

SEXUAL ORIENTATION AND HEALTH-RELATED OUTCOMES: HOW
VICTIMIZATION STRESSORS EXPLAIN THE INCREASED RISK
FACED BY SEXUAL MINORITIES

By

William Beardall Hale

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Approved:

R. Jay Turner, Ph.D.

Tony N. Brown, Ph.D.

Andre Christie-Mizell

David A. Cole

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CHAPTER I

INTRODUCTION

Jamey had just started his freshman year at Williamsville North High School. But the bullying had begun during middle school, according to his parents. He had told family and friends that he had endured hateful comments in school and online, mostly related to his sexual orientation. Jamey was found dead outside his home Sunday morning.¹

Jamey Rodemeyer was only 14 years old when he hanged himself outside his family's home in the suburbs of Buffalo, New York. Similar to many other sexual minority youths, Jamey was the victim of both verbal and physical abuse after coming out and identifying as bisexual. While he commonly heard taunts of "fag" and "faggot" in school, the abuse also continued on social media sites with anonymous postings including "Kill your self (*sic*)!!!! You have nothing left!" and "Go kill yourself, you're worthless, ugly and don't have a point to live."² In the end, the stress of such victimization was too much for him to bear.

Despite the progress in attitudes toward sexual minorities (i.e., lesbian, gay, transgendered, and not sure), stories like Jamey's remain all too common. It is rare that much time goes by between media reports of sexual minority teenagers committing suicide. In addition, it is evident that the increased stress they face due to sexual identity-related victimization from their peers plays a major role in the decision to take their lives.

¹ <http://abcnews.go.com/Health/jamey-rodemeyer-suicide-ny-police-open-criminal-investigation/story?id=14580832#.TzHc6SOsqSM>

² http://www.huffingtonpost.com/2011/11/22/jamey-rodemeyer-suicide-n_n_1108458.html

While the increased risk for suicide remains the most consequential behavior in which health-related disparities are present across sexual orientations, there is a multitude of other mental and physical health-related issues where sexual minorities face significantly worse outcomes. It is imperative that we understand the process that leads to the increased risk that sexual minorities face. The specific research aim is to both confirm the increased risk faced by sexual minority youth utilizing contemporary data and to identify the role victimization stressors play in facing poorer outcomes.

One must keep in mind that while sexual minorities are not inherently more likely to commit suicide or face an increased risk for other poor health-related outcomes (D'Augelli et al. 2005; Loosier and Dittus 2010; Russell 2003) there remain significant consequences related to their unique experiences linked to their sexual identities, including the increased risk for victimization stressors.

Adolescence and Identity Development

The increase in behaviors related to victimization stressors are particularly relevant during adolescent development, which is the time when identity formation is at its peak, when the “internal reality of the individual begins to assert and demand its expression as earlier identifications are discarded and reconfigured” (Rosario, Schrimshaw, and Hunter 2011:4). While identity formation continues progressively throughout adulthood, adolescence plays an especially critical role in this development. Some of the more commonly formed identities during this stage of life include race, gender, and sexuality (Howard

2000). Unlike race and gender identity, which typically form earlier in adolescence, the formation of sexual identity more commonly occurs in the mid to late stages adolescence (Dubé 2000; Howard 2000).

Among sexual minorities, identity commonly begins to form around the early middle school years and initially involves noticing the attraction to those of the same sex (Dubé 2000; Hegna and Wichstrøm 2007). Sexual identity also receives increasing attention as romantic ties become more significant in the transition from middle to late adolescence (Diamond and Lucas 2004).

A significant increase in stressors and responsibilities is common during adolescence both for sexual minority youth as well as their heterosexual peers. Major changes occur in the individual's role in the family and with peer networks, and the impending transition into adulthood becomes more apparent. Importantly, this is also a time when many of the mental and physical health disparities across different statuses begin to manifest. (Diamond and Lucas 2004).

During adolescence, youths spend most of their time in school, which provides an important “cultural context” in identity development (Eccles and Roeser 2011). Unfortunately, this environment is often not inviting to sexual minorities, with schools being significant purveyors of heterosexism—a system that “privileges heterosexuality relative to homosexuality, based on the assumption that heterosexuality, as well as heterosexual power and privilege are the norm and the ideal” (Chesir-Teran 2003:267). It is an environment that is a conducive to prejudice and victimization.

In addition to these difficulties, sexual minorities also face a unique problem among minority identities in coping with such stressors. Unlike other minority groups, they do not commonly have readily available support from others who have gone through or are going through the same developmental process (Ueno 2005). For example, African American adolescents typically have family members who share their identity and went through a similar transition while this typically is not the case for sexual minorities. Additionally, identifying others who share the same identity and experiences is more difficult as sexual orientation is not easily detectable.

Health-Related Disparities

Among the health-related disparities across sexual orientation that begin to become apparent during adolescence, suicide-related behaviors, health risk behaviors, and academic performance are of great importance. Extant literature (e.g., Russell and Joyner 2001; Russell and Toomey 2011; D'Augelli et al. 2005; Eisenberg and Resnick 2006; Faulkner and Cranston 1998) demonstrates a clear relationship between sexual minorities and an elevation in suicide risk. This is particularly pertinent to this stage in life, with suicide being one of the leading causes of death among adolescents (Marshall et al. 2011). It is especially important to understand the antecedents that lead to suicide-related outcomes as well as the mechanisms involved in the increased risk faced by sexual minorities.

A second area in which key disparities by sexual orientation have been observed is in health risk behaviors—defined by the Center for Disease Control

and Prevention as “behaviors that contribute to unintentional injuries,...contribute to violence,...(are) related to attempted suicide...” (Kann et al. 2011: 1). This includes behaviors that can carry significant harmful consequences such as substance use and abuse, riding with a driver who has been drinking, drinking and driving, not wearing a seatbelt, and carrying a weapon. In particular, the behaviors related to alcohol and substance use commonly begin to occur during adolescence and become even more commonplace in high school.

A third area of concern involves the domain of social achievement where sexual minorities tend to fare less well and that has a long-term impact on physical and mental health. Principal among these is school performance. Recently, research (e.g., Ziyadeh et al. 2007) has demonstrated that the academic performance of gay and lesbian students is poorer than that of their heterosexual peers. While student performance is important throughout primary school, it becomes especially vital in high school. Future opportunities can be highly dependent on issues such as high school completion (as dropping out becomes a more common issue) and college admittance.

Significance

Unfortunately, the appropriate data for exploring these relationships are difficult to come by. Although there is a growing literature suggesting that victimization stress exposure may play a role in the poorer mental health outcomes observed among sexual minorities, these studies have oftentimes relied on small non-probability samples (Rotheram-Borus et al. 1994; Anthony R.

D'Augelli et al. 2005; van Heeringen, Vincke 2000; McDaniel, Purcell, and D'Augelli 2001; Safren and Heimberg 1999). Many of the representative studies demonstrating the relationship between orientation and poor mental health have not effectively evaluated the significance of key intervening variables. In addition, and most crucially, those that have examined intervening factors (e.g., Avery et al. 2007) are now quite outdated.

The significance of utilizing contemporary data follows from the fact that the social and political climates around homosexuality and gay rights have substantially transformed over the past 15-20 years. For example, support for same-sex marriage nearly doubled between 1996 (Avery et al. 2007) and 2011 with over 50 percent of Americans now favoring such unions.³ Additionally, ten states and the District Columbia have legalized same-sex marriage. Changes in such attitudes along with the increasingly sympathetic treatment of sexual minorities on television and in movies may have had a significant effect on experiences of victimization stress and self-acceptance. In short, established knowledge on the magnitude and nature of outcome disparities among sexual minorities and on factors that influence such disparities is grossly out of date and may no longer apply. The identification of data obtained in 2009 capable of addressing the three outcomes allows an important advancement over prior literature. Examining such data may reveal a decrease in disparities across sexual orientation for serious and consequential health-related outcomes.

³ <http://www.gallup.com/poll/147662/first-time-majority-americans-favor-legal-gay-marriage.aspx>

Summary

With the critical role identity development plays during adolescence, it is an important stage to examine physical and mental health disparities across sexual identity. This life stage is also especially important due to the disparities being particularly pronounced during adolescence. More specifically, evidence linking the status of sexual minorities to suicide-related behaviors, risky behaviors, and poorer academic performance urgently raises the question of what it is about sexual orientation that contributes to such elevated risks. The goal is to better understand what it is about the circumstances and/or experiences faced by sexual minority youths that lead to the increased likelihood of these three negative and consequential outcomes. Up-to-date data are essential for capturing changes arising from evolving views on homosexuality and bisexuality. An improved understanding of the origins of elevated risks may contribute to an increased capacity to effectively intervene and help this particular minority population to gain an improved quality of life. The central hypothesis that links the separate analyses addressed to these three health-relevant dimensions is that differences in victimization stress exposure, typically in the form of physical and emotional victimization, contribute substantially to such problematic outcomes.

Global Research Question

To what extent are differences in victimization stress exposure implicated in the relationships between sexual orientation and each of the three health-relevant dimensions specified?

1. What potential role does victimization stress exposure play in explaining the relationship between sexual orientation and suicide-related behaviors?
2. To what extent does victimization stress exposure contribute toward explaining the increased risk sexual minorities face in participating in substance-related health risk behaviors?
3. How does taking into account victimization stress exposure help explain the observed academic performance differences across sexual orientation?

Hypotheses:

H1a: I expect to confirm that sexual minority respondents are significantly more likely to report past year suicide ideation and attempts than their heterosexual peers independent of demographic effects.

H1b: I expect victimization stressors to play a significant role in explaining the relationship between sexual orientation and suicide ideation and attempts.

H2a: I expect sexual minorities to participate in significantly more health risk behaviors than their heterosexual peers independent of demographic effects.

H2b: I expect victimization stressors to play a significant explanatory role in the relationship between sexual orientation and participation in health risk behaviors.

H3a: I expect sexual minority respondents to report significantly lower grades than their heterosexual peers independent of demographic effects.

H3b: I expect victimization stressors to play a significant role in explaining the relationship between sexual orientation and self-reported academic performance.

CHAPTER II

SUICIDE IDEATION AND ATTEMPTS

Introduction

With over 3,000 deaths reported each year for those between the ages of 15 and 19 years old, suicide continues to be one of the leading causes of death among adolescents in the United States (Marshall et al. 2011). Taking this into consideration, it is clear that suicide-related behaviors (including ideation and attempts) are a significant public health concern. It is important to keep in mind that as with many other health-related behaviors, suicide ideation and attempts are not randomly dispersed throughout the population. In fact, they commonly differ across statuses through systematic processes. One such status in which this relationship has been observed is sexual orientation, with sexual minorities facing an increased risk in suicide behaviors.

An extensive body of literature has demonstrated that much of the increased risk sexual minorities face in suicide ideation and attempts may be accountable to stress experienced through victimization—or victimization stressors. However, there are grounds for questioning the applicability of this knowledge to contemporary times due to the rapidly evolving attitudes toward sexual minorities. One of the more demonstrable examples involves same-sex marriage. While as of 2003 only one third of Americans supported such unions (Avery et al. 2007), recent polls have indicated that a majority of citizens now

approve of same-sex marriage. Changes in attitudes raise the question of whether the disparities in suicide attempts and ideation are now less pronounced across sexual orientation and whether victimization among sexual minorities is occurring on a less frequent basis. This research takes advantage of relatively contemporary data to revisit the issue of disparities in suicide behavior across sexual orientations and whether victimization stressors remain an important explanatory factor.

Background

While one must keep in mind that sexual minorities are not inherently more likely to attempt or consider committing suicide (D’Augelli et al. 2005; Loosier and Dittus 2010; Russell 2003), they commonly face unique obstacles during development due to their marginalized homosexual or bisexual identities—including the increased risk for victimization stress in strongly heteronormative environments.

Available literature (e.g., Russell and Joyner 2001; Russell and Toomey 2011; D’Augelli et al. 2005; Eisenberg and Resnick 2006; Faulkner and Cranston 1998) demonstrates a clear relationship between sexual minority status and elevated suicide risk. This is particularly pertinent to this stage in life, with suicide being one of the leading causes of death among adolescents (Marshall et al. 2011). It is especially important to understand the antecedents that lead to suicide-related outcomes as well as what leads sexual minorities face an increased risk.

In the early 1970s “reports indicated that young gay men were at risk for suicide” (Russell 2003:1241), but it was not until after the 1989 *Report of the Secretary’s Task Force on Youth Suicide*—stating that “LGB (lesbian, gay, and bisexual) youth were two to three times more likely to attempt suicide than other young people”—that investigators began to give increased attention to the issue (Eisenberg and Resnick 2006: 662). This report also estimated that as many as 30 percent of completed suicides may have been by LGB youth (Eisenberg and Resnick 2006). Although the report’s methodology has been questioned, subsequent research has confirmed that the increased risk for suicide attempts and ideation among LGB youth is both real and serious.

The relevant literature falls into four distinguishable categories: research based on convenience and community-based samples; research based on large probability-based samples; review meta-analyses on the issue; and research from outside the United States. In this process, the various shortcomings of the extant literature that falls within each of these categories is evaluated.

Convenience and Non-random Community-based Samples:

In the absence of large representative data sources for addressing sexual orientation, much of the literature has relied on convenience samples (e.g., Savin-Williams and Ream 2003; Meyer, Dietrich, and Schwartz 2008; D’Augelli et al. 2005; Rutter and Soucar 2002). With a few exceptions (see Savin-Williams and Ream 2003; Rutter and Soucar 2002), the literature utilizing nonrandom samples has demonstrated a strong relationship between sexual orientation and

suicide-related behavior, with sexual minorities being at an increased risk for suicide ideation as well as suicide attempts.

Rotheram-Borus, Hunter, and Rosario (1994) and Proctor and Groze (1994) provided early quantitative studies addressing the question of increased risk for suicide among LGB youths. Based on convenience samples, both found that about 40 percent of their respective samples had attempted suicide (Rotheram-Borus et al. 1994; Proctor and Groze 1994). This is in comparison to the 11 to 16 percent of the general high school population that had been documented by prior research (Rotheram-Borus et al. 1994).

A more recent non-random community-based study (D'Augelli et al. 2005) using three organizations in New York City and surrounding suburbs, reported that nearly one third of the participating youth had a prior suicide attempt. However, only half of these attempts were considered serious by the authors. More importantly, over half of the suicide attempts by gay males were reported to be attributable to their sexual orientation. For lesbian youths, the proportion was closer to one third. Overall, significantly higher rates of both suicide ideation and attempts were found to characterize the LGB youth sample compared to representative data using mostly heterosexual samples (D'Augelli et al. 2005). Further research (van Heeringen and Vincke 2000; McDaniel, Purcell, and D'Augelli 2001; Hershberger and D'Augelli 1995; Hershberger et al. 1997; Safren and Heimberg 1999; Brent 1995) has observed a similar pattern using other convenience-based and non-random community samples.

Similar patterns have been found among African Americans and Latino samples (Meyer et al. 2008; O'Donnell, Meyer, and Schwartz 2011). However, it should be noted that unlike most of the evidence addressed here that involves adolescent populations, the African-American and Latino studies employed adult samples. Other research on suicide attempts that specifically targeted Latino and Asian American adults found an increased risk of recent suicide attempts among gay and bisexual men (Cochran et al. 2007).

Accepting the clearly justified assumption that the elevation in suicide risk is socially rather than biologically driven, the importance of considering factors that link sexual minority status with risk is obvious. In one attempt to identify such factors, D'Augelli et al. (2005) took psychological abuse and gender atypicality into account. They found that those LGB youth that experienced more verbal abuse from their parents as well as those who were seen as more gender atypical by their parents were more likely to have attempted suicide. Importantly, although the effects were seen in both genders, the "gay-related stressors" were a more powerful indicator for males (D'Augelli et al. 2005).

While an overwhelming majority of the community-based literature has clearly demonstrated a relationship between sexual orientation and suicide behavior, there are a couple of exceptions. Neither Rutter and Soucar (2002) nor Savin-Williams and Ream (2003) found an association between sexual orientation and suicide risk among males. However, both surveys had quite small samples, with 100 for the former (including a heterosexual comparison group) and 51 for the latter. Moreover, Savin-Williams and Ream's (2003)

sample was from a gay support group and therefore, did not have a comparison group.

The above literature shares some important weaknesses. First, reliance on convenience and non-random community-based samples leads to a lack of generalizability. Additionally, the sampled groups do not often include a comparison heterosexual group. Instead, the arguments are based on comparisons to representative general samples. Nevertheless, the volume of evidence provided by this literature certainly suggests a meaningful linkage between sexual orientation and suicide behaviors.

Probability-based samples

Although the bulk of available research on the linkage between sexual orientation and suicide outcomes has relied on convenience sampling, an increasing number of studies have taken advantage of data from large probability-based samples. Russell and Joyner (2001) appear to have conducted the first study addressing the relationship between sexual orientation and suicide-related behavior utilizing a nationally representative sample. Based on Wave I of The National Longitudinal Study of Adolescent Health (Add Health), they found a strong relationship between sexual attraction and suicide ideation and attempts. Same-sex attracted males and females were more than twice as likely as opposite-sex attracted youth to attempt suicide. Additionally, same-sex attracted females were nearly two and a half times as likely and males were more than one and a half times as likely to experience suicide ideation when

compared to their opposite-sex attracted peers (Russell and Joyner 2001). Of additional importance to this study was the inclusion of possible intervening variables. Russell and Joyner (2001) found this relationship to be partially mediated by depression, alcohol abuse, victimization, and a feeling of hopelessness. It is important to keep in mind, however, that these variables do not completely account for the increased likelihood for sexual minority youths to experience suicidal thoughts or behaviors, and the association remained clearly observable when demographic variables such as age, and family background were held constant.

In a more recent study based on Add Health data, Russell and Toomey (2011) also found a link between same-sex attraction and suicide ideation and attempts among males. They utilized Waves I and II of the Add health data that allowed them to analyze differences from adolescence to young adulthood. The relationship between attraction and suicidal thoughts and attempts was not observed in Wave II data, with young adult same-sex attracted males being no more likely to report suicide ideation than opposite-sex attracted only males (Russell and Toomey 2011).

Other research has documented an increased likelihood among sexual minorities for suicide ideation and attempts utilizing other large-scale probability-based samples such as the Minnesota Youth Student Survey (Eisenberg and Resnick 2006) and the Youth Risk Behavior Surveillance System (YRBSS) sites in Massachusetts (Bontempo and D'Augelli 2002; Faulkner and Cranston 1998) and Vermont (Bontempo and D'Augelli 2002; Garofalo et al. 1999). Faulkner and

Cranston (1998), in fact, found that LGB respondents were 50 percent more likely to experience suicide ideation and over 2 times as likely to have attempted suicide in the previous year. Additionally, they found that sexual LGB youth were over four times as likely to have suffered a serious injury or poisoning from their attempted suicide than were heterosexual youth (Faulkner and Cranston 1998).

Much of the probability-based research has analyzed potential intervening variables. Eisenberge and Resnik (2006) found important moderating effects from “protective factors,” including family connectedness, teacher and other adult caring, and safe school environments. Victimization has been shown to have an important mediating effect in the relationship between sexual orientation and suicide ideation and attempts (Bontempo and D’Augelli 2002; Garofalo et al. 1999). Although these above-mentioned variables have demonstrated important mediating or moderating roles, sexual orientation remained a significant predictor independent of these additional variables.

In an attempt to better understand the intervening variables between sexual orientation and suicide outcomes, Silenzio and colleagues (2007) analyzed data from Wave III of Add Health (respondents were aged 18-26). They were not as interested in examining the different risks for suicide ideation and attempts by sexual orientation, but rather, whether or not the LGB and non-LGB populations shared the same intervening variables. They found that alcohol problems, drug use, and depression were all related to increased rates of suicide ideation and attempts for the heterosexual respondents. For LGB respondents, all but drug use were related to higher rates of suicide ideation. However, none

influenced the rate of suicide attempts among the LGB respondents (Silenzio et al. 2007).

Utilizing a large population-based probability sample, Paul et al. (2002) found that gay and bisexual males were greater than three times more likely to attempt suicide in comparison to heterosexual males. Although they did take advantage of a probability sample of men who had sex with men, they also share the weakness that many of the community and convenience samples have, which is a lack of a comparison group.

Meta-Analyses

The relationship between sexual orientation and suicide behavior outcomes has also been confirmed by meta-analyses. Analyzing studies with large probability samples, King and colleagues (2008) found that LGB persons were more than two times as likely as heterosexual persons to attempt suicide. Moreover, they were at higher risk for suicide ideation and self-harm in comparison to the heterosexual respondents. They theorize that much of the differences in risk can be accounted for by “institutionalized prejudice, social stress, social exclusion (even in families), and anti-homosexual hatred” in addition of the internalized “sense of shame about their sexuality” (King et al. 2008: 2).

International Literature

In addition to the United States, the relationship between sexual orientation and suicide-related outcomes has been demonstrated in other industrialized countries including England and Wales (King et al. 2003), New Zealand (Fergusson, Horwood, and Beautrais 1999), Norway (Hegna and Wichstrøm 2007), Netherlands (de Graaf, Sandfort, and ten Have 2006), Denmark (Mathy et al. 2009), and Austria (Plöderl and Fartacek 2005; Plöderl, Kralovec, and Fartacek 2010) both when utilizing convenience- and probability-based samples.

Problematic Issues

An unresolved issue concerning sexual orientation and health outcomes is valid operationalization of sexual orientation. The three most common operationalizations are 1) sexual behavior, 2) sexual identity, and 3) sexual attraction. However, there is no agreed-upon basis for determining which is the most appropriate to use. Also, for much of the research utilizing large probability samples, the choice oftentimes relies on what is available in secondary data sources. Although researchers have used different methods for classifying sexual orientation, results demonstrating an increased risk of suicide-related behaviors among sexual minorities have been overwhelmingly consistent regardless of the operationalization employed.

A significant shortcoming of all of the literature addressed above is the fact that bisexual orientation is not taken into account. Most of the literature

combines gay, lesbian, and bisexual respondents to create one LGB category (e.g., D'Augelli et al. 2005; D'Augelli, Hershberger, and Pilkington 2001; Eisenberg and Resnick 2006; Faulkner and Cranston 1998). A smaller minority of the research does not include bisexual respondents (e.g., Russell and Joyner 2001; Cochran and Mays 2000). Because of the small number of respondents, there has been limited research addressing suicidal behaviors and sexual orientation that examines bisexual respondents separately. However, at least one study based in Austria (Plöderl et al. 2010) found that although bisexuals were also more likely to attempt suicide than heterosexuals, the comparative risk was less than that of gay and lesbian respondents.

Although no domestic studies addressing sexual orientation and suicide outcomes were identified in which bisexuals were separately considered, Jorm et al. (2002) demonstrated that in terms of psychological distress, bisexual youths actually face worse outcomes. Taking this into consideration, it is valuable to consider bisexual respondents separately from homosexual respondents.

The last important shortcoming addressed concerns the lack of up-to-date and generalizable information. One of the most commonly used data sets is Add Health (e.g. Russell and Joyner 2001; Russell and Toomey 2011), initiated in 1994-1995.⁴ Although it included adolescents from the start, due to it being a longitudinal data, by Wave III, the majority of respondents were no longer adolescents, and Wave II occurred in 1996.

⁴ <http://www.cpc.unc.edu/projects/addhealth>

The Youth Risk Behavior Surveillance System survey (YRBSS) provides relevant data of more recent origins. However, the research (e.g., Bontempo and D'Augelli 2002; Garofalo et al. 1999) utilizing this data has been sparse, and the most recent data that researchers have employed was from 1995. There has, however, been a recent report by the Center for Disease Control (who produces YRBSS) demonstrating the increased risk that sexual minorities face for suicide outcomes (as well as other health risk behaviors) utilizing data from 2001 to 2009 (CDC 2011). However, these analyses are bivariate in nature, and do not address any demographic controls or possible intervening variables.

Research using more contemporary data is important due to the large shift in public opinion on homosexuality and related issues, such as same sex marriage. The issue of same-sex marriage actually pulls in both directions. On the one hand, public polls have shown that Americans are becoming more accepting of same-sex marriage and multiple states have legalized these unions, beginning with Massachusetts in 2004 and most recently in Rhode Island (2013). Other states that have legalized same-sex marriage include Connecticut (2008), Iowa (2009), Vermont (2009), New Hampshire (2010), and four others in addition to The District of Columbia (2010). Additionally, between the mid 1990s and now, we have seen a large increase in support for gay marriage, with much of the change occurring in the last five years. In 1996, a Gallup poll showed that only 27 percent of Americans were in favor of legalizing same-sex marriage. In 2004, support increased to 33 percent (Avery et al. 2007). More strikingly, the

percent of Americans supporting same-sex marriage has increased to 53 percent as of May 2011.⁵

On the other hand however, we have seen an increase in states passing constitutional amendments banning same sex marriage. Fourteen states passed such amendments in 2004 alone (Hatzenbuehler et al. 2010). Moreover, Hatzenbuehler et al. (2010) demonstrated the pernicious effect the institutional discrimination had on the mental health of gay and bisexual populations. Utilizing two waves of longitudinal data, analyses showed significant increases in mood, depressive, and anxiety disorders among the LGB population in the states that a passed the discriminatory constitutional amendments. More importantly, no significant change in disorders was seen in the heterosexual population. Although there is no research on the effects of legalizing same-sex marriage on mental health, Hatzenbuehler and colleagues (2010) demonstrate the potential effects that public policy can have, and therefore the importance of utilizing more current data when analyzing the relationship between sexual orientation, victimization stressors and mental health outcomes. With the extant literature in mind, the hypothesis is that sexual minorities will face a higher risk for suicide attempts and ideation, and victimization stressors will play a significant role in explaining the relationship.

⁵ <http://www.gallup.com/poll/147662/first-time-majority-americans-favor-legal-gay-marriage.aspx>

Data and Methods

Sample

The Youth Risk Behavior Surveillance System (YRBSS) is a bi-annual cross-sectional survey developed and distributed by the Center for Disease Control (CDC) and administered by individual states and select local sites in American middle and high schools. The YRBSS seeks to analyze trends in important health risk behaviors including “behaviors that contribute to unintentional injuries and violence,” substance use and abuse, “sexual risk behaviors,” “unhealthy dietary behaviors,” and “physical inactivity.”⁶ The 2009 survey includes data from 47 states and 23 local sites. For the purpose of this study, high school (which includes grades 9-12) YRBSS data is utilized.

Each site utilizes the 87 core survey questions provided by the CDC. Many of the survey sites also include supplementary questions in order to address additional health-related issues they would like to prioritize. Questions added by particular sites cover such topics as sexual orientation, additional dietary habits, and pregnancy.

Specifically, data are pooled from state-level samples from five 2009 states that included the variables of interest. For suicide ideation, the sites include Delaware, Illinois, Massachusetts, and Maine while suicide attempts add Vermont. All of the included sites added sexual orientation to the core survey produced by the CDC and the relevant demographic variables. The sites also

⁶ <http://www.cdc.gov/healthyyouth/yrbs/brief.htm>

include victimization stressors. The large sample size produced by combining all relevant sites provides the rare opportunity to both compare risks across sexual minority orientations (i.e., considering homosexual and bisexuals separately) and to analyze potential gender interaction effects. Table 1 summarizes the demographics of the sample split into heterosexual and (all) sexual minority categories.

Measures

Suicide Behaviors. Two separate suicide behaviors are considered: suicide ideation and suicide attempts. The suicide ideation variable is based on two survey questions. The first asks if the respondent has seriously considered suicide in the past 12 months. The second asks if he or she has made a suicide plan over that same period of time. An answer of yes to either of these questions is counted as experiencing suicide ideation. Results from Table 1 (p. 72) indicate that sexual minorities are over 3 times as likely to have reported suicide ideation. In line with prior literature (e.g., Eisenberg and Resnick 2006; Plöderl and Fartacek 2005; Silenzio et al. 2007), suicide attempts are considered separately from suicide ideation. Each respondent was asked how many times he or she attempted suicide over the past 12 months. Any answer of one or more times was considered problematic. Sexual minorities are almost 5 times as likely to report suicide attempts.

Sexual Minority Status. The independent variable is self-reported sexual orientation. The possible responses include heterosexual, gay or lesbian,

bisexual, and not sure (the latter three are consider “sexual minorities”). In the sample used for suicide ideation, 7.5 percent identify as sexual minorities (N = 1,002) (See Table 1). With the addition of Vermont in the suicide attempt sample, the percent of sexual minorities drops to 6 percent (N = 1,268). Integral to these analyses is having a contemporary sample large enough to allow bisexual respondents to be considered separately from gay and lesbian youth, thereby providing an important advancement over previous research. Dummy variables are utilized for each response while running separate analyses treating each respective sexual orientation variable as the reference variable.

Victimization Stressors. To understand the potential increased risk for sexual minorities to experience suicide-related behaviors, the analyses address the intervening role played by victimization stressors. In this case, it is measured using a count of six victimization measures. Included are if the respondent has been (1) threatened or injured at school, (2) involved in a physical fight, (3) needed medical attention after a fight, (4) physically abused by girlfriend or boyfriend, and (5) bullied on school property in the last 12 months, and (6) whether or not the respondent has been raped in his or her lifetime. Victimization scores range from 0 to 6.

Demographic Controls. The included control variables are gender/sex, site, grade (9th-12th), race/ethnicity (White, Black or African American, Hispanic/Latino, and Other). Females are overrepresented for sexual minorities in both samples—Almost 70 percent compared to 49 percent in heterosexual students (see Table 1). There are higher proportions of Hispanic and Other race

respondents among sexual minorities and lower representation for whites, and the difference in percent of African Americans across sexual orientation is negligible in both samples. There are also only minor differences in the academic grade and site breakdowns across sexual minority status for the ideation and attempt samples.

Analytic strategy. First, bivariate analyses address the proportion of individuals who reported suicide ideation and attempts and the mean number of victimization stressors by sexual orientation and gender. Second in order to understand the role that victimization stressors play in the increased risk for suicide ideation and attempts, logistic regression analyses evaluate the relative odds of suicide ideation and attempts by sexual orientation, control variables, and victimizations stressors. Lastly, the analyses address the potential interactions between victimization stressors and sexual orientation. All analyses are run with Stata 11 using the VCE option to adjust for the clustered nature of the data.

The expectations are to confirm the increased risk each sexual minority group face as compared to their heterosexual peers. Additionally, it is predicted that victimization plays an integral role in explaining this increased risk.

Results

Suicide Ideation

Bivariate analyses in Table 2 (p. 73) indicate that about 13 percent of heterosexual respondents reported suicide ideation over the prior 12 months. This compares to 39 percent for gays and lesbians and nearly 48 percent for bisexuals students. Of those who are unsure of their sexual orientation, about 37.5 percent reported suicide ideation. Unsurprisingly, all sexual minority proportions are significantly greater than their heterosexual peers. As indicated in the same table, they also experience significantly more victimization stressors than their heterosexual counterparts including gays and lesbians reporting about 2.1 times more events. Both bisexuals and not sure students averaged 2.3 times more victimization stressors than the heterosexual youth. Table 2 also indicates that when the each gender is considered separately, the results and patterns are similar. However, males do report slightly more victimization stressors than females across each sexual orientation. For reported suicide ideation, the patterns are mixed with fewer heterosexual and not sure males reporting an episode of ideation than their female counterparts and a larger percent of gay and bisexual males reporting ideation.

The logistic regression analyses from Model 2 of Table 3 (p. 74) indicate that each of the sexual minority groups demonstrated similar patterns for suicide ideation and sexual orientation when controlling for demographics. The relative odds of bisexual respondents experiencing ideation are about 4.8 times that of

heterosexual youth. The reported odds for gays and lesbians and unsure respondents are 3.6 and 3.4 respectively times the odds for their heterosexual peers. While all sexual minorities remain significantly more likely to experience suicide ideation than heterosexual youth, the inclusion of victimization stressors significantly decreases these odds among each sexual minority group (Model 3). In addition, the percent variation explained increases by 81 percent (from .069 to .125). These factors suggest victimization stressors likely play an integral role in explaining the relationship between sexual orientation and suicide ideation. More specifically, the victimization stressors explain about 20 percent of the increased risk for GL students, 25 percent for bisexual youth, and 30 percent for students not sure of their sexual orientation. In analyses not shown, there were no significant differences in odds between the three sexual minority groups.

Model 4 tests for interactions between victimization and sexual orientation to examine if the impact of victimization stressors on suicide ideation differ significantly between heterosexual students and each sexual minority group. The results indicate that victimization stressors are less impactful for bisexual students than heterosexual students. This probability differences are presented in Figure 1 (p. 83). Analyses not shown demonstrated no significant differences between the respective sexual minority groups. Additionally, Model 5 reveals that there is no evidence in support of gender differences in the relationship between sexual orientation and suicide ideation. Model 6 indicates that when males are considered separately, there are no significant interactions between sexual orientation and victimization stressors.

However, among females (Model 7), there is a significant interaction between sexual orientation and victimization stressors indicating that the latter is less impactful for bisexuals. The probability differences are shown in Figure 2 (p. 84).

Suicide Attempts.

The analyses in Table 4 (p. 75) demonstrate similar patterns for suicide attempts with 5 percent of heterosexual respondents reporting an attempt over the past year and nearly 24 percent for GL and lesbians and bisexual youth. Additionally, about 17 percent of those unsure of their sexual orientation reported a suicide attempt. The addition of Vermont to the sample changes the mean number of victimization stressors only slightly. Bisexual youth still report the most number of events (1.54) followed by gay and lesbian respondents (1.50) and not sure (1.35). Heterosexual students report an average of .627. While similar relationships remain when analyzing genders separately, females are more likely to have reported a suicide attempt than males across sexual minority categories. However, males report slightly higher levels of victimization.

Similar to the bivariate analyses, logistic regressions demonstrate patterns in the relationship between sexual orientation and suicide attempts similar to suicide ideation. The results in Model 2 of Table 5 (p. 76) show that when all controls are accounted for, the odds of GL respondents attempting suicide over the past year are 4.2 times the odds of their heterosexual peers. Also, the odds for bisexuals and not sure are 4.5 and 3.1 respectively times the odds for heterosexual youth. (In analyses not presented, there were not significant

differences between the sexual minority groups). While the percent explained increases 50 percent from .12 to .18, the odds ratios for sexual orientation once again significantly decrease indicating that victimization stressors explain a portion of the increased risk. Victimization explains 27 percent of the increased risk for GL students, 31 percent for bisexuals, and 36 percent for those unsure of their sexual orientation.

The same possible interactions are explored for suicide attempts as were for suicide ideation in Models 4-7. The results indicate that victimization stressors are less impactful for GL and bisexual students than heterosexual students when males and females are considered together (see Figure 3, p. 85). Analyses not shown demonstrated no significant differences between the respective sexual minority groups. Additionally, there are no significant interactions between sexual orientation and gender. While there are no significant interactions between sexual orientation and victimization stressors when males are considered separately (Model 6), a significant interaction does remain among females, with victimization stressors being less impactful for bisexual respondents. The probability differences are presented in Figure 4 (p. 86).

Discussion

The intended goal was to confirm the linkage between sexual orientation and suicide outcomes and to evaluate the extent to which victimization stressors explain this relationship. Despite the increasing acceptance of sexual minorities

in the country as demonstrated by portrayals in the media and increasing support of such issues as same-sex marriage, in line with prior literature (e.g., D'Augelli et al., 2005; Russell & Joyner, 2001; Russell & Toomey, 2011), sexual minorities remain at a much higher risk for reported suicide ideation and suicide attempts than their heterosexual peers. This is true of all each sexual minority group, including gays and lesbians, bisexuals, and those who are not sure of their sexual orientation.

While demonstrating sexual minorities' increased risk for suicide-related behavior using contemporary data with large probability sample is significant, more important is the potential role that victimization stressors plays in explaining the increased risk. Results for suicide ideation and attempts support the hypothesis that victimization stressors play a significant role in explaining the relationship between sexual orientation and suicide-related behavior. This confirms recent media reports attributing suicides of Jamey Rodemeyer and numerous other sexual minority youth at least partially due to being victimized and bullied by their peers. These reports are not merely one-off incidences. They are all too common.

It is important to keep in mind that while victimization stressors appears to play an important role in the increased risk for suicide ideation and suicide attempts, there still remains a quite significant percent of the variation in these behaviors unexplained (around 75 percent for both). It is likely that part of this is due to the limited victimization stressors available in the YRBS survey. With this in mind, efforts in minimizing the bullying of sexual minorities must continue to be

made. However, it is also important to explore what else it is about the experience of sexual minorities that leads to an increased risk for such outcomes.

Limitations

While compelling, the analyses should still be interpreted cautiously, as they do have their limitations. One limitation already touched on above is not having a broader array of victimization stressors. A second limitation is the inability to analyze any potential intervening effects social support may play in this relationship. This is important considering that prior literature (e.g., Eisenberg & Resnick, 2006; Needham & Austin, 2010) has demonstrated a buffering effect of family and peer support (“protective factors”). Increased school safety and (non-family) “adult caring” also demonstrated a significant protective effect on the relationship between sexual orientation and suicidality (Eisenberg & Resnick, 2006).

An additional limitation is the generalizability of the data. Although it is a random and large sample, the data are still pooled from only four and five states respectively. However, this represents an advancement over prior studies with statewide data including more diverse samples (e.g., the presence of urban, suburban, and rural areas in the included states) than the extant literature.

The biggest limitation is the cross-sectional nature of the data. While victimization stressors explain a portion of the relationship between sexual orientation and suicide-related outcomes, this conclusion must be taken with

caution. Because the data is cross-sectional, it is difficult to argue this point with complete confidence (with respect to the present analyses). This is due to the temporal priority issue. While one could certainly and successfully argue that sexual orientation is not caused by either victimization stressors or suicide-related behaviors, there is an issue of causal ordering between the latter two. It cannot be assumed that the victimization stressors necessarily precede reported suicide ideation or suicide attempts.

In the future, it is important to have contemporary longitudinal survey data that address both a broad array of victimization stressors as well other potential intervening variables—especially social support measures. Multiple waves are integral to better establishing the causal relationships between sexual orientation, victimization stressors, and suicide-related outcomes. In addition to quantitative research, continued qualitative studies are necessary to better understand the mechanisms involved in higher rates of suicide attempts and ideation.

Conclusions

Adolescence is a period where “sexual orientation, identity, and behavior are fundamentally in development” (Russell, 2003: 1251), and this is especially true as one enters high school. While it is common for many to have a more difficult time while traversing the hurdles of high school, this is especially true of sexual minorities who are growing up in a heteronormative environment that openly accepts discrimination based on sexual orientation. High schools plays an integral role in furthering such a culture, and it has real and serious

consequences. Arguably, the most serious of these consequences is taking one's own life. In examining this increased risk, victimization stressors account at least partially for this increased risk for suicide ideation and suicide attempts.

It is necessary to continue to research this relationship in order to better understand the processes that lead to such risk. Not only that, but integral to making a serious change is utilizing results to better inform specific policies and programs aimed at decreasing the likelihood of sexual minorities to attempt or seriously consider suicide. Such programs in high school and throughout communities need to be implemented nation-wide to in order to both significantly decrease stressors faced by sexual minorities as well as improve their support systems. This should involve direct interaction with sexual minorities (e.g., developing support programs and efforts to provide contact with role models who share these identities) as well as changes in the environment to diminish marginalization due to the behaviors of their peers. Especially through high schools, changes in "social climate and policies (can) make a difference in the lives of sexual minorities" (Russell, 2003: 1252). These changes must "address the attitudes both teachers and students hold toward sexual minorities" in addition to policies protecting sexual minority students (Birkett, Espelage, & Koenig, 2009).

Although it is important address bullying in any shape or form, it is imperative to be sensitive to the unique experiences and risks faced by sexual minorities, and take this into consideration when implementing such anti-bullying policies.

CHAPTER III

HEALTH RISK BEHAVIORS

Introduction

The Center for Disease Control and Prevention (2011) has called attention to a number of behaviors associated with increased risk for injury, morbidity, and mortality. Among the more significant of these health risk behaviors in terms of the magnitude of their consequences are the use and abuse of tobacco, alcohol, and illicit drugs. It is important to note that such behaviors are not randomly distributed throughout the population. Rather, they often vary in systematic ways with clear disparities being observed across statuses. This is particularly evident across sexual orientation, with sexual minorities often participating in more of these behaviors compared to their heterosexual peers.

A substantial body of research has confirmed these disparities and indicated that victimization may be a principal explanatory factor in relation to this elevation in health risk behaviors among sexual minorities. However, there are grounds for questioning the applicability of this body of knowledge to present day given the dramatic changes in attitudes toward and acceptance of sexual minorities in recent years. One example demonstrating these changes is support for same-sex marriage, which is now at an all time high with over half of the population in the United States supporting such unions. This is in comparison to only 27 percent in 1996 and 33 percent in 2003 (Avery et al. 2007). The evolving

attitudes surrounding sexual minorities raise the question of whether victimization has become less frequent and differences in risky health behaviors across sexual orientation less pronounced. This paper takes advantage of relatively up-to-date data and revisits the question of disparities in health risk behaviors across sexual orientations and whether or not victimization remains an important explanatory factor.

Background

While most prior studies deal with multiple health risk behaviors, the review below focuses separately on three of the more relevant behaviors in terms of disparities by sexual orientation. The first part centers on tobacco use, which is one of the more commonly studied behaviors associated with health disparities. Second, prior research on disparities in alcohol use and alcohol-related behaviors is covered. Lastly, the review addresses literature dealing with prior evidence on sexual orientation differences in drug use and related behaviors.

Tobacco Use

With tobacco use being the “leading preventable cause of death in the United States,” it is important to understand disparities in use to better implement interventions (Hatzenbuehler, Wieringa, and Keyes 2011: 531). The extant literature has demonstrated that disparities in tobacco use commonly occur across sexual orientation. The bulk of the literature (Lee, Griffin, and Melvin

2009; Marshal et al. 2008; Garofalo et al. 1998; Austin et al. 2004) confirms that those respondents who identify as lesbian, gay or bisexual (LGB) face increased odds of smoking compared to their heterosexual counterparts. More important, a substantial body of work (e.g., Lee et al. 2009; Busseri et al. 2008; Hatzenbuehler et al. 2011; Marshal et al. 2008) suggests that victimization may be a principal explanatory factor in relation to such disparities.

While it is clear that sexual minorities are at an increased risk for smoking when lesbian, gay, and bisexual respondents are considered together, research addressing this disparity separating bisexual respondents has had mixed results. For example, while Hatzenbuehler and colleagues (2011) found both gay and lesbian and bisexual respondents to be significantly more likely to smoke cigarettes in comparison to their heterosexual peers, Udry and Chantala (2002) found contrary evidence for GL youth. When considered separately from their bisexual counterparts, the risk of smoking was not significantly different from heterosexual respondents. The increased risk for bisexuals, however, remained. Similar results were presented by Easton and colleagues (2008).

Alcohol Use and Abuse

Another significant health risk behavior in which disparities across sexual orientation have been found is alcohol use and abuse. However, the results are less clear than for tobacco use. Utilizing 1993 Massachusetts YRBSS data, Faulkner and Cranston (1998) found that over the prior 30 days, in comparison to their heterosexual peers, the lesbian, gay and bisexual (LGB) students were

more than 9 times as likely to have used alcohol every day and over 4 times more likely to have had at least 10 or more episodes of heavy drinking. In an effort to better understand this relationship, Bontempo and D'Augelli (2002) used data from the following year's YRBSS (2002) to investigate this relationship while considering bisexual youth separately from gay and lesbian in addition to separating their results by gender. They found similar patterns to Faulkner and Cranston (1998), with gay and bisexual boys and lesbian and bisexual girls all being more likely to average significantly more drinks over the prior 30 days than heterosexual boys and girls respectively. More important, they also found that victimization played an integral role in explaining the increased risk faced by each sexual minority subgroup. Espelage and colleagues (2008) demonstrated similar findings utilizing data from a largely rural midwestern county.

Not all of the literature supports the argument that LGB youth engage in significantly more alcohol use than their heterosexual peers. Using Add Health data (Loosier and Dittus 2010) and the Growing Up Today Study (GUTS) (Corliss et al. 2008; Ziyadeh et al. 2007), other research has reported differing results. Loosier and Dittus (2010) found that while bisexual students drink significantly more than their heterosexual peers, gay and lesbian youth did not differ significantly. In research based on the GUTS survey, which randomly samples children of nurses, Corliss et al. (2008) examined this relationship separating genders and found that among males, neither bisexual nor gay males differed significantly from heterosexual males in binge drinking. For females, bisexuals

were more likely to binge drink while lesbians did not significantly differ from their heterosexual peers.

Drug Use

There is also extant literature addressing disparities in drug use across sexual orientation. Utilizing YRBSS data from Massachusetts (1995), Garofalo and colleagues (1998) found LGB students to be significantly more likely to have used illicit drugs—including marijuana, cocaine, inhalants, injectable drugs and others—and at an earlier age than their heterosexual peers. The largest disparity was in cocaine use before age 13, with LGB students being over 14 times more likely to have done so. Further research from Faulkner and Cranston (1998) also found LGB youth more likely to have used illicit drugs in the previous 30 days and more likely to have used drugs more often. The one exception was finding a significant difference in using marijuana at least once over the past 30 days.

Whereas Garofalo et al. (1995) and Faulkner and Cranston (1998) considered males and females together, others have analyzed each gender separately. Meta-analyses by Marshal and colleagues (2008) found similar patterns in drug use disparities with LGB youth of both genders being more likely to have used harder drugs and marijuana, with the largest disparity in the use of marijuana. Further research (e.g., Russell, Driscoll, and Truong 2002; Corliss et al. 2008; Robin et al. 2002) has confirmed such findings when analyzing each gender independently. When considered separately, both gays and lesbians and

bisexual youth have demonstrated increased risk for marijuana use as well other drugs (Russell et al. 2002; Robin et al. 2002).

While the above literature has clearly shown that sexual minorities are at increased risk for drug use, few have investigated the potential explanatory role that victimization stressors may play in this relationship. The most prominent example is research from Bontempo and D'Augelli (2002), who found victimization stressors to play a significant mediating role between sexual orientation and marijuana and cocaine use. Although they did separate analyses by gender, like other earlier research, they did not consider bisexual respondents separately from gay or lesbian respondents.

Shortcomings

The most significant shortcoming of the literature dealing with the relationship between sexual orientation, victimization stressors, and health-risk behaviors is the lack contemporary data. While more recent surveys addressing specific populations such as the GUTS survey have relied on more contemporary data, the literature utilizing large-scale random samples (e.g., Add Health and mid 90s YRBSS) is outdated, lacking information covering the last decade or so.

With the changing political context and public opinions concerning sexual minorities, up-to-date data are a necessity. As noted above, the issue of marriage rights provides an illustration of recent change, with the majority of Americans now in support of same-sex unions (and support has been increasing rather quickly). Additionally, 10 states and Washington D.C. have legalized

same-sex marriage (and a number of other states have legalized same sex domestic partnerships and civil unions). More recently, Maryland and Washington became the first states to approve same-sex marriage through popular vote. However, this brings up the fact that not all of the changes in context have been positive. Many states have passed voter-supported bans against same-sex marriage, including 14 in 2004 alone. Hatzenbuehler and colleagues (2010) demonstrated the pernicious effects such institutional discrimination can have on sexual minorities' mental health. Utilizing longitudinal data, they found increases in depressive and anxiety disorders among sexual minorities who lived in states where the bans were passed (while no difference was found among heterosexuals over the same time).

With consideration of the changes in the social and political context surrounding sexual minorities that have occurred over the past 10-15 years—both positive and negative—it is essential to update the literature with contemporary data analyzing the relationship between sexual orientation, victimization stressors, and health risk behaviors. Additionally, it is imperative to utilize a sample large enough to allow bisexual respondents to be considered separately from their gay and lesbian peers to understand potentially differing effects of sexual minority orientation and the role played by victimization stressors.

Data and Methods

Sample

The Youth Risk Behavior Surveillance System (YRBSS) is a bi-annual cross-sectional survey developed and distributed by the Center for Disease Control (CDC) and administered by individual states and select local sites in American middle and high schools. The YRBSS seeks to analyze trends in important health risk behaviors including “behaviors that contribute to unintentional injuries and violence,” substance use and abuse, “sexual risk behaviors,” “unhealthy dietary behaviors,” and “physical inactivity.”⁷ The 2009 survey includes data from 47 states and 23 local sites. For the purpose of this study, high school (which includes grades 9-12) YRBSS data is utilized.

Each site utilizes the 87 core survey questions provided by the CDC. Many of the survey sites also include supplementary questions in order to address additional health-related issues they would like to prioritize. Questions added by particular sites cover such topics as sexual orientation, additional dietary habits, and pregnancy.

Specifically, data are pooled from state-level sample from three 2009 states that included the variables of interest. The sites are Delaware, Illinois, and Massachusetts. All of the included sites added sexual orientation to the core survey produced by the CDC and the relevant demographic variables. The sites also include victimization stressors. The large sample size produced by

⁷ <http://www.cdc.gov/healthyyouth/yrbs/brief.htm>

combining all relevant sites provides the rare opportunity to both compare risks across sexual minority orientations (i.e., considering homosexual and bisexuals separately) and to consider genders separately. Table 6 (p. 77) summarizes the demographics of the sample split into heterosexual and (all) sexual minority categories.

Measures

Health Risk Behaviors. The health risk behavior outcome is a count utilizing six different questions from the survey. It is measured ordinally yielding scores from 0 to 6. Three health risk behaviors are related to alcohol use over the preceding 30 days. First, the survey inquires to how many times the respondent had “5 or more drinks in a row”. The next question addresses how many times the respondent drove after drinking, and the third question inquires about the number times riding in a car with a driver who has been drinking. All of the alcohol-related variables are dichotomized, with one or more instance of each behavior considered problematic.

The fourth health risk behavior concerns cigarettes. The respondents were asked if they have ever smoked one or more cigarettes for at least 30 consecutive days. This is also measured dichotomously with an affirmative response considered problematic.

The last two behaviors are related to illicit drug use. The first addresses how many times the respondent used marijuana over the past 30 days. Any answer of one or more days will be counted as a health risk behavior. The

second behavior deals with the lifetime use of other illicit drugs, including cocaine, heroin, methamphetamines, and ecstasy. While the survey asks about each of these drugs separately, they are considered together with one or more uses of any of these substances considered problematic. As presented in Table 6, sexual minorities average nearly 1.5 times as many health risk behaviors as heterosexual respondents.

Sexual Minority Status. The independent variable addresses the sexual orientation of the respondent. The possible responses include heterosexual, gay or lesbian, bisexual, and not sure—the latter three, considered as “sexual minorities.” Over 7 percent of the sample identify as a sexual minority (N = 476) (See Table 6). Utilizing a dramatically larger sample than is regularly available for such analyses, however, provides the opportunity for bisexual respondents to be considered separately from gay and lesbian youth, and dummy variables are created for each response with heterosexual as the reference category.

Victimization Stressors. In addressing the potential increased risk for sexual minorities to participate in negative health-related behaviors, the potential intervening role played by victimization stressors is examined. In this case, it is measured using a count of six victimization measures. Included are if the respondent has been (1) threatened or injured at school, (2) involved in a physical fight, (3) needed medical attention after a fight, (4) physically abused by girlfriend or boyfriend, and (5) bullied on school property in the last 12 months, and (6) whether or not the respondent has been raped in his or her lifetime. Victimization scores range from 0 to 6.

Demographic Controls. The control variables included in the analyses are state, sex/gender, grade (9th-12th), and race/ethnicity (White, Black or African American, Hispanic/Latino, and Other). While the gender split is close to half and half for heterosexuals, females are overrepresented in the sexual minority category with 70 percent of those identifying as minorities being females (see Table 6). The race/ethnicity breakdown also differs by sexual orientation, with higher proportions of Hispanic and other race and slightly lower proportions of whites and African Americans among sexual minorities in comparison to heterosexual respondents. The demographic breakdowns by grade and state are fairly comparable between each category.

Analytic strategy. First, bivariate analyses address the mean reported health risk behaviors and the mean number of victimization stressors across sexual orientation and gender. Second, in order to understand the role that victimization stressors play in the relationship between sexual orientation and health risk behaviors, multiple OLS regression models analyze the impact of sexual orientation, the control variables, and victimization stressors. Lastly, the analyses address potential interactions. All analyses are run with Stata 11 using the VCE option to adjust for the clustered nature of the data.

The expectations are that each sexual minority group will report significantly more health risk behaviors in comparison to their heterosexual peers. Additionally, it is predicted that victimization plays an integral role in explaining the poorer outcome.

Results

The bivariate analyses presented in Table 7 (p. 78) indicate that gays and lesbians as well as bisexual youth participate in significantly more health risk behaviors than their heterosexual counterparts. While heterosexual participants average just under one risk behavior over the prior 12 months, GL and bisexuals average 1.43 and 1.59 events respectively. This equates to increases of 43 percent for GL and almost 60 percent bisexual students. Additionally, the former reported around 1.8 times the events experienced by their heterosexual counterparts, and the latter faced nearly 2.3 times the experiences. While those who identified as “not sure” reported significantly more victimization stress events than the heterosexual youth (1.49 compared to .705), they did not report significantly more health risk behaviors. Table 7 also reveals that when the same analyses are run separately by gender, the results and patterns are comparable. However, females do average lower levels of victimization stressors across all sexual orientation groups, and males report more risk behaviors in each orientation group with the exception of gay and lesbian youth.

The OLS regression in Model 2 of Table 8 (p. 79) confirms the bivariate pattern remains present when demographics are controlled, with GL and bisexual groups reporting increased numbers of health risk behaviors in comparison to the heterosexual youth. Additionally, there remains no significant difference between the heterosexual students and those not sure of their sexual orientation.

All together, sexual orientation and the demographic control variables explain about 4 percent of the variation in health risk behaviors. When

victimization is accounted for (Model 3) the percentage explained increases fourfold (to 16 percent). With the additional significant decreases in the impact of sexual orientation on health risk behaviors for GL and bisexual students, it suggests that victimization stressors explain part of why these two sexual minority groups participate in more health risk behaviors. More specifically, 67 percent of the increased risk for both GL and bisexual youth in health risk behaviors is explained by victimization. The difference for those not sure of their sexual orientation remains statistically insignificant. The analysis from Model 4 indicates that there is no significant interaction between sexual orientation and victimization stressors when considering both genders together. Model 5 reveals that there is no evidence in support of significant gender differences in the relationship between sexual orientation and health risk behaviors. When males are considered separately from females (Model 6), there are significant interactions between sexual orientation with victimization stressors being less impactful for GL students and more impactful among those not sure. The respective slopes are presented in Figure 5 (p. 87).

Discussion

The above analyses indicate that despite the more accepting climate in terms of sexual minorities, gays and lesbians and bisexual youth still participate in higher numbers of health risk behaviors. Confirmation of this relationship while utilizing contemporary data with a large probability sample is important, but of increased significance is whether victimization stressors explain this increased

risk. The results support the hypothesis that victimization stressors help explain the higher numbers of health risk behaviors for both GL and bisexual students in comparison to their heterosexual peers. However, the results concerning students that are not sure of their sexual orientation fail to confirm the hypothesis. While these students face increased victimization stressors, they do not participate in significantly more health risk behaviors than their heterosexual peers. In future research, it is worth exploring what may buffer the effect of victimization stressors for students not sure of their sexual orientation.

It is important to remember that while the analyses indicate that victimization stressors play an important role in the higher number of health risk behaviors by gay and lesbian and bisexual youth, a significant percent of the overall variation remains unexplained (around 84 percent). It is probable that this is partially due to the limited number of victimization stressors present in the survey. With this in mind, it is important to both make efforts to minimize the victimization stressors that sexual minorities face while still exploring what it is about their experience that leads to higher numbers of health risk behaviors.

Limitations

While compelling, the analyses should still be interpreted cautiously, as they do have their limitations. First, the survey lacks a broad array of victimization stressors. The second important limitation is the lack of personal and social resources, which can play a significant buffering role in this relationship. This is important when taking in to consideration prior literature that

has demonstrated the buffering effect that resources such as family and peer support (e.g, Eisenberg and Resnick 2006; Needham and Austin 2010) and school safety and (non-family) adult caring can have in related behaviors (Eisenberg and Resnick 2006), such as suicide ideation and attempts. It is possible that such buffering effects may be at play for the students who are not sure of their sexual orientation and participate in no more health risk behaviors than the heterosexual youth despite the increased number of victimization stressors.

A third limitation of the data is the lack of generalizability. While the sample is random and quite large, the data are pooled from only three states. This does represent an advancement over prior literature, however, with the pooling of state wide data including more diverse samples (e.g., the presence of urban, suburban, and rural areas in the included states).

The most significant limitation is the fact that the data are cross-sectional. Although the analyses demonstrate that victimization stressors explain a significant portion in the relationship between sexual minorities (except those not sure) and health risk behaviors, this conclusion must be taken with caution. Because of the nature of cross-sectional data, it is difficult to have complete confidence in these findings (with respect the present analyses). This is because of the temporal priority issue. Although it could certainly be argued (quite successfully) that neither victimization stressors nor risky behavior could affect sexual orientation, there is a question of causal ordering between the former two.

It cannot be assumed that victimization stressors necessarily precede health risk behaviors.

Integral to future exploration of this relationship is utilizing contemporary longitudinal survey data that addresses both a broad array of victimization stressors in addition to other potential intervening variables, such as those related to social and personal resources. Multiple waves of data are vital to better establishing a causal relationship between sexual orientation, victimization stressors, and health risk behaviors. In addition to quantitative analyses, continued qualitative studies are essential in better understanding the mechanism involved in the increased number of health risk behaviors for gay and lesbian and bisexual youth.

Conclusions

Adolescence is often a difficult time for most youth regardless of sexual orientation. This is a time when “sexual orientation, identity, and behavior are fundamentally (developing)” (Russell et al. 2002: 1251). Sexual minorities, however, oftentimes face more challenges than heterosexual youth due to being surrounded by a heteronormative environment that commonly accepts discrimination based on sexual orientation. This culture is especially pervasive in high schools, and it has real and dangerous consequences. Included is the increased risk to participate in health risk behaviors such as binge drinking, driving while intoxicated, and illicit drug use.

It is important that research on this relationship continues to better understand the mechanisms that lead to the increased participation in these health risk behaviors by GL and bisexual youth. Additionally, it is important to use such results to influence policies and programs aimed at decreasing such behaviors among these two sexual minority groups. With victimization stressors accounting for about two-thirds of the increased risk in reporting health risk behaviors for GL and bisexual youth (as compared to heterosexuals), programs in high schools (and earlier) and communities throughout the nation should be implemented to help decrease these stressors in addition to improving their support systems. Ideally, this should involve direct interaction with sexual minorities (e.g., support programs and access to other role models who have shared similar experiences) in addition to creating an environment that minimizes the marginalization they face from peers and adults. The changes “must address the attitudes both teachers and students hold toward sexual minorities” in addition to protecting the minority students (Birkett, Espelage, and Koenig 2009: 998-999). Importantly, high school is a time when such changes in social climate can have a positive impact on sexual minorities (Russell 2002)

While addressing bullying in any form is important, it is essential to be sensitive to the unique victimization stressors that sexual minorities face. This must be considered when implementing anti-bullying policies among others.

CHAPTER IV

ACADEMIC PERFORMANCE

Introduction

Physical and mental health disparities by sexual orientation are recognized as common among adolescents. Some of the more often studied outcomes include depression (e.g., Cochran and Mays 2009, 2000; King et al. 2008; Ueno 2005), suicide-related behaviors (e.g., Bridge, Goldstein, and Brent 2006; Bagley and Tremblay 2000; Brent 1995; D'Augelli et al. 2005), and health-risk behaviors (e.g., smoking, drinking and drinking-related issues) (e.g., Austin, Ziyadeh, Fisher, et al. 2004; Bontempo and D'Augelli 2002; DuRant, Krowchuk, and Sinal 1998; Ford and Jasinski 2006). Another personally and socially relevant outcome that has received comparatively limited attention is sexual orientation disparities in academic performance.

While academic achievement is not a health outcome, it is related, with health affecting academic performance and educational attainment influencing future physical and mental health (Chandola et al. 2006). Considering this association along with the many other life opportunities that are affected by achievement in school (e.g., profession, earning potential), emphasizing the significance of identifying factors that contribute to disparate educational aspirations and performance is of the utmost importance. As with suicide-related behavior and health-risk behaviors, research (Pearson, Muller, and Wilkinson

2007; Rostosky et al. 2003; Russell et al. 2002) has suggested a higher probability of poor academic performance and lower level of involvement in education among sexual minority groups. However, relevant studies are few in number, and evidence of the association is less than definitive.

Background

Sexual minority students face numerous difficulties while attending school, including homophobic attitudes, harassment, general disdain from their peers (Grayson 1987), and heterosexist school environments (Smith 1998), that may well result in consequences such as poor performance and/or dropping out of school (Grayson 1987; Smith 1998). Fear of the potential harmful consequences of disclosure of one's sexual orientation can also lead to more school-related stress among closeted individuals (Nichols 1999).

Prior research has shown that as many as 22 percent of sexual minorities report being physically hurt because of their sexual orientation, nearly 30 percent dropped out of school, and almost 40 percent report frequent truancy (Anhalt and Morris 1998; Nichols 1999). Moreover, nearly 75 percent have "indicated a deterioration of their performance in school (Nichols 1999:511). Additionally, because more students are identifying as sexual minorities at earlier ages, the possibility of negative consequences may be increasing (Nichols 1999).

Utilizing a sample of over 2000 9th grade adolescents from Appalachian Kentucky, Rostosky et al. (2003) demonstrated that sexual minority students had significantly lower GPAs and were significantly lower on their school belonging

scale. Interestingly, they also argued that their findings indicate that GPA and school belonging played a mediating role between sexual orientation and marijuana and alcohol use (Rostosky et al. 2003). Although it would be unwise to generalize their findings to the broader population, it documents this important linkage within a rural area. This is a rare finding within the sexual orientation literature, presumably due to small sample sizes and an associated lack of sexual minority representation in such areas. It should also be kept in mind that all sexual minorities were combined—partially because of how small the sample sizes would have been had they attempted to distinguish between bisexual and homosexual adolescents.

The National Longitudinal Study of Adolescent Health (Add Health) was one of the first large-scale nationally representative data sets that provided the opportunity to analyze the relationship between sexual orientation and various outcomes. (Pearson et al. 2007) utilized this data in an effort to explain potential academic disparities across sexual orientation. Overall, they found that same-sex attracted and bisexual-sex attracted youth were more likely to have lower grades and to fail a course and less likely to complete more stringent courses such as chemistry and Algebra II in high school than their opposite-sex attracted peers. Much of this can be attributed to sexual minority students being less likely to be socially integrated into their schools, less attached to their teachers, and to have more difficulty engaging in school (Pearson et al. 2007). A key weakness of Pearson and colleagues' (2007) study is not analyzing males and females separately.

In addition, analyses of Add Health data have indicated that a significant portion of the increased likelihood for sexual minority boys to fail a class (51 percent more likely than heterosexual peers) can be attributed to their increased risk for emotional distress and substance use. Emotional distress and substance use also appear to play an important mediating role in the linkage between sexual orientation and taking classes integral to entry into secondary education. Sexual minority girls are 36 percent less likely than sexual majority girls to take more demanding classes such as chemistry and Algebra II—which are important in college preparation (Pearson et al. 2007).

Russell and colleagues (2002) had previously used the Add Health to address the sexual minority achievement relationship. However, their analyses differed by their separation of bisexual-attracted respondents from same-sex attracted youths. They found that bisexual-attracted boys faced the worst academic outcomes, with significantly lower GPAs than their heterosexual counterparts (2.49 compared to 2.69). They also experienced more school-related troubles than their heterosexual peers. However, same-sex attracted boys did not differ significantly from their peers in school outcomes. Among the girls, both same-sex and bisexual-attracted girls reported significantly more school problems and lower GPAs than their sexual majority peers. While the effects of sexual orientation on school troubles were partially mediated by social relationships (with family, teacher, and peers), the difference in GPA for same-sex attracted boys and opposite-sex attracted boys remained the same with these factors considered ((Russell et al. 2002). Other research (e.g., Osborne

and Wagner 2007) has also demonstrated an increased likelihood for bisexual-attracted males to suffer poor academic outcomes. While Add Health provided the opportunity to analyze the relationship between sexual orientation and academic performance, it is now outdated. Wave II of Add Health (when most of the respondents were at the tail end of their adolescence) was conducted in 1996. Much has changed in the political climate surrounding sexual orientation.

There is also literature that has separated those who identify as “mostly” heterosexual from exclusively heterosexual in examining the relationship between sexual orientation and academic outcomes. Busseri and colleagues (2006) found mixed results when using this distinction in their study of high school adolescents in Ontario, Canada. They developed an academic orientation variable, which included measures of “typical grades; educational aspirations; planfulness, frequency of feeling bored at school; perceived importance of doing well at school” (Busseri et al. 2006:567). The authors’ results indicated that mostly heterosexual respondents were no different from their exclusively heterosexual peers in academic orientation. Same-sex attracted students also did not differ significantly from exclusively heterosexual adolescents but bisexual-attracted students were significantly more likely to have lower scores on academic orientation. However, at the same time, bisexual attracted students did not differ significantly from mostly heterosexual and same-sex attracted students on that measure. When considering bisexual and same-sex attracted adolescents together, they observed that sexual minority students scored significantly lower on academic orientation (Busseri et al. 2006).

The literature analyzing the relationship between sexual identity, victimization stressors, and academic performance is fairly limited and has provided mixed results. More importantly, the research is outdated. There is a clear lack of recent data analyzing this relationship, which is important because the context surrounding issues of sexual orientation has changed greatly over the last decade, pulling in both directions. One of the most significant changes has been in the public opinion of homosexuality and gay rights. For example, American citizens have become increasingly supportive of same-sex unions. While in 1996, Gallup indicated that 27 percent of the population favored same-sex marriage (Avery et al. 2007), in May 2011 the support increased to 53 percent.⁸ Moreover, multiple states have legalized same-sex marriage and civil unions, including Massachusetts, Connecticut, Iowa, Vermont, New Hampshire, and five other states in addition to the District of Columbia.

Despite the gains that same-sex marriage has seen in public opinion over the last decade and a half, it is also important to consider the barriers that have been placed over this same time period—mostly in the form of state constitutional amendments barring same-sex marriages. In 2004 alone 14 states passed such amendments (Hatzenbuehler, Wieringa, and Keyes 2011). More importantly, research has demonstrated a significant increase in mood, depressive, and anxiety disorders among the LGB population in the states that passed the discriminatory constitutional amendments. In comparison, heterosexual respondents' mental health outcomes in these states did not

⁸ <http://www.gallup.com/poll/147662/first-time-majority-americans-favor-legal-gay-marriage.aspx>

significantly differ over this same time period (Hatzenbuehler et al. 2010). The changes in political context and attitudes toward sexual minorities demonstrate the importance of utilizing contemporary data. In terms of sexual orientation, victimization stressors, and academic outcomes, this is an important shortcoming that needs to be addressed.

Data and Methods

Sample

The Youth Risk Behavior Surveillance System (YRBSS) is a bi-annual cross-sectional survey developed and distributed by the Center for Disease Control (CDC) and administered by individual states and select local sites in American middle and high schools. The YRBSS seeks to analyze trends in important health risk behaviors including “behaviors that contribute to unintentional injuries and violence,” substance use and abuse, “sexual risk behaviors,” “unhealthy dietary behaviors,” and “physical inactivity.”⁹ The 2009 survey includes data from 47 states and 23 local sites. For the purpose of this study, high school (which includes grades 9-12) YRBSS data is utilized.

Each site utilizes the 87 core survey questions provided by the CDC. Many of the survey sites also include supplementary questions in order to address additional health-related issues they would like to prioritize. Questions

⁹ <http://www.cdc.gov/healthyyouth/yrbs/brief.htm>

added by particular sites cover such topics as sexual orientation, additional dietary habits, and pregnancy.

Specifically, data are pooled from state-level samples from three 2009 states that included the variables of interest. The sites are Delaware, Massachusetts, and Vermont. All of included sites added sexual orientation to the core survey produced by the CDC and the relevant demographic variables. The sites also include victimization stressors. The large sample size produced by combining all relevant sites provides the rare opportunity to both compare risks across sexual minority orientations (i.e., considering homosexual and bisexuals separately) and to consider genders separately. Table 9 (p. 80) summarizes the demographics of the sample split into heterosexual and (all) sexual minority categories.

Measures

Academic Performance. Academic performance is measured by self-report. The respondents are asked to describe their grades over the past 12 months. It is measured ordinally with possible responses of mostly A's, B's, C's, D's, or F's. The variable is recoded so that A equals a score of four and F is zero. As indicated in Table 9, sexual minority students' average reported grades are about 10 percent lower than heterosexual students.

Sexual Minority Status. The independent variable is self-reported sexual orientation. The possible responses include heterosexual, gay or lesbian, bisexual, and not sure. Just over 7 percent of the sample identify as a sexual

minority (N = 970) (See Table 9). Integral to these analyses is having a contemporary sample large enough to allow bisexual respondents to be considered separately from gay and lesbian youth, thereby providing an important advancement over previous research. Dummy variables are utilized for each response while running separate analyses treating each respective sexual orientation variable as the reference variable.

Victimization Stressors. In addressing the potential increased risk for sexual minorities to experience negative educational outcomes, the potential intervening role played by victimization stressors is examined. In this case, it is measured using a count of six victimization measures. Included are if the respondent has been (1) threatened or injured at school, (2) involved in a physical fight, (3) needed medical attention after a fight, (4) physically abused by girlfriend or boyfriend, and (5) bullied on school property in the last 12 months, and (6) whether or not the respondent has been raped in his or her lifetime. Victimization scores range from 0 to 6.

Demographic controls. The included control variables are gender/sex, site, grade (9th-12th), and race/ethnicity (White, Black or African American, Hispanic/Latino, and Other). The data presented in Table 9 indicate that when compared to heterosexual youth, females are overrepresented among sexual minorities—67 percent compared to 50 percent. The racial/ethnic breakdown also differs by sexual orientation, with higher proportions of Hispanic and other race and slightly lower proportions of whites and African Americans among sexual minorities in comparison to heterosexual respondents. The distribution for

grade level and site are comparable among heterosexual and sexual minority students.

Analytic strategy. First, bivariate analyses address the mean reported academic scores and the number of victimization stressors by sexual orientation and gender (Table 10). Second in order to understand the role that victimization stressors play in the relationship between sexual orientation and academic performance, multiple OLS regression models analyze the impact of sexual orientation, the control variables, and victimization stressors (Table 11). Lastly, the analyses address the potential interactions. All analyses are run with Stata 11 using the VCE option to adjust for the clustered nature of the data.

The expectations are that each sexual minority group will report significantly worse academic outcomes in comparison to their heterosexual peers. Additionally, it is predicted that victimization stressors play an integral role in explaining the poorer outcome.

Results

Bivariate analyses in Table 10 (p. 81) indicate that gay and lesbian and bisexual students report significantly lower grades than their heterosexual peers. While the academic average of heterosexual youth is 3.06, GL youth average 2.75 while bisexual youth average 2.61. Importantly, both of these sexual minority groups reported well over twice as many victimization stressors. Gay and lesbian and bisexual students average 1.48 and 1.49 stressors respectively while the heterosexual youth averaged .59 stressors. When analyzing each

gender separately, females average better academic performance among all sexual minority groups, and poorer academic performance remains for GL and bisexual students of each gender. Like the other two sexual minority groups, those who responded “not sure” averaged significantly more victimization stressors than their heterosexual peers (1.12); however, average academic performance did not differ significantly for males or females in comparison to the heterosexual youth.

Multiple linear regression in Model 2 of Table 11 (p. 82) confirms that the relationship between sexual orientation and academic outcomes remain with demographic variables controlled. Both GL and bisexual youth report poorer academic outcomes than heterosexual students while students not sure of their sexual orientation do not differ significantly from their heterosexual peers. About 7 percent of the variation in academic outcomes is explained by sexual orientation and the demographic controls. The addition of victimization stressors in Model 3 increases the total variance explained to 12 percent. Combining that fact along with the significant decreases in coefficients both for GL and bisexual youth implies that victimization stressors explain a portion of the academic disparities. More specifically, victimization accounts for nearly 77 percent of the increased risk for poorer academic outcomes for GL students and about 37 percent for bisexual students.

Model 4 tests for potential interactions between sexual orientation and victimization stressors. The analysis indicates that the impact of victimization does not differ by sexual orientation when males and females are considered

together. Model 5 examines the interaction between and sexual orientation and gender. There is no evidence that the significance of sexual orientation differs across gender.

When analyzing genders separately, there remain no significant interactions between sexual orientation and victimization stressors for males (Model 6), but among females (Model 7), victimization stressors are less impactful for bisexual students. Comparisons of the slopes are presented in Figure 6 (p. 88).

Discussion

Despite the increasing acceptance of sexual minorities in United States, the hypothesis that they still face worse academic outcomes was confirmed for gays and lesbians and bisexual high school students. However, while students that report not being sure of their sexual orientation encounter higher levels of victimization, they do not report significantly different academic performance from their heterosexual peers.

Prior literature has not provided a definitive answer in terms of the relationship between sexual orientation, and it is important to continue exploring this relationship. Integral to such analyses is utilizing a large probability contemporary data source. More important, however, is understanding the role that victimization stressors play in this relationship. The results confirm the hypothesis that victimization stressors explain a significant portion of the poorer reported academic outcomes for GL and bisexual students as compared to their

heterosexual peers. Such large proportions could possibly be due to the fact that many of the victimization stressors sexual minorities face occur at school. What is not clear is why this proportion is so much higher for GL students than their bisexual peers. It might be partially attributable to bisexual students facing higher levels of internal stress such as identity conflict than the GL youth. Further research is warranted to better understand this disparity.

As mentioned above, neither hypothesis was confirmed for youth not sure of their sexual orientation, as they did not report significantly different performance than heterosexual youth despite the higher number of victimization stressors experienced. In future research, it would be valuable to explore why the increase in victimization does not lead to differing academic performance. It is possible that they encounter higher levels of social support or other resources that may potentially buffer the effects of the victimization stressors.

It is important to keep in mind that while the results indicate that higher levels of victimization stressors explain a significant portion of the variation in academic outcomes, there remains a significant percent unexplained. It is likely at least partially due to the limited number of victimization stressors considered as well as a narrow scope of behaviors addressed.

Limitations

Although the implications are impactful, the results should be interpreted cautiously due to its limitations. First, the survey lacks both a broad array of victimization stressors. The second significant limitation is the absence of

potential buffering effects. This includes personal resources (e.g., self-esteem, emotional reliance) as well as social resources (e.g., family and social support). Such resources have been demonstrated to have significant buffering effects on other behaviors in which sexual minorities experience poorer outcomes including suicide attempts (Eisenberg and Resnick 2006); Needham and Austin 2010). It is possible that such buffering effects are at play with those youth who report being unsure of their sexual orientation.

The next limitation relates to the issue of the generalizability of the data and results. Although it is a very large sample, the pooled data come from only three states. However, this is an improvement over prior literature because of the inclusion of more diverse samples from utilizing statewide data (e.g., the presence of urban, suburban, and rural areas across each state).

The last and most significant limitation is that the data are cross-sectional. Unfortunately, due to the nature of such data, it makes it difficult to argue with complete confidence the relationship between sexual orientation, victimization stressors, and reported academic outcomes. This is mainly due to the temporal priority issue present in cross-sectional data. While it would be difficult to argue against the conclusion that neither victimization stressors nor risky behavior influence sexual orientation, there remains a possibility that victimization stressors do not necessarily precede their reported academic performance.

Integral to further investigation is the prospective longitudinal data that addresses a larger list of victimizations stressors as well as other potential intervening variables related to social and personal resources. Multiple waves of

surveys are vital to the continued exploration of the relationship between sexual orientation, victimization stressors, and academic outcomes, particularly as it relates to causal ordering. Continued qualitative analyses should also play an important role in better understanding the mechanisms that lead to GL and gay respondents facing poor academic outcomes.

Conclusions

High school and adolescence is oftentimes a difficult time period for youth in general. Not only are issues of sexual orientation, identity, and other important behaviors coming to a head (Russell 2003), but also a time when students face increased stress in and outside of the classroom. With the majority of their time spent in school, it becomes one of the more important environments in the adolescent development. Unfortunately for sexual minorities, it is a place where they face high levels of marginalization. This is not uncommon in such institutions that are heavy purveyors a heteronormative environment, which commonly contributes to discrimination against sexual minorities.

As demonstrated in the present analyses, the increased number of such stressors can contribute significantly to poorer academic outcomes across the spectrum. For gay and lesbian students, nearly 80 percent of the poorer academic performance is attributable to victimization stressors as compared to their heterosexual peers. There are important consequences to poor academic performance. Some are more evident, like those relating to potential life outcomes including profession and earning potential. However, there also

remain other consequences, which while might not be evident on initial examination, can be quite impactful on one's life. This is the case with health-related outcomes, with the literature demonstrating the important role academic performance can play in future physical and mental health (Chandola et al. 2006).

To narrow the gap in academic performance between GL and bisexual students, it is necessary to continue examining the role that victimization stressors and other mechanisms play in this relationship. More importantly, such research should inform policies and programs aimed at this issue. The goal is to implement such policies in schools (high school and earlier) and communities in order to improve the academic performance and life chances/outcomes for sexual minorities and to lessen the victimization stressors they face. Ideally, this should involve programs that provide sexual minority students direct interaction with others who have shared their experiences in addition to changing the environment to one that minimizes the marginalization they face from peers and other adults. Changes in attitudes of both the teachers and students concerning sexual minorities are essential and can have a significant impact on their lives (Birkett, Espelage, and Koenig 2009; Russell 2003).

CHAPTER V

CONCLUSIONS

Discussion

The goal of this project was to confirm the linkage between sexual orientation and three health-related outcomes—suicide ideation and attempts, health risk behaviors, and academic performance—and to evaluate the extent to which victimization stressors explain observed linkages. Despite the increasing acceptance of sexual minorities in the United States, as demonstrated by sympathetic portrayals in popular media and increasing support for same-sex marriage, the data indicate that with few exceptions sexual minorities continue to face elevated risk on all three outcomes for all three behaviors. Contrary to prior reports, no gender differences in these risks were observed.

While only a small portion of the observed variation in these outcomes was accounted for by sexual orientation and demographics, a significant amount of the increased risk for sexual minorities is explained by the inclusion of victimization stressors. For gay and lesbian respondents, the percentages explained range from 20 percent for their increased risk for experiencing suicide ideation to 77 percent of their elevated risk for poorer academic outcomes. Among bisexual respondents, the range of increased risk explained varies from 25 (suicide ideation) to 67 percent (health risk behaviors). With such high proportions of these behaviors being explained by victimization stressors, it is

clear that minimizing such stressors may play an integral role in minimizing the disparities in health behaviors across sexual orientations.

Contributions

As addressed briefly above, a key contribution to the field is demonstrating with contemporary data that the relationship between sexual orientation and poor health-related outcomes remains despite the evolving views toward and treatment of sexual minorities. Additionally, the large sample size provided the opportunity to analyze gay and lesbian and bisexual respondents separately as well as those who reported not being sure of their sexual orientation.

Most importantly, the finding that victimization stressors play an integral role in the increased risk sexual minorities face for poor health-related outcomes suggests a practical way to improve the lives of sexual minorities, and avert preventable deaths. It is essential that such results inform future policies in schools and communities to minimize the victimization of sexual minorities.

Limitations

While the results are compelling, they are not without their limitations and should be interpreted cautiously. The most significant is the reliance on cross-sectional data. Due to the nature of such data, temporal priority is an issue when inferring causality. Although it would be difficult to argue against sexual orientation preceding the health-related outcomes as well as victimization stressors, the ordering of the latter two is not as clear. While it makes theoretical

sense for health-related outcomes to be influenced by victimization stressors, the data do not allow one to argue this point with complete confidence.

Another key limitation is the inability to analyze the potential intervening roles that social support may play in the relationship between sexual orientation and health-related behaviors. With prior research indicating that family and peer support in addition to a safe school environment can buffer the effects of victimization stressors, their inclusion would be beneficial in examining this process.

The final limitation is the generalizability of the data. While it is an advancement over prior literature due to population diversity and variation (e.g., urban, suburban, rural areas) across state populations, the data remain pooled from only 3 to 5 states (depending on the outcome variable). Because of this, it is difficult to generalize the findings to populations outside of the respective states.

Future Research and Implications

An ideal study would address these limitations first by utilizing prospective longitudinal data. Multiple waves could better assess the causal direction between victimization stressors and the health-related outcomes. Additionally, the surveys would include a more comprehensive list of victimization stressors. Other important intervening variables to include are social resources (e.g., family/friend support) and personal resources (e.g., self esteem, mattering, sense of personal control). Such additions would provide the ability to assess the

applicability of the stress process model in health-related disparities across sexual orientation. Additionally, utilizing a nationwide sample would not only provide broader generalizability, but would also allow for regional comparisons.

Although quantitative data are important in further understanding the mechanisms that lead to increased risk for poor health-related behaviors among sexual minorities, the accompaniment of qualitative data is essential to this exploration. This could be addressed using focus groups. Ideally, such groups would include students (oversampling from sexual minority groups), family, and school faculty and administrators (both integrated and segregated focus groups). The addition of the qualitative data provides the ability to fill in many of the gaps left by quantitative surveys and would allow for the research to better inform policies that seek to improve the lives of sexual minority youth. School policies aimed at changing the social climate through addressing both students and faculty/administration in addition to the protection of sexual minorities are essential in making this happen.

Table 1: Suicide Ideation and Attempts Descriptive Statistics (proportions)

| Variables | Suicide Ideation | | Suicide Attempts | |
|------------------------------|------------------|---------------------------------|------------------|-------------------|
| | Heterosexual | Sexual Minorities ¹⁰ | Heterosexual | Sexual Minorities |
| <i>Outcome Variables</i> | | | | |
| Suicide Ideation | .129 | .435 | .046 | .222 |
| <i>Independent Variables</i> | | | | |
| Male | .489 | .305 | .489 | .319 |
| Female | .511 | .695 | .511 | .681 |
| White | .720 | .634 | .792 | .677 |
| African American | .105 | .100 | .061 | .063 |
| Hispanic | .091 | .124 | .063 | .132 |
| Other | .083 | .142 | .084 | .139 |
| 9 th grade | .255 | .254 | .222 | .221 |
| 10 th grade | .256 | .256 | .246 | .240 |
| 11 th grade | .270 | .288 | .248 | .266 |
| 12 th grade | .216 | .193 | .209 | .197 |
| Ungraded or Other Grade | .003 | .011 | .075 | .076 |
| Delaware | .173 | .176 | .112 | .114 |
| Illinois | .180 | .189 | .116 | .122 |
| Massachusetts | .201 | .203 | .130 | .099 |
| Maine | .446 | .432 | .289 | .292 |
| Vermont | -- | -- | .353 | .373 |
| n | 12,338 | 1,002 | 20,176 | 1,268 |

¹⁰ Includes students who identify as gay, lesbian, bisexual, or not sure

Table 2: Suicide Ideation and Victimization Stressor Bivariate Analyses

| | Males | | Females | | All Respondents | |
|--------------------|-------------------|-------------------------|-------------------|-------------------------|-------------------|-------------------------|
| | Suicide Ideation | Victimization Stressors | Suicide Ideation | Victimization Stressors | Suicide Ideation | Victimization Stressors |
| <i>Orientation</i> | | | | | | |
| Heterosexual | .113 (.317) | .769 (1.039) | .145 (.352) | .600 (.928) | .129 (.336) | .683 (.987) |
| Gay or Lesbian | .400*** (.492) | 1.558*** (1.661) | .382*** (.488) | 1.333 (1.458) | .391*** (.489) | 1.442*** (1.668) |
| Bisexual | .505*** (.502) | 1.696*** (1.555) | .477*** (.500) | 1.562 (1.461) | .482*** (.500) | 1.587*** (1.476) |
| Not Sure | .348*** (.479) | 1.554*** (1.749) | .394*** (.394) | 1.550 (1.648) | .375*** (.485) | 1.551*** (1.704) |
| Sexual Minorities | .415*** (.494) | 1.601*** (1.657) | .444*** (.497) | 1.526*** (1.506) | .435*** (.496) | 1.549*** (1.553) |

* p<0.05, ** p<0.01, *** p<0.001

Notes: Standard deviations are in parentheses; reference variables are heterosexual and white

Table 3: Suicide Ideation Regressed on Sexual Orientation (N=13,340)

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 |
|-----------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------------|--------------------|
| Gay or Lesbian | 4.316*** (.641) | 3.615*** (.546) | 2.908*** (.495) | 3.534*** (.812) | 3.590*** (.896) | 4.789*** (1.563) | 2.708*** (.853) |
| Bisexual | 6.263*** (.568) | 4.794*** (.463) | 3.610*** (.375) | 4.586*** (.658) | 5.229*** (.490) | 6.059*** (2.013) | 4.478*** (.711) |
| Not Sure | 4.035*** (.517) | 3.428*** (.446) | 2.397*** (.361) | 3.014*** (.591) | 2.643*** (.636) | 3.237*** (1.042) | 2.948*** (.725) |
| Female | | 1.395*** (.072) | 1.516*** (.082) | 1.522*** (.083) | .576*** (.090) | | |
| Victimization | | | 1.780*** (.041) | 1.832*** (.046) | 1.781*** (.041) | 1.783*** (.061) | 1.899*** (.069) |
| Victimization x Gay or Lesbian | | | | .870 (.092) | | .831 (.111) | .885 (.153) |
| Victimization x Bisexual | | | | .845* (.060) | | .911 (.135) | .788** (.065) |
| Victimization x Not Sure | | | | .862 (.075) | | .906 (.121) | .809 (.093) |
| Female x Gay or Lesbian | | | | | .674 (.228) | | |
| Female x Bisexual | | | | | .628 (.162) | | |
| Female x Not Sure | | | | | .850 (.261) | | |
| Constant | .149*** (.004) | .240*** (.056) | .106*** (.025) | .101*** (.024) | .104*** (.025) | .044*** (.016) | .283*** (.090) |
| Pseudo R ² | .046 | .068 | .125 | .126 | .126 | .117 | .130 |

* p<0.05, ** p<0.01, *** p<0.001

Notes: Coefficients are odds ratio; Standard errors are in parentheses; reference variable is heterosexual; additional controls include race, academic grade, and site; Model 6 is males only (N=6,343) and Model 7 is females only (N=6,997)

Table 4: Suicide Attempt and Victimization Stressor Bivariate Analyses (N=21,444)

| | Males | | Females | | All Respondents | |
|--------------------|-------------------|-------------------------|-------------------|-------------------------|-------------------|-------------------------|
| | Attempts | Victimization Stressors | Attempts | Victimization Stressors | Attempts | Victimization Stressors |
| <i>Orientation</i> | | | | | | |
| Heterosexual | .042 (.201) | .718 (.990) | .049 (.217) | .541 (.889) | .046 (.209) | .627 (.944) |
| Gay or Lesbian | .225*** (.419) | 1.563*** (1.707) | .258*** (.439) | 1.422*** (1.504) | .241*** (.428) | 1.496*** (1.612) |
| Bisexual | .214*** (.412) | 1.614*** (1.646) | .249*** (.433) | 1.518*** (1.450) | .241*** (.428) | 1.539*** (1.494) |
| Not Sure | .145*** (.353) | 1.419*** (1.748) | .192*** (.395) | 1.295*** (1.526) | .173*** (.379) | 1.346*** (1.619) |
| Sexual Minorities | .192*** (.394) | 1.531*** (1.699) | .236*** (.425) | 1.453*** (1.477) | .222*** (.416) | 1.478*** (1.551) |

* p<0.05, ** p<0.01, *** p<0.001

Notes: Standard deviations are in parentheses; reference variables are heterosexual and white

Table 5: Suicide Attempts Regressed on Sexual Orientation (N=21,444)

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 |
|-----------------------------------|--------------------|--------------------|--------------------|---------------------|--------------------|---------------------|---------------------|
| Gay or Lesbian | 6.617*** (.968) | 4.197*** (.680) | 3.033*** (.557) | 4.624*** (1.187) | 3.019*** (.793) | 4.435*** (1.613) | 4.430*** (1.638) |
| Bisexual | .632*** (.563) | 4.464*** (.423) | 3.068*** (.313) | 4.072*** (.617) | 3.027*** (.627) | 2.591* (.964) | 4.844 (.817) |
| Not Sure | 4.361*** (.560) | 3.135*** (.430) | 2.010*** (.322) | 2.699*** (.608) | 1.517 (.410) | 2.015 (.845) | 2.945 (.813) |
| Female | | 1.405*** (.090) | 1.536*** (.103) | 1.545*** (.103) | 1.473*** (.138) | | |
| Victimization | | | 1.793*** (.044) | 1.873*** (.052) | 1.794*** (.044) | 1.792*** (.072) | 1.957*** (.075) |
| Victimization x Gay or Lesbian | | | | .802* (.074) | | .834 (.098) | .805 (.124) |
| Victimization x Bisexual | | | | .856* (.054) | | 1.091 (.149) | .772*** (.057) |
| Victimization x Not Sure | | | | .862 (.070) | | .912 (.114) | .854 (.096) |
| Female x Gay or Lesbian | | | | | 1.002 (.365) | | |
| Female x Bisexual | | | | | 1.022 (.240) | | |
| Female x Not Sure | | | | | 1.554 (.514) | | |
| Constant | .048*** (.002) | .090*** (.024) | .032*** (.009) | .030*** (.008) | .032*** (.009) | .006*** (.003) | .141*** (.051) |
| Pseudo R ² | .057 | .120 | .180 | .181 | .180 | .180 | .186 |

* p<0.05, ** p<0.01, *** p<0.001

Notes: Coefficients are odds ratios; Standard errors are in parentheses; reference variables is heterosexual; additional controls include race, academic grade, and site; Model 6 is males only (N=10,212) and Model 7 is females only (N=11,232)

Table 6: Health Risk Behaviors Descriptive Statistics

| Variables | Heterosexual | Sexual Minorities ¹¹ |
|--|--------------|------------------------------------|
| <i>Outcome Variables</i> | | |
| Mean Health Risk Behaviors | .989 | 1.447 |
| <i>Independent Variables (proportions)</i> | | |
| Male | .498 | .305 |
| Female | .502 | .695 |
| White | .559 | .499 |
| African American | .199 | .168 |
| Hispanic | .151 | .212 |
| Other | .091 | .130 |
| 9 th grade | .243 | .275 |
| 10 th grade | .244 | .248 |
| 11 th grade | .304 | .267 |
| 12 th grade | .205 | .200 |
| Ungraded or other grade | .004 | .011 |
| Delaware | .321 | .330 |
| Illinois | .308 | .290 |
| Massachusetts | .371 | .380 |
| n | 5,938 | 476 |

¹¹ Includes students who identify as gay, lesbian, bisexual, or not sure

Table 7: Health Risk Behavior and Victimization Stressor Bivariate Analyses (N=6,414)

| | Males | | Females | | All Respondents | |
|-----------------------|-----------------------|-------------------------|-----------------------|-------------------------|-----------------------|-------------------------|
| | Health Risk Behaviors | Victimization Stressors | Health Risk Behaviors | Victimization Stressors | Health Risk Behaviors | Victimization Stressors |
| <i>Orientation</i> | | | | | | |
| Heterosexual | 1.091 (1.475) | .766 (1.025) | .887 (1.309) | .643 (.947) | .989 (1.398) | .705 (.988) |
| Gay or Lesbian | 1.367* (1.102) | 1.347*** (1.451) | 1.500** (1.502) | 1.229*** (1.356) | 1.433* (1.554) | 1.289*** (1.399) |
| Bisexual | 1.707* (1.947) | 1.879*** (1.590) | 1.557*** (1.645) | 1.521*** (1.402) | 1.589*** (1.710) | 1.596*** (1.448) |
| Not Sure | 1.263 (1.912) | 1.605*** (1.732) | .969 (1.297) | 1.422*** (1.456) | 1.078 (1.552) | 1.490*** (1.559) |
| All Sexual Minorities | 1.476*** (1.821) | 1.628*** (1.628) | 1.435*** (1.576) | 1.459*** (1.406) | 1.447*** (1.660) | 1.511*** (1.465) |

* p<0.05, ** p<0.01, *** p<0.001

Notes: Standard deviations are in parentheses; reference variables are heterosexual and white

Table 8: Health Risk Behaviors Regressed on Sexual Orientation (N=6,414)

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 |
|-----------------------------------|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------------|
| Gay or Lesbian | .444*** (.160) | .411* (.166) | .137 (.155) | .191 (.187) | -.046 (.229) | .086 (.300) | .285 (.230) |
| Bisexual | .600*** (.104) | .661*** (.103) | .218* (.095) | .225 (.126) | .131 (.222) | .080 (.285) | .254 (.140) |
| Not Sure | .090 (.154) | .167 (.148) | -.197 (.122) | -.308* (.145) | -.132 (.204) | -.631*** (.175) | -.047 (.196) |
| Female | | -.183*** (.035) | -.116*** (.033) | -.116*** (.033) | -.123*** (.034) | | |
| Victimization | | | .478*** (.019) | .476*** (.021) | .478*** (.019) | .507*** (.029) | .441*** (.029) |
| Victimization x Gay or Lesbian | | | | -.041 (.119) | | -.134*** (.173) | .062 (.174) |
| Victimization x Bisexual | | | | -.004 (.070) | | .015 (.134) | .012 (.083) |
| Victimization x Not Sure | | | | .075 (.099) | | .299* (.123) | -.117 (.125) |
| Female x Gay or Lesbian | | | | | .371 (.306) | | |
| Female x Bisexual | | | | | .113 (.244) | | |
| Female x Not Sure | | | | | -.103 (.254) | | |
| Constant | .989*** (.018) | 1.002*** (.049) | .626*** (.047) | .628*** (.047) | .630*** (.047) | .501 (.062) | .631*** (.062) |
| R ² | .008 | .039 | .157 | .157 | .157 | .170 | .141 |

* p<0.05, ** p<0.01, *** p<0.001

Notes: Standard errors are in parentheses; reference variable is heterosexual; other controls include race, academic grade, and site; Model 6 is males only (n=3,105) and Model 7 is females only (N=3,309)

Table 9: Academic Performance Descriptive Statistics

| Variables | Heterosexual | Sexual Minorities ¹² |
|--|--------------|---------------------------------|
| <i>Outcome Variable</i> | | |
| Mean Academic Performance | 3.059 | 2.749 |
| <i>Independent Variables (proportions)</i> | | |
| Male | .505 | .327 |
| Female | .495 | .673 |
| White | .783 | .687 |
| African American | .064 | .057 |
| Hispanic | .065 | .121 |
| Other | .088 | .136 |
| 9 th grade | .194 | .219 |
| 10 th grade | .235 | .224 |
| 11 th grade | .246 | .229 |
| 12 th grade | .202 | .207 |
| Ungraded or other grade | .124 | .122 |
| Delaware | .148 | .142 |
| Massachusetts | .172 | .175 |
| Vermont | .681 | .683 |
| n | 12,254 | 970 |

¹² Includes students who identify as gay, lesbian, bisexual, or not sure

Table 10: Academic Performance and Victimization Stressor Bivariate Analyses (N=13,224)

| | Males | | Females | | All Respondents | |
|-----------------------|----------------------|-------------------------|----------------------|-------------------------|----------------------|-------------------------|
| | Academic Performance | Victimization Stressors | Academic Performance | Victimization Stressors | Academic Performance | Victimization Stressors |
| <i>Orientation</i> | | | | | | |
| Heterosexual | 2.919 (.911) | .675 (.955) | 3.202 (.826) | .504 (.864) | 3.059 (.882) | .590 (.915) |
| Gay or Lesbian | 2.623** (1.106) | 1.464*** (1.682) | 2.807** (1.060) | 1.491*** (1.583) | 2.747*** (1.125) | 1.475*** (1.637) |
| Bisexual | 2.496*** (1.251) | 1.696*** (1.672) | 2.643*** (1.001) | 1.428*** (1.410) | 2.608*** (1.065) | 1.490*** (1.478) |
| Not Sure | 3.010 (1.050) | 1.296*** (1.623) | 3.104 (.985) | 1.065*** (1.327) | 3.067 (1.009) | 1.155*** (1.452) |
| All Sexual Minorities | 2.637*** (1.177) | 1.511*** (1.664) | 2.766*** (1.019) | 1.348*** (1.413) | 2.730*** (1.080) | 1.401*** (1.501) |

* p<0.05, ** p<0.01, *** p<0.001

Notes: Standard deviations are in parentheses; reference variables are heterosexual and white

Table 11: Academic Performance Regressed on Sexual Orientation (N=13,224)

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 |
|-----------------------------------|---------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Gay or Lesbian | -.300** (.096) | -.224* (.095) | -.052 (.093) | -.136 (.109) | -.010 (.127) | -.055 (.143) | -.258 (.166) |
| Bisexual | -.451*** (.045) | -.512*** (.014) | -.322*** (.043) | -.371*** (.058) | -.207* (.099) | -.106 (.126) | -.462*** (.065) |
| Not Sure | .008 (.064) | -.014 (.062) | .097 (.060) | .065 (.071) | .235* (.102) | .167 (.117) | .015 (.089) |
| Female | | .266*** (.015) | .232*** (.015) | .231*** (.015) | .242*** (.015) | | |
| Victimization | | | -.204*** (.009) | -.211*** (.010) | -.204*** (.009) | -.207*** (.014) | -.216*** (.014) |
| Victimization x Gay or Lesbian | | | | .061 (.071) | | .033 (.095) | .107 (.105) |
| Victimization x Bisexual | | | | .038 (.034) | | -.058 (.069) | .079* (.028) |
| Victimization x Not Sure | | | | .031 (.031) | | .049 (.073) | .002 (.063) |
| Female x Gay or Lesbian | | | | | -.102 (.185) | | |
| Female x Bisexual | | | | | -.153 (.109) | | |
| Female x Not Sure | | | | | -.228 (.125) | | |
| Constant | 3.059*** (0.008) | 2.738*** (.030) | 2.893*** (.030) | 2.898*** (.030) | 2.889*** (.030) | 2.608*** (.089) | 2.847*** (.081) |
| R ² | .011 | .069 | .117 | .117 | .117 | .085 | .116 |

* p<0.05, ** p<0.01, *** p<0.001

Notes: Standard errors are in parentheses; reference variable is heterosexual; other controls include race, academic grade, and site; Model 6 is males only (N=6,510) and Model 7 is females only (N=6,714)

Figure 1: Suicide Ideation Probabilities by Victimization and Sexual Orientation Interactions: All Respondents

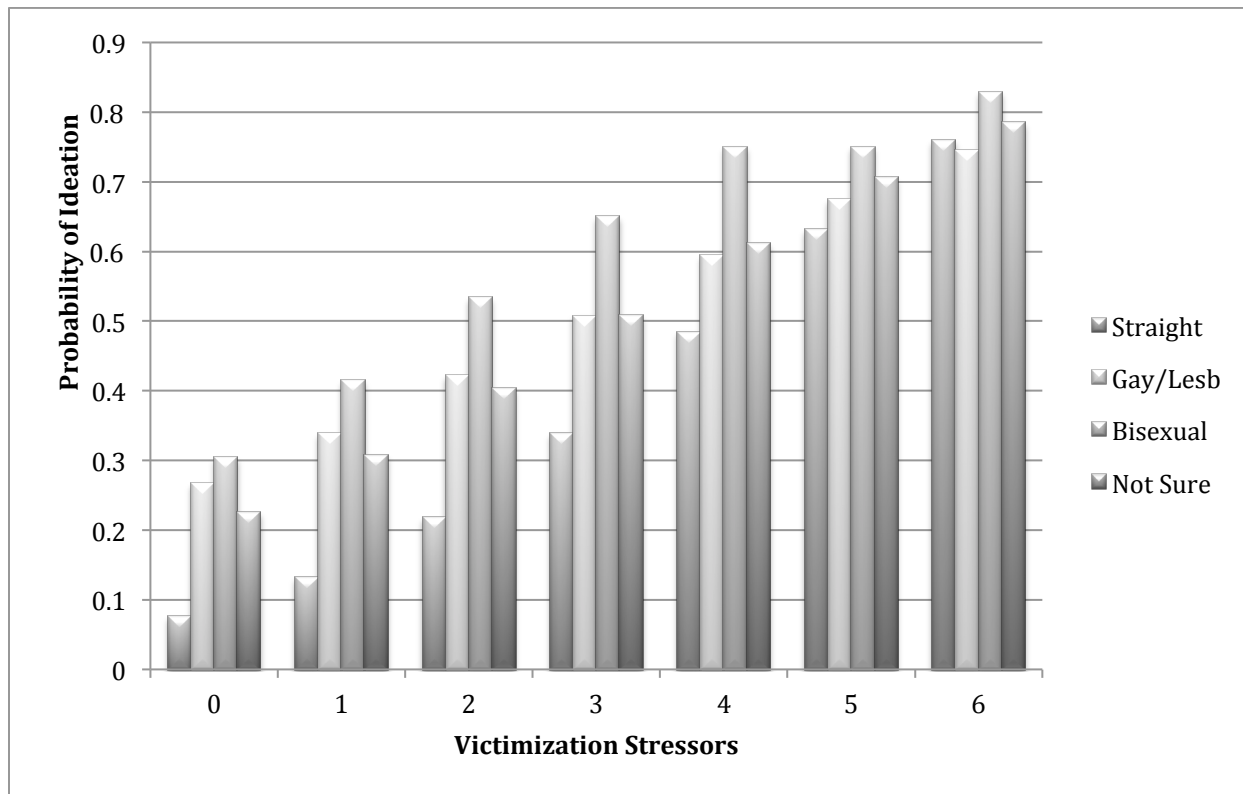


Figure 2: Suicide Ideation Probabilities by Victimization and Sexual Orientation Interactions: Females Only

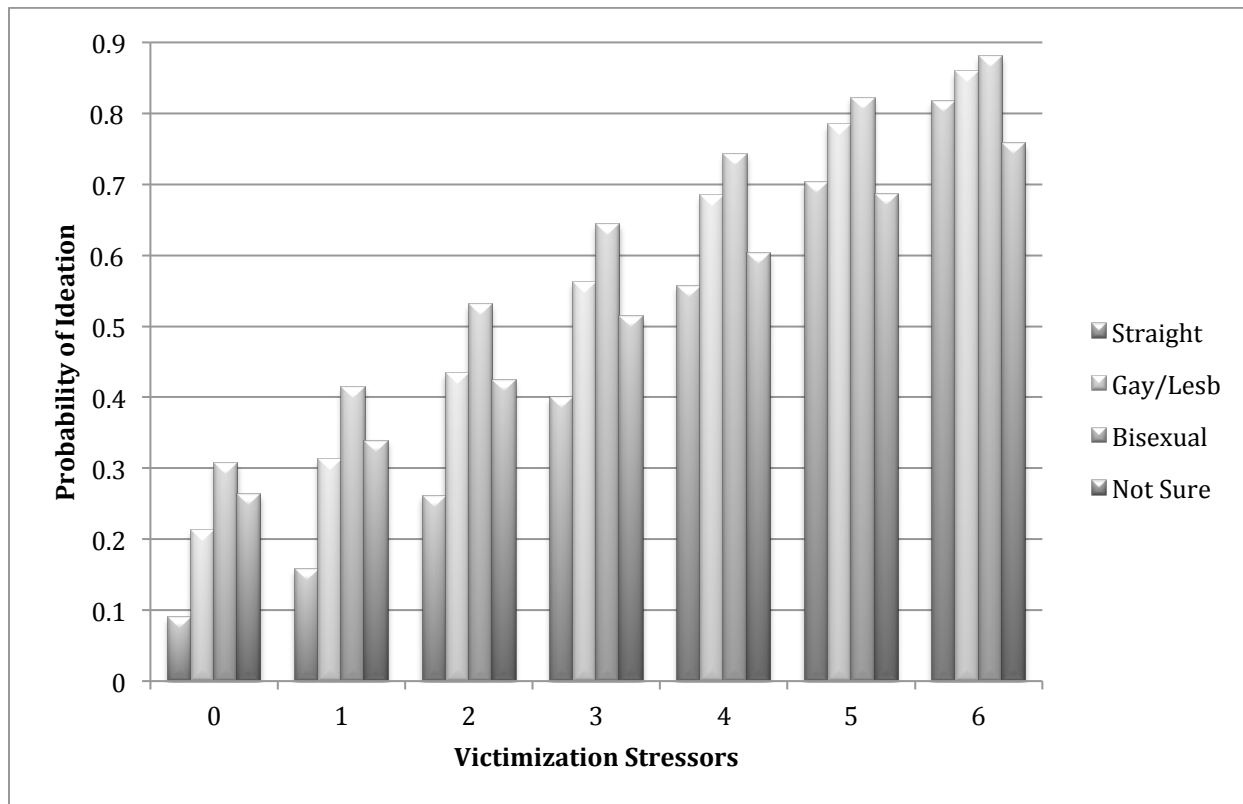


Figure 3: Suicide Attempt Probabilities by Victimization and Sexual Orientation Interactions: All Respondents

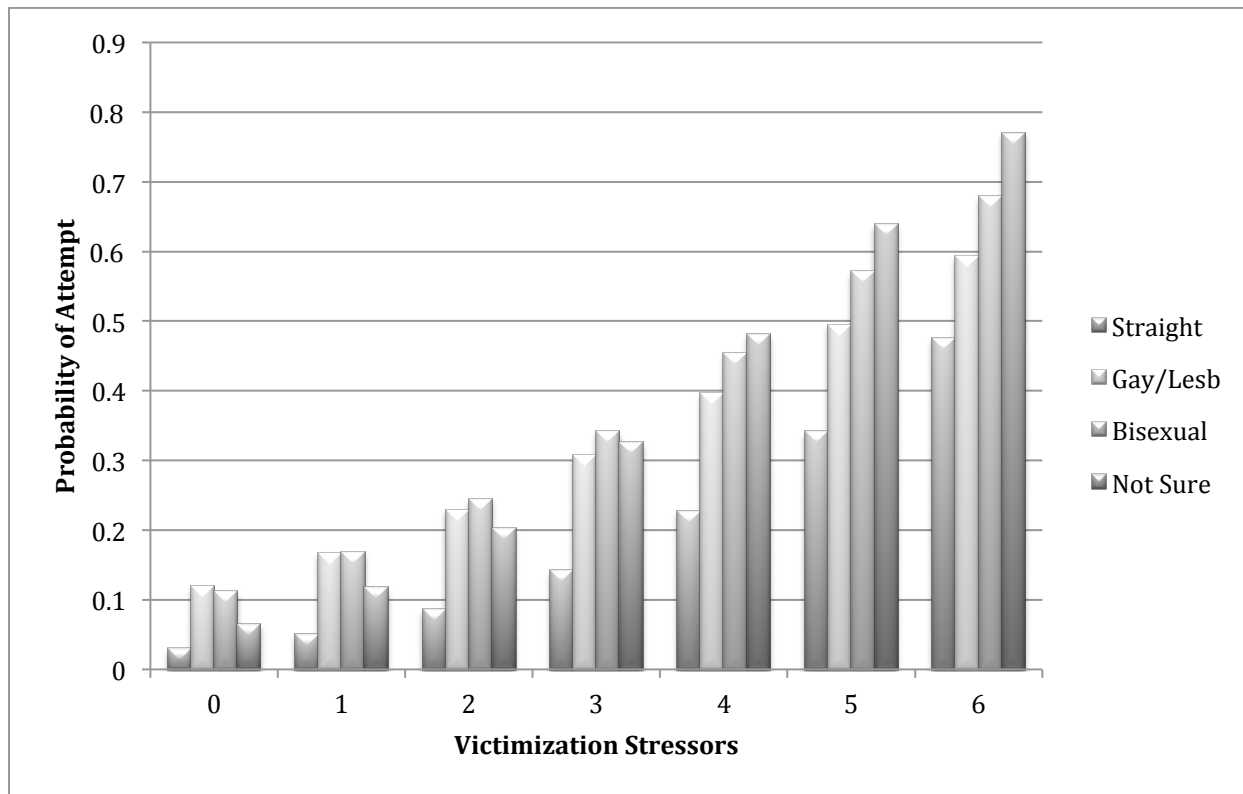


Figure 4: Suicide Attempt Probabilities by Victimization and Sexual Orientation Interactions: Females Only

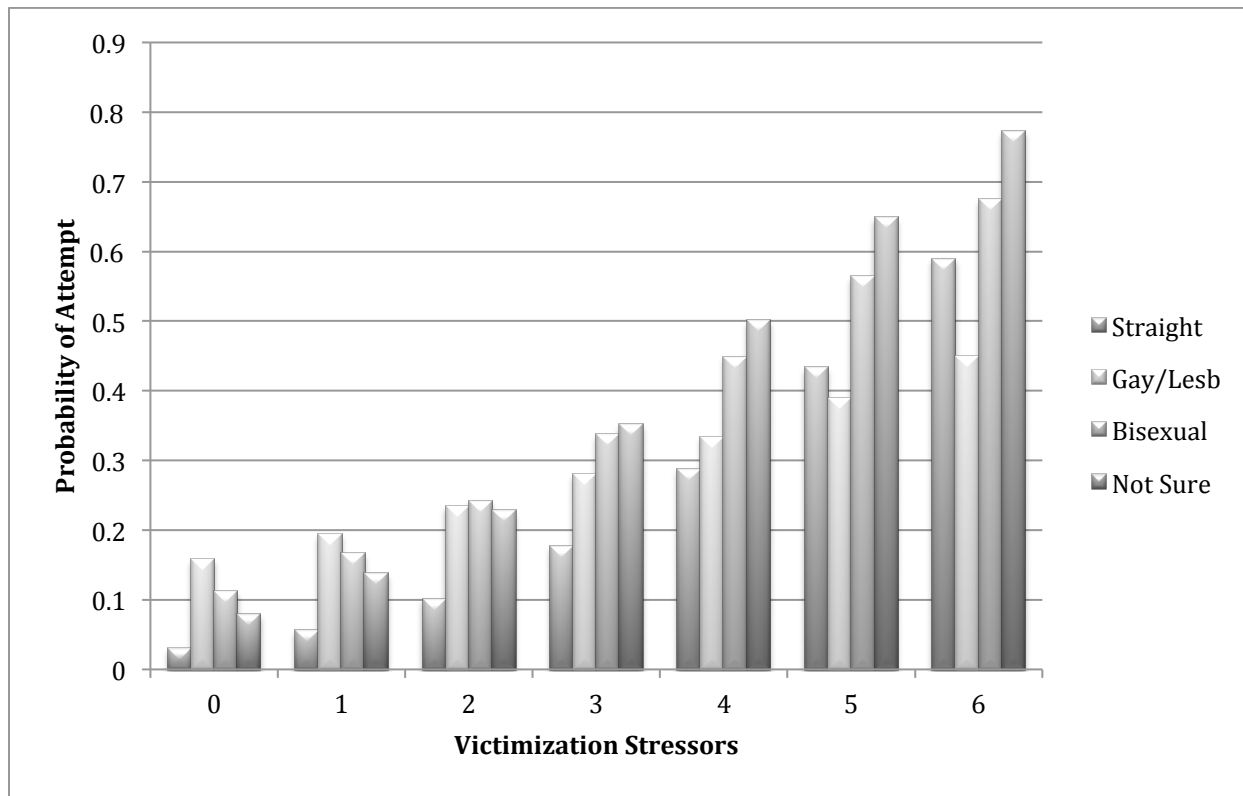


Figure 5: Health Risk Behaviors by Victimization and Sexual Orientation Interactions: Males only

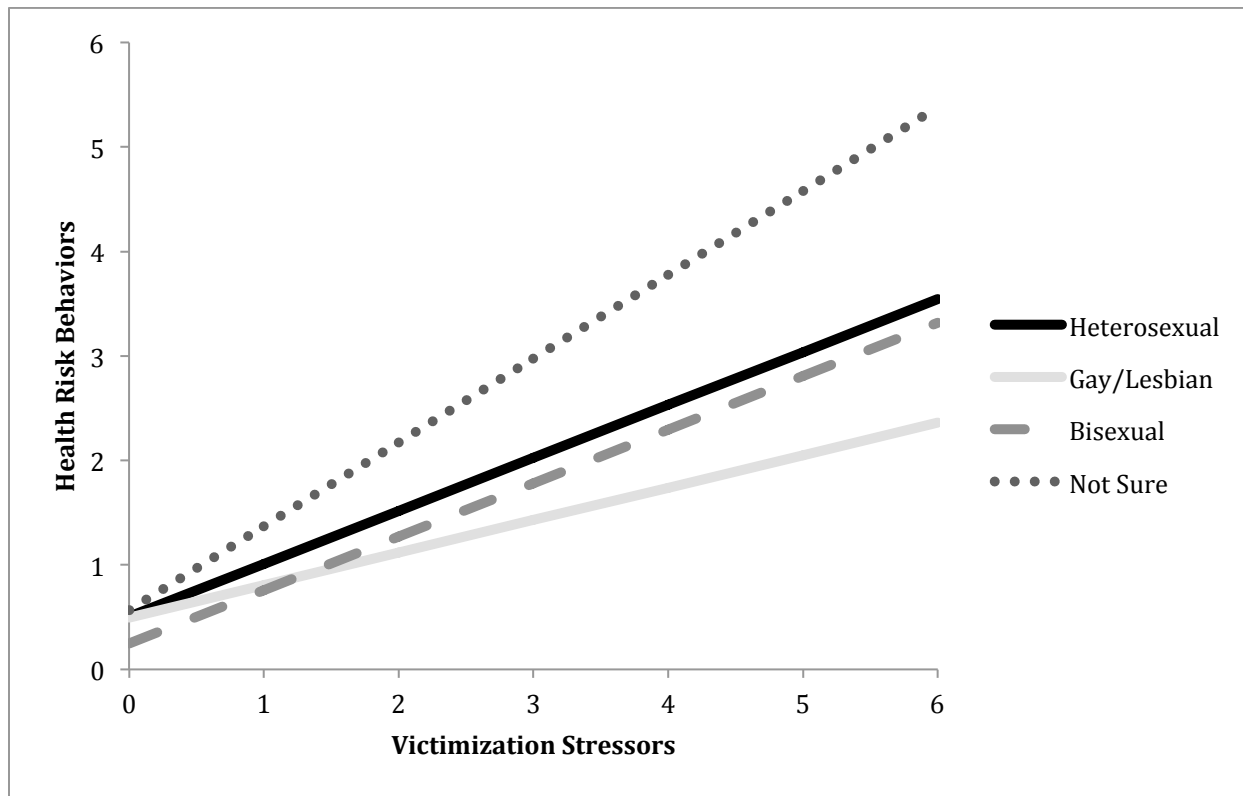
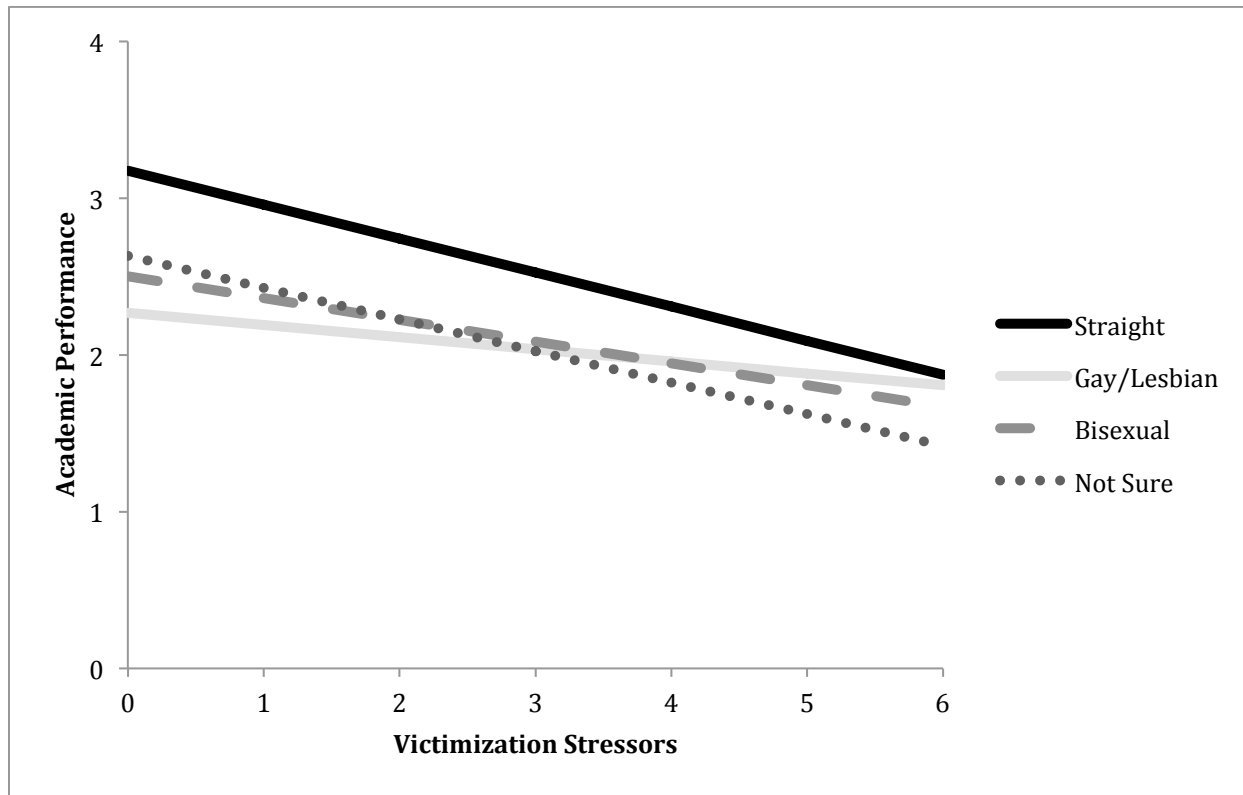


Figure 6: Academic Performance by Victimization and Sexual Orientation Interactions: Females only



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