AN ABSTRACT OF THE DISSERTATION OF

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Title: The Relationship Between Sexual Orientation Identity and Specific Health Behaviors

Abstract approved:

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The American Counseling Association's Code of Ethics states that counselors and counselor trainees must be competent providers of multicultural counseling, able to practice effectively with clients whose identities differ from their own. Counseling students and trainees receive very little training around sexual orientation and how to work with clients who identify as members of a sexual minority group (i.e., LGB; lesbian, gay or bisexual). Counselors, counselor educators and pre-service counselors are also asked to seek out current, relevant research to provide a basis for the interventions and treatment offered to clients.

Recent literature in public health has identified health disparities among individuals who identify as, or are identified as, sexual minorities. Higher rates of psychiatric disorders, substance use, heart disease, tobacco use, and obesity have been found in LGB samples as compared to heterosexual samples. However, existing articles are limited by: (a) sampling issues, including small sample sizes, (b) an overall lack of racial and ethnic diversity, and (c) the conflation of sexual behavior with identity. Additionally, counselors and counselor educators have not researched these differences in health behaviors and conditions.

In the current study, the prevalence of harmful or potentially hazardous alcohol use and drug use among patients who self-identified as gay, lesbian, bisexual and heterosexual was compared in a diverse sample of patients visiting New York City STD clinics. Levels of alcohol and drug use were compared by sexual orientation identity using nonparametric analyses. Results showed that patients who identified as LGB reported higher rates of potentially harmful drug and alcohol use than patients who identified as heterosexual.

Next, data collected from patients visiting New York City STD clinics for a physician visit were examined using binary logistic regression analyses. The aim of this study was to determine whether a relationship exists between sexual orientation identity and likelihood of diagnosis with a sexually transmitted infection (STI). In addition, known demographic and behavioral predictor variables were included in this regression analysis as covariates (i.e., race, ethnicity, age, gender identity, alcohol use, drug use, same-sex sexual behavior). Results showed that a relationship does exist between sexual orientation identity and likelihood of STI diagnosis, such that identifying as LGB increases an individual's odds of receiving a STI diagnosis. This predictor variable was found to increase the likelihood of diagnosis along with covariates including Black/African American racial identity, Hispanic ethnicity, same-sex sexual behavior, and drug use. Covariates that decreased the odds of STI diagnosis included female gender identity, transgender identity, and older age.

The primary implication that emerged from the aforementioned research was that individuals who identify as sexual minorities (i.e., as LGB) have different relationships to health behaviors than individuals who identify as heterosexual. Therefore, LGB individuals should be given an opportunity to self-identify their sexual orientation upon intake and screened for quantity and frequency of substance use so that counselors can be aware of the individual's risk

of developing a substance use disorder. Individuals should also be asked discrete questions about sexual orientation identity as well as attraction and behavior, so that individuals who identify as LGB can be engaged in open discussion about sexual behaviors and safer sex practices as necessary, and not assumed to be engaging in behavior that places them at risk for STIs. More qualitative research is needed to determine why some LGB individuals engage in hazardous levels of alcohol and drug use while others do not, and to explore the relationship between LGB identity and engagement in sexual risk behaviors.

The Relationship Between Sexual Orientation Identity and Specific Health Behaviors

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I understand that my dissertation will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my dissertation to any reader upon request.

Arien K. Muzacz, Author

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CONTRIBUTION OF AUTHORS

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CHAPTER 1

GENERAL INTRODUCTION

The purpose of this dissertation is to demonstrate scholarly work using the manuscript document dissertation format as outlined by the Oregon State University Graduate School of Teacher and Counselor Education. Following this format, Chapter 1 presents background information and a rationale that tie together the two journal-formatted manuscripts in Chapters 2 and 3 and support their progression toward research conclusions relevant to the field of multicultural counseling. Specifically, disparities in alcohol and drug use and the acquisition of sexually transmitted infections observed in samples of individuals who identify as sexual minorities will be examined (i.e., lesbian, gay, bisexual, or same gender loving).

Both manuscripts utilized a retrospective archival data study format (Mann, 2003) with de-identified data obtained from an Electronic Medical Record (EMR) system maintained by the New York City Department of Health and Mental Hygiene's Bureau of STD Prevention and Control. Chapter 2 presents a research study comparing the prevalence of potentially hazardous or harmful alcohol use among lesbian, gay, and bisexual (LGB) individuals as compared to heterosexual individuals and the prevalence of potentially hazardous or harmful drug use among lesbian, gay, and bisexual individuals as compared to heterosexual individuals. Chapter 3 presents a research study incorporating a subset of data from patients who visited a physician at one of New York City's public health clinics and examines the relationship between sexual orientation identity and the likelihood of diagnosis with a sexually transmitted infection (STI) as well as the influence of additional variables that could mediate that relationship. Chapter 4

presents general conclusions that emerged across the two manuscripts and brings the two manuscripts together.

Importance to the Profession of Counseling

The American Counseling Association's Code of Ethics (2014) and the Multicultural Counseling Competencies guidelines (Sue, Arredondo, & McDavis, 1992) require that counselors and counselor trainees are willing and able to practice effectively with clients whose identities differ from their own in such areas as ethnicity, culture of origin, gender, sexual orientation, and ability status. In order to fulfill this mission, counselors and counselor trainees are asked to seek out current, relevant research that provides a basis for the interventions and treatment offered to clients and to incorporate social justice into their advocacy efforts and clinical work (American Counseling Association, 2014).

Researchers from other disciplines that promote wellness, such as public health, have described health disparities as an international human rights concern (Benatar, 1998). Although the collection of data regarding sexual orientation and gender identity (SOGI) is not currently standard practice, support has been garnered within the Affordable Care Act and Healthy People 2020 initiative for the routine collection of these data to better meet the needs of LGB and transgender individuals and to reduce disparities (Cahill & Makadon, 2014). Therefore, counselors have a responsibility to be aware of health disparities and the implications of unequal distribution of poorer health outcomes among individuals that hold minority status identities.

Counselors, counselor trainees, and counselor educators are urged in the ACA Code of Ethics' (2014) section on research to "contribute to the knowledge base of the profession and promote a clearer understanding of the conditions that lead to a healthy and more just society" (p. 15). However, the professional counseling literature lags behind that of other professional fields

like medicine, social science, social work, and public health in publishing peer-reviewed articles that discuss LGB health disparities directly or that offers way to address these inequities. While articles can be found in such publications as the *American Journal of Public Health, American Journal of Epidemiology, Journal of Substance Abuse Treatment, Pediatrics,* and *Social Issues and Policy Review,* full-text searches of the electronic database *EBSCO Host* within the archives of the *Journal of Counseling and Development, Adultspan, Journal of Multicultural Counseling and Development,* and *Journal of School Counseling* for the terms "LGBT health disparities," "LGB health disparities," "gay health disparities," "lesbian health disparities," and "bisexual health disparities" yielded no results.

The few noteworthy exceptions that exist in counseling literature, co-authored by a counseling psychologist (Singh, 2013; Singh & Burnes, 2010), followed the wellness approach of counseling and focused on interventions to promote a healthier and more equitable society but did not refer directly to LGB health disparities, instead focusing on transgender concerns. One article, published in the *Journal of LGBT Issues in Counseling* (also notably absent from the Oregon State University Library's e-Journals collection), explained how counselors can advocate for transgender individuals in various settings to combat oppression (Singh & Burnes, 2010). The other article, published in the social science journal *Sex Roles,* presented a qualitative study of how transgender individuals who experience oppression on the basis of their gender, racial, or ethnic identities can develop resiliencies (Singh, 2013).

The second study also bears relevance to the counseling field because it discusses another source of societal stigma: receiving a positive test for a sexually transmitted infection or STI (Fortenberry et al., 2002). Fortenberry et al. (2002) noted that even being tested for STIs could be a difficult, psychologically challenging experience. Recent studies regarding human

papillomavirus (HPV) have demonstrated that the reality of getting a positive test result or the thought of that outcome resulted in negative psychological effects and increased shame among women (Jeynes, Chung, & Challenor, 2009; Waller, Marlow, & Wardle, 2007).

Knowing how difficult these topics are to broach, counselors can inquire about sexual health in each intake interview and encourage open conversations about STI testing and treatment with clients who are sexually active. Counselors should also understand that receiving a positive STI test result or being diagnosed with a STI can be particularly difficult for clients who identify as LGB, since they may already feel shame or stigma related to their sexual orientation identity. In recent studies, STI diagnoses have been related to depression and a greater likelihood of mental health treatment in clients who identify as sexual minorities (Frost, Parsons, & Nanín, 2007; Reisner et al., 2010).

Current State of Scientific Knowledge

Individuals who identify as lesbian, gay, or bisexual (LGB) are sexual minorities, among whom health disparities are well-documented in the recent literature in public health and psychology. Recent articles have focused on disparities in the rates of such health concerns as psychiatric distress, alcohol and drug use, cardiac problems, lack of exercise, tobacco use, and suicidal ideation and attempts (Boehmer, Miao, Linkletter, & Clark, 2012; Burgess, Lee, Tran, & van Ryn, 2008; Cochran & Mays, 2007; Conron, Mimiaga, & Landers, 2010; Fredriksen-Goldsen, Kim, Barkan, Balsam, & Mincer, 2010; McCabe, Hughes, Bostwick, West, & Boyd, 2009; Meyer, Dietrich, & Schwartz, 2008; Mustanski, Garofalo, & Emerson, 2010; Paul et al., 2002).

One of the earlier studies in this body of work, conducted by Cochran and Mays (2000), took an impressive step away from convenience sampling to use representative data collected

from a telephone survey, based on the 1996 National Household Survey of Drug Abuse, to examine the relationship between reported history of same-sex sexual behavior and a one-year prevalence of six psychiatric disorders. Their sample of individuals who reported having at least one partner of the same gender included 194 people, with 135 people reporting exclusively same-gender partners and 59 people reporting partners of both genders, while the sample that reported exclusively heterosexual behavior included 9,714 people (Cochran & Mays, 2000). Although Cochran and Mays (2000) found that only about 25% of the participants who reported same-gender partners met criteria for any of the six psychiatric disorders, they also found that men who reported same-gender partners appeared to be at higher risk for panic attacks and diagnosis with major depressive disorder than men who reported exclusively heterosexual behavior, and that women with same-gender partners appeared to be at higher risk for disordered alcohol and drug use than women who reported exclusively heterosexual behavior.

Conron and colleagues (2010) also used data from a representative telephone survey to examine differences in adult health indicators across sexual orientation and gender identities; the collected their sample (n = 67,359) over eight years using the Massachusetts Behavioral Risk Factor Surveillance survey. Approximately 2% of their sample self-identified as gay or lesbian, and approximately 1% identified as bisexual, while the remaining 97% self-identified as heterosexual (Conron et al., 2010). Unlike in Cochran and Mays' (2001) study, the researchers asked about the gender of respondents' sexual partners. The major findings of Conron et al. (2010) were that respondents endorsing a sexual minority identity fared worse on 16 of 22 health characteristics, ranging from tobacco use to binge drinking to the absence of health insurance coverage or a regular health care provider. No significant differences were found in rates of mammography or Pap tests or lifetime diagnoses of diabetes or heart disease, although LGB

individuals were more likely to report multiple risks for heart disease (Conron et al., 2010). One unique aspect of this study was that the researchers considered bisexual individuals as a discrete group, and found that this group reported lower socioeconomic status, poorer physical health, and more worry, tension, sadness, and suicidal ideation than both LG or heterosexual individuals (Conron et al., 2010).

Additional studies by Mays and Cochran (2001) and by Burgess and colleagues (2008) have examined the relationship between perceived discrimination in mental health and the unequal utilization of mental health services among LGB individuals. Not surprisingly, these studies found that people who identify as lesbian, gay, or bisexual more frequently noted more lifetime experiences of discrimination and daily experiences of discrimination than people who identified as heterosexual (Burgess et al., 2008; Mays & Cochran, 2001). What was perhaps surprising was that in Burgess et al.'s (2008) study, adjusting for past-year experiences of discrimination did not change the mental health disparities between individuals who identified as LGB and those who identified as heterosexual, suggesting that other underlying factors may be influencing LGB individuals' mental health outcomes.

Lastly, McCabe et al. (2009) designed a study to capture all three aspects of sexuality—identity, attraction, and behavior—and to assess the relationship between sexual orientation and disordered substance use. Their data were collected in person between 2004 and 2005 as part of the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) using the Alcohol Use Disorder and Associated Disabilities Interview Schedule of the DSM-IV, or AUDADIS-IV (McCabe et al., 2009). Although they found considerable variation in substance abuse-related outcomes across dimensions of sexual orientation, especially among women, their results supported previous findings showing that individuals with sexual minority identities,

attractions, or behaviors are at greater risk of substance use disorders than individuals who are exclusively heterosexual.

Many of the existing studies on the topic of LGB health disparities have included such limitations as small participant groups, non-random or convenience sampling, the combined grouping of bisexual individuals with lesbian and gay (LG) individuals, the conflation of sexual identity and behavior, and a lack of racial and ethnic diversity (Cochran & Mays, 2007; Mays & Cochran, 2001; McCabe et al., 2009; Meyer et al., 2008; Savin-Williams, 2001). This dissertation aims to build upon this existing literature by using a large sample of data characterized by racial and ethnic diversity in which lesbian, gay, and bisexual individuals could be considered distinct groups, which is appropriate given the observation by some researchers that LGB people constitute a heterogeneous population (Conron et al., 2010).

Description of Research Manuscripts

The first manuscript in this dissertation explored the rates of harmful and hazardous alcohol and drug use in a sample of New York City patients visiting a public health clinic who identified as heterosexual compared to those patients who identified as LGB. This study fills a gap in the literature by examining the counseling implications of observed differences in rates of "high risk" alcohol and drug use and by considering individuals who identified as bisexual a distinct group (Andre, 2014). The target journal for this study was *The Journal of Substance Abuse Treatment*, as this journal has already published a description of the pilot program that introduced alcohol and drug screening as a preventive public heath strategy into New York City STD clinics (Yu et al., 2008).

The two research questions examined in the first study were as follows: (a) Do individuals who identify as lesbian, gay, or bisexual report higher rates of hazardous and

potentially harmful levels of alcohol use than patients who identify as heterosexual?; and (b) do individuals who identify as lesbian, gay, or bisexual report higher rates of hazardous and potentially harmful levels of drug use than patients who identify as heterosexual? These questions were addressed using two 3x2 chi-square analyses to examine the relationships between these multiple independent variables: (a) sexual orientation identity (i.e., lesbian/gay, bisexual or heterosexual) by level of alcohol use, categorized as high or low and (b) sexual orientation identity (i.e., lesbian/gay, bisexual, or heterosexual) by level of drug use, also categorized as high or low.

The second manuscript in this dissertation examined the relationship between self-reported sexual orientation identity and STI diagnosis on the date of visit (positive or negative) within a sample of New York City patients visiting a public health clinic. This study fills a gap in the literature by (a) using sexual orientation identity as a distinct variable, separate from reported history of same-sex sexual behavior and (b) exploring the contribution of other identities (i.e., age, race, ethnicity, and gender) and behavioral variables (i.e., alcohol use, drug use, and same-sex sexual behavior) to the relationship between sexual orientation identity and incident STI diagnosis. The target journal for this study was *The Journal of Gay and Lesbian Mental Health*, since this journal states in its author guidelines that its editorial board aims to represent the full range of sexual orientation and gender identities and to publish articles pertaining to mental health in a myriad of settings.

The second study addressed two research questions: (a) In a sample of New York City clinic patients, are patients who report a minority sexual orientation identity (i.e., lesbian, gay, bisexual) at greater risk of receiving an STI diagnosis?; and (b) How do demographic identity variables and behavioral variables moderate the relationship between LGB identity and STI

diagnosis? Logistic regression analyses were performed to measure the relationship between sexual orientation identity (i.e., the independent variable) and STI diagnosis (i.e., the dependent variable) and to determine the relative contribution of additional independent variables (i.e., age, gender, race, ethnicity, alcohol use, drug use, and same-sex sexual behavior) to the relationship between the independent and dependent variables.

Thematic Link Between Studies

The thematic link between these two studies is that they both involve an exploration of the relationship between sexual orientation identity (i.e., gay, lesbian, bisexual, or heterosexual) and health-related behaviors, including alcohol use, drug use, same-sex sexual behavior, and diagnosis with an STI.

Glossary of Specialized Terms

AUDIT – Alcohol Use Disorders Identification Test, a 10-item self-report questionnaire designed to identify potentially hazardous or harmful levels of alcohol use (Saunders, Aasland, Babor, De La Fuente, & Grant, 1993).

BSTDC – Bureau of STD Prevention and Control, a division of the New York City DOHMH.

DAST – Drug Abuse Screening Test, a 28-item self-report questionnaire designed to identify potentially hazardous or harmful levels of drug use, including prescription medications taken beyond the recommended dosages or taken for non-medical use (Skinner, 1982).

DOHMH – New York City Department of Health and Mental Hygiene.

EMR – Electronic Medical Record, utilized to collect data from patients visiting NYC DOHMH public health clinics.

LGB – Abbreviation referring to lesbian, gay, and bisexual individuals.

LGBT – Umbrella term referring to lesbian, gay, bisexual, and transgender or gender non-conforming individuals.

MSM – An abbreviation referring to men who have sex with men introduced by epidemiologists "to avoid complex social and cultural connotations that, according to a strict biomedical view, have little to do with epidemiological investigation of diseases" (Young & Meyer, 2005, p. 1144).

SGL – Same gender loving, a moniker to demonstrate racial and/or ethnic pride adopted by people of color in same sex relationships or same sex attractions who eschew the terms "gay" or "bisexual" because of the historical exclusion of Black and Latino people from the primarily White gay rights movement (as cited in Parks, 2001, and Young & Meyer, 2005).

STI – Sexually transmitted infection; also commonly referred to as a STD, or sexually transmitted disease. For the purposes of this study, incident STIs (i.e., STI diagnosed on the date of visit) included lab-confirmed cases of chlamydia, gonorrhea, and syphilis.

WSW – An abbreviation referring to women who have sex with women, introduced "to reflect the idea that behaviors, not identities, place individuals at risk for HIV infection" and the acquisition of other STIs (Young & Meyer, 2005, p. 1144).

Organization

Both manuscripts that follow utilized a retrospective archival data study format (Mann, 2003) with de-identified data obtained, with permission, from an Electronic Medical Record (EMR) system maintained by the New York City Department of Health and Mental Hygiene's Bureau of STD Prevention and Control.

Chapter 2 presents a review of recent literature that includes an examination of (a) the importance of collecting data on sexual orientation identity, (b) the prevalence of alcohol and

drug use in the general population of the United States, and (c) how universal screening for alcohol and drug use can help providers identify individuals who are using substances at hazardous or harmful levels. After establishing a background in the relevant literature, Chapter 2 presents a research study comparing (a) the prevalence of potentially hazardous or harmful alcohol use among lesbian, gay, and bisexual (LGB) individuals as compared to heterosexual individuals and (b) the prevalence of potentially hazardous or harmful drug use among lesbian, gay, and bisexual individuals compared to heterosexual individuals.

Chapter 3 opens with a review of existing literature that includes (a) a discussion of the impact of STI diagnosis on mental health, (b) the relationship between sexual orientation and alcohol and drug use, and (c) the relationships between other identities (e.g., age, race, ethnicity) and STI diagnosis. Chapter 3 then describes a research study incorporating a subset of data from patients who visited a physician at one of New York City's public health clinics. Using regression analyses, the relationship between sexual orientation identity and likelihood of diagnosis with a sexually transmitted infection (STI) is examined, along with the influence of additional variables (i.e., age, racial and ethnic identity, gender and sexual orientation identity, alcohol use, drug use, and history of same-sex sexual behavior) that could mediate that relationship.

Chapter 4 presents general conclusions that emerged from the two manuscripts and brings the two manuscripts together.

CHAPTER 2

SUBSTANCE USE AND SEXUAL ORIENTATION IDENTITY AMONG NEW YORK CITY CLINIC PATIENTS

Substance Use and Sexual Orientation Identity Among New York City Clinic Patients

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Abstract

In this study, the rates of potentially hazardous or harmful alcohol use among patients who self-identified as gay, lesbian, bisexual, and heterosexual were compared in a sample of patients who visited one of New York City's free, confidential STD clinics. Rates of potentially hazardous or harmful drug use were also compared by sexual orientation identity within the same sample. The results showed that patients who identified with a sexual minority identity reported higher rates of potentially harmful alcohol and drug use. Together, these findings suggest that interventions to identify and address harmful substance use may be helpful in health care settings utilized by individuals who identify as sexual minorities (i.e., lesbian, gay, or bisexual).

Keywords: substance use, lesbian, gay, bisexual, health disparities, sexual orientation, chi-square

Being "invisible" does not mean that one is free from oppression. Individuals who identify as lesbian, gay, or bisexual (LGB) have an “invisible” minority identities that may contribute to experiences of stigma or oppression. Unlike members of racial minority groups, LGB minority status is not apparent; however, living in a country like the United States, where the dominant culture is heteronormative, means that simple interactions with others may involve an unspoken assumption that everyone is heterosexual. Coping with the knowledge that one is “different” or “not like everyone else” can manifest in many forms, including increased stress levels and the increased use or abuse of alcohol or other drugs (AOD). Additionally, having an issue with substance use is itself stigmatized in American culture.

Recent literature in public health has identified health disparities among individuals who identify as, or are identified as, sexual minorities. These disparities include higher rates of mental health concerns, substance use, tobacco use, and cardiac health issues than their heterosexual counterparts (Boehmer et al., 2012; Burgess et al., 2008; Cochran & Mays, 2007; Conron et al., 2010; Corliss et al., 2010; Hughes, 2003; McCabe et al., 2009; Mustanski et al., 2010; Savin-Williams, 2001). However, existing articles are limited by (a) sampling issues, including small sample sizes; (b) an overall lack of racial and ethnic diversity; and (c) the combining of individuals who identify as LGB with individuals who do not identify as LGB but do report same-sex sexual behavior (Cochran & Mays, 2007; Wheeler, 2003). In spite of findings showing that LGB individuals report more mental health issues and mental health service utilization than heterosexual individuals (Burgess et al., 2008), counselors and counselor educators have not researched these disparities. Given that there are approximately eight million adults in the U.S. who identify as LGB (Gates, 2011), counselors are likely to encounter these individuals as

clients and, for this reason, should examine public health data through a multicultural lens, acknowledging the importance of identity with an aim to promote wellness while contributing to the existing research base. Once an empirical foundation of knowledge has been established, treatment recommendations can be developed to better address the unique needs of LGB clients who seek counseling.

To contextualize this study, a review of recent literature will follow that includes an examination of (a) the importance of collecting data on sexual orientation identity, (b) the prevalence of alcohol and drug use in the general population of the United States, and (c) how universal screening for alcohol and drug use can help providers identify individuals who are using substances at hazardous or harmful levels.

Researchers from The Fenway Institute have reported that few medical providers ask about sexual orientation during routine medical visits (Bradford, Cahill, Grasso, & Makadon, n.d.). Thus, Sell and Becker (2001) urged the U.S. Department of Health and Human Services to begin asking about sexual orientation identity in their Healthy People 2010 survey. However, it was not until 2012 that the decision was made to collect data at the federal level to assess the needs of LGB individuals in the Healthy People 2020 initiative (U.S. Department of Health and Human Services, 2014). In the forthcoming Healthy People 2020 survey, demographic information will be collected on sexual orientation identity as well as information about such health indicators as alcohol use and binge drinking, cancer screening, condom use, drug use, tobacco use, and mental health (DHHS, 2014). Having nationally representative data on this range of health indicators will better describe the substance use, sexual health and preventive care behaviors of LGB individuals, which will enable health care access and social services to be designed and implemented that address the needs of this population. There is, to date, a dearth of

quantifiable research on the health and health care utilization of Americans who identify as lesbian, gay, or bisexual (Sell & Becker, 2001).

Many individuals in the U.S. use alcohol and other drugs (AOD) and a large number use AOD at levels that are potentially harmful. Data collected by the Substance Abuse and Mental Health Services Administration (SAMHSA) as part of the National Survey on drug Use and Health (NSDUH) in 2012 indicated that approximately 87% of adults aged 18 and over drank alcohol at some point in their lives, that approximately 25% had engaged in binge drinking (defined as six or more drinks in one sitting) within the past month, and that approximately 7% of adults, or 17 million, met criteria for an alcohol use disorder (National Institute on Alcohol Abuse and Alcoholism, 2014). Reported lifetime rates of illicit drug use among individuals 12 years of age and over have increased from 47% to 48.6% for the period 2011-2013 (National Institute on Drug Abuse, 2014). The use of illicit drugs within the past month among individuals 12 years of age and over increased from 8.7% to 9.4% for the period 2011-2013 (National Institute on Drug Abuse, 2014). More troubling is the fact that of the roughly 22 million individuals who meet criteria for a substance use disorder, only 10-11% receive treatment (New York State Office on Alcoholism and Substance Abuse Services, n.d.-a). The NSDUH data were collected using a randomized telephone survey with closed-ended questions. While the methodology employed in that study provides a wealth of generalizable data on a variety of health indicators, ranging from breast cancer screening to tobacco use, it included two main limitations: 1) no data were collected on sexual orientation identity and 2) no feedback was given to individuals who reported levels of AOD use that correlated with such health risks as substance use disorders, liver or heart disease, and accidents.

Substance use, even when hazardous or potentially harmful, often goes undetected (New York State Office on Alcoholism and Substance Abuse Services, n.d.-b). Screening, Brief Intervention, and Referral to Treatment (SBIRT) is an evidence-based intervention designed to provide AOD screening and interpretation along with a brief discussion using motivational interviewing (Bernstein et al., 2007; Madras et al., 2009; Substance Abuse and Mental Health Services Administration, 2013). SBIRT was developed "with the goal of reducing and preventing related health consequences, disease, accidents, and injuries" (New York State Office on Alcoholism and Substance Abuse Services, n.d.-b). In a study by Madras et al. (2009), SBIRT contributed to a reduction in hazardous alcohol use of 39% and a reduction in drug use of 68%.

Screening for hazardous alcohol and drug use in convenience settings like primary care physicians' offices, public health clinics, schools, and community-based organizations provides an efficient, unbiased way to compare levels of alcohol and drug use across populations (Madras et al., 2009). Providing screening results can assist individuals who do not meet the criteria for substance use disorders to make informed decisions about their substance use and to educate those individuals about health risks related to binge drinking and the use of illicit drugs or medications taken for recreational purposes (Friedmann, 2008). Conducting alcohol and drug screening in settings where patients may go to be treated after a substance-related accident or injury also provides a way to reach those individuals who meet the criteria for substance use disorders or those whose AOD use puts them at risk for developing these disorders (Babor et al., 2007; Madras et al., 2009; Substance Abuse and Mental Health Services Administration, 2001, 2013).

Given the aforementioned lack of information on the alcohol and drug use patterns of persons who identify as lesbian, gay, and bisexual, two research questions were examined in this

study, as follows: (a) Do individuals who identify as lesbian, gay, or bisexual report higher rates of hazardous and potentially harmful levels of alcohol use than individuals who identify as heterosexual?; and (b) Do individuals who identify as lesbian, gay, or bisexual report higher rates of hazardous and potentially harmful levels of drug use than individuals who identify as heterosexual?

Method

Design

This study employed a retrospective, cross sectional observational design (Jepsen, Johnson, Gillman, & Sørensen, 2004; Mann, 2003). Data were collected from patients who visited one of the six New York City Department of Health and Mental Hygiene Sexually Transmitted Disease Clinics between November 1, 2012 and November 30, 2013. The study was designed to compare the prevalence of potentially hazardous or harmful levels of alcohol and drug (AOD) use among patients who self-identified as lesbian, gay, bisexual (LGB), or same gender loving (SGL) to hazardous or harmful levels of AOD use among patients who self-identified as heterosexual.

Prior to data analysis, a power analysis for chi-square test was conducted using G* Power (Faul, Erdfelder, Buchner, & Lang, 2009). The effect size (i.e., Cohen's *w*) was drawn from the adult data contained in van Nieuwenhuijzen et al. (2009). The following input parameters were employed: (a) $w = 0.21$, (b) power (1-β err probability) = 0.95, (c) $\alpha = .05$, and (d) degrees of freedom (Df) = 2. The G*Power 3.1 output included a sample size of 351 and an actual power of 0.95.

Participants

Analyses were limited to patients who completed the sexual orientation identity question on the prescreen form, and data were obtained for the period November 1, 2012 to November 30, 2013 in order to include a sufficient sample of patients who identified as sexual minorities (i.e., gay, lesbian, bisexual, or same gender loving). The sample of 56,569 patients ranged in age from 13 to 83. In terms of gender, 34,088 patients (60.3%) identified as male, 22,413 patients identified as female (39.6%), and 68 patients identified as transgender (0.1%). The participant sample was racially and ethnically diverse, with 47,033 patients (83%) identifying as non-White. In terms of racial and ethnic identity, 28,927 patients (51.1%) identified as Black or African American, 13,426 patients (23.7%) identified as Hispanic or Latino/a, 1,798 patients (3.2%) identified as Asian American, 9,536 patients (16.9%) identified as non-Hispanic White, and the remaining 2,882 patients (5.1%) identified as non-Hispanic other. In terms of sexual orientation, in the original data set, 9,326 patients (16.5%) identified as gay/lesbian, 3,639 patients (6.4%) identified as bisexual, 1,041 patients (1.8%) identified as same gender loving (SGL), and 38,241 patients (67.6%) identified as heterosexual.

Since patients had the option to select more than one identity label in the Electronic Medical Record, each sexual orientation category was coded separately, with “0” for blank and “1” for checked (indicating affiliation with that sexual orientation identity). Since SGL is a category that could be synonymous with a gay, lesbian, or bisexual identity, any patient who selected SGL along with gay or lesbian was coded as gay or lesbian and any patient who selected SGL along with bisexual was coded as bisexual. Patients who selected SGL only were coded as gay and lesbian. Data were recoded for analyses using the following system: (a) gay, lesbian, or SGL = 1; (b) bisexual or bisexual and SGL = 2; and (c) heterosexual = 3.

For sufficient statistical power, the date range was selected in order to provide for a sample that included a robust sample of participants who identified as LGB. Since the data were collected from all patients who completed a screening form, the sample was representative of patients visiting a public STD clinic in New York City.

Measures

AUDIT-C. The AUDIT-C, which is comprised of the first three items on the Alcohol Use Disorders Identification Test (AUDIT), measures alcohol consumption. According to studies cited by Reinert and Allen (2007), its Cronbach's α reliability coefficient values ranged from 0.69 to 0.74 and test-retest validity ranged from 0.81 to 0.98. Each item of the AUDIT-C is scored on a scale from 0-4, for a possible total score of 0-12. A score of 3 or above for women and 4 or above for men indicates levels of alcohol use that exceed the recommended quantity and/or frequency of alcohol consumption considered safe according to NIAAA guidelines.

AUDIT. The Alcohol Use Disorders Identification Test, or AUDIT, is a screening tool developed by the World Health Organization to detect hazardous levels of alcohol use and to indicate the possibility of a substance use disorder (Saunders et al., 1993). The AUDIT has been used in SBIRT programs in primary care settings (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001) and has been validated in many different languages and countries worldwide (Meneses-Gaya et al., 2010). According to studies using AUDIT cited by de Meneses-Gaya et al. (2010), the mean value of Cronbach's α was 0.80, which indicated high internal consistency. Test-retest reliability found among the studies that de Meneses-Gaya et al. (2010) included in their meta-analysis ranged from 0.60 to 0.84. Each AUDIT item is scored on a scale from 0-4, for a possible total score of 0-40. The cutoff score for the full AUDIT is 8. "At risk" substance use, described

as the risk of the individual developing a substance use disorder, is indicated by a score of 16 or above.

DAST-1. The first question on the Drug Abuse Screening Test, or DAST, asks whether the respondent has used any drugs besides those required for medical reasons. This question is asked to determine whether patients have used any recreational drugs or any prescription drugs for non-medical reasons within the past year. The psychometric properties of this question have not been documented in the existing literature.

DAST-10. An abbreviated version of the 28-item Drug Abuse Screening Test, known as the DAST-10 (Bohn, Babor, & Kranzler, 1991), was used in the current study. The DAST was originally developed by Skinner (1982) to serve as a screening tool in research, educational, and clinical settings; since then, the DAST has been used with a wide variety of individuals, including people with substance use concerns, psychiatric inpatient and outpatient clients, and adolescents (Yudko, Lozhkina, & Fouts, 2007). Yudko, Lozhkina, and Fouts (2007) reported that shortened versions of the DAST, which include 10 and 20 items, have levels of reliability and validity similar to the full version. According to studies cited in a meta-analysis by Yudko et al. (2007), the internal consistency of the DAST-10 ranged from Cronbach's $\alpha = 0.86$ to 0.94 and test-retest reliability was 0.71. Each item is scored with a zero or a one, for a total score ranging from 0-10. Scores of 3 or above indicate potentially hazardous drug use (Skinner, 1982).

Procedures

De-identified data were obtained from the New York City Department of Health and Mental Hygiene's Bureau of Sexually Transmitted Disease Control and Prevention's Electronic Medical Record (EMR). Original data were collected from patients who visited one of six public health clinics in New York City and completed an alcohol and drug screening form in the

waiting area as part of a SAMHSA-funded Screening, Brief Intervention, and Referral to Treatment (SBIRT) project. A subset of that data was extracted for the current study. Data collected from patient registration records included age, race, and ethnicity (i.e., Hispanic or non-Hispanic), and data self-reported on the screening form included gender identity (i.e., male, female, or transgender) and sexual orientation identity (i.e., gay, lesbian, bisexual, heterosexual, or same gender loving). Data collected from patient medical records included the outcome of alcohol and drug prescreen (i.e., positive or negative), whether a patient received a brief intervention regarding their AOD use (i.e., yes or no), and client scores recorded during the brief intervention on two substance abuse screening tools (with scores ranging from 0-40 or from 1-10).

The screening form that patients completed in the clinic waiting rooms included AUDIT-C, which yields a score related to quantity and frequency of alcohol consumption, and the DAST-1, which asks about non-medical use of drugs within the past year. The AUDIT-C questions are (a) “How often do you have a drink containing alcohol?,” (b) “How many drinks do you have on a day that you are a drinking?,” and (c) “How often do you have 6 or more drinks on one occasion?” (Saunders, Aasland, Babor, & Grant, 1993). Scores for each item range from 0 for “never” to 4 for “daily or almost daily.” The DAST-1 asks, “Have you used drugs other than those required for medical reasons?” (Skinner, 1982). Scores are 1 for “yes” and 0 for “no.”

Patients who scored above a certain threshold on the AUDIT-C (3 for patients who identified as female or transgender and 4 for patients who identified as male) were considered positive on the prescreen for alcohol use. Patients who identified as female or transgender and scored 0-2 and patients who identified as male and scored 0-3 were considered negative on the

prescreen for alcohol use. Additionally, a patient of any gender identification who responded affirmatively to the DAST-1 prompt was considered a positive prescreen for drug use.

Approximately 23% of patients who were identified as prescreen positive for alcohol and/or drug use were offered the opportunity to meet with a trained staff member for a brief intervention to discuss their AOD use and opted to accept that service. Limited staffing and competing demands in a walk-in clinic setting do not permit for a high number of patients to be seen, although clinic flow and number of patients varies by site.

During the intervention, the full AUDIT and DAST-10 questionnaires were completed as applicable and the patient learned their scores on each screening tool. The interventionist utilized motivational interviewing techniques to discuss alcohol and/or drug use with the patient, to help the patient identify goals and strategies for change, and to offer referrals to specialized substance abuse treatment services to patients who scored a 20 or above on the AUDIT and a 6 or above on the DAST-10. Scores indicting higher risk of medical, social, or occupational problems on the AUDIT ranged from 16 to 40 while scores indicating higher risk of medical, social, or legal problems on the DAST-10 ranged for 3 to 10. The above description of these procedures was based on the experiences of the first author in her role as a clinician within the SBIRT project from 2010 to 2012.

Analysis

Before the statistical analysis, a series of missing data examinations were conducted. These examinations showed that 19 patient records had all four sexual orientation categories marked, so they were excluded from further analysis. Additionally, 56 patient records reported both a gay/lesbian and bisexual orientation; since it is not possible in an archival study to ask patients how they defined their identity, those records were excluded. After recoding the sexual

orientation category to integrate SGL into bisexual and gay/lesbian categories, 51,955 records containing sexual orientation identity and prescreen results were identified and 4,614 records (8%) were excluded. The number of valid records of patients who reported sexual orientation identity, prescreened positive on the AUDIT-C and/or DAST-1, and completed a full screen totaled 12,114, but after the data were recoded into three sexual orientation categories, the number of patients who completed a full screen totaled 11,278. A total of 1,097 records containing missing data for sexual orientation identity or levels of substance use were excluded from the chi-square analyses. Missing data were included since the values included self-reported sexual orientation identity and substance abuse screening scores, neither of which has a normal distribution or could be easily predicted.

The raw score skewness for the AUDIT was 1.969, and the raw score skewness for the DAST-10 was 1.526. No transformations were performed because the cutoff value for skewness is 2 SD (Hinton, 2014) and the screening scores were to be recoded. The AUDIT and DAST-10 scores were recoded as binary values representing substance-related risk so they could be fit into a chi-square as follows: (a) low, with AUDIT scores 0-15 = 1; (b) high, with AUDIT scores 16 or above = 2; (c) low, with DAST-10 scores of 1-2 = 1; and (d) high, with DAST-10 scores of 3 or above = 2. No data transformation was performed on the raw screening scores since they were to be recoded into new variables; outliers were not removed for the same reason.

The first 3x2 chi-square test was conducted with three levels of sexual orientation identity (lesbian/gay = 1, bisexual = 2, heterosexual = 3) and two levels of alcohol use (low, with AUDIT scores 15 or below = 1, and high, with AUDIT scores 16 or above = 2). A second 3x2 chi-square test was then conducted with three levels of sexual orientation identity (lesbian/gay = 1; bisexual = 2; heterosexual = 3) and two levels of drug use (low, with DAST-10 scores of 1-2 =

1; and high, with DAST-10 scores of 3 or above = 2) included. Chi-square tests were performed using SPSS version 22 (IBM Corporation, 2013). Standard levels of statistical significance for a large data set were used ($p < .05$).

Results

A total of 9,222 patients completed the AUDIT with an interventionist. AUDIT scores were found to range from 0-38 ($M = 7.38$, $SD = 4.45$), with 92.2% of patients indicating low-risk alcohol use scores of 0-15 and only 7.8% indicating high-risk alcohol use scores of 16-38. No patients indicated the highest possible scores on this screening tool (39 or 40). The most frequently chosen scores were 4 (n = 1,562 or 16.9%), 5, (n = 1,431 or 15.5%) and 6 (n = 1,212 or 13.1%), all of which fall within zone 1 of the AUDIT (score = 0-7), showing that a respondent is drinking within recommended limits for their gender.

A total of 7,137 patients completed the DAST-10 with an interventionist. DAST-10 scores ranged from 1-10 ($M = 2.46$, $SD = 1.48$), with 60.7% of patients indicating lower risk drug use scores of 1-2 and 39.3% indicating higher risk drug use scores of 3-10. For the DAST-10, the most frequently indicated scores (1 and 2) also fell within the lowest risk zone, 2 (n = 2,511 or 35.2%) and 1 (n = 1,975 or 27.7%), showing that the respondent was using drugs recreationally and had not experienced negative consequences as a result of their use.

In the chi-square analysis conducted between sexual orientation and levels of alcohol use, which contained 8,587 patient records, the association between these two measures was found to have a statistical significance at the .01 alpha level, $\chi^2(2) = 9.127$, $p = .010$. Among patients who identified as gay or lesbian (n=1,910), 1,803 individuals (94.4%) were found to be drinking at low levels and/or experiencing few negative consequences of alcohol use, as evidenced by AUDIT scores of 1-15, and only 107 individuals (5.6%) were found to be drinking at higher

levels and experiencing negative consequences of alcohol use, with AUDIT scores of 16 and above. Among patients who identified as bisexual (n=668), 611 individuals (91.5%) were found to be drinking at low levels and/or experiencing few negative consequences of alcohol use, as evidenced by AUDIT scores of 1-15, and only 57 individuals (8.5%) were found to be drinking at higher levels and experiencing more negative consequences of alcohol use, with AUDIT scores of 16 and above. Among patients who identified as heterosexual (n=6,009), 5,667 individuals (94.3%) were found to be drinking at low levels and/or experiencing few negative consequences of alcohol use, as evidenced by AUDIT scores of 1-15, and 342 individuals (5.7%) were found to be drinking at higher levels and experiencing more negative consequences of alcohol use, with AUDIT scores of 16 and above.

In the chi-square analysis conducted between sexual orientation and levels of drug use, which contained 6,675 patient records, the association between these two measures was found to achieve statistical significance at the .01 alpha level, $\chi^2(2) = 13.706$, $p = .001$. Among patients who identified as gay or lesbian (n=1,012), 991 individuals (65%) were found to be using drugs minimally and/or experiencing no negative consequences of drug use, as evidenced by DAST-10 scores of 1-2, and 534 individuals (35%) were found to be using drugs at higher levels and experiencing more negative consequences of drug use, with DAST-10 scores of 3-10. Among patients who identified as bisexual (n=554), 311 individuals (56.1%) were found to have low levels of drug use, as evidenced by DAST-10 scores of 1-2, and 243 individuals (43.9%) were found to be using drugs at higher levels and/or experiencing more negative consequences of drug use, with DAST-10 scores of 3-10. Among patients who identified as heterosexual (n=4,596), 2,895 individuals (63%) were found to have low levels of drug use, as evidenced by DAST-10

scores of 1-2, and 1,701 individuals (37%) were found to be using drugs at higher levels and/or experiencing more negative consequences of drug use, with DAST-10 scores of 3-10.

Discussion

The findings of this study indicated that a statistically significant relationship exists between sexual orientation identity and substance use. Individuals who identified as bisexual reported higher rates of hazardous and potentially harmful levels of alcohol and drug use than individuals who identify as heterosexual or individuals who identify as gay or lesbian. The findings also demonstrated that if individuals who identified as gay and lesbian had been combined with individuals who identified as bisexual for the purposes of this analysis (which is often the case in studies with smaller sample sizes), the cumulative percentage of hazardous AOD use for the LGB sample would have been higher than the percentage of hazardous AOD use among individuals who identified as heterosexual. These findings are consistent with previous studies indicating that individuals who identify as LGB use substances more often and at higher levels than individuals who identify as heterosexual (Boehmer et al., 2012; Conron et al., 2010; Fredriksen-Goldsen et al., 2010; McCabe et al., 2009; Meyer et al., 2008).

One possible explanation for the results observed is Meyer's (2003) minority stress theory, which states that individuals who identify with a sexual minority group (i.e., LGB) have poorer health due to direct experience of prejudice and discrimination, societal stigma regarding their sexual orientation, or the consistent threat of discrimination. Although sexual minority status is an invisible identity (i.e., not outwardly apparent like skin color or an accent), individuals who identify as LGB still fear prejudice from family, coworkers, and strangers, and have to cope with not being members of the majority group in a heteronormative society. Previous studies have provided evidence that LGB individuals experience more discrimination in

the workplace and community than heterosexuals and may have limited access to health care due to their socioeconomic and employment status (Mays & Cochran, 2001; Meyer et al., 2008).

Substance use may be one way that individuals who identify as LGB cope with stressors related to stigma and discrimination or the expectation of rejection (Fredriksen-Goldsen et al., 2010). This may be particularly relevant to those patients who identified as bisexual in this sample, the group with the highest percentages of high-risk alcohol and drug use. Brewster and Moradi (2010) found that individuals who identified as bisexual sometimes experienced skepticism regarding their sexual orientation identity, relationships, or fidelity from both gay or lesbian and heterosexual peers, so those additional stresses or fears of criticism could be related to higher levels of reported substance use. Rust (2002) also reported the challenges faced by bisexuals to validate or justify the genuineness of their sexual orientation identity and the stereotypes of bisexual individuals as "psychologically conflicted" and "sexually promiscuous" (p. 185). As no causal relationship can be inferred from the correlation between bisexual orientation and higher levels of substance use, more research is recommended in this area to further explore causal factors with an aim toward developing counseling interventions to prevent the escalation of drinking or drug use into a substance use disorder. However, the finding that individuals who identified as bisexual had the highest in-group percentage of potentially harmful AOD use while individuals who identified as gay or lesbian had the lowest in-group percentage of potentially harmful AOD use remains notable, as these individuals are often combined in research samples under the LGB umbrella. The Substance Abuse and Mental Health Services Administration recently suggested that individuals who identify as bisexual be studied as a distinct group due to the observed prevalence of substance use and mental health disorders found among members of this population (Andre, 2014).

A second possible explanation, consistent with minority stress theory, is that individuals who identify as LGB are routinely exposed to more opportunities to use substances in social venues than their heterosexual peers (Halkitis & Parsons, 2003). Halkitis and Parsons (2003) have commented on the increasing availability and popularity of "club drugs" like ketamine, MDMA, and GHB, in addition to crystal methamphetamine, in bars and clubs that cater to patrons who identify as gay and bisexual men. Researchers have also noted that individuals who identify as LGB do not appear to have the same degree of age-related reduction in levels of AOD use as their age peers who identify as heterosexual (Cochran & Mays, 2000), suggesting that binge use of alcohol may end in adolescence, after college, for someone who identifies as heterosexual, but for someone who identifies as LGB, that health behavior could extend into adulthood.

As with any empirical work, there are a number of limitations to this study. Although the sample size was relatively large, the sampling method was not random; the archived data for this study were all collected at public health clinics in New York City that serve patients who want to be tested for HIV or other STIs or who have concerns that they may be infected with a STI. The sample size was also overpowered, meaning that the number of participants was large enough to produce statistically significant results that may not be clinically significant (Coe, 2002; Hochster, 2008).

Additionally, a number of records were not included in the analysis due to missing data, and only a fraction of patients who prescreened positive for substance use completed a full screening (AUDIT and/or DAST-10) with an interventionist. Approximately 41% of patients who had a positive prescreen for alcohol (n = 20,963) completed the full AUDIT (n = 8,587) and approximately 43% of patients who had a positive prescreen for drug use (n = 15,613) completed

the DAST-10 (n = 6,675). Therefore, it is possible that the subset of patients who completed a full screen were not completely representative of the population of clinic patients who initially reported alcohol or drug use on the prescreen form.

While the sample adequately reflected the demographics of the New York City metropolitan area, the sample did not represent the ethnic or racial composition of smaller or more rural cities in the United States. The age range of the participants was reflective of the age range of patients seen at the clinics (ages 13-83), but did not capture the much wider age range of residents of New York City or of the United States.

Further, sexual orientation identity was included as an independent variable but no other aspects of sexual orientation, such as attraction or behavior, were included (Sell, 2007). Patients who reported their identity as gay/lesbian and bisexual or as gay/lesbian and heterosexual had to be excluded in order to conduct calculations, so some of the nuances of how individuals might describe or identify their sexuality were lost. As Meyer and Wilson (2009) and others have noted, one of the greatest challenges inherent in sampling LGB populations is that the larger population is heterogeneous and not easily describable. It is confounded by factors like age of coming out (i.e., acknowledging the existence of one's same-gender attractions) or the degree to which sexual behavior may or may not be consistent with attraction (Worthington & Reynolds, 2009). Patients who endorsed three or four sexual orientation categories on the prescreen form may have been referring to attractions and behaviors, but in a large-scale study that contains de-identified data and lacks direct interaction with participants, no further information or clarification could be gathered, so those records were excluded from analyses.

Lastly, the statistical method chosen was a chi-square, a non-parametric inferential method that conveys the existence or nonexistence of a relationship between the variables under

consideration. Therefore, the findings of this study (a) cannot necessarily be generalized beyond the population under consideration (i.e., patients who visited one of New York City's six public STD clinics between November 1, 2012 through October 31, 2013) and (b) cannot be assumed to reveal anything about a causal relationship between sexual orientation identity and alcohol or drug use.

With its finding that New York City clinic patients who identified as LGB reported higher rates of high-risk alcohol and drug use than patients who identified as heterosexual, this study lends moderate support to the growing body of work on health disparities that has explored differential rates of health conditions and health related behaviors in sexual minority populations. When sexual orientation identities were examined as distinct categories, individuals who identified as bisexual reported the highest percentage of high-risk alcohol and drug use, followed by individuals who identified as heterosexual and then individuals who identified as lesbian or gay. This finding is relevant to counselors and counselor trainees who are likely to encounter individuals who identify as LGB in their clinical work. The current study also contributed to existing research by utilizing a sample that was racially and ethnically diverse with a percentage of individuals who identify as LGB that is similar to that found in the population of the U.S.

More research is recommended, particularly to examine the correlation between self-reported bisexual identity and higher levels of substance use, to increase understanding of what factors may be contributing to this correlation (Andre, 2014; Fredriksen-Goldsen et al., 2010). Although public health messaging around HIV prevention has targeted individuals who identify as bisexual (Rust, 2002), few other health-related interventions specifically address the unique combination of stressors and isolation faced by these individuals, so controlled trials regarding the efficacy of substance abuse interventions or treatments for individuals who identify as

bisexual could help in that regard. More detailed explorations of how additional aspects of identity such as gender, ethnicity, culture, and age contribute to higher-risk substance use may also be warranted, so that counselors working with individuals who use substances can better tailor their harm reduction interventions to those clients.

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CHAPTER 3

SEXUAL ORIENTATION IDENTITY AND STI ACQUISITION AMONG NEW YORK CITY CLINIC PATIENTS

Sexual Orientation Identity and STI Acquisition Among New York City Clinic Patients

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Abstract

Receiving a diagnosis of a sexually transmitted infection, or STI, can be a psychologically disruptive event. Previous studies have found correlations between the likelihood of STI diagnosis and the following variables: young age, Black/African American racial identity, Hispanic/Latino ethnicity, drug or alcohol use, and identity as a MSM (man who has sex with other men). Past studies have been limited by (a) conflation of sexual orientation identity as lesbian, gay, or bisexual (LGB) with sexual behavior, (b) racial or ethnic homogeneity, and (c) small sample sizes of sexual minority individuals. This inferential study utilized binary logistic regression analysis to determine whether there is a predictive relationship between LGB identity and STI diagnosis and to explore which other demographic and behavioral variables contribute to the relationship between sexual orientation identity and STI diagnosis. LGB identity was significantly related to STI diagnosis; other independent variables that increased the odds of receiving an STI diagnosis included younger age, Black/African American racial identity, Hispanic/Latino ethnicity, same-sex sexual behavior, and drug use. Variables that decreased the odds of an STI diagnosis included a female gender identity and transgender identity. Implications of findings are discussed.

Keywords: STD, logistic regression, lesbian, gay, bisexual, race, gender, health disparities

Sexual Orientation Identity and STI Acquisition Among New York City Clinic Patients

When the HIV epidemic began in the 1980s, it was known as "GRID," gay-related immune deficiency. Sexual orientation, specifically gay or bisexual identity, was seen as a predictor of acquisition of the disease (Rust, 2002). For years, it was widely assumed that heterosexual individuals were not at risk, despite intravenous drug users getting HIV. This "GRID view" has prevailed despite research finding no consistent link between sexual orientation identity and the risk of acquiring a sexually transmitted infection (STI). Although little is known about counselor reactions to clients based on the clients' sexual orientation identity, Hayes and Erkis (2000) found that therapists who held homophobic views were more likely to blame a hypothetical male client for acquiring HIV, regardless of his stated sexual orientation identity (ostensibly perceiving him to be gay). Therefore, the stereotype of HIV as a "gay disease" still exists among mental health treatment providers and could affect how counselors approach clients they perceive to be members of a sexual minority group.

Sexual orientation *identity* is important because public health researchers often eschew terms like lesbian, gay, or bisexual in favor of behavioral descriptors based on biologically defined indicators of the social construct of gender. These descriptors include MSM (men who have sex with men) or WSW (women who have sex with women). When describing behavioral risk factors for STI acquisition, it can be helpful to know the gender of the individuals involved. It is also important to know things like whether genitals are involved, how sexual fluids are exchanged, and which partner is the insertive partner. However, even behavioral terms like MSM and WSW do not explain with clarity what types of sex are occurring or how sexual acts are performed (Young & Meyer, 2005).

In contrast to behavioral descriptors, identity labels like lesbian, gay, bisexual, and same gender loving (SGL) are chosen by an individual and may indicate connection to a community or pride in having a sexual minority identity (Young & Meyer, 2005). These factors can actually be protective and can increase the likelihood of safer sex practices. Young and Meyer (2005) explained that, "use of reductive labels is unethical because it denies the right of identity to members of sexual-minority groups whose marginalization and mistreatment in medical settings have been amply documented" (p. 1148). Both professional counselors and counselor trainees understand that social oppression marginalizes many individuals who are not members of a majority culture (e.g., White, heterosexual, cisgender, able-bodied). As such, membership in multiple cultural identities (i.e., intersectionality) can serve simultaneously as a source of pride and a source of discrimination (Crenshaw, 1991). Therefore, counselors are well suited to study correlations between sexual orientation identity and STI risk and other harmful behaviors like the use of alcohol or other drugs (AOD).

Previous research has found correlations between sexual behavior, substance use, and STI diagnosis and has also found correlations between sexual orientation identity and substance use. Specifically, individuals who identify as LGB are more likely to use substances than individuals who identify as heterosexual (Boehmer et al., 2012; Corliss et al., 2010; McCabe et al., 2009; Meyer et al., 2008). However, past studies have been limited by a conflation of sexual orientation identity (i.e., how the client or patient identifies, regardless of sexual behavior) with sexual behavior, by racial or ethnic homogeneity, and by their small sample sizes of sexual minority individuals. A review of existing literature will follow that includes (a) a discussion of the impact of STI diagnosis on mental health, (b) the relationship between sexual orientation and

alcohol and drug use, and (c) the relationships between other identities (e.g., age, gender, race, or ethnicity) and STI diagnosis.

Although STI infections are common, stigma still exists around testing and treatment for these infections (Fortenberry et al., 2002). Thus, a sexually transmitted infection diagnosis can be difficult to accept and can induce feelings of embarrassment or shame (Holt, Bernard, & Race, 2010). Research has demonstrated that receiving a diagnosis of a common STI like human papillomavirus (HPV) can have negative psychological effects (Jeynes et al., 2009; Waller et al., 2007). People who identify as lesbian, gay or bisexual are already members of a stigmatized group, so the difficulty of receiving an STI diagnosis can be greater for these individuals. Research on women who have sex with women has shown that WSW diagnosed with an STI are more likely to have a history of mental health treatment and suicide attempts when compared to WSW with no history of STI diagnosis (Reisner et al., 2007). Additionally, depression symptoms are related to histories of STI diagnosis among gay men (Frost, Parsons, & Nanin, 2007). While the causal relationship between these factors remains unclear, there is a clear correlation between STI diagnosis, mental health concerns, and sexual orientation.

Relationships between sexual orientation and AOD use exist. Adults who identify as LGB report using alcohol and drugs more often and at higher levels than their heterosexual peers (Boehmer et al., 2012; Cochran & Mays, 2007; Conron et al., 2010; Hughes, 2003; Lehavot & Simoni, 2011). Adolescents who identify as LGB also report more drug use than adolescents who identify as strictly heterosexual (Corliss et al., 2010). These differences represent a health disparity between LGB and heterosexual individuals (Boehmer et al., 2012). Meanwhile, hazardous substance use and substance use disorders are stigmatized within U.S. society. Like an

STI diagnosis, a substance use issue can be difficult to admit, and seeking help for a substance use disorder may be less likely among members of already stigmatized communities.

Relationships exist between certain demographic factors and STI diagnosis as well. Ethnicity, race, age, and gender identity have all been reported in existing research as having correlational relationships with STI diagnosis. Based on observations of these correlations, the U.S. Preventive Services Task Force (USPSTF) created guidelines for STI testing. These guidelines were promulgated to (a) maximize the possibility of identifying individuals infected with a STI and (b) to limit the amount of unnecessary testing of individuals not likely to be infected (Meyers et al., 2008). The components of these guidelines were based upon research revealing that certain communities of Black and Hispanic/Latino individuals have higher rates of chlamydia, gonorrhea, and syphilis infections, regardless of their engagement in higher risk sexual behaviors (Meyers et al., 2008). Meyers and colleagues (2008) pointed out that in studies of these communities, ethnicity and race are seen as markers for other sociodemographic factors like poverty, oppression, and lack of health care access. In terms of age, youth (aged 15-24) remains a risk factor for STI diagnosis among sexually active individuals (Monteiro, Lacey, & Merrick, 2005), particularly when correlated with female gender identity (Meyers et al., 2008).

This study addresses two research questions. The first question is, "In a sample of New York City clinic patients, are patients who report a minority sexual orientation identity (i.e., lesbian, gay, bisexual) at greater risk of receiving a STI diagnosis?" The second question is, "What do other demographic and behavioral variables (e.g., age, gender identity, ethnicity, race, alcohol use, drug use, and same-sex sexual behavior) contribute to the relationship between sexual orientation identity and STI diagnosis?"

Method

Design

This study utilizes a retrospective, cross sectional observational design (Jepsen, Johnson, Gillman, & Sørensen, 2004; Mann, 2003). Data were collected from patients who visited one of the six New York City Department of Health and Mental Hygiene Sexually Transmitted Disease Clinics between November 1, 2012 and November 30, 2013. The study was designed to explore whether a relationship exists between self-reported sexual orientation identity and the likelihood of diagnosis with a sexually transmitted infection (STI), and what other independent predictor variables (i.e., demographic and behavioral factors) may contribute to that relationship. Binary logistic regression does not assume that independent variables will be normally distributed or have equal variance, which made it an appropriate method for examining these data (Stoltzfus, 2011).

Prior to data analysis, a power analysis for logistic regression test was conducted using the formula set forth by Peduzzi, Concato, Kemper, Holford, and Feinstein (1996). The effect size was drawn from data reported by McCauley, et al. (2014). The following input parameters were employed: (a) proportion of positive cases in the population = .18, and (b) number of predictor variables = 11. The output from calculation of the Peduzzi formula was a minimum sample of 611.

Participants

Analyses were limited to patients who completed a sexual orientation identity question, the AUDIT-C, and the DAST-1 on a substance use prescreen form in the waiting room and saw a physician during their clinic visit (n = 36,721). Data were obtained for the period between November 1, 2012 and November 30, 2013 in order to include a sufficient sample of patients who identified as sexual minorities (i.e., gay, lesbian, bisexual, or same gender loving). The

sample of 36,721 patients ranged in age from 13 to 83. In terms of gender, 21,662 patients (59%) identified as male, 15,025 patients identified as female (40.9%), and 34 patients identified as transgender (0.1%). The participant sample was racially and ethnically diverse, with 31,425 patients (85.6%) identifying as non-White. In terms of racial and ethnic identities, 19,766 patients (53.8%) identified as Black or African American, 8,952 patients (24.4%) identified as Hispanic or Latino/a, 930 patients (2.5%) identified as Asian American, 5,296 patients (14.4%) identified as non-Hispanic White, and the remaining 1,777 patients (4.8%) identified as non-Hispanic other. In terms of sexual orientation, in the original data set, 5,479 patients (14.9%) identified as gay/lesbian, 2,239 patients (6.1%) identified as bisexual, 671 patients (1.8%) identified as same gender loving (SGL), and 25,210 patients (68.7%) identified as heterosexual.

In the Electronic Medical Record, each sexual orientation category was coded separately, with “0” for blank and “1” for checked (indicating affiliation with the checked sexual orientation identity), and patients had the option to select multiple identity labels. Data were recoded for analyses using the following system: (a) gay, lesbian or SGL = 1; (b) bisexual or bisexual and SGL = 2; and (c) heterosexual = 3. Since SGL is a category that could be synonymous with a gay, lesbian, or bisexual identity, any patient who selected SGL along with gay or lesbian was coded as gay or lesbian and any patient who selected SGL along with bisexual was coded as bisexual. Patients who selected SGL by itself were coded in the gay and lesbian category.

The date range was selected in order to provide a sample that included a robust range of participants who identified as sexual minorities for sufficient statistical power. The data were collected from all patients who completed a screening form, so the sample was representative of patients visiting a public STD clinic in New York City.

Procedures

De-identified data were obtained from the New York City Department of Health and Mental Hygiene's Bureau of Sexually Transmitted Disease Control and Prevention's Electronic Medical Record (EMR). Original data were collected from patients who visited one of six public health clinics in New York City, completed an alcohol and drug screening form in the waiting area, and visited a physician. A subset of those data was extracted for the current study. Data collected from patient registration records in the EMR included age, ethnicity, and race (i.e., Hispanic or non-Hispanic plus a racial identifier), and data self-reported on the screening form included gender identity (i.e., male, female or transgender) and sexual orientation identity (i.e., gay, lesbian, bisexual, heterosexual, or same gender loving). Data collected from patient medical records in the EMR included the following: (a) the binary outcome of alcohol and drug prescreens (i.e., positive or negative), where a positive prescreen indicated the participant endorsed alcohol or drug use; (b) patients' binary (yes or no) responses to the physician question, "Have you ever had a same-sex sexual partner?;" and (c) patient's binary (yes or no) medical diagnosis (i.e., no evidence of an STI or a lab-confirmed diagnosis of an STI: chlamydia, gonorrhea, or syphilis).

The screening form that patients completed in the clinic waiting room included the AUDIT-C, which measures the quantity and frequency of alcohol consumption, and the DAST-1, which asks about non-medical use of drugs within the past year. The following AUDIT-C questions were asked: (a) "How often do you have a drink containing alcohol?;" (b) "How many drinks do you have on a day that you are a drinking?;" and (c) "How often do you have 6 or more drinks on one occasion?" (Saunders, Aasland, Babor, & Grant, 1993). Scores for each item range from 0 for "never" to 4 for "daily or almost daily." The DAST-1 asks, "Have you used

drugs other than those required for medical reasons?" (Skinner, 1982). Scores are 1 for yes and 0 for no.

Patients who met threshold criteria on the AUDIT-C (3 for patients who identified as female or transgender and 4 for patients who identified as male) were considered prescreen positive for alcohol use. Patients who did not meet the threshold criteria (0-2 for patients who identified as female or transgender and 0-3 for patients who identified as male) were considered prescreen negative for alcohol use. Additionally, patients who endorsed the DAST-1, regardless of gender identification, were considered prescreen positive for drug use. The above description of these procedures was based on the experiences of the first author in her role as a clinician within the SBIRT project from 2010 to 2012.

Measures

AUDIT-C. The AUDIT-C, which is comprised of the first three items on the Alcohol Use Disorders Identification Test (AUDIT), measures alcohol consumption. According to studies noted in Reinert and Allen (2007), values of the Cronbach's α reliability coefficient ranged from 0.69 to 0.74 and test-retest validity ranged from 0.81 to 0.98.

DAST-1. The first question on the Drug Abuse Screening Test, or DAST, asks whether the respondent has used any recreational drugs or prescription drugs for non-medical reasons within the past year. Although no psychometric properties of the DAST-1 have been reported in the literature, the reliability and validity of the full DAST has been well-documented (Yudko et al., 2007).

Analysis

Before the statistical analysis began, a missing data examination was conducted. This examination found that 3.3% of the results for alcohol and drug prescreens (AUDIT-C and

DAST-1) were missing. These records were excluded from subsequent analyses, since the missing data were binary values (positive/negative) that could not be accurately imputed. Dummy variables were created for each category of race and gender identity. Two variables describing self-reported same-sex sexual behavior by patient gender identity were recoded to create one variable for the self-reported lifetime history of any same-sex behavior, regardless of patient gender identity.

A binary logistic regression analysis was performed using SPSS 22 to measure the relationship between sexual orientation identity as the predictor (i.e., independent) variable and STI diagnosis as the criterion (i.e., dependent) variable, and to determine the relative contribution of additional independent predictor variables (i.e., age, gender, race/ethnicity, alcohol use, drug use, same-sex sexual behavior) to the same criterion variable (IBM Corporation, 2013). Predictor and criterion variables were fitted into a logistic regression model using hierarchical or forced order entry, where each variable is entered into the equation in a specific order (Osborne, 2008). Forced order entry was the most appropriate choice for two reasons: (a) the analyses were based on existing theory and (b) it was desirable to examine how each new variable affected the contribution of the variables already in the equation (Osborne, 2008). Independent predictor variables were entered in blocks as follows: (a) LGB sexual orientation identity, (b) demographic identity factors, including age, gender identity, and racial and ethnic identity, and (c) behavioral factors, including same-sex sexual behavior, alcohol use, and drug use. Standard levels of statistical significance for a large data set were used ($p < .05$).

Results

A total of 35,521 patient records were included in the binary logistic regression analyses, which far exceeded the minimum ratio of valid cases to independent variables of 20 to 1. In those

records, 30,134 patients (84.8%) did not receive an STI diagnosis on the date of a clinic visit and 5,387 patients (15.2%) did receive an STI diagnosis on the date of a clinic visit. In all regression models, patients were classified as not receiving an STI diagnosis. This produced an overall accuracy of 84.8% in both models.

In the first model, statistical significance was found with regard to LGB sexual orientation identity. The odds of a patient who identified as lesbian, gay, or bisexual being diagnosed with an STI was increased by a factor of 1.738 as compared with a patient who identified as heterosexual. The model chi-square demonstrated a significant relationship between the criterion variable of STI diagnosis and the independent predictor variable of LGB identity ($\chi^2(1) = 276.48$, $p < .001$).

In the second model, statistical significance was again found with regard to the LGB identity variable, along with measures of age, female gender identity, Hispanic ethnicity, and Black/African American racial identity ($\chi^2(8) = 1731.06$, $p < .001$). In this analysis, patients who identified as LGB had increased odds of an STI diagnosis by a factor of 1.668 as compared with patients who identified as heterosexual. Female gender identity, transgender identity, and an increase in patient age were associated with decreased odds of an STI diagnosis, while Hispanic ethnicity, Black/African American racial identity, and "other" racial identity were associated with increased odds of an STI diagnosis.

In the final model, which was fitted with all independent predictor variables, patients who identified as LGB had increased odds of an STI diagnosis by a factor of 1.282 compared with patients who identified as heterosexual ($\chi^2(11) = 1822.85$, $p < .001$). With all variables included in the model, a one-year increase in patient age was associated with odds of an STI diagnosis that decreased by a factor of 0.953; female gender identity was associated with decreased odds of an

STI diagnosis by a factor of 0.386, and transgender identity was associated decreased odds of an STI diagnosis by a factor of 0.869. Hispanic ethnicity was associated with increased odds of an STI diagnosis by a factor of 1.354, and Black/African American racial identity was associated with increased odds of an STI diagnosis by a factor of 1.552. Patient self-reported history of same-sex sexual behavior was associated with increased odds of an STI diagnosis by a factor of 1.394, self-reported alcohol use was associated with increased odds of an STI diagnosis by a factor of 1.035, and self-reported drug use was associated with increased odds of an STI diagnosis by a factor of 1.246. Logistic regression models assume little to no multicollinearity, meaning that variables have little to no relationship to each other (Stoltzfus, 2011); there was no indication of multicollinearity in the models. Statistical significance was achieved with the following variables: LGB identity, age, female gender identity, Hispanic ethnicity, Black/African American racial identity, same-sex sexual behavior, and drug use.

Discussion

These results were consistent with existing research that has demonstrated an increased likelihood of STI diagnosis related to younger age, minority racial identity (i.e., Black/African American), minority ethnic identity (i.e., Hispanic or Latino/a), minority sexual orientation identity (i.e., LGB), same-sex sexual behavior, and AOD use (Boehmer et al., 2012; Cochran & Mays, 2006; Corliss et al., 2010; T. L. Hughes et al., 2010; McCabe et al., 2009; Meyers et al., 2008; Monteiro et al., 2005). The results were not consistent with previous findings that female gender identity increases odds of an STI diagnosis (Meyers et al., 2008).

Age is a variable that, when increased, predicted decreased odds of an STI diagnosis in the current study, which was consistent with previous research. Younger age has been cited as a factor in a syndemic relationship between mental health issues, substance use, and STI

acquisition (Shrier, Harris, Sternberg, & Beardslee, 2001). Shrier et al. (2001) also examined a sample of adolescents reporting normative levels of substance use (i.e., alcohol and marijuana) and that found rates of condom use varied. The age range of patients whose records were included in the current study (M = 29.8, SD = 10.14) revealed that the ages of patients in this sample skewed younger, with the highest age frequencies found in the 20-29 age range. Research examining the interactions of race, ethnicity, and younger age has identified key indicators of STI acquisition, including earlier age of sexual initiation and inconsistent use of latex barriers (i.e., condoms or dental dams) during vaginal, anal, or oral sex (Pflieger, Cook, Niccolai, & Connell, 2013). Although the study by Pflieger and colleagues (2013) focused on adolescents who identified as female, similar behavioral trends could have occurred within the current study. Beard (2013) found that the rates of unprotected sex and sex while under the influence of substances among sexual minority adolescents were similar to heterosexual adolescents and that the LGB adolescents had fewer identified protective factors, such as parental support. Protective factors, or lack thereof, were not explored in the current study, so there could be similar underlying factors contributing to the outcome of STI diagnosis observed here.

Alcohol use and drug use within the past year were included in the current study as distinct predictor variables without requiring the substance use to be hazardous or potentially harmful. Therefore, this study examined how normative alcohol or drug use influenced the odds of STI acquisition among patients who identify as LGB. This is important not only because a majority of individuals who use alcohol and other drugs do so at normative levels that do not disrupt daily functioning (National Institute on Alcohol Abuse and Alcoholism, 2014), but also because AOD use is part of many LGB community events. As noted by Halkitis and Parsons (2003), social venues that serve an LGB clientele serve alcohol and often are places where

recreational drug use is normalized. Alcohol and drug use both increased the odds of STI diagnosis, with drug use increasing the odds significantly, so it could be that even normative use of alcohol or other drugs (which includes periodic binge drinking) impairs judgment and impulse control enough to increase sexual risk behaviors such as engaging in vaginal or anal intercourse without a latex barrier. Certain drugs are used more often by gay and bisexual men in sexual situations (e.g., crystal methamphetamine), so it could be helpful to explore not only the existence of drug use within the LGB population but also the breakdown of drugs used to determine how drug selection and setting interact with sexual decision-making (Halkitis & Parsons, 2003).

This study contributes to the existing body of work on sexual minority health and STI prevention and treatment because its regression analyses examined the unique contributions of two aspects of sexuality to the fit of the model: (a) sexual orientation identity and (b) sexual behavior (Sell, 2007). The demographic and behavioral predictor variables added to the model did moderate the strength of the relationship between LGB identity and STI diagnosis originally observed. The observed ratios also indicated that the odds of an STI diagnosis are more heavily influenced by demographic and behavioral factors, namely minority racial and ethnic identities and same-sex sexual behavior, than by sexual minority identity. These findings support the conclusion that the concurrence of sexual identity and behavior should not be assumed (Pathela et al., 2006; Worthington & Reynolds, 2009), especially since sexual minority identities are stigmatized within many racial and ethnic minority communities.

Meyers et al. (2008) observed that, when considering the increased odds of physical health issues found within racial minority populations, specifically Black/African American populations, race can be considered a marker for other disparities, like low socioeconomic status

or limited health care access. It is not surprising, therefore, that in a free, public health clinic treating STIs in a large metropolitan area, a higher percentage of patients overall would identify as racial and ethnic minorities, and would potentially carry a high percentage of disease burden.

Senn et al. (2010) described the relationship between childhood sexual abuse (CSA), depression, substance use, and STI acquisition as a "syndemic," or a set of "co-occurring psychosocial health conditions that interact," noting that racial and ethnic health disparities are visible representations of layers of social inequities (p. 614). They explored the co-occurrence of the above psychosocial factors and found a high prevalence of CSA among individuals diagnosed with STIs. Similarly, Sweet and Welles (2012) found strong associations between a history of CSA and diagnosis with HIV or other STIs in a sample of individuals who identified as LGB or who engaged in same-sex sexual behavior. They also found much higher rates of CSA among individuals who identified as LGB as compared to individuals who identified as heterosexual (Sweet & Welles, 2012). It is beyond the scope of the current study to hypothesize how sexual orientation identity may be related to CSA and STI diagnosis, but it is sufficient to note that underlying factors, such as a history of CSA, could potentially explain the observed relationship between LGB identity and STI diagnosis that was found.

This study has a number of limitations. The sample size was overpowered, meaning that the number of participants was large enough to produce statistically significant results that may not be clinically significant (Coe, 2002; Hochster, 2008). Although the sample was fairly robust, the sampling method was not random; the data for this study were all collected at public health clinics in New York City that serve patients who want to be tested for HIV or other STIs, or who have concerns that they may be infected with a STI. Therefore, examining the likelihood of STI

diagnosis within this population may result in a much larger percentage of diagnoses on the day of a clinic visit than would be found in another medical setting, such as a primary care clinic.

A second limitation is that the data extracted from the EMR were exported with ethnic and racial identifiers conflated, with Hispanic/non-Hispanic as the first criterion, so that patients who identified as Hispanic and Black/African American were categorized as Hispanic rather than ethnically Hispanic and racially Black/African American. This limited the degree to which ethnicity and race could be examined as discrete variables.

Additionally, sexual identity variables were combined into three categories: (a) gay or lesbian, (b) bisexual, and (c) heterosexual. Patients who selected all sexual orientation descriptors were excluded from further analyses, as were patients who did not complete the AOD prescreens in the waiting room. Same-sex sexual behavior was entered into the model as an independent variable, but attraction was not included as an element of sexual orientation (Sell, 2007), though it is possible that patients who self-reported a heterosexual identity were also engaging in same-sex sexual behavior (Pathela et al., 2006) since no analyses were conducted on the concurrence of self-reported identity and sexual behavior. In short, having data points that were either binary or continuous did not permit the exploration of variations in meaning and behavior that exist even among self-reported sexual orientation identity labels (Vrangalova & Savin-Williams, 2012; Worthington & Reynolds, 2009).

Lastly, HIV test results were not included in the lab-confirmed STI diagnoses due to strict regulations in New York State regarding confidentiality of HIV status, so it is possible that HIV prevalence could have altered the overall results. It is unlikely that the results would have changed much, however, given that there were only 2,832 reported cases of new HIV infections

in New York City in 2013, representing <0.01% of the city's population of 8.406 million people (HIV Epidemiology and Field Services Program, 2014).

The findings of the current study have implications for counselors and counselor educators. In addition to asking open-ended questions in counseling intake regarding gender identity and sexual orientation identity, which few medical providers will do (Bradford et al., n.d.), collecting data from individuals who identify as sexual minorities (i.e., LGB) can help counselors understand and treat these individuals (Sell & Becker, 2001). When counselors and counselor trainees learn from research in public health and related disciplines that individuals who identify as LGB may be experiencing stigma or discrimination, using alcohol or drugs more heavily than their heterosexual counterparts and experiencing mental health concerns like depression related to their sexuality, they may become more attuned to areas where clients could benefit from structured assessments and more provider awareness of the challenges facing LGB clients.

Addressing the holistic health of any LGB client is also important. Sexual identity labels may serve a protective social function, helping individuals to feel connected to a larger community of LGB people and decreasing their isolation (Young & Meyer, 2005). However, this study demonstrates that there is a relationship between sexual orientation identity and physical health, specifically STI diagnosis, whereby LGB identity can be a risk factor for STI acquisition. Therefore, encouraging LGB clients to get tested for HIV and other STIs on a regular basis (i.e., every three months or with every new partner) and to learn the transmission risks and symptoms of common STIs can become part of a preventive counseling intervention strategy. The results also demonstrate an opportunity for STI prevention messaging to target younger sexually active adolescents (Monteiro et al., 2005).

Counselors and counselor trainees in a multicultural society are charged with promoting social justice and reducing health disparities by advocating for health care access, addressing financial health as an element of wellness, and identifying opportunities to combat forms of oppression such as racism and heterosexism (American Counseling Association, 2014). Acknowledging when health disparities exist and how they impact the members of minority groups can be a first step towards rectifying those disparities. A growing body of recent quantitative research indicates that correlational relationships exist between minority sexual orientation identity, childhood sexual abuse, STI diagnosis, and mental health and substance use issues (Frost et al., 2007; Holt, Bernard, & Race, 2010; Lehavot & Simoni, 2011; McCabe et al., 2009; Meyer, 2003; Mustanski et al., 2010; Senn, Carey, & Vanable, 2010; Sweet & Welles, 2012). To fill the gaps in the existing literature, more extensive examination of these correlations could be conducted using quantitative or qualitative longitudinal, phenomenological, or grounded theory methods.

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CHAPTER 4

GENERAL CONCLUSIONS

In this chapter, the findings of the previous two studies will be discussed and explored and recommendations for future research will be outlined. Specifically, the chapter will contain the following summaries:

1. findings from the first study,
2. limitations of the first study,
3. discussion of the results of the first study,
4. recommendations from the first study,
5. findings from the second study,
6. limitations of the second study,
7. discussion of the results of the second study, and
8. recommendations from the second study.

Findings from First Study

In the first study, *Substance Use and Sexual Orientation Identity Among New York City Clinic Patients*, the following results were found: (a) a significant relationship exists between LGB identity and hazardous or potentially harmful alcohol use and (b) a significant relationship exists between LGB identity and hazardous or potentially harmful drug use. In the chi-square analysis conducted between sexual orientation and levels of alcohol use, which contained 8,587 patient records, the association between these two measures was found to have statistical significance at the .01 alpha level, $\chi^2(2) = 9.127$, $p = .010$. In the chi-square analysis conducted between sexual orientation and levels of drug use, as measured by scores on the DAST-10, the association between these two measures was found to achieve statistical significance at the .01

alpha level, $\chi^2(2) = 13.706$, $p = .001$. For both alcohol use and drug use, the highest percentage of high-risk use was found among individuals who identified as bisexual, followed by individuals who identified as heterosexual, and then individuals who identified as gay or lesbian.

Limitations of First Study

There were a number of limitations within this study. The sample size was large, which was a strength, but the sampling method was not random because the archived data for this study were collected at public health clinics in New York City that serve patients who want to be tested for HIV or other STIs. The sample, therefore, did adequately reflect the demographics of the New York City metropolitan area (see Table B1). The age range of the participants was reflective of the age range of patients seen at the clinics, but not of New York City or of the United States overall (see Table B2).

Sexual orientation identity was included as an independent variable but no other aspects of sexual orientation, like attraction or behavior, were included (Sell, 2007). Meyer and Wilson (2009) and others have described one of the greatest challenges inherent in sampling LGB populations in the fact that the larger population is heterogeneous and not easily describable (Worthington & Reynolds, 2009). The sample size was also overpowered, meaning that the number of participants was large enough to produce statistically significant results that may not be clinically significant (Coe, 2002; Hochster, 2008).

Lastly, the statistical method chosen was a chi-square analysis, a non-parametric inferential statistic that conveys the existence or nonexistence of a relationship between the variables under consideration. Therefore, the findings of this study: (a) may not generalize beyond the population under consideration (i.e., patients who visited one of New York City's six public STD clinics during the time period November 1, 2012 through October 31, 2013), and (b)

do not state anything about the existence or non-existence of a causal relationship between sexual orientation identity and alcohol or drug use.

Discussion of Results of First Study

The findings of this study are consistent with previous research indicating that individuals who identify as LGB use substances more often and at higher levels than individuals who identify as heterosexual (Boehmer et al., 2012; Conron et al., 2010; Fredriksen-Goldsen et al., 2010; McCabe et al., 2009; Meyer et al., 2008).

One possible explanation for the results is Meyer's (2003) minority stress theory, which states that individuals who identify as LGB have poorer health outcomes related to having experienced prejudice and discrimination, facing stigma regarding their sexual orientation, or facing the consistent threat of discrimination. Although sexual minority status is an invisible identity, individuals who identify as LGB may fear rejection by family, friends, or coworkers. Previous studies have provided evidence that LGB individuals experience more discrimination in the workplace and within their communities than heterosexuals and may have limited access to health care due to socioeconomic and employment status (Mays & Cochran, 2001; Meyer et al., 2008). However, some researchers find fault with Meyer's minority stress theory, particularly questioning its limited base of empirical evidence (Savin-Williams, Cohen, Joyner, & Rieger, 2001).

Recommendations Based on First Study

The findings of this study point to a few avenues for future research. Although it is clear that there exists a relationship between sexual orientation identity and potentially hazardous levels of alcohol and drug use, it is not clear *what* relationship sexual orientation identity has to potentially hazardous levels of alcohol and drug use. Is sexual orientation identity a causal factor

that contributes to higher levels of alcohol or drug use, or are there mediating factors? For example, previous studies have noted that individuals who begin using alcohol at younger ages are more likely to develop substance use disorders warranting treatment (Grant & Dawson, 1997). Might a child or adolescent with a burgeoning awareness of their same-gender attractions be more likely to drink or use drugs in order to cope with their feelings, which may be distressing, unwelcome, or inconsistent with beliefs espoused by the child or adolescent's family, religion, or culture? Longitudinal or retrospective qualitative studies could better explore these possibilities.

Which factors are driving reported higher levels of alcohol and drug use is not answered by the current study and could be explored further, perhaps using a longitudinal study format to follow participants from their age of first use through adulthood, or a logistic regression analysis. Previous research has indicated that sexual minority adolescents and adults may use higher levels of alcohol to downplay behaviors that do not conform to gender norms (Peralta, 2008) or to conform to social norms of masculinity (Hamilton & Mahalik, 2009). It is also likely that some social settings frequented by LGB individuals, like gay bars, accept and may even encourage the use of alcohol or other drugs, as found by Hughes (2003) and Halkitis and Parsons (2003).

Other researchers (Cochran & Mays, 2006; Hughes, 2003; Hughes et al., 2010; Lehavot & Simoni, 2011) have identified potential causal factors contributing to higher levels of substance use including histories of childhood physical or sexual abuse, sexual assault, suicidality and victimization on the basis of sexual orientation identity. However, Cochran and Mays (2006) caution against promoting negative stereotypes of LGB individuals (e.g., as substance abusers) and offer the alternative explanation that LGB individuals may use alcohol at high levels yet remain functional. Qualitative studies of the experiences of adult individuals who meet criteria for substance use disorders and identify as LGB would be informative, along with

more nuanced examinations of levels of drinking or drug use in conjunction with an exploration of the sequelae that may contribute to their reported levels of use.

Findings from Second Study

A total of 35,521 patient records were included in the second study's binary logistic regression analyses, which far exceeded the minimum ratio of valid cases to independent variables of 20 to 1. Of those records, 30,134 patients (84.8%) did not receive an STI diagnosis on the date of their clinic visit and 5,387 patients (15.2%) did receive an STI diagnosis on the date of their clinic visit. In all the regression models, patients were classified as not receiving an STI diagnosis. This produced an overall accuracy of 84.8% in both models.

In the first model, statistical significance was found with regard to sexual orientation identity as LGB. The odds of a patient who identified as lesbian, gay, or bisexual being diagnosed with an STI was increased by a factor of 1.738 compared with patients who identified as heterosexual. The model chi-square demonstrated a significant relationship between the criterion variable of STI diagnosis and the independent predictor variable of LGB identity ($\chi^2(1) = 276.48$, $p < .001$).

In the final model, which was fitted with all independent predictor variables, patients who identified as LGB had an increase in odds of an STI diagnosis by a factor of 1.282 compared with patients who identified as heterosexual ($\chi^2(11) = 1822.85$, $p < .001$). With all variables included in the model, female or transgender gender identity and a one-year increase in patient age were both associated with decreased odds of an STI diagnosis. Black/African American racial identity, Hispanic ethnicity, history of same-sex sexual behavior, alcohol use, and drug use were all associated with increased odds of an STI diagnosis (see Table C1). Statistical significance was achieved with the following variables: LGB identity, age, female gender

identity, Hispanic ethnicity, Black/African American racial identity, same-sex sexual behavior, and drug use (see Table C1).

Limitations of Second Study

The limitations of the second study have significant overlap with the limitations of the first study since both studies utilized the same set of archival data. The sample size was large but the sampling method was not random: data for this study were all collected at public health clinics in New York City serving patients who want to be tested for HIV or other STIs, and the records examined were all from patients who visited a physician. Therefore, the likelihood was high that these patients were concerned that they may have been infected with an STI.

This sample adequately reflected the demographics of the New York City metropolitan area, as the sample contained considerable racial and ethnic diversity (see Table B1). The sample would not likely represent the ethnic or racial composition of smaller or more rural cities in the United States. The age range of the participants was reflective of the age range of patients seen at the clinics, and the observed diversity in gender identity reflected the clinic population overall (see Table B2).

Sexual orientation identity was included as the primary predictor variable and reported same-sex sexual behavior was included as an additional predictor variable, but sexual or emotional attraction, both important aspects of sexuality, were not included (Sell, 2007). Additionally, no examination of inconsistency between reported sexual orientation identity and same-gender sexual behavior was conducted, so participants engaging in sexual behaviors that could place them at elevated risk of an STI diagnosis (e.g., MSM) could have self-identified as heterosexual within this sample (Pathela et al., 2006).

The statistical method chosen was logistic regression analysis, an inferential statistic that does not assume linearity or a normal distribution of variables (Stoltzfus, 2011), which was an appropriate method for this study. In this method, it is recommended that all meaningful variables be included (Stoltzfus, 2011), which is why this study contained multiple predictor variables that could contribute to the relationship between sexual orientation identity and STI diagnosis (i.e., age, gender, race, ethnicity, same-sex behavior, alcohol use, and drug use). However, it is possible that other meaningful variables (e.g., mental health concerns or history of CSA) were not included. Logistic regression models also assume little to no multicollinearity; in other words, variables are assumed to have little to no relationship to each other (Stoltzfus, 2011). There was no indication of multicollinearity in the results. The sample size was also overpowered; in other words, the number of participants was large enough to produce statistically significant results that may not be clinically significant (Coe, 2002; Hochster, 2008).

Discussion of the Results of the Second Study

The results of the second study were consistent with existing research that has demonstrated increased likelihood of an STI diagnosis related to younger age, minority racial identity (i.e., Black/African American), minority ethnic identity (i.e., Hispanic or Latino/a), minority sexual orientation identity (i.e., LGB), same-sex sexual behavior, and AOD use (Boehmer et al., 2012; Cochran & Mays, 2006; Corliss et al., 2010; Hughes et al., 2010; McCabe et al., 2009; Meyers et al., 2008; Monteiro et al., 2005). The variable that increased the odds of STI diagnosis by the largest factor was Black/African American racial identity. Surprisingly, the results did not demonstrate that female gender identity increased the odds of STI diagnosis, as has been found in earlier studies (Meyers et al., 2008).

When considering the increased odds of physical health issues within racial minority populations, specifically Black/African American populations, race can be considered a marker for other disparities like low socioeconomic status or limited health care access (Meyers et al., 2008). Researchers have commented that observed racial and ethnic health disparities can obscure the co-occurrence of underlying psychosocial factors such as childhood sexual abuse (CSA), depression, suicidality, and substance use, and a burgeoning literature seems to suggest that sexual minority health disparities may also be indicators of other inequities (Senn et al., 2010; Sweet & Welles, 2012). Sweet and Welles (2012) observed associations between a history of CSA and diagnosis with HIV or other STIs in a sample of individuals who identified as LGB or who engaged in same-sex sexual behavior. Additionally, they found higher rates of CSA among individuals who identified as LGB as compared to individuals who identified as heterosexual (Sweet & Welles, 2012). While the current studies did not explore how sexual orientation identity may have been related to CSA and STI diagnoses, existing research suggests that underlying factors, such as a history of CSA, could potentially explain the observed relationship between LGB identity and STI diagnosis in the current study.

Within the study sample, each year increase in age lowered the odds of STI diagnosis by a factor of 0.953, which is consistent with previous research. The age range of patients whose records were included in the current study (M = 29.8, SD = 10.14) revealed that the ages of patients in this sample skewed younger, with the highest age frequencies found in the 20-29 year old range (see Table B2). Younger age has been cited as a contributing factor, along with mental health issues and substance use, of STI acquisition (Shrier et al., 2001). Shrier et al. (2001) studied adolescents reporting normative levels of alcohol and marijuana use and found that rates of condom use varied. Pflieger et al.'s (2013) research examining relationships between race,

ethnicity, and youth identified key indicators of STI acquisition including earlier age of sexual initiation and inconsistent use of latex barriers during sex. Although Pflieger et al. (2013) focused on female adolescents in their study, there could be similar behavioral trends (i.e., earlier sexual initiation and inconsistent condom use) within the current study.

Recommendations Based on Second Study

The findings of the current study have implications for counselors and counselor educators. In addition to asking open-ended questions in a counseling intake regarding gender identity and sexual orientation identity, which few medical providers will do (Bradford et al., n.d.), collecting data from individuals who identify as sexual minorities (i.e., LGB) can help counselors understand and treat these individuals (Sell & Becker, 2001).

When counselors and counselor trainees learn from research in public health and related disciplines that individuals who identify as LGB may be experiencing stigma or discrimination, using alcohol or drugs more heavily than their heterosexual counterparts, and experiencing mental health concerns like depression related to their sexuality, those counselors and trainees become more attuned to areas where clients could benefit from structured substance use and mental health assessments and become more aware of the challenges facing LGB clients.

This study demonstrated that there is a relationship between sexual orientation identity and physical health, specifically STI diagnosis, whereby LGB identity can be a risk factor for STI acquisition. Therefore, encouraging LGB clients to get tested for HIV and other STIs on a regular basis (i.e., every three months or with every new partner) and to learn the transmission risks and symptoms of common STIs can become part of a preventive counseling intervention strategy. The results also demonstrate an opportunity for STI prevention messaging to target younger sexually active adolescents (Monteiro et al., 2005).

Thematic Link Between Studies and Contribution to the Knowledge Base

The thematic link between these studies is that they both pertain to the relationship between sexual orientation identity and health-related behaviors (e.g., alcohol use, drug use, same-gender sexual behavior, and STI diagnosis). Collectively, these studies add new strands to the nomothetic net of knowledge about observed health disparities among sexual minority populations. Separately, they contribute to knowledge regarding differences between heterosexual and LGB individuals in the severity of substance use (first study) and prevalence of STI diagnosis (second study). Taken together, they provide a compelling body of work that provides professional counselors and counselors-in-training with a foundation for intervention selection with clients who identify as LGB. If we know that individuals who identify as LGB use alcohol and drugs at higher rates and higher levels and that these individuals are at higher risk of being diagnosed with STIs, then knowing that a client identifies as LGB cues the practitioner to include prevention methods like health education and harm reduction counseling as part of their work with the client (Marlatt, 1996).

Future Research

These studies highlight the importance of collecting information regarding clients' sexual orientation identity at intake, as part of implementing strategies to reduce sexual minority health disparities (Bradford et al., n.d.; Cahill & Makadon, 2014). Recent research has described differences between people who identify as LGB and those who identify as heterosexual in rates of diagnosis with physical and mental health conditions and engagement in health risk behaviors like tobacco and alcohol use. We are aware that these disparities exist. Meyers (2003) offered the minority stress theory as a possible explanation; more research on a qualitative level could help explain the experiences of people who identify as LGB to determine what factors may be

contributing to observed disparities. Counselors are uniquely suited to contribute to this body of work.

One area of future quantitative or qualitative research that could be undertaken by counselors or counselor educators would be exploring resiliencies of individuals who identify as LGB. Following the example of Singh's (2013) study on resiliency among transgender young people, researchers could explore the internal and external resources of LGB adolescents or adults to determine what coping strategies they employ to deal with histories of CSA or physical abuse, or with the prospect or reality of discrimination on the basis of their sexual orientation identity. For example, could coming out contribute to resiliency as much as non-disclosure and concealment contribute to depression? If observed levels of substance use are higher among LGB people, as in the current study, is alcohol use a coping strategy or part of engaging social supports from other LGB people? We don't yet know exactly the meaning or purpose behind these observed trends.

Another area of potential research interest would be examining counselors' and pre-service counselors' attitudes toward discussing sexual orientation, sexual behavior, and sexual health with clients who identify as LGB, as well as factors that contribute to clients' comfort discussing these topics. Researching how counselors can better engage clients in open discussion about sexual orientation identity and sexual health, and why counselors may shy away from those topics of discussion, will enable providers to determine best practices for affirmative counseling with LGB clients. As stated earlier, receiving an STI diagnosis can be psychologically disruptive for clients, and clients may bring these health concerns to a counselor. How might client age, gender identity or sexual orientation identity factor into counselors' willingness to openly discuss sexual concerns? Counselors who want to engage clients in open

dialogue about STI diagnoses, reducing STI transmission risks and clients' sexual behavior may look for guidance from counselor educators or supervisors regarding how to begin these conversations. Research can guide our interventions with clients and our interventions with supervisees and students in these areas.

On a related topic, research that surveys the counselor education programming explicitly related to individuals who identify as LGB would also be beneficial. Few academic programs, even those with CACREP-accreditation, offer courses specific to LGB concerns or LGB health. Therefore, Masters-level counseling graduates may be lacking in their knowledge and awareness of issues facing individuals who identify as LGB and in their confidence to apply multicultural counseling skills when working with these individuals. Determining what is already being offered and where training may be lacking would increase avenues for research on what therapeutic approaches are more effective with clients who identify as LGB and for advocacy promoting more structured training related to LGB issues.

Lastly, health disparities observed among individuals who identify as bisexual remains a relatively unexplored domain. Counselors can utilize qualitative methods to explore the experiences of these individuals and the relationship of sexual orientation identity to mental health, substance use and sexual behaviors. What are the unique stressors facing individuals who identify as bisexual? Counselors can also use quantitative methods to explore the resiliencies of these individuals and to determine effective treatment modalities for this population, which may differ from those methods most effective for individuals who identify as gay or lesbian.

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APPENDICES

Appendix A:

Copy of IRB approval documents

Institutional Review Board
Office of Research Integrity | Oregon State University
B308 Kerr Administration Building, Corvallis, OR 97331-2140
Telephone (541) 737-8008
irb@oregonstate.edu | http://oregonstate.edu/irb/

STUDY ID
6245

Notification Type	**RESEARCH DETERMINATION** **IRB REVIEW NOT REQUIRED**		
Date of Notification	06/02/2014		
Study Title	Comparing Levels of Substance Use by Sexual Oreientation in a Sample of NYC Clinic Patients		
Person Submitting Form			
Principal Investigator	Cass Dykeman		
Study Team Members			
Funding Source	N/A	Proposal #	
PI on Grant or Contract	N/A		

The above referenced proposal was reviewed by the OSU Institutional Review Board (IRB) Office. The IRB has determined that your project, as submitted, DOES NOT meet the definition of research involving human subjects under the regulations set forth by the Department of Health and Human Services 45CFR46.102.

IRB review and approval of this study is not required.

Please proceed with the project as it was described.

Please note that amendments to this project may impact this determination.

Institutional Review Board
Office of Research Integrity | Oregon State University
B308 Kerr Administration Building, Corvallis, OR 97331-2140
Telephone (541) 737-8008
irb@oregonstate.edu | http://oregonstate.edu/irb/

STUDY ID
6246

Notification Type	**RESEARCH DETERMINATION** **IRB REVIEW NOT REQUIRED**		
Date of Notification	6/12/2014		
Study Title	Impact of Sexual Orientation on STI Diagnosis in a Sample of NYC Clinic Patients		
Person Submitting Form			
Principal Investigator	Cass Dykeman		
Study Team Members	N/A		
Funding Source	None	Proposal #	6246
PI on Grant or Contract	N/A		

The above referenced proposal was reviewed by the OSU Institutional Review Board (IRB) Office. The IRB has determined that your project, as submitted, DOES NOT meet the definition of research involving human subjects under the regulations set forth by the Department of Health and Human Services 45CFR46.102.

IRB review and approval of this study is not required.

Please proceed with the project as it was described.

Please note that amendments to this project may impact this determination.

Appendix B:

Demographic Composition of Samples

Table B1.

Patient Sexual Orientation and Gender Identity Stratified by Ethnic and Racial Identity

	Gay/Lesbian			Bisexual			Heterosexual		
	Gender			Gender			Gender		
	F	M	T	F	M	T	F	M	T
	n	n	n	n	n	n	n	n	n
Hispanic	236	2579	19	511	469	2	3927	4485	1
NH-Asian	11	578	1	34	66	0	569	444	1
NH-Af-Am	438	2086	10	995	623	1	10501	11546	5
NH-Other	36	442	0	107	79	2	1054	927	2
NH-White	48	3752	7	213	452	2	1875	2817	2

Total n = 56,569

Table B2.

Patient Sexual Orientation and Gender Identity Stratified by Age

Age Group	Gay/Lesbian			Bisexual			Heterosexual		
	Gender			Gender			Gender		
	F	M	T	F	M	T	F	M	T
	n	n	n	n	n	n	n	n	n
< 15	8	8	0	27	0	0	115	22	0
15-19	122	278	1	371	98	0	2655	1081	1
20-29	440	4866	23	1160	841	2	10526	10288	3
30-39	115	2542	9	245	428	3	2904	5177	4
40-49	48	1156	2	49	189	0	1224	2214	3
50 and up	36	587	2	8	133	2	502	1437	0

Total n = 56,569

Appendix C.

Data Tables

Table C1.

Binary Logistic Regression Analysis of Factors Associated with STI Diagnosis

Variables	B	S.E.	df	Sig.	Exp(B)
LGB identity	.248	.053	1	.000	1.282
Age	-.049	.002	1	.000	.953
Female Gender	-.952	.036	1	.000	.386
Transgender	-.141	.460	1	.759	.869
Hispanic	.303	.052	1	.000	1.354
Non-Hispanic Asian American	.132	.107	1	.217	1.141
Non-Hispanic Black/African American	.439	.049	1	.000	1.552
Non-Hispanic Other Race	.260	.084	1	.002	1.296
Same-sex Sexual Behavior	.332	.052	1	.000	1.394
Alcohol Use	.034	.032	1	.293	1.035
Drug Use	.220	.033	1	.000	1.246
Constant	-.582	.080	1	.000	.559

$p<0.05$