i>Sexual Minority AND Indices</i>		
Identity and Behavior	---	---
Identity and Attraction	---	---
Attraction and Behavior	---	---
Identity and Attraction and Behavior	---	---
<i>Sexual Minority OR Indices</i>		
Identity and/or Behavior	---	---
Identity and/or Attraction	---	---
Attraction and/or Behavior	---	---
Identity and/or Attraction and/or Behavior	---	---

NSFG-F

The NSFG-F illustrates the impact of including each layer of sexual minority measurement in a study (see Table 23). The LGB(S) measure identifies 11.4 percent of women as sexual minorities. The number of respondents who claimed a sexual minority identity using the SM measure is approximately 12 percent of the sample.

**Table 23 NSFG-F: Comparing Measures of Sexuality**

Sexuality Measures	Frequency	Percent
<i>Lesbian, Gay, Bisexual (Something Else) Individual Measures</i>		
Identity ( <i>n</i> =4,892)	559	11.4
Behavior	983	20.0
Attraction ( <i>n</i> =4,835)	1,045	21.6
<i>Sexual Minority Individual Measures</i>		
Identity	585	11.9
Behavior	983	20.0
Attraction	1,128	22.9
<i>Sexual Minority AND Indices</i>		
Identity and Behavior	442	9.0
Identity and Attraction	541	11.0
Attraction and Behavior	670	13.6
Identity and Attraction and Behavior	435	8.9
<i>Sexual Minority OR Indices</i>		
Identity and/or Behavior	1,126	22.9
Identity and/or Attraction	1,172	23.8
Attraction and/or Behavior	1,441	29.3
Identity and/or Attraction and/or Behavior	1,478	30.0

These results are consistent with the findings in the literature that fewer people identify as sexual minorities than indicate sexual minority responses on other measurement variables (Bogaert 2013; Durso and Gates 2013; Poston and Chang 2015).

Sexual minority behavioral responses are nearly twice as common, with 983 respondents, a full 20 percent of the women sampled reporting they had engaged in sexual minority behavior. Sexual Minority attraction is even more common with approximately 22 (LGB(S)) to 23 (SM) percent of the sample responding affirmatively. Clearly, when using only one measure of sexuality, the size of the identified population varies and may be underreported depending on the variable chosen to report. The results of the full complement of sexual minority indices can be created using the trifecta of questions asked in the NSFG-F.

The variance in the sizes of the population in each measure is in part due to the established pattern of people with sexual minority statuses responding less consistently across measures of sexuality than people who are straight (Bogaert 2013; Gates 2011). The SM-AND measures identify between nine and 13.6 percent of the sexual minority population respond affirmatively to one or more measure of sexuality. By comparison, the SM-OR measures show that between 23 and 29 percent of women are responding affirmatively to one or more measure of sexual minority status. The most inclusive measure, the “trifecta” of sexuality according to sociologists (Durso and Gates 2013; Laumann et al. 2016; Michaels 2013), identified 30 percent of the women in the NSFG-F as having a sexual minority status on one or more measure of sexuality. The NSFG-F data clearly illustrate support for my first hypothesis.

NSFG-M

The NSFG-M includes the same three sexual minority variables as the NSFG-F and its data provide similar results, although with smaller overall numbers. This is again consistent with the literature that women are more likely than men to report same sex sexual behavior and attraction (Durso and Gates 2013).

**Table 24 NSFG-M: Comparing Measures of Sexuality**

Sexuality Measures	Frequency	Percent
<i>Lesbian, Gay, Bisexual (Something Else) Individual Measures</i>		
Identity	265	6.5
Behavior	302	7.4
Attraction	368	9.1
<i>Sexual Minority Individual Measures</i>		
Identity	287	7.0
Behavior	302	7.4
Attraction	414	10.1
<i>Sexual Minority AND Indices</i>		
Identity and Behavior	191	4.7
Identity and Attraction	250	6.1
Attraction and Behavior	225	5.5
Identity and Attraction and Behavior	188	4.6
<i>Sexual Minority OR Indices</i>		
Identity and/or Behavior	398	9.7
Identity and/or Attraction	451	11.0
Attraction and/or Behavior	491	12.0
Identity and/or Attraction and/or Behavior	525	12.8



Using single measures, about seven percent of the sample reported a sexual minority identity using either the LGB(S) or SM standard (see Table 24). The behavioral question identified about 7.5 percent of the sample as sexual minorities. The sexual minority attraction question again identified the largest sample based on a single measure; 9 percent of men in the LGB(S) model and 10.1 percent in the SM model, reported sexual minority attraction.

The indices, or inclusive measures, once again show the importance of measuring sexual minority status in a multitude of ways, to provide the most accurate results for people who report one or more sexual minority status(es).

The SM-AND indices report that between four and six percent of men are sexual minorities based on affirmative responses to more than one individual measure of sexuality. The SM-OR indices vary from 9.7 to 12.8 percent of the men sampled who are identified as sexual minorities by one or more individual measure of sexuality. Again, data from the NSFG-M show support for my first hypothesis.

As shown in Table 25, four of the five surveys analyzed show that using more inclusive measures of sexual minority status results in the identification of more of the sexual minority population than any single measure alone. The lone exception in the table is the NHIS because it includes only one measure of sexuality and therefore no indices of multiple responses can be created. However, the comparison of the LGB(S) and SM definitions of identity did show that the more inclusive SM definition identified more respondents.

**Table 25 Sexual Minority Measures Across Five Nationally Representative Surveys**

Independent Variable	GSS	NHANES	NHIS	NSFG-F	NSFG-M
<i>SM Individual Measures</i>					
Identity	8.3	12.6	4.5	11.9	7.0
Behavior	7.0	8.4	---	20.0	7.4
Attraction	---	---	---	22.9	10.1
<i>Sexual Minority OR Indices</i>					
Identity and/or Behavior	10.1	16.5	---	22.9	9.7
Identity and/or Attraction	---	---	---	23.8	11.0
Attraction and/or Behavior	---	---	---	29.3	12.0
Identity, Attraction and/or Behavior	---	---	---	30.0	12.8

## Hypothesis Two

My second hypothesis is that sexual minorities, compared to members of the sexual majority, will have different outcomes on my dependent variables of education, health, income, and the presence of children in the household.

To test this hypothesis, I estimated regression equations to determine whether sexual minority status is associated with statistically significant changes in the dependent variables. Importantly, while I am suggesting that sexual minority status is associated with the resulting change, I am not positing a causal relationship but a correlational one.

While OLS regression is the most commonly used type of regression, mainly because of its relative ease of interpretation and straight forward results, it assumes that the error terms are normally distributed and that the dependent variable is linear. My dependent variables do not any meet these assumptions. The presence of children in the household is a dichotomous variable, with only two outcomes, in this case yes and no. My other dependent variables are ordinal, meaning there is an order to the responses, but

the distances from one response to the other are not always the same. The health question, for example, asks respondents to rank their health as excellent, good, fair, or poor. Clearly, “excellent” health is better than “good” health, but the distance between “excellent” and “good” need not necessarily be the same as the distance between “good” and “fair.”

The theoretically appropriate form of regression analysis for ordinal dependent variables is ordered logistic regression, and the appropriate form for a binary dependent variable is logistic regression. Because of the increased complexity and difficulty interpreting ordered logit models Trieman (2009:353) suggests treating the dependent variables as if they were continuous and estimating both linear and logistic regression models. If the results are significantly similar, he prefers reporting the linear model results. I will follow his suggestion and test the second hypothesis using both linear and logistic regression models.

## GSS

Using ordered logistic regression, in the GSS, for those identifying as a sexual minority, the predicted log odds of increasing education are 0.3 lower than respondents who identified as straight, all else equal, but the relationship is not significant. The linear regression coefficient reveals that identifying as a sexual minority is associated with an average decrease in the education level of 0.16, but this relationship is not statistically significant either (see Table 26).

**Table 26 GSS: Comparison of Ordered Logistic and OLS Regression Coefficients on Sexual Minority Status Models**

	Education		Children		Health		Income	
	Ologit	OLS	Logit	OLS	Ologit	OLS	Ologit	OLS
<i>Individual Measures</i>	b	b	b	b	b	b	b	b
Sexual Minority Identity	-0.30	-0.16	0.11	0.95	---	---	---	---
Sexual Minority Behavior	-0.08	-0.05	-0.35	0.16	---	---	---	---
Sexual Minority Attraction	---	---	---	---	---	---	---	---

\*p<.05; \*\*p<.01; \*\*\*p<.001

**Table 27 NHANES: Comparison of Ordered Logistic and OLS Regression Coefficients on Sexual Minority Status Models**

	Education		Children		Health		Income	
	Ologit	OLS	Logit	OLS	Ologit	OLS	Ologit	OLS
<i>Individual Measures</i>	b	b	b	b	b	b	b	b
Sexual Minority Identity	-0.69***	-0.40***	-0.39	-0.10	0.40*	0.16*	---	---
Sexual Minority Behavior	0.01	0.05	-0.54**	-0.13**	0.11	0.06	---	---
Sexual Minority Attraction	---	---	---	---	---	---	---	---

\*p<.05; \*\*p<.01; \*\*\*p<.001

The remainder of the relationships between sexual minority status and the level of education or presence of children in the household are not statistically significant; this may relate to the small sample size of respondents with complete data. In the GSS, I fail to support my hypothesis that sexual minority status is associated with any of my dependent variables.

## NHANES

In the NHANES, other things being equal, the log odds of education for those who identify as a sexual minority are 0.69 lower compared to those who identify as straight ( $p < .001$ ). Similarly, the linear regression shows that identifying as a sexual minority is associated with a 0.40 decrease in average education ( $p < .001$ ) compared to those who identify as straight. Reporting sexual minority behavior is not significantly related to level of education using logit or OLS regression in the NHANES.

As shown in Table 27, while there are no real discrepancies between the linear and logistic regression models in terms of the significance levels or directions of relationships, the coefficient values are quite different.

In the NHANES, sexual minority behavior is significantly related to sharing a residence with children but reporting a sexual minority identity is not. The logistic regression shows that, all else equal, reporting sexual minority behavior is associated with a 0.54 decrease in the log odds of living with children ( $p < .01$ ), The linear regression shows a decrease of 0.13 in the average of living with children ( $p < .01$ ). In this case, the independent and dependent variables are both binary, making interpreting the results in a meaningful way particularly challenging. Therefore, I will transform these logistic coefficients into percent change in the odds ratio.

First, I use the following equations to change the coefficients into odds ratios:

$$\text{Identity (Education)} = e^{-0.6862543} = \Omega = \mathbf{0.503}.$$

$$\text{Identity (Health)} = e^{0.4001347} = \Omega = \mathbf{1.492}.$$

$$\text{Behavior (Children)} = e^{-0.5412039} = \Omega = \mathbf{0.582}.$$

I then transform the odds ratios into percent change in the odds ratio according to these formulas:

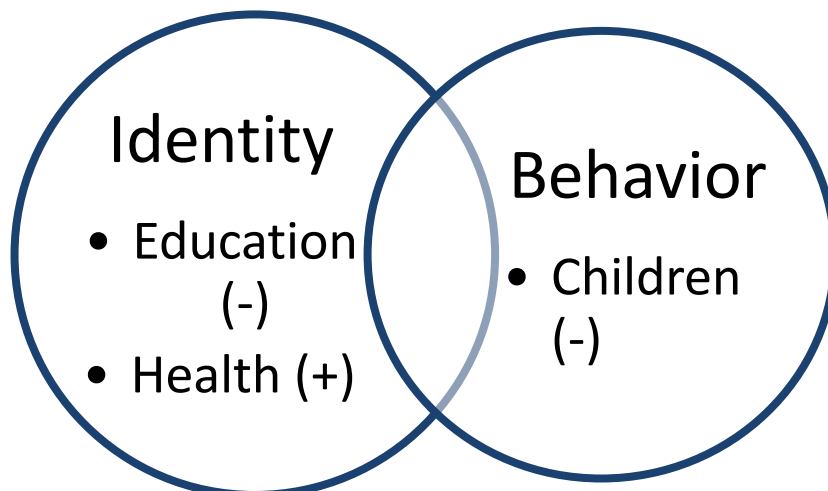
$$\text{Identity (Education)} = (.503-1) * 100 = \mathbf{-49.7}.$$

$$\text{Identity (Health)} = (1.492-1) * 100 = \mathbf{49.2}.$$

$$\text{Behavior (Children)} = (.582-1) * 100 = \mathbf{-41.8}.$$

The ordered logistic results can now be interpreted with greater intuitive understanding.

Using odds ratios, I can say that for people who identify as a sexual minority, the odds of having a higher level of education decrease by about 50 percent, compared to people who identify as straight, all else constant, and this difference is statistically significant ( $p < .01$ ).



**Figure 3 NHANES: Venn Diagram of Significant Logistic Regression Equations**

Sexual minority identity appears to be good for your health, at least in the NHANES (see Figure 3). Respondents who self-identify as sexual minorities have odds that are 49 percent higher of having higher health ratings, compared to people who are straight. Finally, those who report engaging in sexual minority behavior decrease their odds of sharing a residence with children by 42 percent, compared to respondents who report engaging in only straight sexual behavior. The results of the NHANES thus shows support for my second hypothesis that a sexual minority status has a statistically significant impact on several life outcomes and continues the trend of illustrating that results from logistic regression are indeed a better fit for my data when compared to linear regression.

## NHIS

The NHIS provides a measurement of the relationship between sexual minority identity and the dependent variables of education level, sharing a residence with children, and general health rating. Neither the results from an ordered logistic regression equation or a linear regression equation show a significant relationship between identifying as a sexual minority and the level of education one receives.

Table 28 shows the logistic (and linear) regression results for the impact of sexual minority status on the dependent variables. Using the equations presented earlier, I had Stata transform the coefficients into percent change in the odds.

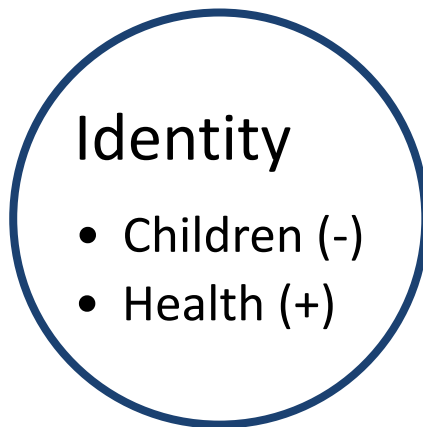
**Table 28 NHIS: Comparison of Ordered Logistic and OLS Regression Coefficients on Sexual Minority Status Models**

	Education		Children		Health	
	Ologit	OLS	Logit	OLS	Ologit	OLS
<i>Individual Measures</i>	b	b	b	b	b	b
Sexual Minority Identity	0.09	0.06	-0.72***	-0.14***	0.29***	0.12***
Sexual Minority Behavior	---	---	---	---	---	---
Sexual Minority Attraction	---	---	---	---	---	---

\*p<.05; \*\*p<.01; \*\*\*p<.001



My results indicate that identifying as a sexual minority is associated with a 51 percent decrease in the odds of having children reside in the household, compared to respondents who identify as straight, all else equal ( $p < .001$ ). Identifying as a sexual minority in the NHANES is associated with a 33 percent increase in the odds of general health. As illustrated in Figure 4, the odds of living with children and general health rating are both impacted by sexual minority identity.



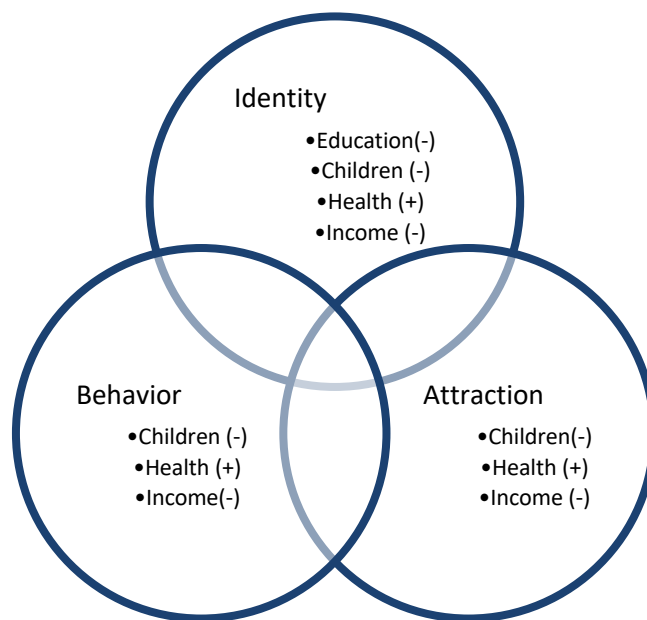
**Figure 4 NHIS: Venn Diagram of Significant Logistic Regression Equations**

NSFG-F

The NSFG-F, with its full complement of the trifecta of sexuality variables allows me to more fully analyze and understand the relationships between sexual minority status and life outcomes (see Figure 5). For women who identify as a sexual minority, the log odds of having a higher educational level decrease by 0.59, compared to straight women, and this difference is significant ( $p < .001$ ). The NSFG-F logit coefficients also show that identifying as a sexual minority, reporting sexual minority behavior, and reporting sexual minority attraction are all associated with a statistically

significant decrease in the log odds of a woman sharing her home with children, relative to women who reported they were straight on each measure ( $p < .001$ ), all else equal.

When I use data from the NSFG-F to measure women's health, the regression coefficient results show different outcomes based on the form of regression used. The level of statistical significance of the findings is different, with the ordered logistic regression results having a p value of .001 and the linear regression results having a significance of .01.



**Figure 5 NSFG-F: Venn Diagram of Significant Logistic Regression Equations**

Regarding levels of perceived health, identifying as a sexual minority is associated with an increase of 0.60 in the log odds of higher health, compared to straight women, all else equal (see Table 29). This relationship is strongly significant in the ordered logistic model ( $p < .001$ ).

**Table 29 NSFG-F: Comparison of Ordered Logistic and OLS Regression Coefficients on Sexual Minority Status Models**

	Education		Children		Health		Income	
	Ologit	OLS	Logit	OLS	Ologit	OLS	Ologit	OLS
<i>Individual Measures</i>	b	b	b	b	b	b	b	b
Sexual Minority Identity	-0.59***	-0.37***	-0.62***	-0.15***	0.60***	0.22**	-0.44**	-0.11
Sexual Minority Behavior	-0.10	-0.07	-0.43***	-0.11***	0.49***	0.18***	-0.29**	-3.11***
Sexual Minority Attraction	-0.11	-0.07	-0.83***	-0.20***	0.40**	0.14**	-0.29**	-2.06**

\*p<.05; \*\*p<.01; \*\*\*p<.001

**Table 30 NSFG-M: Comparison of Ordered Logistic and OLS Regression Coefficients on Sexual Minority Status**

	Education		Children		Health		Income	
	Ologit	OLS	Logit	OLS	Ologit	OLS	Ologit	OLS
<i>Individual Measures</i>	b	b	b	b	b	b	b	b
Sexual Minority Identity	-0.02	-0.13	-1.23***	-0.24***	0.12	0.07	-0.46**	0.46
Sexual Minority Behavior	0.51***	0.33***	-1.00***	-0.21***	0.15	0.08	-0.22	-1.95*
Sexual Minority Attraction	0.12	0.08	-1.49***	-.028***	0.16	0.07	-0.54***	-1.01

\*p<.05; \*\*p<.01; \*\*\*p<.001

In comparison, the linear regression shows that identifying as a sexual minority is associated with an average increase of 0.22 in health, but the relationship is less significant than in the ordered logistic model ( $p < .01$ ). Besides the magnitude of the relationships being consistently stronger in the (ordered) logistic models than the linear regression models, this difference in significance levels is an indicator that linear regression may not be an appropriate method to use for the analyses in my dissertation, a point made by Treiman which I noted earlier.

Sexual minority sexual behavior and sexual minority attraction are associated with an increase of 0.49 and 0.40 in the log odds of health, respectively, and are strongly significant ( $p < .001$ ,  $p < .01$ ), compared to straight women, all else equal. The coefficients in the linear regressions indicate an average increase of 0.18 ( $p < .001$ ) in health for women with sexual minority behavior, and an average 0.14 increase ( $p < .01$ ) for women with sexual minority attraction, compared to straight women, all else being equal.

Explained another way, for women in the NSFG-F, identifying as a sexual minority is associated with an 81 percent increase in the odds of having better health, compared to straight women, all else equal. For sexual minority women, identified by behavior, the odds of having better health increase by 64 percent, compared to straight women. Women with a sexual minority attraction have a 48 percent increase in the odds of higher health, compared to straight women. Thus, the NSFG-F shows a substantial increase in women's health for sexual minorities compared to women who are straight, which is the opposite of what is generally found in the literature (Bogaert 2004; Galupo et al. 2014; Herek, Chopp, and Strohl 2007; Smalley, Warren, and Barefoot 2018). It is possible that sexual minority women take better care of their health because both

partners are women. According to the literature for straight, i.e., heterosexual couples, the woman is generally the partner to monitor the health of their mate and is the reason men who are married have higher health when compared to men who are single (Diamond 2015; Laurent 2005; Siordia 2014; Visser et al. 2010).

Analyses of the impacts of the independent variables on the categories of individual income differ considerably if I estimate OLS equations rather than logistic regression equations. The linear regression results show that sexual minority status, by identification, behavior, or sexual attraction, are all associated with decreases in individual income compared to straight women, but the significance level and the strength of the relationship varies by the independent variable chosen. The ordered logistic regression analyses show that identifying as a sexual minority is associated with a decrease of 0.44 in the log odds of individual income ( $p < .01$ ), compared to straight women. For sexual minority women identified by behavior, there is a decrease of 0.29 in the log odds of individual income ( $p < .01$ ), all else equal. And for women who report a sexual minority attraction, there is a decrease of 0.29 in the log odds of individual income ( $p < .01$ ) when compared to straight women, all else equal.

These findings illustrate the importance of testing both the most commonly used and the most theoretically appropriate statistical models in analyses. When using the proper model, the NSFG-F predicts a significant earnings penalty for sexual minority women compared to straight women. Based on the regression analyses for the NSFG-F, I find support for my second hypothesis that sexual minority status does have a significant impact on life outcomes including levels of education, whether there are children present in the household, the respondent's perceptions of their general health and the individual

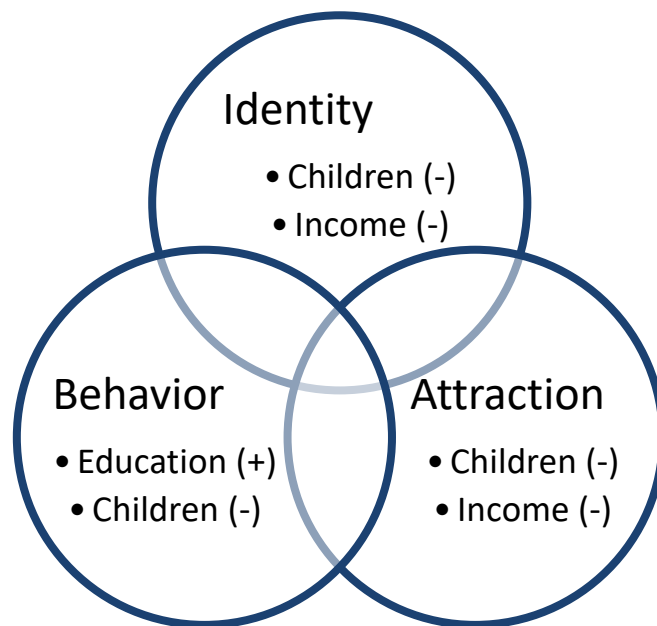
income of the respondent using one or more independent measures of sexual minority status.

#### NSFG-M

As shown in Table 30, in the NSFG-M the individual measures for sexual minority identity and sexual minority attraction are not significantly related to the level of education reported, based on both the ordered logistic and ordinary least squares model of regression. Sexual minority behavior, on its own, is associated with an increase of .51 in the log odds of higher education ( $p < .001$ ). Similarly, sexual minority behavior is associated with a .33 increase in average education level ( $p < 0.01$ ) according to the linear regression model. When I exponentiate the ordered logistic regression coefficients, the odds ratio is 1.653, meaning that engaging in sexual minority behavior is associated with a 65 percent increase in the odds of an increase in education, compared to straight respondents, all else equal.

Identifying as a sexual minority is associated with a logistic coefficient of -1.23, or a decrease of 1.23 in the log odds sharing a household with children, and this relationship is strongly significant ( $p < .001$ ). This translates to an odds ratio of 0.30; for men, identifying as a sexual minority is associated with a 70 percent decrease in the odds of having children present in the household, compared to men who are straight. The linear regression coefficient may be interpreted as meaning that men who claim a sexual minority identity are not as likely to have children living in their household, and this relationship is strongly significant ( $p < .001$ ). While both models have similar significance levels, there is a difference in the magnitude of the impact.

For men in the NSFG-M, identifying as a sexual minority, reporting sexual minority behavior, and/or having a sexual minority attraction are not significantly related to general health. However, the regression analyses for the impact of sexual minority status on income show differences in the logit and linear regression results. Men who identify as sexual minorities have a decrease of 0.44 in the log odds of their income, compared to men who identify as straight, and this difference is significant ( $p < .01$ ). Sexual minority behavior is not related to income for males in the NSFG, but sexual minority attraction is associated with a 0.54 decrease in the log odds of income, all else equal (see Figure 6).



**Figure 6 NSFG-M: Venn Diagram of Significant Logistic Regression Equations**

The linear regression results indicate that sexual minority identity and attraction are not associated with income, but that sexual minority behavior is associated with a 1.95 decrease in the average of income, and the relationship is significant ( $p < .05$ ). I can

conclude there is support for my hypothesis that sexual minority status affects demographic outcome variables, with the exception of general health in the NSFG-M.

While ordered logistic regression results are not as easily interpreted as results from OLS models, my analyses show that the logistic regression models are preferred. Treiman (2009:353) suggests that if the regression models reveal results that are sufficiently different to affect the inferences you make, you should use the ordered logistic models because they do “not assume that the categories [of the dependent variable] are equidistant” or that the dependent variables are linearly related to the independent variables.

**Table 31 Sexual Minority Status Relationships to Dependent Variables Across Five Nationally Representative Surveys**

Independent Variable	Education	Children	Health	Income
<i>SM Individual Measures</i>				
Identity	NHANES (-) NSFG-F (-)	NHIS (-) NSFG-F (-) NSFG-M (-)	NHANES (+) NHIS (+) NSFG-F (+)	NSFG-F (-) NSFG-M (-)
Behavior	NSFG-M (+)	NHANES (-) NSFG-F (-) NSFG-M (-)	NSFG-F (+)	NSFG-F (-)
Attraction		NSFG-F (-) NSFG-M (-)	NSFG-F (+)	NSFG-F (-) NSFG-M (-)



In other words, I conclude that the ordered logistic regression is the appropriate method to use for this research and will use this technique for the remainder of my regression analyses. Table 31 provides a concise summary of the significant relationships between the individual sexual minority measures and the dependent variables across all five nationally representative surveys in this dissertation.

### **Hypothesis Three**

My third hypothesis is that using the more inclusive indices created by combining multiple individual measures of sexual minority status will better predict outcomes on the dependent variables than using behavior, self-identity, or sexual attraction alone. Through the creation of these more inclusive indices, I will conceptualize the measurement of sexual minority status as nested models. I will examine the main effects of the individual measures, as nested models of the secondary effects created by combining the models into two-way effects, and finally, by comparing the triple model with all three measures and their interaction effects.

Conceptualizing the measurement of sexual minority status this way allows me estimate likelihood ratio tests on each level of the nested model to test for significance and allows me to include both the Akaike's Information Criteria (AIC) and Bayesian Information Criterion (BIC) valuations of fit, which penalize additional variables (preferring parsimony in the model) and correcting for the large sample sizes in my models. The BIC applies a larger penalty for additional variables, so if these two values disagree, the smallest BIC value will be deemed the best model. In this way, these likelihood ratio tests and goodness of fit models will provide a more definitive statistical

answer for which set of effects has the most impact on my dependent variables in each model.

## GSS

The GSS has two individual level measures of sexual minority status, which means there is only one two-way interaction effect - that of sexual minority identity and behavior. As shown in Table 32, neither likelihood ratio test is significant and none of the independent measures have a significant impact on education. This is consistent with the results on education from the GSS thus far and indicate that none of the selected models play a significant role in explaining the level of education respondents receive.

**Table 32 GSS: Likelihood Ratio Tests of Sexual Minority Status Models on Education**

	Education		Significance
	Model 1	Model 2	
<i>Main Effects</i>	b <sub>1</sub>	b <sub>2</sub>	lrtest
Sexual Minority (SM) Identity	-0.342	-0.288	z test
Sexual Minority (SM) Behavior	0.068	0.136	z test
<i>Two Way Interaction Effects</i>			lrtest
SM Identity and Behavior		-0.146	z test
BIC	3232	3239	
AIC	3202	3204	

\*p<.05; \*\*p<.01; \*\*\*p<.001

<sup>a</sup>Model 1 tests the main effects of the individual variables of the nested model.

<sup>b</sup>Model 2 compares the two-way interaction effects to the main effects of each term.

The results in Table 33 however, provides the first significant relationship between a sexual minority measure and a dependent variable in the GSS. Both the BIC and AIC results indicate that Model 1 is the preferred model; this means that the main effects of the individual model have the most impact on whether there are children present in the household. Specifically, sexual minority identity is associated with a slight increase in the likelihood of sharing a residence with children. I can therefore conclude that the main effects model is the most effective model for this question.

**Table 33 GSS: Likelihood Ratio Tests of Sexual Minority Status Models on Household**

	Household		Significance
	Model 1	Model 2	
<i>Main Effects</i>	b <sub>1</sub>	b <sub>2</sub>	lrtest*
Sexual Minority (SM) Identity	0.503*	0.519	z test
Sexual Minority (SM) Behavior	-0.060	-0.037	z test
<i>Two Way Interaction Effects</i>			lrtest
SM Identity and Behavior		-0.046	z test
BIC	4508	4515	
AIC	4442	4444	

\*p<.05; \*\*p<.01; \*\*\*p<.001

<sup>a</sup>Model 1 tests the main effects of the individual variables of the nested model.

<sup>b</sup>Model 2 compares the two-way interaction effects to the main effects of each term.

## NHANES

The NHANES also provides two individual level measurement items for sexual minority status, and one two-way interaction effect for sexual minority identity and behavior. In the NHANES likelihood ratio test for education, both the BIC and the AIC indicate that the second model with the two-way interaction effects is the preferred model (see Table 34). The interaction between sexual minority identity and behavior provides the best fit for the impacts on education.

**Table 34 NHANES: Likelihood Ratio Tests of Sexual Minority Status Models on Education**

	Education		Significance
	Model 1	Model 2	
<i>Main Effects</i>	<i>b</i> <sub>1</sub>	<i>b</i> <sub>2</sub>	lrtest*
Sexual Minority (SM) Identity	-1.308***	-1.868***	z test
Sexual Minority (SM) Behavior	0.869***	-0.047	z test
<i>Two Way Interaction Effects</i>			lrtest*
SM Identity and Behavior		2.127***	z test
BIC	8580	8516	
AIC	8550	8480	

\*p<.05; \*\*p<.01; \*\*\*p<.001

<sup>a</sup>Model 1 tests the main effects of the individual variables of the nested model.

<sup>b</sup>Model 2 compares the two-way interaction effects to the main effects of each term.

Table 35 presents the results from the likelihood ratio tests of sexual minority status models on the presence of children in the household. In this case, the BIC is identical for both models, so I turn to the AIC to determine the best fit.

**Table 35 NHANES: Likelihood Ratio Tests of Sexual Minority Status Models on Household**

	Household		Significance
	Model 1	Model 2	
<i>Main Effects</i>	b <sub>1</sub>	b <sub>2</sub>	lrtest*
Sexual Minority (SM) Identity	0.084	0.267*	z test
Sexual Minority (SM) Behavior	-0.640***	-0.284	z test
<i>Two Way Interaction Effects</i>			lrtest*
SM Identity and Behavior		-0.821**	z test
BIC	4356	4356	
AIC	4338	4332	

\*p<.05; \*\*p<.01; \*\*\*p<.001

<sup>a</sup>Model 1 tests the main effects of the individual variables of the nested model.

<sup>b</sup>Model 2 compares the two-way interaction effects to the main effects of each term.

The second model has a smaller AIC value. Therefore, once again, I conclude that the two-way interaction effects of sexual minority identity and sexual minority behavior best explain the impact of sexual minority status on the presences of children in the household. The NHANES likelihood ratio test for rating of general health shows the same results as the prior models. The two-way interaction model provides a better fit for the rating on general health than the main effects of the individual variables (see Table 36).

**Table 36 NHANES: Likelihood Ratio Tests of Sexual Minority Status Models on General Health**

	Health		Significance
	Model 1	Model 2	
<i>Main Effects</i>	b <sub>1</sub>	b <sub>2</sub>	lrtest*
Sexual Minority (SM) Identity	0.500***	0.696***	z test
Sexual Minority (SM) Behavior	-0.118	0.300	z test
<i>Two Way Interaction Effects</i>			lrtest*
SM Identity and Behavior		-0.923***	z test
BIC	7349	7345	
AIC	7319	7308	

\*p<.05; \*\*p<.01; \*\*\*p<.001

<sup>a</sup>Model 1 tests the main effects of the individual variables of the nested model.

<sup>b</sup>Model 2 compares the two-way interaction effects to the main effects of each term.

## NHIS

Since there is only one measure of sexual minority status in the NHIS, there are no interaction terms to test and no likelihood ratio tests can be completed.

## NSFG-F

In the NSFG-F the likelihood ratio tests are estimated on the three levels of nested models. The triple interaction effect considers the interaction of measures for sexual minority identity, behavior, and attraction. The two-way effects consider the interactions of two individual measures as a time, and the main effects consider the impact of each independent variable on the dependent variable.

**Table 37 NSFG-F: Likelihood Ratio Tests of Sexual Minority Status Models on Education**

	Education			Sign.
	Model 1	Model 2	Model 3	
<i>Main Effects</i>	b <sub>1</sub>	b <sub>2</sub>	b <sub>3</sub>	lrtest*
Sexual Minority (SM) Identity	-0.757***	-1.641***	1.574***	z test
Sexual Minority (SM) Behavior	0.094	-0.012	-0.004	z test
Sexual Minority (SM) Attraction	0.230**	0.214*	0.222*	z test
<i>Two Way Interaction Effects</i>				lrtest*
SM Identity and Behavior		0.577**	0.146	z test
SM Identity and Attraction		0.580	0.485	z test
SM Behavior and Attraction		-0.028	-0.051	z test
<i>Triple Interaction Effects</i>				lrtest
SM Identity, Behavior, and Attraction			0.484	z test
BIC	15157	15166	15174	
AIC	15112	15101	15102	

\*p<.05; \*\*p<.01; \*\*\*p<.001

<sup>a</sup>Model 1 tests the main effects of the individual variables of the nested model.

<sup>b</sup>Model 2 compares the two-way interaction effects to the main effects of each term.

<sup>c</sup>Model 3 tests the triple interaction effect of all three terms, the two-way interaction effects, and the main effects of each term.

An examination of the interaction effects of the individual sexual minority measures and the interaction effects reveals that for education, the main effects of the individual measures have the most impact on the dependent variable. Having a sexual minority identity is associated with a negative impact on the level of education completed, and this difference is statistically significant (see Table 37). Reporting a sexual minority attraction is positively associated with the level of education completed, significantly so. Reporting sexual minority behavior is not significantly related to the

level of education completed. While the likelihood ratio tests for the two-way interaction models do show a significant relationship, an examination of the combined terms identifies only the identity and behavior combination as significantly related, providing an indication that behavior mitigates the negative effect of sexual minority identity.

**Table 38 NSFG-F: Likelihood Ratio Tests of Sexual Minority Status Models on Household**

	Household			Sign.
	Model 1	Model 2	Model 3	
<i>Main Effects</i>	b <sub>1</sub>	b <sub>2</sub>	b <sub>3</sub>	lrtest*
Sexual Minority (SM) Identity	-0.324**	1.020**	1.379**	z test
Sexual Minority (SM) Behavior	0.071	-0.016	0.013	z test
Sexual Minority (SM) Attraction	-0.574***	-0.610***	-0.584***	z test
<i>Two Way Interaction Effects</i>				lrtest*
SM Identity and Behavior		-0.343	-1.943*	z test
SM Identity and Attraction		-1.382***	-1.852***	z test
SM Behavior and Attraction		0.403*	0.316	z test
<i>Triple Interaction Effects</i>				lrtest
SM Identity, Behavior, and Attraction			1.77	z test
BIC	6726	6730	6735	
AIC	6700	6684	6683	

\*p<.05; \*\*p<.01; \*\*\*p<.001

<sup>a</sup>Model 1 tests the main effects of the individual variables of the nested model.

<sup>b</sup>Model 2 compares the two-way interaction effects to the main effects of each term.

<sup>c</sup>Model 3 tests the triple interaction effect of all three terms, the two-way interaction effects, and the main effects of each term.



However, none of the other two-way interactions offer significant improvements over the main effects, and the triple interaction effect is not significant. I therefore conclude that the main effects of the individual measures have the most impact on the level of education obtained.

Table 38 examines the likelihood ratio test of the nested models on the presence of children residing in the household. The BIC analysis again shows that the first model, the main effects, is the best fit for the relationships of sexual minority status and sharing a residence with children in the NSFG-F. The likelihood ratio test for the second model is significant, but the BIC and AIC scores are higher, and the third level ratio test is not statistically significant. Sexual minority identity and sexual minority attraction are both negatively associated with sharing a residence with children, compared to respondents who indicate they are straight on both of these measures.

Moving on to an examination of the likelihood ratio tests of sexual minority status on ratings of general health, only the main effects model has a significant result (see Table 39). The BIC and AIC scores agree and confirm that model one is the best fit to explain this relationship. Identifying as a sexual minority and sexual minority behavior are both associated with gains in the rating of general health and these relationships are significant. The two-way interaction models and the triple effects model do not have significant results for the likelihood ratio test, so the addition of these terms does not improve the explanatory power of the model.

**Table 39 NSFG-F: Likelihood Ratio Tests of Sexual Minority Status Models on General Health**

	General Health			Sign.
	Model 1	Model 2	Model 3	
<i>Main Effects</i>	b <sub>1</sub>	b <sub>2</sub>	b <sub>3</sub>	lrtest*
Sexual Minority (SM) Identity	0.374**	0.176	0.272	z test
Sexual Minority (SM) Behavior	0.273**	0.417***	0.429**	z test
Sexual Minority (SM) Attraction	0.071	0.118	0.130	z test
<i>Two Way Interaction Effects</i>				lrtest
SM Identity and Behavior		-0.183	-0.846	z test
SM Identity and Attraction		0.301	0.167	z test
SM Behavior and Attraction		-0.250	-0.287	z test
<i>Triple Interaction Effects</i>				lrtest
SM Identity, Behavior, and Attraction			0.724	z test
BIC	9003	9024	9032	
AIC	8964	8965	8967	

\*p<.05; \*\*p<.01; \*\*\*p<.001

<sup>a</sup>Model 1 tests the main effects of the individual variables of the nested model.

<sup>b</sup>Model 2 compares the two-way interaction effects to the main effects of each term.

<sup>c</sup>Model 3 tests the triple interaction effect of all three terms, the two-way interaction effects, and the main effects of each term.

Table 40 shows the likelihood ratio tests for the NSFG-F comparing sexual minority status to models of income levels. While the likelihood ratio test is significant in the two-way model, the BIC indicates that the main effects model once again provides the best fit for explaining variance in the levels of income for people with sexual minority status.

**Table 40 NSFG-F: Likelihood Ratio Tests of Sexual Minority Status Models on Income**

	Income			Sign.
	Model 1	Model 2	Model 3	
<i>Main Effects</i>	b <sub>1</sub>	b <sub>2</sub>	b <sub>3</sub>	lrtest*
Sexual Minority (SM) Identity	-0.461***	-0.985**	-1.080**	z test
Sexual Minority (SM) Behavior	-0.108	-0.268**	-0.276**	z test
Sexual Minority (SM) Attraction	0.111	-0.042	-0.049	z test
<i>Two Way Interaction Effects</i>				lrtest*
SM Identity and Behavior		-0.227	0.314	z test
SM Identity and Attraction		0.671	0.794	z test
SM Behavior and Attraction		0.419*	0.441*	z test
<i>Triple Interaction Effects</i>				lrtest
SM Identity, Behavior, and Attraction			-0.583	z test
BIC	16918	16936	16944	
AIC	16834	16832	16833	

\*p<.05; \*\*p<.01; \*\*\*p<.001

<sup>a</sup>Model 1 tests the main effects of the individual variables of the nested model.

<sup>b</sup>Model 2 compares the two-way interaction effects to the main effects of each term.

<sup>c</sup>Model 3 tests the triple interaction effect of all three terms, the two-way interaction effects, and the main effects of each term.

#### NSFG-M

In the NSFG-M the likelihood ratio tests again include three nested models, the triple interaction effects, the two-way interaction effects, and the main effects.

Examining the relationship of sexual minority status on levels of education, the BIC results indicate the first model is the best fit and the main effects offer the most

parsimonious explanation for the variance in education related to sexual minority status (see Table 41).

**Table 41 NSFG-M: Likelihood Ratio Tests of Sexual Minority Status Models on Education**

	Education			Sign.
	Model 1	Model 2	Model 3	
<i>Main Effects</i>	b <sub>1</sub>	b <sub>2</sub>	b <sub>3</sub>	lrtest*
Sexual Minority (SM) Identity	-0.833***	-1.835***	-1.872***	z test
Sexual Minority (SM) Behavior	0.837***	0.550**	0.536**	z test
Sexual Minority (SM) Attraction	0.277*	0.239	0.230	z test
<i>Two Way Interaction Effects</i>				lrtest*
SM Identity and Behavior		1.242**	1.775	z test
SM Identity and Attraction		0.736	0.799	z test
SM Behavior and Attraction		-0.421	-0.371	z test
<i>Triple Interaction Effects</i>				lrtest
SM Identity, Behavior, and Attraction			-0.591	z test
BIC	12458	12461	12469	
AIC	12414	12398	12400	

\*p<.05; \*\*p<.01; \*\*\*p<.001

<sup>a</sup>Model 1 tests the main effects of the individual variables of the nested model.

<sup>b</sup>Model 2 compares the two-way interaction effects to the main effects of each term.

<sup>c</sup>Model 3 tests the triple interaction effect of all three terms, the two-way interaction effects, and the main effects of each term.

The likelihood ratio test of sexual minority status models on the likelihood of sharing a residence with children in the NSFG-M again reveals that the main effects are the best fit for the equation (see Table 42). It is possible that the NSFG-F and NSFG-M

reveal this clear pattern of preference for the main effect models in part because these surveys include three levels of individual measurement of sexual minority status – identity, behavior, and sexual attraction, and the other surveys only included one or two of the independent variables in their research.

**Table 42 NSFG-M: Likelihood Ratio Tests of Sexual Minority Status Models on Household**

	Household			Sign.
	Model 1	Model 2	Model 3	
<i>Main Effects</i>	b <sub>1</sub>	b <sub>2</sub>	b <sub>3</sub>	lrtest*
Sexual Minority (SM) Identity	-0.471*	0.065	-0.008	z test
Sexual Minority (SM) Behavior	-0.121	0.09	0.057	z test
Sexual Minority (SM) Attraction	-0.852***	0.803***	-0.833***	z test
<i>Two Way Interaction Effects</i>				lrtest
SM Identity and Behavior		-1.156*	-0.012	z test
SM Identity and Attraction		-0.248	-0.0778	z test
SM Behavior and Attraction		0.226	0.371	z test
<i>Triple Interaction Effects</i>				lrtest
SM Identity, Behavior, and Attraction			-1.367	z test
BIC	4984	5002	5010	
AIC	4959	4958	4959	

\*p<.05; \*\*p<.01; \*\*\*p<.001

<sup>a</sup>Model 1 tests the main effects of the individual variables of the nested model.

<sup>b</sup>Model 2 compares the two-way interaction effects to the main effects of each term.

<sup>c</sup>Model 3 tests the triple interaction effect of all three terms, the two-way interaction effects, and the main effects of each term.

**Table 43 NSFG-M: Likelihood Ratio Tests of Sexual Minority Status Models on General Health**

	General Health			Sign.
	Model 1	Model 2	Model 3	
<i>Main Effects</i>	b <sub>1</sub>	b <sub>2</sub>	b <sub>3</sub>	lrtest
Sexual Minority (SM) Identity	-0.150	0.511	0.283	z test
Sexual Minority (SM) Behavior	0.155	0.299	0.195	z test
Sexual Minority (SM) Attraction	0.176	0.364*	0.304	z test
<i>Two Way Interaction Effects</i>				lrtest
SM Identity and Behavior		0.293	2.481**	z test
SM Identity and Attraction		-1.028*	-0.603	z test
SM Behavior and Attraction		-0.320	0.036	z test
<i>Triple Interaction Effects</i>				lrtest*
SM Identity, Behavior, and Attraction			-2.622*	z test
BIC	6752	6771	6774	
AIC	6714	6714	6711	

\*p<.05; \*\*p<.01; \*\*\*p<.001

<sup>a</sup>Model 1 tests the main effects of the individual variables of the nested model.

<sup>b</sup>Model 2 compares the two-way interaction effects to the main effects of each term.

<sup>c</sup>Model 3 tests the triple interaction effect of all three terms, the two-way interaction effects, and the main effects of each term.

In an interesting turn of events, Table 43 presents the results of the likelihood ratio tests for sexual minority status and ratings of general health. While the BIC again indicates that the main effects model is the best fit for the data, none of the individual measures are significantly related to general health in the first model. In contrast, the AIC suggests that the triple interaction effects of model three offer the best fit for the data. An examination of the results, however, shows that the third model z-test and

likelihood ratio test are both statistically significantly related to general health. I thus conclude that in this case, the tertiary model is the preferred model.

**Table 44 NSFG-M: Likelihood Ratio Tests of Sexual Minority Status Models on Income**

	Income			Sign.
	Model 1	Model 2	Model 3	
<i>Main Effects</i>	b <sub>1</sub>	b <sub>2</sub>	b <sub>3</sub>	lrtest*
Sexual Minority (SM) Identity	-0.042	-0.415	-0.246	z test
Sexual Minority (SM) Behavior	0.175	-0.074	0.002	z test
Sexual Minority (SM) Attraction	-0.390**	-0.467**	-0.414**	z test
<i>Two Way Interaction Effects</i>				lrtest
SM Identity and Behavior		0.431	-14.356	z test
SM Identity and Attraction		0.217	-0.118	z test
SM Behavior and Attraction		0.181	-0.095	z test
<i>Triple Interaction Effects</i>				lrtest*
SM Identity, Behavior, and Attraction			15.132	z test
BIC	16383	16403	16405	
AIC	16301	16302	16297	

\*p<.05; \*\*p<.01; \*\*\*p<.001

<sup>a</sup>Model 1 tests the main effects of the individual variables of the nested model.

<sup>b</sup>Model 2 compares the two-way interaction effects to the main effects of each term.

<sup>c</sup>Model 3 tests the triple interaction effect of all three terms, the two-way interaction effects, and the main effects of each term.

Table 44 which tests the nested sexual minority models on income return to the pattern for the NSFG-M and the BIC indicates the main effects model is again the preferred model to consider the effects of sexual minority status on income.

My third hypothesis is that using more inclusive measures of sexual minority status, by creating indices which combine affirmative responses on more than one independent variable of sexuality, will tend to explain an increased proportion of the variance in levels of education, individual income, perception of general health, and the presence of children in the household, as applicable in the survey, when compared to behavior, the single measure most often used by demographers, or self-identification, the preferred single measure of sociologists, alone. The above analyses lend support to my third hypothesis that considering a combination of sexual minority indicators offers a better explanation for the resulting variance in my dependent variables than any individual measure alone.

#### **Hypotheses Four and Five**

My fourth and fifth hypotheses are sex specific predictions. For men, I hypothesized that reporting a sexual minority status will result in different outcomes in the dependent variables of education, income, general health and the presence of children in the household, compared to men who report they are straight. Finally, I hypothesized that for women, reporting a sexual minority status would be associated with differential outcomes for their level of education, income, their health, and the likelihood of sharing a residence with children compared to women who report they are straight. To test these hypotheses, I will separate my samples by sex and then estimate ordered logistic regression equations to analyze the relationships of the independent variables to the dependent variables. For ease of interpretation, I will exponentiate the coefficients and interpret the results as percent change in the odds ratios.



## GSS

Thus far, the analyses using the GSS data have not produced many statistically significant relationships. Differentiating the results by sex has no impact on this trend (see Table 45). In testing hypothesis four, I find no significant relationships comparing men who report a sexual minority status and men who report they are straight. The results from the GSS analyses fail to support my fourth hypothesis. Similarly, women who report any sexual minority status (identity, behavior or the SM-OR index) have no significant differences in their education level or their likelihood to live in a household with children, compared to women who report they are straight. Therefore, my fifth hypothesis is not supported using data from the GSS.

## NHANES

As shown in Table 46, there are sex specific differences in outcomes in the NHANES when comparing people who have sexual minority statuses with those who report they are straight. For men who identify as sexual minorities, there is about a 35 percent decrease in the odds of their education level ( $p < .05$ ), and a 47 percent decrease in the odds of them sharing a residence with children ( $p < .05$ ).

Reporting sexual minority behavior is associated with a 71 percent decrease in the odds of sharing a residence with children ( $p < .01$ ). For the indices, SMIB-OR is associated with a 46 percent decrease in the odds of men sharing a residence with children. Sexual minority behavior in men, however, is associated with a 75 percent increase in the odds of education ( $p < .01$ ).

**Table 45 GSS: Percent Change in the Sex Specific Odds Ratios of Dependent Variables**

	Education		Children		Health		Income	
	Female	Male	Female	Male	Female	Male	Female	Male
<i>Individual Measures</i>								
Sexual Minority Identity	-28.7	-20.1	9.1	-38.5	---	---	---	---
Sexual Minority Behavior	-23.6	-1.3	-36.3	-57.9	---	---	---	---
Sexual Minority Attraction	---	---	---	---	---	---	---	---
<i>Sexual Minority OR Indices</i>								
Identity and/or Behavior	-23.5	-10.2	-9.5	-44.1	---	---	---	---
Identity and/or Attraction	---	---	---	---	---	---	---	---
Attraction and/or Behavior	---	---	---	---	---	---	---	---
Identity, Attraction and/or Behavior	---	---	---	---	---	---	---	---

\*p<.05; \*\*p<.01, \*\*\*p<.001

<sup>a</sup>Results are not survey set due to cell size issues, so these results refer only to results found within the sample.

**Table 46 NHANES: Percent Change in the Sex Specific Odds Ratios of Dependent Variables**

	Education		Children		Health		Income	
	Female	Male	Female	Male	Female	Male	Female	Male
<i>Individual Measures</i>								
Sexual Minority Identity	-61.9***	-34.7*	-19.1	-46.8*	49.6*	-49.9	---	---
Sexual Minority Behavior	-34.4**	75.2**	-20.1	-70.9**	32.30	-13.2	---	---
Sexual Minority Attraction	---	---	---	---	---	---	---	---
<i>Sexual Minority OR Indices</i>								
Identity and/or Behavior	-57.2***	-22.6	-11.8	-45.6**	60.9**	16.9	---	---
Identity and/or Attraction	---	---	---	---	---	---	---	---
Attraction and/or Behavior	---	---	---	---	---	---	---	---
Identity, Attraction and/or Behavior	---	---	---	---	---	---	---	---

\*p<.05; \*\*p<.01, \*\*\*p<.001

Among the individual measures, only health was not significantly impacted by the sexual minority status of men. The remaining relationships support the hypothesis that there are statistically significant differences in the outcomes of the dependent variables based on sexual minority status, when compared to men who report they are straight; my fourth hypothesis is supported by the results in the NHANES.

My fifth hypothesis also predicts differential outcomes for women reporting sexual minority statuses compared to women who report they are straight, on the dependent variables. Identifying as a sexual minority woman is associated with a 50 percent increase in the odds of health. The SMIB-OR index is also associated with a 61 percent increase in the odds of health, compared to women who are straight. The relationships between sexual minority status and the presence of children in the household were not significant in the NHANES. However, the relationship between identifying as a sexual minority woman, reporting sexual minority behavior and the SMIB-OR index for women are all associated with significant decreases in the odds of education, compared to women who are straight. I thus conclude that estimating equations using the NHANES data also supports my fifth hypothesis.

## NHIS

In the NHIS, all of the sexual minority responses for men show significant differences in outcomes on the dependent variables, compared to men who report they are straight. Men who report a sexual minority identity have a 24 percent increase in the odds of higher education ( $p < .001$ ), compared to straight men, all else equal. There is a 64 percent decrease in the odds of having children reside in the home is decreased, and almost a 17 percent increase in the odds of health for men who identify as sexual

minorities. Therefore, I would say that the NHIS provides support to my fourth hypothesis that sexual minority status impacts men's outcomes on the dependent variables of interest.

For women in the NHIS, having a sexual minority identity is not significantly related to the odds of education, compared to straight women (see Table 47). However, reporting a sexual minority identity is associated with almost a 42 percent decrease in the odds of living with children for women and a 46 percent increase in the odds of health, compared to women who identify as straight. I thus conclude that my fifth hypothesis is supported using NHIS data.

#### NSFG (F&M)

For my sex specific analysis of the NSFG, I combined the results from the NSFG-F and the NSFG-M into one table. I was able to use similar questions in each survey, with identical answer choices across surveys, to create this table that is analogous to the other sex specific tables presented in this dissertation. In Table 48, the only significant relationship for men and education is a 66 percent increase in the odds of education, compared to straight men, all else equal. In the NSFG-M, all measures of sexual minority status and SM-OR indices are associated with statistically significant decreases in the odds of sharing a residence with children, compared to straight men. With regard to the relationship between sexual minority status and health, there is not statistical significance for sexual minority men compared to men who report they are straight in the NSFG-M. Both sexual minority identity and sexual minority attraction, as well as all of the SM-OR indices, the odds of income are decreased compared to men who report they are straight. The NSFG-M equations support my fourth hypothesis.

**Table 47 NHIS: Percent Change in the Sex Specific Odds Ratios of Dependent Variables**

	Education		Children		Health		Income	
	Female	Male	Female	Male	Female	Male	Female	Male
<i>Individual Measures</i>								
Sexual Minority Identity	-1.0	24.0**	-41.8***	-64.0***	46.4***	16.9*	---	---
Sexual Minority Behavior	---	---	---	---	---	---	---	---
Sexual Minority Attraction	---	---	---	---	---	---	---	---
<i>Sexual Minority OR Indices</i>								
Identity and/or Behavior	---	---	---	---	---	---	---	---
Identity and/or Attraction	---	---	---	---	---	---	---	---
Attraction and/or Behavior	---	---	---	---	---	---	---	---
Identity, Attraction and/or Behavior	---	---	---	---	---	---	---	---

\*p<.05; \*\*p<.01, \*\*\*p<.001

**Table 48 NSFG (F&M): Percent Change in the Sex Specific Odds Ratios of Dependent Variables**

	Education		Children		Health		Income	
	Female	Male	Female	Male	Female	Male	Female	Male
<i>Individual Measures</i>								
	-							
Sexual Minority Identity	44.6***	-19.4	-46.0***	-70.6***	81.3***	13.2	-35.7**	-36.7**
Sexual Minority Behavior	-9.5	65.7***	-35.1***	-63.1***	63.8***	16.3	-25.3**	-19.5
Sexual Minority Attraction	-10.1	12.4	-56.3***	-77.4***	48.5**	17.10	-25.1**	-41.7***
<i>Sexual Minority OR Indices</i>								
Identity and/or Behavior	-25.5**	4.8	-31.0***	-57.7***	62.1***	15.6	-27.2***	-28.5**
Identity and/or Attraction	-21.6*	-12.1	-49.3***	-69.3***	44.8**	22.40	-25.5**	-42.6***
Attraction and/or Behavior	-12.4	28.30	-48.4***	-66.9***	49.9***	24.1	-28.4**	-35.8***
Identity, Attraction and/or Behavior	-21.0**	2.9	-42.5***	-61.3***	47.0***	22.6	-28.4***	-35.7***

\*p<.05; \*\*p<.01, \*\*\*p<.001

<sup>a</sup>Comparisons of similar questions with identical coding across NSFG-F and NSFG-M surveys.

For women in the NSFG-F, reporting a sexual minority identity is associated with an almost 45 percent decrease in the odds of higher education. Several of the SM-OR indices show similar significant results in the impact on education. All of the sexual minority measures and SM-OR indices show that positive responses are significantly associated with decrease in the odd of sharing a residence with children. For health, that pattern is reversed, and any sexual minority response is associated with an increase in the odds of health rating. The outcome results for income are similarly consistent. For women in the NSFG-F, any sexual minority response is associated with a statistically significant decrease in the odds of education. The NSFG-F shows strong support for my fifth hypothesis.

## **Summary**

In this chapter I tested five hypotheses using data from five nationally representative surveys selected for inclusion in this dissertation. Many of those hypotheses were supported by data from one or more of the surveys. Comparing the results across different surveys where the operationalization had been coded similarly helped provide context for the outcomes. These results suggest relationships to test further as well as the importance of expanding and standardizing measures of sexual minority status. In Chapter VI, I will summarize the results of these analyses and suggest directions for future research projects to continue to study this important demographic characteristic of sexual minority status.



## CHAPTER VI

### CONCLUSION AND RESULTS

In this dissertation, my goal was to provide a base of knowledge built on analyses of nationally representative research on sexual minority status which can be built upon as new data become available. I believe I have been moderately successful in this endeavor. The surveys which I identified for inclusion are current, having been conducted as recently as the 2016 to 2018 period. Also, they are active surveys which will continue to provide data to researchers for their subsequent analyses.

I reviewed the current state of the literature and noted that there seem to be more inconsistencies in the results of studies on sexual minority status than there are answers. While the direction and magnitude of the impact of having a sexual minority status has been shown to vary according to the sexuality variable used and the survey containing the data, the fact that sexual minority status impacts life outcomes seems very clear. I discussed and analyzed multiple theoretical paradigms for approaching the study of sexuality and created an integrated framework of social constructionism, identity development, and multiple minority interactions to guide examinations of current and future research on the topic. Sexual minority identities are fluid, they tend to develop over time, they often vary in their definition and importance to individuals, and they can layer with other minority statuses, such as race, ethnicity, gender, or disability status to form complex experiences which are more difficult to uncover than for people who are straight.

For people who are straight, their self-identity, sexual behavior, and sexual attraction tend to be straightforward and consistent across the various sexuality measures. This is most likely because this majority status offers advantages and protections to people who claim it. People who have sexual minority status(es) have more inconsistent identifications across these measures because of the process involved in accepting and being comfortable claiming the multiple sexual minority statuses which are being measured. Self-identification appears to be the last step in accepting a sexual minority status, as evidenced by both theory and the lower frequency of its report, even among people who clearly have some sexual minority statuses on other dimensions (Baumle 2013a; Baumle et al. 2009; Black et al. 2000; Bogaert 2012; Durso and Gates 2013; Gates 2010, 2011; Michaels 2013; Poston and Baumle 2010).

In my dissertation I have discussed, tested and verified important theoretical and practical implications for moving the state of demographic research on sexual minority status into mainstream analysis. Hopefully I have provided some direction for these investigations to take form. Understanding how sexual minority status is currently conceptualized and operationalized illustrates the importance of expanding the measurement of this important demographic status.

The first hypothesis, that more inclusive measures of sexuality are needed to appropriately identify more people with sexual minority status, was supported with the data from all five of the surveys. While the NHIS only provides one measure, sexual minority identity, expanding the measurement definition from the traditional LGB responses to the more inclusive SM responses did increase the number of people included in the study.

This finding is also consistent with my theoretical framework which suggests that since sexual minority status is largely voluntary, individuals may feel more saliently connected to some facets of that identity than others (Laumann et al. 1994; Michaels 2013; Parks et al. 2004; Tiefer 2000).

The importance of theory driven statistical analysis is also emphasized in tests of my second hypothesis, which included comparisons of two regression forms, logit and linear. The results show clearly why demographic analysis must be theoretically driven (Riley 1999; Treiman 2009). Using OLS regression may be “easier” and more familiar to researchers who have limited experience in quantitative analysis and is indeed the regression modeling technique utilized in several of the research studies whose results were presented in the literature review.

Demographers however should be well schooled in the problems of using linear regression to estimate models which have binary, categorical, and ordinal dependent variables, including the fact that doing so violates all of the required assumptions for statistical analysis, literally making such analyses useless before they are completed. Demographers must do better. Using the proper analytical techniques and operationalizing the variables of sexual minority status in a singular consistent way, is the appropriate method to adopt so a body of knowledge can be built regarding the impact of sexual minority status on life outcomes.

Once again, the tests of my first and second hypotheses illustrate the importance of using multiple measures of sexuality. The regression analyses clearly delineate that sexual minority status is related to basic life outcomes, in education, health, income, and sharing a residence with children, all of which are important considerations in the field

of demography. Analysis of the individual measures available in the GSS, NHANES, NHIS, NSFG-F and NSFG-M clearly illustrate that focusing on one component of sexuality, and excluding others, such as the demographic standard of depending on responses to behavioral questions for analysis means missing other statistically meaningful relationships between sexual minority status and life outcomes.

I would thus suggest that surveys include a minimum of the three measures of sexual minority status currently used in the NSFG surveys, namely, self-identity, behavior, and sexual attraction. The research reported in this dissertation, especially the tests for the third hypothesis using the likelihood ratio tests, illustrates the substantial impact the effects of these three measures have on dependent variables and makes a clear argument justifying the inclusion of these three questions as a minimum measurement for sexual minority status. Doing so creates a more accurate and robust picture of the data. Additionally, the more inclusive measures provide a better, more accurate estimation of the size of the population who have a sexual minority status and allows for a more thorough exploration of the composition of that population – both of which are cornerstones of demographic research.

While the sex specific impacts of sexual minority statuses were shown to behave differently across surveys and individual sexual minority variables, the tests of my fourth and fifth hypotheses did clearly indicate that the role and resultant impact that sexual minority status has on outcome variables, including those related to quality of life such as education, health, and income, can be mitigated or differentially affected by the sex of the person claiming the identity. This is an area where additional research, preferably with large data sets, is urgently needed.

With regard to the SM-AND and SM-OR indices, they did not always behave as expected. Since my dissertation was focused on a comprehensive understanding of the role of sexual minority status, I created indices for all possible combinations of measures, without accounting for the statistical significance of the individual measures. In the future, limiting the analysis of inclusive indices to include combinations of only those individual measures that were found to have significant relationships within individual data sets might be a better practice.

To date, I am pretty sure that the research reported in this dissertation may well be the only demographic analysis, or one of only a few such analyses, which has attempted to synthesize and analyze what is currently known about sexual minority status. I believe this dissertation has made some important contributions to the field of the demographic research of sexual minority status. I have shown the importance of measuring multiple facets of sexual minority status and including analyses of all of these components in demographic research to provide the most accurate size and composition of this population. I have illustrated the importance of adopting complex theoretical perspectives to lead demographers to appropriate forms of statistical measurement and technique which provide reliable and theoretically sound results on which to build a base of knowledge about sexual minority status. Finally, in my dissertation I have demonstrated that the components of sexual minority status and the larger indices provide an important avenue of exploration for demography to continue to explain key demographic characteristics of populations which are associated with life and demographic outcomes.

My suggestions for future research are to incorporate the trifecta of sexual minority status with other demographic measures in all data sets, not just those that are focused on health. Just as demographers these days would never consider completing a study which did not include measures for race ethnicity, sex, and age, we should do the same with measures of sexual attraction, sexual behavior, and self-identity. We need to measure sexual minority status in a way that captures the various components which are meaningful to respondents. I would suggest the adoption of standard operationalization via questions and response sets which are consistent across surveys, much like the OMB (Snipp 2003) has done for the measurement of race and ethnicity in national studies. While these measures are not perfect and need to continue to undergo testing regarding the most appropriate categorization, having a standard provides a place to start the analysis and improves the ease of cross study comparison.

Finally, I believe a comprehensive nationally representative analysis testing the full complement of measures of sexual minority status as outlined by Bogaert (2013), would be an ideal step to creating a standardized method to analyze sexual minority status. He provides seven different and conceptually distinct dimensions of sexuality, not only the three I have used in this dissertation. All should be included in analyses so to determine if they impact the size or composition of the sexual minority population in meaningful ways. His measurements include arousal, attraction – romantic, attraction – sexual, behavior, cognition, identification and desire. The addition of measures of arousal may not be feasible in survey research but could be added to the physical measurements which are already included in the NHIS and NHANES. In this way research on sexual minority status would no longer be entirely dependent on attractions

that people *report* having but could include a measure of their physiological response to sexual stimuli.

Adding a question about romantic attraction would allow the identification of individuals who are asexual and/or emotionally driven in their romantic attachments, for whom romantic attraction may precede or replace sexual attraction. The current measures which ask only about sexual attraction make it difficult, nearly impossible to identify people with these sexual minority statuses. With more inclusive measurement techniques, we could study people who identify as asexual ( see Bogaert 2015 and Poston and Baumle 2010 for an excellent discussion of asexual studies).

Cognition and desire might be difficult to encapsulate in a written questionnaire, but if survey administrators insist on using ACASI technology, scenarios and/or illustrations could be displayed on the computer screen to elicit responses from participants. Additionally, asking whether participants are currently in or have previously been in an ethically non-monogamous relationship (one in which all partners are aware the relationships are not exclusive) would provide an exciting opportunity to identify people in polyamorous relationships, something that we have thus far been unable to examine in a nationally representative survey. We could study members of ethically non-monogamous communities, and ascertain whether the effects of these non-majority status relationships classifies them as sexual minorities (see Klesse 2014; Tweedy 2011).

Sexual minority research will increasingly be integral to good demographic analyses, especially as younger cohorts, who are more comfortable with their sexuality, come of age. Sexuality is as relevant as other demographic characteristics in

understanding population actors and demographic outcomes and good measurement techniques are essential to keeping demography at the forefront of information on which policy makers and the general public rely to make informed decisions.



## REFERENCES

- Agerholm, Harriet. 2016. "Everyone Appointed to Donald Trump's Cabinet so Far Has Opposed LGBT Rights | The Independent." *Independent*. Retrieved December 2, 2016 (<http://www.independent.co.uk/news/world/americas/donald-trump-cabinet-appointments-lgbt-records-stances-president-elect-white-house-a7446886.html>).
- Anon. n.d. "National Survey of Sexual Health and Behavior." *Indiana University Bloomington*. Retrieved April 23, 2019 (<https://nationalsexstudy.indiana.edu/>).
- Armstrong, Elizabeth A. and Suzanna M. Crage. 2006. "Movements and Memory: The Making of the Stonewall Myth." *American Sociological Review* 71(5):724–51.
- Auer, Matthias K., Johannes Fuss, Nina Höhne, Günter K. Stalla, and Caroline Sievers. 2014. "Transgender Transitioning and Change of Self-Reported Sexual Orientation." *PLoS ONE* 9(10).
- Badgett, M. V. Lee. 1996. "Employment and Sexual Orientation." *Journal of Gay & Lesbian Social Services* 4(4):29–52.
- Baumle, Amanda K. 2009. "The Cost of Parenthood: Unraveling the Effects of Sexual Orientation and Gender on Income." *Social Science Quarterly* 90(4):983–1002.
- Baumle, Amanda K. 2013a. "International Handbook on the Demography of Sexuality." *International Handbooks of Population* 488.
- Baumle, Amanda K. 2013b. "The Demography of Sexuality and the Labor Market." *International Handbook on the Demography of Sexuality* 243–56.
- Baumle, Amanda K. and D'Lane R. Compton. 2015. *Legalizing LGBT Families: How the Law Shapes Parenthood*. New York: New York University Press.

- Baumle, Amanda K., D’Lane R. Compton, and Dudley L. Poston. 2009. *Same-Sex Partners*. Albany: SUNY Press.
- Beam, Chris. 2007. *Transparent: Love, Family, and Living the T with Transgender Teenagers*. Orlando: Harcourt, Inc.
- Berg, Nathan and Donald Lien. 2002. “Measuring the Effect of Sexual Orientation on Income: Evidence of Discrimination?” *Contemporary Economic Policy* 20(4):394–414.
- Bernstein, Mary. 1997. “Celebration and Suppression: The Strategic Uses of Identity by the and Gay Movement.” *American Journal of Sociology* 103(3):531–65.
- Black, Dan, Gary Gates, Seth Sanders, and Lowell Taylor. 2000. “Demographics of the Gay and Lesbian Population in the United States: Evidence from Available Systematic Data Sources.” *Demography* 37(2):139.
- Blandford, John M. 2003. “The Nexus of Sexual Orientation and Gender in the Determination of Earnings.” *ILR Review* 56(4):622–42.
- Bogaert, A. F. 2013. “The Demography of Asexuality.” Pp. 275–88 in *International Handbook on The Demography of Sexuality*, edited by A. K. Baumle. Springer.
- Bogaert, Anthony F. 2004. “Asexuality: Prevalence and Associated Factors in a National Probability Sample.” *Journal of Sex Research* 41(3):279–87.
- Bogaert, Anthony F. 2012. *Understanding Asexuality*. Lanham: Rowman & Littlefield.
- Bogaert, Anthony F. 2015. “Asexuality: What It Is and Why It Matters.” *Journal of Sex Research* 52(4):362–79.
- Bond, Bradley J. and Benjamin L. Compton. 2015. “Gay On-Screen: The Relationship between Exposure to Gay Characters on Television and Heterosexual Audiences’

- Endorsement of Gay Equality.” *Journal of Broadcasting & Electronic Media* 59(4):717–32.
- Brown, Theodore M. and Elizabeth Fee. 2003. “Alfred C. Kinsey: A Pioneer of Sex Research.” *American Journal of Public Health* 93(6):896–97.
- Brydum, Sunnivie. 2015. “The True Meaning of the Word ‘Cisgender’ | Advocate.Com.” *Advocate*. Retrieved November 28, 2016 (<http://www.advocate.com/transgender/2015/07/31/true-meaning-word-cisgender>).
- Bucholtz, Mary and Kira Hall. 2004. “Theorizing Identity in Language and Sexuality Research.” *Language in Society* 33(04):469–515.
- Cahill, Sean. 2007. “The Anti-Gay Marriage Movement.” in *The Politics of Same-Sex Marriage*, edited by C. A. Rimmerman and C. Wilcox. University of Chicago Press.
- Carpenter, Christopher S. 2008. “Sexual Orientation, Work, and Income in Canada.” *Canadian Journal of Economics/Revue Canadienne d’économique* 41(4):1239–61.
- Centers for Disease Control and Prevention. 2016. “NHIS - Sexual Orientation Information Background.” *National Health Interview Survey*. Retrieved November 28, 2016 ([http://www.cdc.gov/nchs/nhis/sexual\\_orientation/background.htm](http://www.cdc.gov/nchs/nhis/sexual_orientation/background.htm)).
- Centers for Disease Control and Prevention. n.d. “APPENDIX 2 Recode Specifications.” *Cycle 6 User’s Guide*.
- Cohen, Jacqueline N. and E. Sandra Byers. 2014. “Beyond Lesbian Bed Death: Enhancing Our Understanding of the Sexuality of Sexual-Minority Women in Relationships.” *Journal of Sex Research* 51(8):893–903.
- Conley, Carrard. 2016. “GOP’s Support of Conversion Therapy Is a ‘Death Sentence’ |

- TIME.” *Time*. Retrieved November 3, 2016 (<http://time.com/4410894/rnc-conversion-therapy/>).
- Coontz, Stephanie. 2016. *The Way We Never Were : American Families and the Nostalgia Trap*.
- Davis, Georgiann. 2015. *Contesting Intersex: The Dubious Diagnosis*. New York: New York University Press.
- Diamond, Lisa M. 2015. “Sexuality and Same-Sex Sexuality in Relationships.” Pp. 523–53 in *APA handbook of personality and social psychology, Volume 3: Interpersonal relations.*, edited by M. Mikulincer, P. R. Shaver, J. A. Simpson, and J. F. Dovidio. American Psychological Association.
- Durso, Laura E. and Gary J. Gates. 2013. “Best Practices: Collecting and Analyzing Data on Sexual Minorities.” Pp. 21–42 in *International handbook on the demography of sexuality*, edited by A. K. Baumle. Springer.
- Eliason, M. J. 1996. “Identity Formation for Lesbian, Bisexual, and Gay Persons: Beyond a ‘Minoritizing’ View.” *Journal of Homosexuality* 30(3):31–58.
- Ellemers, Naomi, Paulien Kortekaas, and Jaap W. Ouwerkerk. 1999. “Self-Categorisation, Commitment to the Group and Group Self-Esteem as Related but Distinct Aspects of Social Identity.” *European Journal of Social Psychology* (29):371–89.
- Epstein, Robert, Paul McKinney, Shannon Fox, and Carlos Garcia. 2012. “Support for a Fluid-Continuum Model of Sexual Orientation: A Large-Scale Internet Study.” *Journal of Homosexuality* 59(10):1356–81.
- Everett, Bethany G. 2013. “Sexual Orientation Disparities in Sexually Transmitted

- Infections: Examining the Intersection between Sexual Identity and Sexual Behavior.” *Archives of Sexual Behavior* 42(2):225–36.
- Frost, Amanda. 2015. “Academic Highlight: Yoshino on Obergefell v. Hodges : SCOTUSblog.” *SCOTUSblog*. Retrieved November 28, 2016 (<http://www.scotusblog.com/2015/11/academic-highlight-yoshino-on-obergefell-v-hodges/>).
- Galupo, M. Paz, Kyle S. Davis, Ashley L. Gryniewicz, Renae C. Mitchell, Ashley L. Gryniewicz, Kyle S. Davis, and Ashley L. Gryniewicz. 2014. “Conceptualization of Sexual Orientation Identity Among Sexual Minorities: Patterns Across Sexual and Gender Identity.” *Journal of Bisexuality* 9716(June):433–56.
- Galupo, M. Paz, Renae C. Mitchell, and Kyle S. Davis. 2015. “Sexual Minority Self-Identification: Multiple Identities and Complexity.” *Psychology of Sexual Orientation and Gender Diversity* 2(4):355–64.
- Gates, Gary J. 2010. “Same-Sex Couples in US Census Bureau Data: Who Gets Counted and Why | Williams Institute.” *The Williams Institute*. Retrieved March 3, 2017 (<https://williamsinstitute.law.ucla.edu/research/census-lgbt-demographics-studies/same-sex-couples-in-us-census-bureau-data-who-gets-counted-and-why/>).
- Gates, Gary J. 2011. “How Many People Are Lesbian, Gay, Bisexual and Transgender? | Williams Institute.” *The Williams Institute*. Retrieved November 28, 2016 (<http://williamsinstitute.law.ucla.edu/research/census-lgbt-demographics-studies/how-many-people-are-lesbian-gay-bisexual-and-transgender/>).
- Gates, Gary J. 2013. “Geography of the LGBT Population.” Pp. 229–42 in *International Handbook on the Demography of Sexuality*, edited by A. K. Baumle. Springer

Science+Business Media.

Gates, Gary J. and Jason Ost. 2004. *The Gay & Lesbian Atlas*. Washington, D.C.: The Urban Institute Press.

Goldfried, Marvin R. and Anita P. Goldfried. 2001. "The Importance of Parental Support in the Lives of Gay, Lesbian, and Bisexual Individuals." *Journal of Clinical Psychology* 57(5):681–93.

Green, Emma. 2017. "Trump Administration Won't Ask Questions About LGBT Americans on the 2020 Census." *The Atlantic*. Retrieved May 16, 2019 (<https://www.theatlantic.com/politics/archive/2017/03/trump-census-lgbt/521229/>).

Greer, Broderick. 2016. "Gay Nightclubs and Black Churches Are Sanctuaries. Here's How to Make Them Safer. - The Washington Post." *The Washington Post*. Retrieved November 28, 2016 (<https://www.washingtonpost.com/news/soloish/wp/2016/06/13/gay-nightclubs-and-black-churches-are-sanctuaries-heres-how-to-make-them-safer/>).

Haslop, Craig, Helene Hill, and Ruth A. Schmidt. 1998. "The Gay Lifestyle Spaces for a Subculture of Consumption." *Marketing Intelligence & Planning* 16(5):318–26.

Herek, Gregory M., Regina Chopp, and Darryl Strohl. 2007. "Sexual Stigma : Putting Sexual Minority Health Issues in Context." *The Health of Sexual Minorities* 1–28.

Hite, Shere. 1976. *The Hite Report: A National Study of Female Sexuality*. New York: MacMillian Publishing Co, Inc.

HIV.gov. 2018. "Hiv-and-Aids-Timeline." Retrieved (<https://www.hiv.gov/hiv-basics/overview/history/hiv-and-aids-timeline#year-1981>).

Hopkins, Patrick D. 2007. "The Long Arc of Justice: Lesbian and Gay Marriage,

- Equality, and Rights.” *Hypatia* 22(1):243–46.
- Hottes, Travis Salway, Laura Bogaert, Anne E. Rhodes, David J. Brennan, and Dionne Gesink. 2016. “Lifetime Prevalence of Suicide Attempts Among Sexual Minority Adults by Study Sampling Strategies: A Systematic Review and Meta-Analysis.” *American Journal of Public Health* 106(5):e1–12.
- Hottes, Travis Salway, Dionne Gesink, Olivier Ferlatte, David J. Brennan, Anne E. Rhodes, Rick Marchand, and Terry Trussler. 2016. “Concealment of Sexual Minority Identities in Interviewer-Administered Government Surveys and Its Impact on Estimates of Suicide Ideation Among Bisexual and Gay Men.” *Journal of Bisexuality* 1–27.
- Houdenove, Ellen Van, Luk Gijs, Guy T ’sjoen, and Paul Enzlin. 2014. “Asexuality: Few Facts, Many Questions.” *JOURNAL OF SEX & MARITAL THERAPY* 40(3):175–92.
- Hughes, Howard L. 2005. “A Gay Tourism Market.” *Journal of Quality Assurance in Hospitality & Tourism* 5(2–4):57–74.
- Hughes, Michael, K. Jill Kiecolt, Verna M. Keith, and David H. Demo Hughes. 2015. “Racial Identity and Well-Being among African Americans.” *Social Psychology Quarterly* 78(1):25–48.
- Human Rights Campaign. 2016. “A History of Federal Non-Discrimination Legislation.” Retrieved December 11, 2016 (<http://www.hrc.org/resources/a-history-of-federal-non-discrimination-legislation>).
- Ivankovich, Megan B., Jami S. Leichter, John M. Douglas, and Jr. 2013. “Measurement of Sexual Health in the U.S.: An Inventory of Nationally Representative Surveys

- and Surveillance Systems.” *Public Health Reports (Washington, D.C. : 1974)* (Suppl 1):62–72.
- Johnston-Guerrero, Marc P. and VU Tran. 2016. “Born This Way?: How U.S. College Students Make Sense of the Biosocial Underpinnings of Race and Other Identities.” *International Journal of Multicultural Education* 18(2):107–24.
- Kailey, Matt. 2005. *Just Add Hormones: An Insider’s Guide to the Transsexual Experience*. Boston: Beacon Press.
- Katz-Wise, Sabra L. 2014. “Sexual Fluidity in Young Adult Women and Men: Associations with Sexual Orientation and Sexual Identity Development.” *Psychology and Sexuality* 6(2):1–20.
- Khanna, Nikki and Cherise Harris. 2009. “Teaching Race as a Social Construction: Two Interactive Class Exercises.: .Discovery Service for Texas A&M University Libraries.” *Teaching Sociology* 37(October):369–78.
- Killermann, Samuel. 2019. “Comprehensive\* List of LGBTQ+ Vocabulary Definitions - It’s Pronounced Metrosexual.” Retrieved May 13, 2019 (<https://www.itspronouncedmetrosexual.com/2013/01/a-comprehensive-list-of-lgbtq-term-definitions/>).
- Kinsey, Alfred C., Wardell B. Pomeroy, Clyde E. Martin, and Paul H. Gebhard. 1948. *Sexual Behavior in the Human Male*. Philadelphia: W. B. Saunders Company.
- Kinsey, Alfred C., Wardell B. Pomeroy, Clyde E. Martin, and Paul H. Gebhard. 1953. *Sexual Behavior in the Human Female*.
- Klesse, C. 2014. “Polyamory: Intimate Practice, Identity or Sexual Orientation?” *Sexualities* 17(1–2):81–99.



- Laumann, Edward O., John H. Gagnon, Robert T. Michael, and Stuart Michaels. 2016. "National Health and Social Life Survey." *University of Chicago*. Retrieved December 5, 2016 (<http://popcenter.uchicago.edu/data/nhsls.shtml>).
- Laumann, Edward O., John H. Gagnon, Robert T. Michael, Stuart Micheals, and Julia Heiman. 1994. *The Social Organization of Sexuality: Sexual Practices in the United States*.
- Laurent, Erick. 2005. *Sexuality and Human Rights*. Vol. 48.
- Lee, Sharon M. 1993. "Racial Classifications in the U.S. Census: 1890-1990." *Ethnic and Racial Studies* (16):75–94.
- Masters, William H. and Virginia E. Johnson. 1966. *Human Sexual Response*. 1st ed. Boston: Little, Brown, and Company.
- McAndrew, Sue and Tony Warne. 2012. "Gay Children and Suicidality: The Importance of Professional Nurturance." *Issues in Mental Health Nursing* 33(6):348–54.
- Meyerowitz, Joanne. 2002. *How Sex Changed: A History of Transsexuality in the United States*. Cambridge: Harvard Unniversity Press.
- Michael, ?, Wigglesworth Sarah, Orne Jewett, Henry Gerber, Bayard Rustin, Barbara Gittings, and Kelli Peterson. 2003. *A Timeline of Lesbian, Gay, Bisexual, and Transgender History in the United States*.
- Michaels, Stuart. 2013. "Sexual Behavior and Practices: Data and Measurement." Pp. 11–20 in *International handbook on the demography of sexuality*, edited by A. Baumle. Springer.
- Miller, Peter V. 1995. "A Review: They Said It Couldn't Be Done: The National Health and Social Life Survey." *Public Opinion Quarterly* 59:404–19.

- Mize, Trenton D. 2016. "Sexual Orientation in the Labor Market." *American Sociological Review* 81(6):1132–60.
- National Center for Transgender Equality. 2016. "2015 U.S. Trans Survey." Retrieved November 28, 2016 (<http://www.ustranssurvey.org/>).
- Office of Disease Prevention and Health Promotion. 2016. "Lesbian, Gay, Bisexual, and Transgender Health." *Healthy People 2020*. Retrieved November 28, 2016 (<https://www.healthypeople.gov/2020/topics-objectives/topic/lesbian-gay-bisexual-and-transgender-health>).
- Parker, Richard G. 2007. "Sexuality, Health, and Human Rights." *American Journal of Public Health*, January 6, 972–73.
- Parks, Cheryl a., Tonda L. Hughes, and Alicia K. Matthews. 2004. "Race/Ethnicity and Sexual Orientation: Intersecting Identities." *Cultural Diversity and Ethnic Minority Psychology* 10(3):241–54.
- PBS. 2011. "Milestones in the American Gay Rights Movement." *PBS*. Retrieved April 22, 2019 (<https://www.pbs.org/wgbh/americanexperience/features/stonewall-milestones-american-gay-rights-movement/>).
- Pew Research Center. 2016. "Many Americans Know Someone Who Is Gay, Fewer Know Someone Who Is Transgender | Pew Research Center." *Pew Research Center*. Retrieved May 13, 2019 (<https://www.pewforum.org/2016/09/28/5-vast-majority-of-americans-know-someone-who-is-gay-fewer-know-someone-who-is-transgender/>).
- Poston, Dudley L. and Amanda K. Baumle. 2010. "Patterns of Asexuality in the United States." *Demographic Research* 23:509–30.

- Poston, Dudley L. and Leon F. Bouvier. 2017. *Population and Society: An Introduction to Demography*. Second. New York: Cambridge University Press.
- Poston, Dudley L. and Yu-Ting Chang. 2015. "The Conceptualization and Measurement of the Homosexual, Heterosexual, and Bisexual Populations in the United States." Pp. 359–78 in. Springer Netherlands.
- Rainey, Rebecca. 2019. "LGBTQ Anti-Discrimination Bill Passes House." *Politico*. Retrieved May 20, 2019 (<https://www.politico.com/story/2019/05/17/lgbtq-anti-discrimination-legislation-1452388>).
- Riley, Nancy E. 1999. "Challenging Demography: Contributions from Feminist Theory." *Sociological Forum* 14(3):369–97.
- Ro, Annie, George Ayala, Jay Paul, and Kyung-Hee Choi. 2013. "Dimensions of Racism and Their Impact on Partner Selection among Men of Colour Who Have Sex with Men: Understanding Pathways to Sexual Risk." *Culture, Health & Sexuality* 15(7):836–50.
- Rodriguez, Clara E. 2000. *Changing Race: Latinos, the Census, and the History of Ethnicity in the United States*. New York: New York University Press.
- Rothblum, Esther D. and Kathleen A. Brehony. 1993. *Boston Marriages : Romantic but Asexual Relationships among Contemporary Lesbians*. University of Massachusetts Press.
- Rubel, Alicia N. and Anthony F. Bogaert. 2015. "Consensual Nonmonogamy: Psychological Well-Being and Relationship Quality Correlates." *Journal of Sex Research* 52(9):961.
- Satterly, Brent a. and Donald Dyson. 2008. "Sexual Minority Supervision." *The Clinical*

- Supervisor* 27(1):17–38.
- Savin-Williams, Ritch C. and Lisa M. Diamond. 2000. “Sexual Identity Trajectories among Sexual-Minority Youths: Gender Comparisons.” *Archives of Sexual Behavior* 29(6):607–27.
- Sells, Tamara G. Coon. 2013. “The Construction of Sexual Identities in an Online Gay, Lesbian, and Bisexual...: .Discovery Service for Texas A&M University Libraries.” *Journal of Human Behavior in the Social Environment* (23):893–907.
- Shepard, Benjamin. 2004. “History or Myth? Writing Stonewall.” *Lambda Book Report* 13(1):12–14.
- Shutt, Jennifer. 2016. “Homosexuals ‘Worthy of Death’ Bible Verse Read Before Key Vote.” *Roll Call*. Retrieved November 3, 2016 (<http://www.rollcall.com/news/politics/bible-verse-homosexuals-heard-house-gop-prior-vote>).
- Siordia, Carlos. 2014. “Disability Estimates between Same- and Different-Sex Couples: Microdata from the American Community Survey (2009–2011).” *Sexuality and Disability* 33(1):107–21.
- Smalley, K. Bryant [Ed], Jacob C. [Ed] Warren, and K. Nikki [Ed] Barefoot. 2018. “LGBT Health: Meeting the Needs of Gender and Sexual Minorities.” *LGBT Health: Meeting the Needs of Gender and Sexual Minorities*. 437.
- Snipp, C. Matthew. 2003. “Racial Measurement in the American Census: Past Practices and Implications for the Future.” *Annual Review of Sociology* 29:563–88.
- Spanier, Bonnie. 1995. “Biological Determinism and Homosexuality.” *NWSA Journal* 7(1):54–71.

- Steven Seidman; Nancy Fischer; Chet Meeks. 2011. *Introducing the New Sexuality Studies*.
- Sun, Lena H. and Juliet Eilperin. 2017. "CDC Gets List of Forbidden Words." *The Washington Post*, December 15.
- Talusan, Meredith. 2014. "45 Years After Stonewall, the LGBT Movement Has a Transphobia Problem." *The American Prospect*.
- Testa, Rylan J., Janice Habarth, Jayme Peta, Kimberly Balsam, and Walter Bockting. 2015. "Development of the Gender Minority Stress and Resilience Measure." *Psychology of Sexual Orientation and Gender Diversity* 2(1):65–77.
- Texas Legislature. 2019. "Legislation." *Texas Legislature Online*.
- Tiefer, Leonore. 2000. "The Social Construction and Social Effects of Sex Research: The Sexological Model of Sexuality." Pp. 79–107 in *Sexuality, society and feminism*, edited by C. B. Travis and J. W. White. American Psychological Association.
- Treiman, Donald J. 2009. *Quantitative Data Analysis : Doing Social Research to Test Ideas*. Wiley.
- Tweedy, Ann E. 2011. "Polyamory as a Sexual Orientation." *University of Cincinnati Law Review* 79:1461–1515.
- Ueno, Koji, Teresa Roach, and Abrahám E. Peña-Talamantes. 2013. "Sexual Orientation and Gender Typicality of the Occupation in Young Adulthood." *Social Forces* 92(1).
- Veenstra, Gerry, G Veenstra, Z. Wu, S. Noh, V. Kaspar, CM Schimmele, P. McDonough, V. Walters, DL Spitzer, KH Humphries, E. van Doorslaer, L. Weber,

PH Collins, B. Landry, MB Zinn, BT Dill, DK King, RM Brewer, J. Ostrove, P. Feldman, N Adler, KM Nomaguchi, JG Read, BK Gorman, PB Jackson, DR Williams, RE Zambrana, S. Roxburgh, EV Sanchez-Vaznaugh, I. Kawachi, SV Subramanian, B. Sanchez, D. Acevedo-Garcia, SS Anand, S. Yusuf, R. Jacobs, AD Davis, Q. Yi, H. Gerstein, PA Montague, E. Lonn, CP Shah, J. Daniels, AJ Schulz, HJ Geiger, W. Courtenay, NE Adler, T. Boyce, MA Chesney, S. Cohen, S. Folkman, RL Kahn, SL Syme, K. Newman, J. Mirowsky, CE Ross, JM Oakes, PH Rossi, SL Isaacs, SA Schroeder, CL Dempsey, P. Tremblay, R. Ramsay, SD Cochran, JG Sullivan, VM Mays, SL Dworkin, A. Jorm, AE Korten, B. Rodgers, PA Jacomb, H. Christensen, FC Bakker, TGM Sandford, I. Vanwesenbeeck, H. Van Lindert, GP Westert, EL Idler, Y. Benyamini, B. Burstrom, P. Fredlund, J. Jaccard, C. Agyemang, R. Bhopal, M. Bruijnzeels, L. Curtis, A. Talbani, P. Hasanali, V. Purdie-Vaughns, R. Eibach, and D. Parra-Medina. 2011. "Race, Gender, Class, and Sexual Orientation: Intersecting Axes of Inequality and Self-Rated Health in Canada." *International Journal for Equity in Health* 10(1):3.

Visser, Beth A., Julie A. Pozzebon, Anthony F. Bogaert, and Michael C. Ashton. 2010. "Psychopathy, Sexual Behavior, and Esteem: It's Different for Girls." *Personality and Individual Differences* 48:833–38.

Walther, Carol S., Dudley L. Poston, and Yuan Gu. 2011. "Ecological Analyses of Gay Male and Lesbian Partnering in the Metropolitan United States in 2000." *Population Research and Policy Review* 30(3):419–48.

Wang, Hansi Lo. 2017. "U.S. Census To Leave Sexual Orientation, Gender Identity Questions Off New Surveys : The Two-Way : NPR." *NPR*. Retrieved July 12, 2017

- (<http://www.npr.org/sections/thetwo-way/2017/03/29/521921287/u-s-census-to-leave-sexual-orientation-gender-identity-questions-off-new-surveys>).
- Weeks, Linton. 2015. “‘Female Husbands’ In The 19th Century : NPR History Dept.” *NPR*. Retrieved December 29, 2018 (<https://www.npr.org/sections/npr-history-dept/2015/01/29/382230187/-female-husbands-in-the-19th-century>).
- Weinmeyer, Richard. 2014. “The Decriminalization of Sodomy in the United States.” *AMA Journal of Ethics* 16(11):916–22.
- Westcott, Lucy. 2017. “Texas Bathroom Bill: Legislators Pass Two Anti-LGBT Bills on ‘Discrimination Sunday.’” *Newsweek*. Retrieved July 12, 2017 (<http://www.newsweek.com/texas-bathroom-bill-anti-lgbt-adoption-613332>).
- Whittaker, Richard. 2016. “Dan Patrick Excoriated Over Orlando Shooting Tweet.” *The Austin Chronicle*, June 12.
- Wolfe, Sherry. 2017. “Stonewall: The Birth of Gay Power.” *International Socialist Review* January(63):1–5.
- Young, Rebecca M. and Ilan H. Meyer. 2005. “The Trouble with ‘MSM’ and ‘WSW’: Erasure of the Sexual-Minority Person in Public Health Discourse.” *American Journal of Public Health* 95(7):1144–49.
- Zambelich, Ariel. 2016. “Orlando Shooting: What Happened At The Pulse Nightclub Attack : The Two-Way : NPR.” *NPR*. Retrieved November 28, 2013 (<http://www.npr.org/2016/06/16/482322488/orlando-shooting-what-happened-update>).
- Zielinski, Alex. 2017. “The Texas Legislature Continues Its ‘All-Out Assault’ on LGBT Texans Next Month.” *San Antonio Current*. Retrieved July 12, 2017

(<https://www.sacurrent.com/the-daily/archives/2017/06/27/the-texas-legislature-continues-its-all-out-assault-on-lgbt-texans-next-month>).



## APPENDIX A

In considering how best to analyze the sexual minority models in hypothesis three, I did consider treating the resultant categories as non-nested and individual to explore their effects. To do this, I tested the fit of the models with and without the control variables using the Bayesian Information Criterion (BIC') to determine which model is most likely to accurately represent the data.

The larger negative value for the BIC', the better the model fit. BIC' is ideal for this test as I am using an un-nested model and other statistical measures of fit (such as the F-test) assume a nested model. The BIC' also corrects for large sample sizes, as I have in my data, and looks for the simplest model, with the fewest variables, which offers the best explanation of the relationship in the data.

While I believe that the likelihood ratio tests used and discussed in the text for hypothesis three are the best model for examining fitness of the various combinations, I have also included here tables with BIC' values for an alternative consideration.

**Table A.1 GSS: Odds Ratios of Sexual Minority Status on Education and Children in the Household**

	Education		Household	
	Model 1	Model 2	Model 1	Model 2
<i>Sexual Minority Individual Measures</i>				
Identity	0.742	0.831	1.095	0.666
BIC'	5.0	-6.9	6.9	-91.9
Behavior	0.843	0.884	0.630	0.461**
BIC'	6.4	-6.4	4.3	-96.5
<i>Sexual Minority AND Indices</i>				
Identity and Behavior	0.746	0.802	0.788	0.514*
BIC'	5.7	-6.8	6.5	-93.6
<i>Control Variables Included</i>				
		*		*

\*p<.05; \*\*p<.01; \*\*\*p<.001

<sup>a</sup>Models are not survey set.

<sup>b</sup>Model 1 tests the relationship of each independent measure or index against the specified dependent variable.

<sup>c</sup>Model 2 controls for age, and racial and/or ethnic minority status.

**Table A.2 NHANES: Odds Ratios of Sexual Minority Status on Education and Children in the Household**

	Education		Household	
	Model 1	Model 2	Model 1	Model 2
<i>Sexual Minority Individual Measures</i>				
Identity	0.371***	0.378***	0.887	0.814
BIC'	-89.9	-156.2	6.8	-73.3
Behavior	1.255*	1.084	0.548***	0.500***
BIC'	3.9	-61.9	-13.7	-96.7
<i>Sexual Minority AND Indices</i>				
Identity and Behavior	1.401*	1.241	0.428***	0.386***
BIC'	2.8	-63.5	-15.9	-98.3
<i>Control Variables Included</i>				
		*		*

\*p<.05; \*\*p<.01; \*\*\*p<.001

<sup>a</sup>Models are not survey set.

<sup>b</sup>Model 1 tests the relationship of each independent measure or index against the specified dependent variable.

<sup>c</sup>Model 2 controls for age, and racial and/or ethnic minority status.

**Table A.3 NHANES: Odds Ratios of Sexual Minority Status on General Health**

	General Health	
	Model 1	Model 2
<i>Sexual Minority Individual Measures</i>		
Identity	1.116	1.239
BIC'	7.4	-57.9
Behavior	1.121	1.300*
BIC'	7.2	-82.0
<i>Sexual Minority OR Indices</i>		
Identity and/or Behavior	1.003	1.159
BIC'	8.1	-78.2
<i>Control Variables Included</i>		
		*

\*p<.05; \*\*p<.01; \*\*\*p<.001

<sup>a</sup>Models are not survey set.

<sup>b</sup>Model 1 tests the relationship of each independent measure or index against the specified dependent variable.

<sup>c</sup>Model 2 controls for age, and racial and/or ethnic minority status.

**Table A.4 NSFG-F: Odds Ratios of Sexual Minority Status on Education and Children in the Household**

	Education		Household	
	Model 1	Model 2	Model 1	Model 2
<i>Sexual Minority Individual Measures</i>				
Identity	0.598***	0.699***	0.482***	0.556***
BIC'	-34.5	-378.5	-58.4	-321.3
Behavior	0.920	0.982	0.682***	0.720***
BIC'	6.7	-358.0	-20.2	-300.9
Attraction	0.922	1.096	0.503***	0.587***
BIC'	6.7	-360.2	-92.6	-337.6
<i>Sexual Minority AND Indices</i>				
Identity and Behavior	0.733***	0.858	0.438***	0.493***
BIC'	-4.0	-360.9	-57.2	-326.4
Identity and Attraction	0.656***	0.790**	0.414***	0.488***
BIC'	-18.8	-366.4	-81.1	-336.1
Attraction and Behavior	0.891	1.001	0.547***	0.603***
BIC'	6.0	-357.9	-43.4	-315.4
Identity, Attraction, and Behavior	0.746***	0.873	0.436***	0.490***
BIC'	-2.5	-360.3	-57.0	-326.5
<i>Control Variables Included</i>				
		*		

\*p<.05; \*\*p<.01; \*\*\*p<.001

<sup>a</sup>Models are not survey set.

<sup>b</sup>Model 1 tests the relationship of each independent measure or index against the specified dependent variable.

<sup>c</sup>Model 2 controls for age, and racial and/or ethnic minority status.

**Table A.5 NSFG-F: Odds Ratios of Sexual Minority Status on General Health and Income**

	General Health		Income	
	Model 1	Model 2	Model 1	Model 2
<i>Sexual Minority Individual Measures</i>				
Identity	1.646***	1.845*****	0.642***	0.777**
BIC'	-25.0	-116.1	-18.0	-489.4
Behavior	1.531***	1.610***	0.794***	0.855*
BIC'	-27.8	-111.8	-3.1	-486.5
Attraction	1.407***	1.588***	0.860**	1.075
BIC'	-17.1	-112.0	3.0	-482.6
<i>Sexual Minority AND Indices</i>				
Identity and Behavior	1.653***	1.816***	0.659***	0.787**
BIC'	-17.9	-103.5	-10.2	-487.2
Identity and Attraction	1.687***	1.927***	0.675***	0.850
BIC'	-26.2	-119.6	-11.3	-484.5
Attraction and Behavior	1.514	1.635***	0.826**	0.956
BIC'	-17.0	-102.3	2.6	-481.7
Identity, Attraction, and Behavior	1.670***	1.833***	0.666***	0.795*
BIC'	-18.7	-104.2	-9.0	--486.6
<i>Control Variables Included</i>				
		*		

\*p<.05; \*\*p<.01; \*\*\*p<.001

<sup>a</sup>Models are not survey set.

<sup>b</sup>Model 1 tests the relationship of each independent measure or index against the specified dependent variable.

<sup>c</sup>Model 2 controls for age, and racial and/or ethnic minority status.

**Table A.6 NSFG-M: Odds Ratios of Sexual Minority Status on Education and Children in the Household**

	Education		Household	
	Model 1	Model 2	Model 1	Model 2
<i>Sexual Minority Individual Measures</i>				
Identity	1.000	0.950	0.296***	0.238***
BIC'	8.1	-332.5	-49.2	-587.6
Behavior	1.677***	1.535***	0.406***	0.303***
BIC'	-14.8	-348.1	-28.8	-575.6
Attraction	1.248**	1.299**	0.311***	0.271***
BIC'	2.8	-340.0	-68.5	-601.4
<i>Sexual Minority AND Indices</i>				
Identity and Behavior	1.662***	1.560***	0.170***	0.121***
BIC'	-6.3	-343.5	-56.3	-603.3
Identity and Attraction	1.197	1.201	0.216***	0.173***
BIC'	6.0	-334.7	-61.8	-599.7
Attraction and Behavior	1.640***	1.513***	0.233***	0.165
BIC'	-7.9	-343.6	-50.6	-6000.5
Identity, Attraction, and Behavior	1.663***	1.555***	0.16-***	0.113***
BIC'	-6.2	-343.3	-58.1	-605.3
<i>Control Variables Included</i>				
		*		

\*p<.05; \*\*p<.01; \*\*\*p<.001

<sup>a</sup>Models are not survey set.

<sup>b</sup>Model 1 tests the relationship of each independent measure or index against the specified dependent variable.

<sup>c</sup>Model 2 controls for age, and racial and/or ethnic minority status.

**Table A.7 NSFG-M: Odds Ratios of Sexual Minority Status on General Health and Income**

	General Health		Income	
	Model 1	Model 2	Model 1	Model 2
<i>Sexual Minority Individual Measures</i>				
Identity	1.072	1.054	0.725**	0.663***
BIC'	8.1	-90.2	0.8	-781.6
Behavior	1.206	1.12	0.889	0.760**
BIC'	6.1	-89.2	7.1	-769.2
Attraction	1.171	1.187	0.759***	0.745**
BIC'	6.4	-92.0	0.8	-782.0
<i>Sexual Minority AND Indices</i>				
Identity and Behavior	1.115	1.048	0.909	0.778
BIC'	7.8	-88.4	7.8	-766.3
Identity and Attraction	1.026	1.019	0.796	0.749*
BIC'	8.3	-88.4	4.8	-768.5
Attraction and Behavior	1.147	1.070	0.868	0.737**
BIC'	7.4	-88.5	7.0	-768.8
Identity, Attraction, and Behavior	1.049	0.987	0.938	0.805
BIC'	8.2	-88.3	8.1	-765.5
<i>Control Variables Included</i>				
		*		

\*p<.05; \*\*p<.01; \*\*\*p<.001

<sup>a</sup>Models are not survey set.

<sup>b</sup>Model 1 tests the relationship of each independent measure or index against the specified dependent variable.

<sup>c</sup>Model 2 controls for age, and racial and/or ethnic minority status.