



GRADUATE SCHOOL
EAST TENNESSEE STATE UNIVERSITY

East Tennessee State University
Digital Commons @ East
Tennessee State University

Electronic Theses and Dissertations

Student Works

8-2018

Proximal Minority Stress, Drinking Motives, and Alcohol Use in Appalachian Sexual Minority Women

Sarah Job
East Tennessee State University

Follow this and additional works at: <https://dc.etsu.edu/etd>



Part of the [Social Psychology Commons](#)

Recommended Citation

Job, Sarah, "Proximal Minority Stress, Drinking Motives, and Alcohol Use in Appalachian Sexual Minority Women" (2018). *Electronic Theses and Dissertations*. Paper 3440. <https://dc.etsu.edu/etd/3440>

This Thesis - unrestricted is brought to you for free and open access by the Student Works at Digital Commons @ East Tennessee State University. It has been accepted for inclusion in Electronic Theses and Dissertations by an authorized administrator of Digital Commons @ East Tennessee State University. For more information, please contact digilib@etsu.edu.

Proximal Minority Stress, Drinking Motives, and Alcohol Use in Appalachian Sexual Minority
Women

A thesis

presented to

the Faculty of the Department of Psychology

East Tennessee State University

In Partial Fulfillment

of the requirements for the Degree

Master of Arts in Psychology

by

Sarah A. Job

August 2018

Stacey L. Williams, Ph.D., Chair

Ginette C. Blackhart, Ph.D.

Julia C. Dodd, Ph.D.

Keywords: Minority Stress, Alcohol Use, Appalachia

ABSTRACT

Proximal Minority Stress, Drinking Motives, and Alcohol Use in Appalachian Sexual Minority

Women

by

Sarah A. Job

Sexual minorities face identity-specific stressors (minority stress). Minority stress often predicts worse health outcomes and behaviors, like increased substance use. The current study examined the relationship between proximal minority stress and hazardous alcohol use. Possible mediators were considered. The current study involved a secondary data analysis of data from 48 sexual minority women who completed an online survey. Measures included the Lesbian Internalized Homophobia Scale, the Connectedness to the LGBT Community Scale, the AUDIT-5, the Drinking Motives scale, and an item that measured frequency of drinking. Data, analyzed via R, included t-tests, correlations, regression, and mediational analyses. Results showed that internalized stigma significantly predicted concealment. Community connectedness was neither predicted by internalized stigma nor correlated with concealment. Concealment did not predict coping motives; coping motives significantly predicted problematic drinking. Limitations included a low sample size and low observed power. Therefore, significant results may be found with a higher sample size.

TABLE OF CONTENTS

	Page
ABSTRACT.....	2
Chapter	
1. INTRODUCTION	5
Alcohol Use Disparities	5
Minority Stress.....	6
Minority Stress and Alcohol Use.....	9
Social Factors as Explanatory Factors in Minority Stress and Health Disparities	12
Drinking Motives	13
Minority Stress and Substance Use in South Central Appalachia	16
The Current Study.....	20
2. METHODS	23
Sample.....	23
Procedure	23
Measures	24
Demographics	24
Concealment	24
Internalized Stigma.....	24
Community Connectedness	24
Alcohol Use	25
AUDIT-5.....	25
Drinking Motives	25

Data Analysis Plan	25
3. RESULTS	28
Exploratory Analyses	30
4. DISCUSSION	31
Implications	33
Limitations and Future Directions	35
Sample size	35
Measures of community connectedness.....	37
Study design.....	38
Low AUDIT scores.....	38
Measures of proximal minority stress.....	39
Conclusion	40
REFERENCES	41
APPENDICES	57
Appendix A: Demographics	57
Appendix B: Concealment Subscale of Short form LIHS	58
Appendix C: Internalized Stigma Subscale of Short form LIHS.....	59
Appendix D: Connectedness to the LGBT Community Scale.....	60
Appendix E: Alcohol Frequency	61
Appendix F: AUDIT-5.....	62
Appendix G: Drinking Motives Questionnaire.....	63
VITA.....	64

CHAPTER 1

INTRODUCTION

Alcohol Use Disparities

For decades now, sexual minorities have been found at higher risk for heavy alcohol use, in comparison to their heterosexual counterparts (Drabble, Midanik, & Trocki, 2005; Kerr, Ding, Burke, & Ott-Walter, 2015; Lewis, Saghir, & Robins, 1982; Stall & Wiley, 1988; Rosario et al., 2014). In fact, excessive use of alcohol, nicotine, and other drugs are the leading causes of preventable deaths in the LGBT community (Fredriksen-Goldsen et al., 2014). Given the known link between discrimination and substance use, the disparity for sexual minorities is likely due to the fact that they experience minority stress, which emphasizes that sexual minorities experience disparities not because of their internal deficits, but because of the unique stress due to sexual identity experienced daily (McCabe, Bostwick, Hughes, West, & Boyd, 2010; Meyer, 2003).

Much of the past literature has compared gay men and lesbians, with studies finding heavier alcohol consumption and problematic drinking in lesbians (Amadio, 2006; McKirnan & Peterson, 1989; Saghir & Robins, 1973; Skinner & Otis, 1992). Yet lesbian women, who are attracted to individuals who identify as the same gender as them, and other sexual minority women, such as bisexual and pansexual women who are attracted to individuals who identify as the same gender as them as well as individuals who identify as a different gender than them, continue to be understudied. This is despite the fact that lesbians reported nearly two decades ago that they believe that substance use had become excessive in the lesbian community (Welch, Howden-Chapman, & Collings, 1998). Thus, it is imperative to rectify this enduring neglect.

Some differences occur *within* sexual minority women. Bisexual women are more likely than lesbians to self-identify as drinkers, and thus are more likely to consume higher levels of

alcohol (Corte, Matthews, Stein, & Lee, 2016). Kerr et al. (2015) found that bisexual women were more likely to use alcohol than lesbians and heterosexual women, whereas there were no such differences between lesbians and heterosexual women.

Although minorities can have different experiences of discrimination and stigma based on whether they live in an urban or rural area, the majority of the literature surrounding sexual minority women and alcohol use has been located in urban areas (Lee & Quam, 2013). Appalachia, for example, is an understudied region characterized by less acceptance and fewer resources available for sexual minority women, which can lead to intensified feelings of social isolation and a disproportionately high use of alcohol (McCarthy, 2000; Zhang et al., 2008). The current study examined sexual minority women living in South Central Appalachia. Working within a minority stress framework, the current study examined the relationship between proximal minority stressors, social factors, and alcohol use among these sexual minority women.

Minority Stress

Minority stress is comprised of two key factors: distal stress and proximal stress. Distal minority stress has often been conceived as stress predicated on objective prejudicial events, such as incidences of discrimination, that are not derived from a minority's perceptions, whereas proximal minority stress is rooted in the stigmatized individual's perceptions of both themselves and others (Meyer, 2003). Proximal minority stress consists of three subcategories: concealment, anticipated stigma, and internalized stigma. The focus of the current study will be concealment and internalized stigma, since they are consistently found to be related to substance use in previous literature (e.g. Amadio, 2006; Baiocco, D'Alessio, & Laghi, 2010, Feinstein & Newcomb, 2016).

Concealment is the act of hiding one's minority status in order to avoid negative treatment or ill regard. Individuals with a concealable stigma, such as sexual minorities, must determine whether or not to disclose their potentially stigmatized status with others (Frost, 2011; Meyer, 2003). While concealment may help a stigmatized individual cope with stress, it can often be counterproductive and significantly contribute to a minority's stress (Miller & Major, 2000; Smart & Wegner, 2000). This is due to the fact that concealing one's identity often demands that the stigmatized individuals self-monitor their behavior, such as through gender expression or what they say to others (Hetrick & Martin, 1987). Those who conceal their identities often have more trouble accessing minority specific resources and are less likely to have intimate interpersonal relationships with other people in that minority group (Meyer, 2003). Indeed, Pachankis (2007) concluded that concealment is often linked to psychological distress because of the fear of having their stigmatized status discovered and because these individuals typically lack support from others due to their concealment.

Concealing one's stigmatized identity also has predicted worse outcomes in both physical and mental health. Previous research has shown that among gay men diagnosed with HIV, those with concealed sexual identities were more likely to have other health problems, and their condition often worsened much faster (Cole et al., 1996b; Cole et al., 1996a). Concealment may predict psychological distress, due to the burden of keeping a secret from others (Major & Gramzow, 1999; Stiles, 1995 as referenced by Meyer, 2003).

Internalized stigma (also called self-stigma) is conceptualized as the negative attitudes towards the self, due to being exposed to societal stigma and can lead the individual to have lower self-esteem (Meyer & Dean, 1998). Internalized stigma typically occurs when the individual is still coming to terms with their sexual minority status (Meyer, 2003). However,

even individuals that have come to accept their identity may still experience “covert” internalized stigma that could potentially become implicitly integrated into their thoughts and feelings (Gonsiorek, 1988). Internalized stigma is not only its own type of minority stress, but it has also been regarded as a motive for other minority stressors, such as concealment (Pachankis, 2007).

This enduring internalized stigma has consistently predicted poor mental health and negative health behaviors historically and contemporarily. In a sample of lesbian women, internalized stigma was significantly related to depression (Diplacio, 1998). Meyer and Dean (1998) found that gay men with higher internalized stigma were more likely to have symptoms of anxiety and depression and feelings of guilt and suicidal ideation, as well as traumatic stress related to the AIDs epidemic. Research also suggests that internalized stigma has a relationship with self-harm behaviors, such as excessive substance use and disordered eating behaviors (Williamson, 2000). In more recent history, research has continued to confirm this relationship between internalized stigma and health. In a study of gay, lesbian, and bisexual individuals, internalized stigma was related to lower self-esteem and positive affect, and higher levels of depression and anxiety (Herek, Gillis, & Cogan, 2009). Fredriksen-Goldsen et al. (2013) found that internalized stigma significantly predicted depression and disability in older lesbian, gay, and bisexual individuals and also predicted general poor health before protective factors, such as social support, were accounted for. Often, internalized stigma can have an indirect relationship with health behaviors. For instance, gay men with higher levels of internalized stigma were found to be less likely to affiliate with the LGBT community and therefore less likely to access important LGBT-specific sexual health resources (Williamson, 2000).

Minority Stress and Alcohol Use

More recently, alcohol use of sexual minorities has been examined through the lens of minority stress theory. In 2006, Amadio examined the relationship between internalized stigma and alcohol use in lesbian women and gay men. He found that internalized stigma significantly predicted alcohol use. However, this relationship only existed in lesbian women, whereas there was no significant relationship between internalized stigma and alcohol use in gay men. It should also be noted that alcohol use was measured by the number of days in the past month that an individual consumed 5 or more drinks in one day. Thus, this measure could be more indicative of frequency of problematic drinking rather than general drinking. The most notable limitation of this study is that measures used for internalized stigma were not applicable to bisexual individuals since the measures specifically refer to any potential participant as a lesbian or a gay man. Thus, all bisexual participants were eliminated from the analyses, and all nuances among sexual minority women and sexual minority men went unexamined.

In a study with similar limitations, Baiocco and colleagues (2010) recruited Italian young adults who identified as lesbian or gay to participate in a study examining the relationship between internalized stigma and frequency of alcohol use. Participants were categorized into one of four groups: nondrinkers, social drinkers, binge drinkers, and heavy drinkers. Those with higher levels of internalized stigma were more likely to be heavy drinkers. This study also examined the relationship between concealment and alcohol use. Heavy drinking was associated with less disclosure of sexual orientation to both family and peers. One of this study's strengths is that it also considered community connectedness as a predictor of substance use. In this study, heavy drinkers (defined as having more than 8 binge drinking periods in a month) were more likely to be connected to the LGBT+ community than all other types of drinkers. One thing that

is important to note about the study is that it does not discern frequency from problematic drinking and instead incorporates both aspects into one measure. Definitions for nondrinkers and social drinkers are framed in terms of frequency of general drinking, rather than binge drinking. Thus, community connectedness could predict more problematic drinking or the frequency of drinking.

Feinstein and Newcomb (2016) once again supported the relationship between internalized stigma and alcohol use problems. The researchers found a positive correlation between internalized stigma and alcohol use problems, in addition to other unspecified drugs. However, the sample for this study was limited to men who have sex with men. Thus, we still do not know whether or not these findings apply to sexual minority women. However, in a similar study that included men who have sex with men and sexual minority women, Lea, de Wit, and Reynolds (2014) found a significant positive relationship between internalized stigma and alcohol use problems.

Only a few studies have focused on sexual minority women. For instance, Lehavot and Simoni (2011) examined internalized stigma, concealment, social-psychological resources, such as social support, and substance use, which included alcohol abuse, drug abuse and smoking. Internalized stigma was found to directly predict substance use, whereas, concealment indirectly predicted substance use. That is, concealment predicted social support (most likely because those who conceal their minority status are often less likely to seek out resources and support from others) which then predicted substance use (those who had higher levels of social support tended to use substances less). Thus, factors related to one's social life, like social support or feelings of connectedness with one's community, might be important to examine.

In a similar study, Lewis, Mason, Winstead, Gaskins, and Irons (2016) examined minority stress and alcohol use in this specific population and found both concealment and internalized stigma were associated with more hazardous drinking. Additionally, these authors considered a possible social factor: social isolation. Social isolation mediated the relationship between proximal minority stressors and drinking. One limitation of this study is that although this study compares different lesbians by race, this study only has lesbians. This means that we still do not know about how this study applies to other sexual minority women (bisexual, pansexual, etc.).

In a recent study, Lewis, Winstead, Lau-Barraco, and Mason (2017) examined perceived discrimination, stigma consciousness (or awareness of one's stigma), social isolation, social constraints (difficulty discussing issues surrounding sexual orientation with family, friends, or significant others), and alcohol problems in lesbian women. It was found that discrimination and stigma consciousness predicted more social constraints and social isolation, which in turn, predicted more alcohol problems. While this is limited to lesbians and focuses on distal stigma rather than proximal stigma, it supports the idea that social factors should be further examined.

Some studies have found no significant relationship between proximal minority stress and alcohol use for various reasons. Hatzenbuehler, Nolen-Hoeksema, and Erikson (2008) found no significant relationship between substance use (which included both drug use and alcohol use) and internalized stigma; however, it is imperative to note that the researchers measured internalized stigma with a single item, and therefore it is very possible that these measures simply did not accurately capture participants' experience. Similarly, Wilson, Gilmore, Rhew, Hodge and Kaysen (2016) found no significant relationship between overall minority stress and frequency of alcohol use, but did find a significant relationship between minority stress and

consequences of alcohol use (e.g. risky behavior, poor self-care, physiological dependence). However, it should be noted that measurement of minority stress included several different types of constructs related to being a sexual minority (gender expression, vigilance, parenting, discrimination/harassment, vicarious trauma, family of origin, HIV/AIDs, victimization, and isolation), and the data analyses did not examine these as individual variables.

Social Factors as Explanatory Factors in Minority Stress and Health Disparities

In his model of minority stress, Meyer (2003) also proposed that social support moderates the relationship between minority stress and mental health on both individual and community levels. In general, research has shown that social support on an individual level moderates the relationship between stress and psychological distress (Wills & Fegan, 2001). In the LGBT+ community, social support has significantly predicted well-being and has been related to higher self-esteem and better mental health (Beals, Peplau, & Gable, 2009; Berghe, Dewaele, Cox, & Vincke, 2010; Grossman, D'Augelli, & Hershberger, 2000). Among sexual minority women, more social support from family or a significant other has been shown to be related to less suicidal ideation, and more family social support has been shown to be associated with fewer lifetime attempts at suicide (Tabaac, Perrin, & Rabinovitch, 2016). Within a minority stress framework, social support has been shown to mediate the relationship between concealment and wellbeing (Beals et al., 2009).

Likewise, social support on a community level, such as connectedness with the minority group, predicts positive health outcomes. Similar to findings related to social support, community connectedness has been found to be related to higher self-esteem, positive psychological well-being, and positive social well-being (Frost & Meyer, 2012). Studies have shown that connectedness with the minority in-group can often explain the relationship between

minority stress and its various outcomes. For instance, Branscombe, Schmitt, and Harvey (1999) found that although prejudice was linked to negative well-being, there was a mediational relationship with in-group identity that was linked to greater positive well-being. Likewise, community connectedness has mediated the relationship between internalized stigma and psychological distress (Puckett et al., 2015). Additionally, community connectedness is inversely related to internalized stigma and concealment, since those high in these types of stigma are often less likely to seek out connections in sexual minority communities (Frost & Meyer, 2009; Williamson, 2000).

Though Meyer conceived of social support as a moderator, other researchers have stated that social factors, such as social isolation, may be an important mediator of stigma and health (Hatzenbuehler, Phelen, & Link, 2013). This suggests that minority stress leads to more isolation among sexual minorities, which leads to worse health outcomes. Thus, it is possible that minority stress could lead one to be less connected with their community (i.e. internalizing stigma or concealing one's stigma could prevent individuals from meeting others in their community and feeling connected to them) and thus, prevents them from reaping the health benefits of community connectedness.

Drinking Motives

Like social factors, drinking motives may be an important mediator of proximal minority stress and alcohol use. Though only a small portion of the literature features sexual minorities, research from the general population can still inform us about what motivates individuals to drink and which motivations are related to problematic alcohol use or consequences of alcohol use. In this body of literature, there are thought to be four main drinking motivations: coping, social, enhancement, and conformity (Cooper, 1994). The current study focuses on two of these

motives: coping and social motives. Coping motives are typically related to drinking in order to forget or feel better about one's problems, while social motives are related to drinking to enhance social interactions. Both motives are particularly salient in the LGBTQ+ community since many may feel the need to cope with their experiences of minority stress and many frequented LGBTQ+ social spaces are bars (Croff, Hubach, Currin, & Frederick, 2017).

Most general literature involving drinking motives focuses on undergraduate students. In this population, coping motives have often been related to alcohol-related problems and problematic drinking, such as heavy episodic drinking (Cadigan, Martens, & Herman, 2016; Carey & Correia, 1997; Cooper, 1994; Cooper, Russell, Skinner, & Windle, 1992; Kuntsche, Knibbe, Gmel, & Engels, 2005; Gonzalez, Collins, & Bradizza, 2009; Laghi et al., 2015; Moeller & Crocker, 2009). Additionally, some studies have found that while coping motives were related to alcohol related problems, coping was not related to frequency of alcohol use, which may mean that those with coping motives are drinking in large amounts only when they are trying to cope with their problems, rather than all the time (Grant, Stewart, & Mohr, 2009; Merrill, Wardell, & Read, 2014). Coping motives have also been associated with suicidal ideation and self-image goals among college students, as well as internalized self-criticism in middle-aged adults (Gonzalez et al., 2009; Moeller & Crocker, 2009; Skinner & Veilleux, 2016).

Social motives, on the other hand, have consistently been related to more alcohol use, which may mean that those with social motives may more frequently drink with others as a social interaction (Cadigan et al., 2016; Gonzalez et al., 2009; Laghi et al., 2015). Some studies have found that social motives are related to problematic drinking (Cadigan et al., 2016; Corbin, Iwamoto, Fromme, 2011; Gonzalez et al., 2009; Grant et al., 2009; Labrie, Hummer, & Pedersen, 2007). Others have not (Carey & Correia, 1997; Cooper, 1994; Cooper et al., 1992; Kuntsche et

al., 2005; Merrill & Read, 2010; Nemeth et al., 2011). These conflicting findings may imply that social motives do not necessarily predict problematic drinking in everyone, but that some who drink for social reasons often drink hazardous amounts during these times. This explanation may be particularly salient since these findings often come from samples of college students. Additionally, social motives have been found to mediate the relationship between group norms and alcohol use (Carrus et al., 2016).

There are few studies with LGBT samples, though some recent studies can inform us about how drinking motives may play a role in the alcohol use disparities that are frequently seen between sexual minorities and heterosexuals. Sexual minorities have been found to report coping motives more often than their heterosexual counterparts (Talley, Sher, Steinley, Wood, & Littlefield, 2012). Likewise, sexual minorities sampled from San Francisco bars more often reported social motives than their heterosexual counterparts (Trocki & Drabble, 2008). Similar to more general populations, coping has been found to be related to alcohol problems (Hatzenbuehler et al., 2011; Kahler et al., 2015). Some studies have also found a relationship between coping motives and frequency and amount of drinking (Ebersole, Noble, & Madson, 2012; Hatzenbuehler et al., 2011; Feinstein & Newcombe, 2017). In contrast, social motives have been found to be related to more drinking, but not more alcohol problems (Ebersole, Noble, & Madson, 2012; Kahler et al., 2015).

Researchers have also started to examine how coping motives may be related to minority stress. Hatzenbuehler et al. (2011) examined coping motives, perceived discrimination, alcohol use and binge drinking; coping motives were found to be positively related to perceived discrimination. Similarly, Wray, Pantalone, Kahler, Monti, & Mayer, (2016) measured four drinking motives (coping, enhancement, social and sexual), alcohol use and problems, and

perceived discrimination. They found that coping motives were positively related to perceived discrimination, and it also mediated the path from perceived discrimination to alcohol problems. However, social motives were not related to discrimination. Lewis et al. (2017) have also found that perceived discrimination and stigma consciousness were both positively correlated with coping motives and that coping motives mediated the pathways between perceived discrimination and alcohol problems and stigma consciousness and alcohol problems. While these studies provide evidence for a relationship between coping and distal minority stress, there is still little known about the relationship between drinking motives and *proximal* minority stress, which could be especially important to study since proximal minority stress is consistently found to be a predictor of alcohol use, and coping motives could be a mediator of this relationship.

Very few studies that include drinking motives have focused on proximal minority stress as a predictor. Feinstein and Newcomb (2016) examined the relationships among internalized stigma, coping motives, and alcohol use problems. It was found that coping motives mediated the relationship between internalized stigma and alcohol use problems. Similarly, Lewis et al. (2016) examined the relationships among concealment, internalized stigma, coping motives, and hazardous drinking. It was found that concealment and internalized stigma were related to coping motives, and coping motives mediated the relationship between proximal minority stress and hazardous drinking. However, these studies only examined coping and not social motives. Thus, the relationship between proximal minority stigma and other drinking motives, such as social motives, is still unknown.

Minority Stress and Substance Use in South Central Appalachia

The United States congress has demarcated 420 counties in Mississippi, Alabama, Georgia, Tennessee, North Carolina, South Carolina, Kentucky, Virginia, West Virginia, Ohio,

Pennsylvania, Maryland, and New York as Appalachia (Appalachia Regional Commission, 2017). The current study focuses on counties in Northeast Tennessee which is primarily located in South Central Appalachia, a subregion of Appalachia that is comprised of 85 counties across Virginia, North Carolina, and East Tennessee (Appalachian Regional Commission, 2009).

Appalachia is home to 25 million people, and in some areas of Appalachia, the population is growing faster than the overall U.S. population (Appalachia Regional Commission, 2016). This region is notably rural, with roughly 42% of the region consisting of towns with 2,500 people or less (Appalachian Regional Commission, as referenced by Meyer, Toborg, Denham, & Mande, 2008). Because of these much smaller communities, many areas in Appalachia are towns where confidentiality may be low because most individuals in the community know each other, and thus, information about members of the community travels much quicker (Jameson & Blank, 2007; MacAvoy & Lippman, 2001). This could be especially challenging for sexual minorities who either disclose their sexual orientation or whom are outed by others in communities where the social climate is notably prejudicial. Additionally, some communities in rural Appalachia have reported fewer community resources, which has been linked to greater marijuana and OxyContin use (Bell, 2009; Jonas, Young, Oser, Leukefeld, & Havens, 2012). This problem may possibly be exacerbated for sexual minorities living in rural Appalachia, where the few resources they may have access to may have an unwelcoming environment for sexual minorities.

South Central Appalachia is located in the greater region of the South, which in the past has been shown to be the most religious region in the United States (Newport, 2006, as referenced by Webb & Brewer, 2010). Thus, many people in the Appalachian region hold Judeo-Christian values that are frequently more social conservative in nature, such as believing that

marriage should only be between a man and a woman or that homosexuality is a sin. These values contribute to a more negative social climate for sexual minority women, and they may find themselves facing additional challenges.

Very few studies examine life for sexual minorities in Appalachia. However, since this is generally a rural area, it may be quite similar to the experiences of other rural sexual minorities. Rural sexual minorities have previously reported a variety of prejudicial experiences, such as discrimination in banking or credit decisions, employee benefits, community group memberships, and wrongful employee termination. Furthermore, sexual minorities living in rural areas have reported more experiences of enacted stigma, or objective events of prejudice, such as incidences of homophobia, property damage and even physical assault in comparison to their urban counterparts (Leedy & Connolly, 2007). Rural sexual minority high schoolers reported lower GPAs and less school belonging than their heterosexual counterparts (Rostosky, Owens, Zimmerman, & Riggle, 2003).

Often, rural sexual minorities who disclose their sexual orientation experience more discrimination (Swank, Fahs, & Frost, 2013). Thus, it is not surprising that LGBTQ+ individuals living in rural communities are more likely to conceal their sexual orientation (Fisher, Irwin, & Coleman, 2014). Furthermore, rural sexual minorities who publicly conceal their sexual orientation are less likely to utilize health services (Whitehead, Shaver, & Stephenson, 2016). Rural lesbians have also reported a lack of providers of health services, financial barriers to accessing providers, fewer opportunities to disclose their sexual orientation to providers, fear of prejudice from providers, and more negative experiences with providers after disclosing their sexual orientation in comparison to urban lesbians (Barefoot, Smalley, & Warren, 2015, 2017). This means that rural sexual minorities may also be less likely to seek substance abuse treatment.

Additionally, sexual minorities living in rural areas still face many of the same challenges that heterosexual individuals living in rural areas face, which include transportation issues, provider shortages, and financial barriers to insurance and healthcare (King & Dabelko-Schoeny, 2009). Though most of these studies have not focused on Appalachia, it is reasonable to think that sexual minorities living in Appalachia often face these same problems.

Substance use seems to be a perpetual problem in Appalachia, from its historical ties to tobacco farms to the ongoing opioid epidemic. Because of the opioid epidemic, much of the recent literature has focused on harder substances, and it has been found that rural Appalachian individuals were more likely to use cocaine, opiates, benzodiazepines, and marijuana than their urban counterparts (Shannon, Perkins, & Neal, 2014). However, alcohol use and tobacco use have historically been and still remain to be an issue in Appalachia. The West Virginia Department of Health (1995) found a significantly higher prevalence of current smoking in Appalachia than in other regions of the country. This substance use may often begin early in life and in the home. In focus groups, Appalachians reported family environment as an influence for alcohol and tobacco use, that experimentation with these substances often begins from the age of 11-13, and often reported family members dying from conditions related to alcohol or tobacco use (Meyer et al., 2008). A more recent study similarly found that the average age for first use of alcohol was young, with the age being around 13 to 14 years old for men in Appalachia and around 15 years for women in Appalachia (Shannon et al., 2011). This is consistent with findings that rural students in grades 6-11 use significantly more alcohol, smoking tobacco, and chewing tobacco than their urban counterparts (Warren, Smalley, & Barefoot, 2017). Thus, substance use in Appalachia seems to be culturally ingrained in individuals from early age as a normal part of life, which might best be illustrated by a quote from a physician who noted that “a cigarette

between one's fingers was as much a part of Tennessee life as country music" (Verghese, pg. 43, as cited by Meyer et al., 2008).

As for rural sexual minorities, there are relatively few studies examining alcohol use, and therefore even fewer studies located in the Appalachian region. A systematic review of the literature related to rural LGBTQ+ identified individuals showed that substance use continues to be a health problem among this population, specifically with rural sexual minorities showing a higher prevalence of tobacco and alcohol use (Rosenkrantz, Black, Abreu, Aleshire, & Fallin-Bennett, 2017). However, only six out of the fifty-eight studies reviewed examined alcohol use (Coleman et al., 2014; Fisher et al., 2014; Horvath et al., 2014; Pelster et al., 2015; Rhodes et al., 2012; Whitehead et al., 2016, all as cited by Rosenkrantz et al., 2017). Rural sexual minority high school students from Central Appalachia reported higher alcohol and marijuana use than their heterosexual classmates (Rostosky et al., 2003). Thus, there is some evidence to show that a disparity occurs among sexual minorities in Appalachia. However, there is still very little existing research in this area.

The Current Study

This study contributes to the literature in at least four ways. First, much of the literature in this population has focused on the relationship between internalized stigma and alcohol use, whereas fewer studies have examined the relationship between concealment and alcohol use like the current study does. Second, despite the fact that individual- and community-level social factors were accounted for in Meyer's (2003) minority stress model, they have not been typically included in studies regarding the relationship between minority stress and alcohol use. The current study includes community connectedness, which has been associated with positive psychological outcomes but also increased amounts of drinking (Baiocco et al., 2010; Frost &

Meyer, 2012). Third, the current study incorporates social and coping motives. Previous literature has shown that coping motives is associated with problematic drinking while social motives is associated with frequency of drinking. Fourth, most of the literature on minority stress and substance use draws samples from urban populations. The current study focused on sexual minority women in South Central Appalachia.

The following hypotheses are proposed (See Figure 1 for a model of hypotheses):

Hypothesis 1: Internalized stigma will significantly predict more concealment.

Hypothesis 2: Internalized stigma will significantly predict less community connectedness.

Hypothesis 3: Concealment will be significantly and negatively related to community connectedness.

Hypothesis 4: Concealment will be indirectly related to problematic drinking through coping motives.

Hypothesis 5: Community connectedness will be indirectly related to frequency of drinking through social motives.

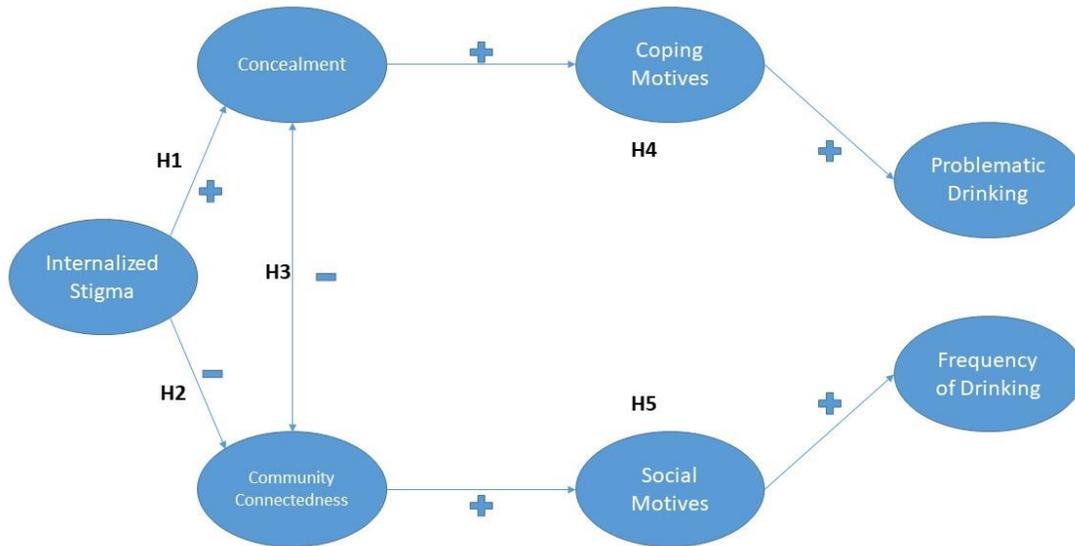


Figure 1. Proposed Model of Hypotheses

In addition to testing these hypotheses, this study aimed to increase knowledge about variation of experience within sexual minority women, since this variation is often ignored (i.e. Amadio, 2006). As such, I explored potential differences between lesbian and bisexual women in minority stress, alcohol use, motives and community connectedness. Because this is an exploratory analysis, no specific hypotheses are stated.

CHAPTER 2

METHODS

Sample

Of the 48 participants, most identified as cisgender (93.8%), though 2.1% of the participants identified as genderqueer, and 4.2% identified as another gender identity. In regards to sexual orientation, equal amounts of women identified as lesbian (41.7%) and as bisexual (41.7%). Other individuals identified as pansexual (8.3%), asexual (2.1%), or another sexual orientation (6.3%). The age of participants ranged from 20 to 69 ($M = 32.52$, $SD = 11.17$). When asked to check all the racial and ethnic identities that apply to them, the majority of participants reported being White/Caucasian (89.6%), though 4.2% identified as Native American/Alaskan, 6.3% identified as Hispanic, 2.1% identified as Black/African American, and 4.2% identified as Asian. The most represented religious group was “Not Religious” (33.3%). 2.1% identified as Catholic, 6.3% identified as Baptist, 18.8% identified as a type of Christian not listed, 2.1% identified as Buddhist, and 10.4% identified as Atheist. Some of the participants identified as Spiritual and religious (4.2%) while others identified as Spiritual but not religious (14.6%). Finally, 8.3% identified as a non-Christian identity that was not listed.

Procedure

Participants ($N = 48$) were recruited from a list of participants who completed a prior study ($N = 135$) and responded that they may be contacted again for future studies and left their contact information ($N = 80$). Potential participants were emailed an invitation to participate with individual links to SurveyMonkey. Participants clicked this link and were shown an informed consent form. Participants then completed all measures. Participants were thanked and were

linked to another survey to enter their necessary contact information needed to receive a \$15 gift card upon online survey completion.

Measures

Demographics. Participants were asked to provide their age, sexual orientation, race, gender identity, current religious identification, and years of education (Appendix A).

Concealment. Concealment was measured by the Public Identification as a Lesbian subscale of the short form of the Lesbian Internalized Homophobia Scale (Piggott, 2004; Appendix B). The current study used 10 items from this subscale, with an example item being “I try not to give signs that I am a sexual minority woman. I am careful about the way I dress, the jewelry I wear, the places, people, and events I talk about.” Responses range from 1 (Strongly Disagree) to 7 (Strongly Agree). The current study found that the Cronbach’s alpha was .853.

Internalized Stigma. The current study used 5 items of the Personal Feelings about Being a Lesbian subscale of the Lesbian Internalized Homophobia Scale (Piggott, 2004; Appendix C) to measure internalized stigma. An example item would be “I can’t stand women who are too ‘butch’.” Responses range from 1 (Strongly Disagree) to 7 (Strongly Agree). In the current study, the Cronbach’s alpha was .698.

Community connectedness. The Connectedness to the LGBT Community Scale (Frost & Meyer, 2012; Appendix D) consists of 8 items and measures the degree to which participants feel connected with the LGBT community. Responses range from 1 (agree strongly) to 4 (disagree strongly). An example item for the scale is “You feel a bond with the LGBT community.” The scale was reverse coded so that higher responses indicated greater feelings of connectedness. In the current study, the Cronbach’s alpha was .916.

Alcohol use. Participants responded to one item (Appendix E) which asked how frequently they use alcohol. Responses range from 1 (Daily) to 8 (Never). For the purpose of this study, this item was reverse coded.

AUDIT-5. This revision of the Alcohol Use Disorders Identification Test (Kim et al., 2013; Appendix F) includes 5 items, which are scored from 0 to 4. The first item measures how many drinks an individual has on a typical day of drinking; responses range from “1 or 2” to “10 or more”. The second and third items measure how often the individual is unable to stop drinking and how often the individual fails to do what is normally expected; responses range from “Never” to “Daily or almost daily.” The fourth and fifth items measure whether an individual has ever hurt themselves or another person as a result of drinking and whether or not someone has ever shown concern for the individual’s drinking; responses include “No,” “Yes, but not during the last year,” and “Yes, during the last year.” The Cronbach’s alpha for this scale was .539.

Drinking Motives. This 20-item scale (Cooper, 1994; Appendix G) measures frequency of drinking for four different motives: social reasons, coping, enhancement, and conformity. For the purpose of this study, only 10 items regarding social reasons and coping will be measured. Example items include “Because it helps you when you feel depressed or nervous” and “To celebrate a special occasion with friends.” Participants are then asked to rate how often they would drink for each reason. Responses range from 1 (almost never/never) to 5 (almost always/always). Both subscales were reliable (Coping: Cronbach’s alpha = .864; Social: Cronbach’s alpha = .904).

Data Analysis Plan

The current study was conducted as a secondary data analysis on existing data. Figure 1 shows the relations among variables that were tested. The current study used the statistical

software R 3.3.1 and the following packages: Foreign, Knitr, Dplyr, Psych, Ggplot2 and Haven (R Core Team, 2016a; R Core Team, 2016b; Revelle, 2016; Wickham, 2009; Wickham & Francois, 2016; Wickham & Miller, 2016; Xie, 2015) to conduct correlations, regressions, and mediational analyses. In Figure 2, there were two regressions and one correlation tested: concealment regressed on internalized stigma, community connectedness regressed on internalized stigma, and concealment correlated with community connectedness. There were also two indirect effects tested: an indirect effect of concealment on hazardous alcohol use through coping motives (shown in Figure 3), and an indirect effect of community connectedness on frequency of alcohol use through social motives (shown in Figure 4). Bootstrapping via R was employed for the mediational analyses and confidence intervals reported. Finally, t-tests were conducted via R to compare the means of lesbian and bisexual women in order to explore the variation that occurs among different sexual identities in the proposed study's variables.

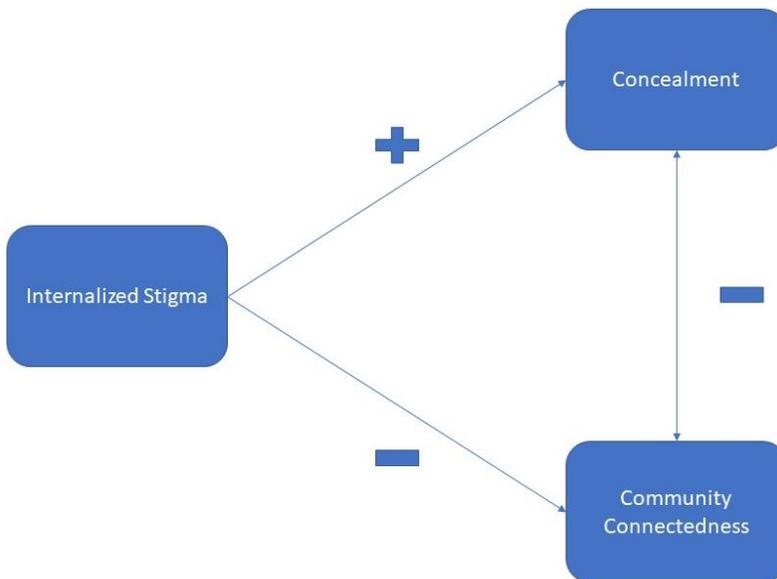


Figure 2. Proposed Regression Analyses for Internalized Stigma, Concealment, and Community Connectedness



Figure 3. Proposed Data Analysis for Indirect Effect of Concealment on Hazardous Alcohol Use



Figure 4. Proposed Data Analysis for Indirect Effect of Community Connectedness on Frequency of Drinking

CHAPTER 3

RESULTS

Means and standard deviations are reported in Table 1. All means were below the midpoint of their scales, with the exception of community connectedness. It is especially important to note that AUDIT scores were exceptionally low ($M = 1.73$, $SD = 2.48$); the highest AUDIT score possible was a score of 20, and the higher score in the sample was 13.

Table 1.

Descriptive Statistics

	Mean	SD	Min	Max
Internalized Stigma	1.70	0.87	1	7.0
Concealment	2.57	1.17	1	7.0
Community Connectedness	2.07	0.60	1	4.0
Social Motives	2.42	1.05	1	5.0
Coping Motives	1.74	0.89	1	5.0
AUDIT	1.73	2.48	0	20.0
Alcohol Frequency	3.96	2.04	1	8.0

Bivariate correlations are reported in Table 2. Few significant correlations emerged. Internalized stigma and concealment were significantly and positively correlated ($r(43) = .583$, $p < .001$). Coping motives significantly and positively correlated with problematic drinking ($r(43) = .722$, $p < .001$) and with frequency of drinking ($r(43) = .533$, $p = .003$). Social motives significantly and positively correlated with frequency of drinking ($r(43) = .625$, $p < .001$).

Table 2.

Correlation Matrix

	1	2	3	4	5	6	7
1. Internalized Stigma	---	$p < .001$	$p = .999$	$p = .999$	$p = .999$	$p = .999$	$p = .999$
2. Concealment	$r = .583$	---	$p = .999$	$p = .999$	$p = .463$	$p = .474$	$p = .999$
3. Community Connectedness	$r = -.016$	$r = -.111$	---	$p = .999$	$p = .999$	$p = .999$	$p = .999$
4. Social Motives	$r = .050$	$r = .076$	$r = -.226$	---	$p = .317$	$p = .999$	$p < .001$
5. Coping Motives	$r = .201$	$r = .322$	$r = -.093$	$r = .346$	---	$p < .001$	$p = .003$
6. AUDIT	$r = .098$	$r = .317$	$r = -.055$	$r = .242$	$r = .722$	---	$p = .056$
7. Alcohol Frequency	$r = .023$	$r = .172$	$r = .019$	$r = .625$	$r = .533$	$r = .429$	---

In order to test Hypothesis 1 (See Figure 2), concealment was regressed on internalized stigma. Results showed that internalized stigma significantly predicted concealment ($R^2 = .32$, $F(1, 43) = 22.17$, $b = .783$, $t(43) = 4.71$, $p < .001$). Next, community connectedness was regressed on internalized stigma in order to test Hypothesis 2 (See Figure 2). Results showed that internalized stigma did not significantly predict community connectedness ($R^2 = -.02$, $F(1, 43) = .01$, $b = -.011$, $t(43) = -.12$, $p = .917$). A bivariate correlation was conducted to test Hypothesis 3 (See Figure 2), and revealed that concealment did not significantly correlate with community connectedness ($r(43) = -.111$, $p = .999$).

In order to test Hypothesis 4 (See Figure 3), an indirect effects analysis was conducted to test coping motives as an indirect mechanism through which concealment relates to problematic drinking. Analyses controlled for internalized stigma and were bootstrapped (10,000 times) via R. Results revealed that concealment did not significantly predict coping motives ($R^2 = .10$, $F(2,$

42) = 2.44, $b = .237$, $t(42) = 1.72$, $p = .091$). However, coping motives significantly predicted problematic drinking ($R^2 = .54$, $F(3, 41) = 16.28$, $b = 1.927$, $t(41) = 6.23$, $p < .001$). It was found that there was an indirect effect of concealment on problematic drinking through coping motives (effect = .457, 95% CI [.007, 1.17]).

To test Hypothesis 5 (See Figure 4), an indirect effects analysis was conducted to test social motives as an indirect mechanism through which community connectedness relates to frequency of drinking. Analyses controlled for internalized stigma and were bootstrapped via R (10,000). Results revealed that community connectedness did not significantly predict social motives ($R^2 = .053$, $F(2, 42) = 1.18$, $b = -.397$, $t(42) = -1.50$, $p = .141$). Social motives significantly predicted frequency of alcohol use ($R^2 = .42$, $F(3, 41) = 9.82$, $b = 1.29$, $t(41) = 5.42$, $p < .001$). It was found that community connectedness did not have an indirect effect on frequency of alcohol use through social motives (effect = -.513, 95% CI [-1.67, .17]).

Exploratory Analyses

As mentioned above, an exploratory aim of the study was to examine any variation in experiences based on sexual minority identity. Independent t-tests were conducted to explore the differences between lesbian and bisexual women on all study variables. Results showed that there were no significant differences on any study variables.

CHAPTER 5

DISCUSSION

Sexual minority women are more likely to problematically drink than heterosexual women (Kerr et al., 2015; Rosario et al., 2014) and gay men (Amadio, 2006). Research has shown that this problematic drinking is predicted by minority stressors, such as internalized stigma and concealment (Amadio, 2006; Biacco et al., 2010; Feinstein & Newcomb, 2016; Lea et al., 2014; Lehavot & Simoni, 2011; Lewis et al., 2016). Due to Appalachian culture stigmatizing sexual minorities and perpetuating substance use, it is imperative to examine problematic drinking among sexual minority women living in this region and to examine the indirect mechanisms through which minority stress relates to problematic drinking in order to better understand this problem (Shannon et al., 2011). However, not all alcohol use differences between sexual minorities and heterosexuals may be problematic, since bars are a frequent social environment for many sexual minorities and sexual minorities tend to report more social motives of drinking (Croff et al., 2017; Trocki & Drabble, 2008). Thus, the current study aimed to examine predictors of both problematic drinking and frequency of drinking. It was hypothesized that concealment would indirectly relate to problematic drinking through coping motives and that community connectedness would indirectly relate to frequency of drinking through social motives. Overall, hypotheses were partially supported by the current study's findings (two study hypotheses were supported).

Study findings supported the first hypothesis, which was that internalized stigma would significantly predict concealment. This means that the more someone internalized stigma regarding their sexual orientation, the more they concealed their sexual orientation from others. This is in line with Pachankis' (2007) Cognitive-Affective-Behavioral Model of Concealment, in

which a negative view of the self can lead to less disclosure of sexual orientation. This finding shows that internalized stigma may be one aspect that motivates a sexual minority woman to conceal her sexual orientation.

The hypotheses that internalized stigma would predict community connectedness and that concealment would negatively correlate with community connectedness were not supported. One interpretation of these results would be that regardless of whether a person feels negatively about their sexual orientation or conceals their sexual orientation, they may still be just as likely to be connected to the LGBTQ+ community. This may be a likely explanation, given that the sample is from South Central Appalachia. Individuals who are connected to the LGBTQ+ community may still need to conceal their identity from family members and employers in order to protect themselves. This would be in line with research finding that rural sexual minorities are more likely to hide their sexual orientation and research finding that rural sexual minorities who do disclose their identity often face more prejudice and discrimination (Fisher et al., 2014; Swank et al., 2013).

However, these results could also suggest that even among those with lower levels of internalized stigma and concealment, it may be difficult to become connected to the community in areas like South Central Appalachia. Previous research has found rural individuals often face transportation issues when trying to access healthcare (King & Dabelko-Schoeny, 2009). Thus, it is reasonable to believe that these transportation issues may extend to traveling for social events in which sexual minorities could interact with other members of the LGBTQ+ community. Additionally, sexual minorities may have difficulties finding other sexual minorities because even though they may not be concealing their sexual orientation, other sexual minorities are.

Again, this would be in line with previous research showing that rural sexual minorities are more likely to conceal their orientation (Fisher et al., 2014).

Because it is not necessary for both pathways of an indirect effect to be significant (Hayes, 2013, pg. 94), the hypothesis that concealment would be indirectly related to problematic drinking through coping motives was supported. This aligns with prior studies that found that coping motives predicted more problematic drinking and mediated the relationship between proximal minority stress and problematic drinking (Cadigan et al., 2016; Gonzalez et al., 2009; Laghi et al., 2015; Lehavot & Simoni, 2011; Lewis et al., 2016; Moeller & Crocker, 2009), and findings in which concealment was related to more problematic drinking (Baiocco et al., 2010; Lehavot & Simoni, 2011; Lewis et al., 2016). In contrast, the hypothesis that community connectedness would be indirectly related to frequency of drinking through social motives was not supported. Still, the current study's findings supported previous findings in which social motives predicted a higher frequency of drinking (Ebersole et al., 2012; Kahler et al., 2015).

Implications

Some implications for future translational or clinical work might be drawn from the hypotheses that were supported. One main finding is that concealment is indirectly related to problematic drinking through coping motives, suggesting that the stress of concealing one's sexual orientation may lead individuals to develop maladaptive coping mechanisms like problematic drinking. This information could be helpful to therapists working with sexual minority women in a clinical setting. Thus, therapists instead should work with their sexual minority women clients on developing healthier coping mechanisms instead of drinking. This may be even more imperative for therapists in rural areas like South Central Appalachia, where

using substances like alcohol begins at a young age, and therefore sexual minority drinkers in Appalachia may be even more reliant on it (Meyer et al., 2008; Shannon et al., 2011).

The finding might also suggest to therapists that concealment of identity is the cause of additional negative coping processes, and therefore, that they should work with clients to conceal identity less and disclose more. Indeed, disclosure of identity can be associated with less psychological distress (Morris, Waldo, & Rothblum, 2001). Yet, disclosure of identity may put clients in real harm. Indeed, in the region of South Central Appalachia where this sample was drawn, state legislature includes laws and bills that allow individuals to discriminate against LGBTQ people. In this way, and particularly in the region, concealment of identity may act as both a minority stressor and as a self-protective coping mechanism against minority stress. Therapists working with sexual minority women might use this knowledge and parse the individual motivations for concealment in order to help clients navigate the complexity of disclosure and coming out, in addition to finding more positive coping strategies besides drinking.

The significant relationship between internalized stigma and concealment highlights that internalized stigma may be one reason that sexual minorities conceal their sexual orientation. While concealment is a minority stressor in and of itself, it appears to be a behavioral outcome of other proximal minority stressors – negative feelings towards one’s identity and the expectations of stigma from others (otherwise known as anticipated stigma). Affirming therapeutic strategies and cognitive behavior therapy could be used with individuals concealing their identity due to higher levels of internalized stigma (Beckstead & Israel, 2007). However, again, therapists must also keep in mind that individuals may conceal their identity to protect themselves from discrimination or violence from family members, strangers, and employers, which may be

particularly salient in rural areas where sexual minorities face more discrimination (Leedy & Connolly, 2007).

Implications might also be drawn from some of the non-significant findings. For example, the finding that concealment did not significantly predict coping motives *could* imply that coping motives may be unrelated to concealment and that coping motives may be related to other stressors unrelated to sexual orientation, such as mental health issues related to genetic factors or other environmental factors. This would be in line with research finding that psychological distress is related to coping motives, both in LGBTQ+ samples (Lewis et al., 2016; Lewis et al., 2017) and in heterosexual samples (Cadigan et al., 2015; Fitzgerald & Long, 2012; Foster et al., 2014). Alternatively, this could also imply that coping may be more relevant to other minority stressors, such as distal events of prejudice, discrimination, or violence, or other proximal stressors not included in the present study, such as anticipated stigma. This would be in line with previous research finding that discrimination predicts coping motives (Wray et al., 2016), although little is known about anticipated stigma.

However, concealment was indirectly related to problematic drinking through coping motives. Thus, this could mean that coping motives are related to concealment but was not found due to lack of sufficient power. This could additionally imply that coping motives may be a point of intervention for problematic drinking, since coping motives strongly predicted problematic drinking.

Limitations and Future Directions

Sample size. Due to small sample size, observed power for some tests was low. Observed power was calculated via G*Power 3.1.9.2. Effect size (p^2) was calculated by entering R^2 . Some of the models, such as the model in which problematic drinking was regressed on

coping motives, concealment, and internalized stigma, had sufficient power (.997). However, models with smaller effect sizes, such as the model in which coping motives was regressed on concealment and internalized stigma ($p^2 = 0.14$), had low observed power (.521) and would have needed a larger sample size ($N = 76$) in order to achieve sufficient power. Thus, small sample size may have made it more difficult to detect the effects that concealment and internalized stigma may have on coping motives, which have been found in other studies (Feinstein & Newcomb, 2016; Lewis et al., 2016). Furthermore, while some models with larger effect sizes had a higher observed power, it could be that these larger effect sizes were inflated due to small sample size, also known as the “winner’s curse” (Ioannidis, 2008, as cited by Rochefort-Maranda, 2017).

In addition to size of sample the current sample also is not representative of all sexual minority women living in South Central Appalachia. Women in this study self-selected into the study; therefore, it is a convenience sample. The current sample included very few pansexual and asexual women, and thus, their experiences are underrepresented in this study. This is important to note since we already know that sexual minority women do not have identical health concerns. With health concerns like alcohol use and substance use, it has been shown that bisexual women are more likely to self-identify as drinkers and have higher rates of substance use among a variety of substances (Corte et al., 2016; Kerr et al., 2015). Since bisexual and lesbian women have different rates of alcohol use, it is likely that pansexual and asexual women have their own patterns of alcohol use. However, there is very little research examining this. Therefore, future studies should proactively recruit more asexual women, pansexual women, and other women with understudied sexual orientations in order to learn more about how they compare with lesbian and bisexual women.

Because the study had a small sample size, future studies may want to examine similar models that distinguish problematic drinking from non-problematic drinking among larger samples. Additionally, future studies might want to examine additional variables in order to create a more comprehensive model of drinking among sexual minorities. For instance, one recent study found that enhancement motives mediated the relationship between discrimination and alcohol use among HIV-negative men who have sex with men (Wray et al., 2016). Thus, future research may want to include this variable to see how it relates to proximal minority stress and problematic drinking.

Measures of community connectedness. One reason why the current study found nonsignificant results for hypotheses involving community connectedness is due to small sample size and low power. Larger sample sizes in the future may find significant results. However, another reason is that the current study may not have used an adequate measure of community connectedness. For example, the scale used to measure connectedness in this study has items that mention participating in the community, and specifically mentions the community of the city that the participant lives in. However, being active in the LGBTQ+ community in more rural areas may not always be an option, perhaps due the small size of local communities or due to less welcoming social climates that make it more difficult for active LGBTQ+ communities to thrive. Additionally, publicly participating in the LGBTQ+ community may not always seem like the safest choice for rural sexual minorities. In decades past, this could have accurately measured community connectedness for sexual minorities regardless of geographic location.

However, increased access to online communities may give rural sexual minorities a new avenue for connecting with other sexual minorities without having to fear possible reactions from others. Thus, researchers may want to explore how community connectedness differs

between online communities and public communities. Even urban sexual minorities could be accessing online communities more often, and therefore, researchers may also want to develop new measures of community connectedness that incorporate virtual connectedness in addition to connectedness in public settings. By doing this, we may see a larger effect size for community connectedness, which may help us better detect significant findings for the indirect effects model presented in the current study (See Figure 4).

Study design. Another important limitation to note is that the study relies on a correlational and cross-sectional design. Thus, no causal implications can be made regarding the relationship between proximal minority stress and alcohol use. An alternative hypothesis could be that experiencing psychological distress, which has been found to be related to minority stress and coping motives, could be a possible confounding variable that leads individuals to consume alcohol more problematically to cope with negative emotions, as well as to perceive themselves, and by extension their sexual orientation, more negatively and to hide certain parts of their identity more often (Lewis et al., 2017).

Therefore, future studies examining alcohol use among sexual minorities should use experimental or longitudinal designs. For instance, some researchers may aim to decrease alcohol use through interventions that decrease internalized stigma or concealment, which would could establish a causal link. However, since many sexual minorities feel like they must conceal their identity in order to protect themselves from discrimination or violence, it may be better for researchers to aim to decrease coping motives and redirect individuals to healthier coping mechanisms than problematic alcohol consumption.

Low AUDIT Scores. Scores of problematic drinking were remarkably low ($M = 1.73$, $SD = 2.48$), which somewhat limits our ability to make conclusions about problematic drinking

in this sample. However, these low scores appear to be normal. According to the U. S. Department of Health and Human Services (2010), only 9% of adults in the United States drink heavily (defined for women as drinking more than 3 drinks a day *and* more than 7 drinks a week) and only 19% drink at levels that put them at a higher risk for alcohol use disorders (defined for women as drinking more than 3 drinks a day *or* more than 7 drinks a week). Furthermore, 37% drink at low levels and 35% do not drink at all. Thus, future studies, like targeted interventions, may want to actively recruit more individuals who have problems with alcohol or have a screening survey featuring the AUDIT in order to achieve a more balanced sample.

Additionally, internal consistency for the AUDIT-5 was low. This means that the 5 items in the measure may not have been strongly related among the current study's sample. Thus, the variables used to predict problematic drinking, such as concealment and coping motives, may only predict certain items in scale (e.g. increased consumption of alcohol) rather than others (e.g. injuring others during drinking; doctors and relatives expressing concern about drinking). Therefore, conclusions about the hypothesis in which concealment is indirectly related to problematic drinking through coping motives must be drawn carefully. Future research may want to revisit this hypothesis with a sample in which internal consistency for the AUDIT-5 is higher.

Measures of proximal minority stress. Internalized stigma and concealment were both measured by subscales of the Lesbian Internalized Homophobia Scale, which frequently refer specifically to lesbians. Many of the items used in the current study were adapted with more neutral terms, such as "sexual minority woman," though some items still refer to other sexual minority women as lesbians (e.g. the participant's lesbian lovers or lesbian friends). This language could potentially be off-putting to individuals with female lovers and friends who are also sexual minorities but do not identify as lesbians, and the term "sexual minority woman" may

be confusing, since it is typically only used in research. Therefore, researchers may want to examine what terms are rated most favorably by sexual minority women in terms of clarity and inclusivity.

Additionally, explicit measures of internalized stigma may no longer accurately capture an individual's level of internalized stigma. Though the current study's participants are from a region where the internalized stigma scale may reflect the general population's attitudes toward sexual minority women, the participants also have access to television and the internet, where they may be exposed to positive, affirming messages. This could lower their levels of internalized stigma, or it could simply lower the internalized stigma that they are conscious of. Future research may want to examine potential discrepancies between implicit and explicit measures of internalized stigma and examine which measures best predict health.

Conclusion

This study sought to contribute to the field of minority stress and alcohol use by attempting to differentiate predictors of frequency of alcohol use and problematic drinking. Although the limitations of this study prevented us from making final conclusions about explanations for problematic and frequency of drinking, it is important for research to distinguish these differences in order to avoid pathologizing sexual minorities who seek out connections in LGBTQ+ friendly bars while still aiming to predict and ameliorate problematic alcohol use disparities.

REFERENCES

- Amadio, D. M. (2006). Internalized heterosexism, alcohol use, and alcohol-related problems among lesbians and gay men. *Addictive Behaviors, 31*, 1153–1162. doi:10.1016/j.addbeh.2005.08.013
- Appalachian Regional Commission. (2009). Subregions in Appalachia. Retrieved from https://www.arc.gov/research/mapsofappalachia.asp?MAP_ID=31.
- Appalachian Regional Commission. (2016). Data snapshot: Appalachia's population. Retrieved from <https://www.arc.gov/noindex/research/ACS-infographics2011-2015/DataSnapshot-AppalachiasPopulation.pdf>.
- Appalachian Regional Commission. (2017). Investments in the Appalachian region, October 1, 2016- September 30, 2017. Retrieved from https://www.arc.gov/images/appregion/fact_sheets/ARCFactSheet2-18.pdf.
- Baiocco, R., D'Alessio, M., Laghi, F. (2010). Binge drinking among gay, and lesbian youths: The role of internalized sexual stigma, self-disclosure, and individuals' sense of connectedness to the gay community. *Addictive Behaviors, 35*, 896–899. doi: 10.1016/j.addbeh.2010.06.004 Contents lists available at ScienceDirect Addictive Behaviors
- Barefoot, K. N., Smalley, K. B., & Warren, J. C. (2015). Psychological distress and perceived barriers to care for rural lesbians. *Journal Of Gay & Lesbian Mental Health, 19*(4), 347-369. doi:10.1080/19359705.2015.1041629
- Barefoot, K. N., Smalley, K. B., & Warren, J. C. (2017). A quantitative comparison of the health-care disclosure experiences of rural and nonrural lesbians. *Stigma And Health, 2*(3), 195-207. doi:10.1037/sah0000052

- Beals, K. P., Peplau, L. A., & Gable, S. L. (2009). Stigma management and wellbeing: The role of perceived social support, emotional processing, and suppression. *Personality and Social Psychology Bulletin*, *35*, 867–879. doi: 10.1177/0146167209334783
- Beckstead, L., & Israel, T. (2007). Affirmative counseling and psychotherapy focused on issues related to sexual orientation conflicts In K. J. Bieschke, R. M. Perez, & K. A. DeBord (Ed.), *Handbook of counseling and psychotherapy with lesbian, gay, bisexual, and transgender clients, second edition* (pp. 221-244). Washington, D.C.: American Psychological Association.
- Bell, S. E. (2009), “There Ain’t No Bond in Town Like There Used to Be”: The Destruction of Social Capital in the West Virginia Coalfields. *Sociological Forum*, *24*, 631–657.
doi:10.1111/j.1573-7861.2009.01123.x
- Berghe, W. V., Dewaele, A., Cox, N. and Vincke, J. (2010). Minority-specific determinants of mental well-being among lesbian, gay, and bisexual youth. *Journal of Applied Social Psychology*, *40*, 153–166. doi:10.1111/j.1559-1816.2009.00567.x
- Branscombe, N. R., Schmitt, M. T., & Harvey, R. (1999). Perceiving pervasive discrimination among African Americans: Implications for group identification and well-being. *Journal of Personality and Social Psychology*, *77*, 135–149. doi: 10.1037/0022-3514.77.1.135
- Cadigan, J. M., Martens, M. P., & Herman, K. C. (2015). A Latent Profile Analysis of drinking motives among heavy drinking college students. *Addictive Behaviors*, *51*, 100-105. doi: 10.1016/j.addbeh.2015.07.029.
- Carey, K. B., & Correia, C. J. (1997). Drinking motives predict alcohol-related problems in college students. *Journal of Studies on Alcohol and Drugs*, *58*, 100–105.

- Carrus, G., Panno, A., Deiana, L., Crano, W. D., Fiorentino, D., Ceccanti, M., Mareri, A. R., Bonifazi, A., & Giuliani, A. (2016). Group membership and adolescents' alcohol intake: The role of drinking motives. *Journal of Studies on Alcohol and Drugs, 77* (1), 143–149. doi: 10.15288/jsad.2016.77.143
- Cole, S. W., Kemeny, M. E., Taylor, S. E., & Visscher, B. R. (1996a). Accelerated course of human immunodeficiency virus infection in gay men who conceal their homosexual identity. *Psychosomatic Medicine, 58*, 219–231.
- Cole, S. W., Kemeny, M. E., Taylor, S. E., & Visscher, B. R. (1996b). Elevated physical health risk among gay men who conceal their homosexual identity. *Health Psychology, 15*, 243–251.
- Cooper, M. L. (1994). Motivations for alcohol use among adolescents: Development and validation of a four-factor model. *Psychological Assessment, 6*, 117–128. doi:10.1037/1040-3590.6.2.117
- Cooper, M. L., Russell, M., Skinner, J. B., & Windle, M. (1992). Development and validation of a three-dimensional measure of drinking motives. *Psychological Assessment, 4*, 123–132.
- Corbin, W. R., Iwamoto, D. K., Fromme, K. (2011). Broad social motives, alcohol use, and related problems: Mechanisms of risk from high school through college. *Addictive Behaviors, 36*, 222–230.
- Corte, C., Matthews, A. K., Stein, K. F., & Lee, C.-K. (2016). Early drinking onset moderates the effect of sexual minority stress on drinking identity and alcohol use in sexual and gender minority women. *Psychology of Sexual Orientation and Gender Diversity*. Advance online publication. <http://dx.doi.org/10.1037/sgd0000198>

- Croff, J. M., Hubach, R. D., Currin, J. M., & Frederick, A. F. (2017). Hidden rainbows: Gay bars as safe havens in a socially conservative area since the Pulse Nightclub Massacre. *Sexuality Research & Social Policy: A Journal of the NSRC*, 14 (2), 233-240. Retrieved from <http://dx.doi.org/10.1007/s13178-017-0273-1>
- DiPlacido, J. (1998). Minority stress among lesbians, gay men, and bisexuals: A consequence of heterosexism, homophobia, and stigmatization. In G. M. Herek (Ed.), *Stigma and sexual orientation: Vol. 4. Understanding prejudice against lesbians, gay men, and bisexuals* (pp. 138–159). Thousand Oaks, CA: Sage.
- Drabble, L. A., Midanik, L. T., & Trocki, K. (2005). Reports of alcohol consumption and alcohol related problems among homosexual, bisexual and heterosexual respondents: Results from the 2000 National Alcohol Survey. *Journal of Studies on Alcohol*, 66 (1), 111-120. doi: 10.15288/jsa.2005.66.111
- Ebersole, R. C., Noble, J. J., & Madson, M. B. (2012). Drinking motives, negative consequences, and protective behavioral strategies in lesbian, gay, bisexual, and transgender college students. *Journal of LGBT Issues in Counseling*, 6 (4), 337-352. doi:10.1080/15538605.2012.725650
- Feinstein, B. A., & Newcomb, M. E. (2016). The role of substance use motives in the associations between minority stressors and substance use problems among young men who have sex with men. *Psychology of Sexual Orientation and Gender Diversity*, 3 (3), 357–366. doi: 10.1037/sgd0000185
- Feinstein, B. A., & Newcomb, M. E. (2017). Event-level associations among drinking motives, alcohol consumption, and condomless anal sex in a sample of young men who have sex with men. *AIDS and Behavior*. doi: 10.1007/s10461-017-1734-5

- Fisher, C. M., Irwin, J. A., & Coleman, J. D. (2014). LGBT health in the midlands: A rural/urban comparison of basic health indicators. *Journal of Homosexuality, 61*, 1062-1090.
doi:10.1080/00918369.2014.872487
- Fitzgerald, K., & Long, C. G. (2012). The influence of drinking motives and anxiety on low-, moderate- and high-risk drinkers. *Journal Of Substance Use, 17*(3), 240-248.
doi:10.3109/14659891.2011.565109
- Foster, D. W., Young, C. M., Steers, M. N., Quist, M. C., Bryan, J. L., & Neighbors, C. (2014). Tears in your beer: Gender differences in coping drinking motives, depressive symptoms and drinking. *International Journal Of Mental Health And Addiction, 12*(6), 730-746.
doi:10.1007/s11469-014-9504-3
- Fredriksen-Goldsen, K. I., Emler, C. A., Kim, H., Muraco, A., Erosheva, E. A., Goldsen, J., & Hoy-Ellis, C. P. (2013). The physical and mental health of lesbian, gay male, and bisexual (LGB) older adults: The role of key health indicators and risk and protective factors. *The Gerontologist, 53* (4), 664–675. doi:10.1093/geront/gns123
- Fredriksen-Goldsen, K. I., Simoni, J. M., Kim, H., Lehavot, K., Walters, K. L., Yang, J., Hoy-Ellis, C. P., & Muraco, A. (2014). The health equity promotion model: Reconceptualization of lesbian, gay, bisexual, and transgender (LGBT) health disparities. *American Journal of Orthopsychiatry, 84* (6), 653–663. doi: 10.1037/ort0000030
- Frost, D. M. (2011). Social stigma and its consequences for the socially stigmatized. *Social and Personality Psychology Compass, 5* (11), 824–839. doi: 10.1111/j.1751-9004.2011.00394.x

- Frost, D. M., & Meyer, I. H. (2009). Internalized homophobia and relationship quality among lesbians, gay men, and bisexuals. *Journal of Counseling Psychology, 56*, 97–109.
<http://dx.doi.org/10.1037/a0012844>
- Frost, D. M., & Meyer, I. H. (2012). Measuring community connectedness among diverse sexual minority populations. *Journal of Sex Research, 49* (1), 36-49. doi:
10.1080/00224499.2011.565427
- Gonsiorek, J. C. (1988). Mental health issues of gay and lesbian adolescents. *Journal of Adolescent Health Care, 9*, 114–122.
- Gonzalez, V. M., Collins, R. L., Bradizza, C. M. (2009). Solitary and social heavy drinking, suicidal ideation, and drinking motives in underage college drinkers. *Addictive Behaviors, 34* (12), 993-999. doi:10.1016/j.addbeh.2009.06.001
- Grant, V. V., Stewart, S. H., & Mohr, C. D. (2009). Coping-anxiety and coping-depression motives predict different daily mood-drinking relationships. *Psychology of Addictive Behaviors, 23*, 226–237.
- Grossman, A. H., D’Augelli, A. R., & Hershberger, S. L. (2000). Social support networks of lesbian, gay, and bisexual adults 60 years of age and older. *Journals of Gerontology, 55B*, 171–179. doi: 10.1093/geronb/55.3.P171
- Hatzenbuehler, M. L., Corbin, W. R., Fromme, K. (2011). Discrimination and alcohol-related problems among college students: A prospective examination of mediating effects. *Drugs and Alcohol Dependence, 115*, 213-220. doi:10.1016/j.drugalcdep.2010.11.002
- Hatzenbuehler, M. L., Nolen-Hoeksema, S., & Erickson, S. J. (2008). Minority stress predictors of HIV risk behavior, substance use, and depressive symptoms: Results from a

- prospective study of bereaved gay men. *Health Psychology*, 27 (4), 455-462. doi:
10.1037/0278-6133.27.4.455
- Hayes, A. F. (2013). *Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach*. New York: The Guilford Press.
- Hatzenbuehler, M. L., Phelan, J. C., & Link, B. G. (2013). Stigma as a fundamental cause of population health inequalities. *American Journal Of Public Health*, 103(5), 813-821. doi:10.2105/AJPH.2012.301069
- Herek, G. M., Gillis, J. R., & Cogan, J. C. (2009). Internalized stigma among sexual minority adults: Insights from a social psychological perspective. *Journal of Counseling Psychology*, 56 (1), 32–43. doi: 10.1037/a0014672
- Hetrick, E. S., & Martin, A. D. (1987). Developmental issues and their resolution for gay and lesbian adolescents. *Journal of Homosexuality*, 14(1–2), 25–43.
- Jameson, J. P. and Blank, M. B. (2007), The Role of Clinical Psychology in Rural Mental Health Services: Defining Problems and Developing Solutions. *Clinical Psychology: Science and Practice*, 14, 283–298. doi:10.1111/j.1468-2850.2007.00089.x
- Jonas, A. B., Young, A. M., Oser, C. B., Leukefeld, C. G., & Havens, J. R. (2012). Oxycontin® as currency: Oxycontin® use and increased social capital among rural Appalachian drug users. *Social Science & Medicine*, 74(10), 1602-1609. doi:10.1016/j.socscimed.2011.12.053
- Kahler, C. W., Wray, T. B., Pantalone, D. W., Mastroleo, N. R., Kruis, R. D., Mayer, K. H., Monti, P. M. (2015). Assessing sexual motives for drinking alcohol among HIV-positive men who have sex with men. *Psychology of Addictive Behaviors*, 29 (1), 247-253. doi: 10.1037/adb0000006

- Kerr, D., Ding, K., Burke, A., & Ott-Walter, K. (2015). An alcohol, tobacco, and other drug use comparison of lesbian, bisexual, and heterosexual undergraduate women. *Substance Use & Misuse, 50*, 340–349.
- King, S., & Dabelko-Schoeny, H. (2009). “Quite frankly, I have doubts about remaining”: Aging-in-place and health care access for rural midlife and older lesbian, gay, and bisexual individuals. *Journal of LGBT Health Research, 5*, 10-21.
doi:10.1080/15574090903392830
- Kuntsche, E. N., Knibbe, R., Gmel, G., & Engels, R. (2005). Why do young people drink? A review of drinking motives. *Clinical Psychology Review, 25*, 841–861.
- Labrie, J. W., Hummer, J. F., Pedersen, E. R. (2007). Reasons for drinking in the college student context: the differential role and risk of the social motivator. *Journal of Studies on Alcohol and Drugs, 68*, 393–398.
- Laghi, F., Baumgartner, E., Baiocco, R., Kotzalidis G. D., Piacentino, D., Girardi, P., & Angeletti, G. (2015). Alcohol intake and binge drinking among Italian adolescents: The role of drinking motives. *Journal of Addictive Diseases, 1-9*. doi:
10.1080/10550887.2015.1129703
- Lea, T., de Wit, J., Reynolds, R. (2014). Minority stress in lesbian, gay, and bisexual young adults in Australia: Associations with psychological distress, suicidality, and substance use. *Archive of Sex Behaviors, 43*, 1571–1578. doi: 10.1007/s10508-014-0266-6
- Lee, M. G., & Quam, J. K. (2013). Comparing supports for LGBT aging in rural versus urban areas. *Journal of Gerontological Social Work, 56(2)*, 112-126. doi:
10.1080/01634372.2012.747580

- Leedy, G., & Connolly, C. (2007). Out in the cowboystate: A look at lesbian and gay lives in Wyoming. *Journal of Gay & Lesbian Social Services, 19*, 17-34.
doi:10.1300/J041v19n01_02
- Lehavot, K., & Simoni, J. M. (2011). The impact of minority stress on mental health and substance use among sexual minority women. *Journal of Consulting and Clinical Psychology, 79* (2), 159–170. doi: 10.1037/a0022839
- Lewis, R. J., Mason, T. B., Winstead, B. A., Gaskins, M., & Irons, L. B. (2016). Pathways to hazardous drinking among racially and socioeconomically diverse lesbian women: Sexual minority stress, rumination, social isolation, and drinking to cope. *Psychology of Women Quarterly, 1*-18. doi: 10.1177/0361684316662603
- Lewis, R. J., Winstead, B. A., Lau-Barraco, C., & Mason, T. B. (2017). Social factors linking stigma-related stress with alcohol use among lesbians. *Journal Of Social Issues, 73*(3), 545-562. doi:10.1111/josi.12231
- Lewis, C.E., Saghir, M.T., Robins, E. (1982). Drinking patterns in homosexual and heterosexual women. *Journal of Clinical Psychiatry, 43*, 277–278.
- Link, B. G., & Phelan, J. C. (2001). Conceptualizing stigma. *Annual Review of Sociology, 27*, 363–385.
- MacAvoy, S., & Troth Lippman, D. (2001). Teaching culturally competent care: Nursing students experience Rural Appalachia. *Journal Of Transcultural Nursing, 12*(3), 221-227.
doi:10.1177/104365960101200306
- Major, B., & Gramzow, R. H. (1999). Abortion as stigma: Cognitive and emotional implications of concealment. *Journal of Personality and Social Psychology, 77*, 735–745.

- McCabe, S. E., Bostwick, W. B., Hughes, T. L., West, B. T., & Boyd, C. J. (2010). The relationship between discrimination and substance use disorders among lesbian, gay, and bisexual adults in the United States. *American Journal of Public Health, 100*(10), 1946-1952.
- McCarthy, L. (2000). Poppies in a wheat field: Exploring the lives of rural lesbians. *Journal of Homosexuality, 39*, 75–94. doi:10.1300/J082v39n01_05
- McKirnan, D. J., & Peterson, P. L. (1989). Stress, expectancies, and vulnerability to substance abuse: A test of a model among homosexual men. *Journal of Abnormal Psychology, 97*, 461-466.
- Merrill, J. E., Read, J. P. (2010). Motivational pathways to unique types of alcohol consequences. *Psychology of Addictive Behaviors, 24*, 705–711.
- Merrill, J. E., Wardell, J. D., & Read, J. P. (2014). Drinking motives in the prospective prediction of unique alcohol-related consequences in college students. *Journal of Studies on Alcohol and Drugs, 75*, 93–102.
- Meyer, I. H., & Dean, L. (1998). Internalized homophobia, intimacy, and sexual behavior among gay and bisexual men. In G. M. Herek (Ed.), *Stigma and sexual orientation: Understanding prejudice against lesbians, gay men, and bisexuals* (pp. 160–186). Thousand Oaks, CA: Sage.
- Meyer, I. H. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychological Bulletin, 129*(5), 674–697. doi:10.1037/0033-2909.129.5.674
- Meyer, M. G., Toborg, M. A., Denham, S. A., & Mande, M. J. (2008). Cultural perspectives concerning adolescent use of tobacco and alcohol in the Appalachian mountain

- region. *The Journal Of Rural Health*, 24(1), 67-74. doi:10.1111/j.1748-0361.2008.00139.x
- Miller, C. T., & Major, B. (2000). Coping with stigma and prejudice. In T. F. Heatherton, R. E. Kleck, M. R. Hebl, & J. G. Hull (Eds.), *The social psychology of stigma* (pp. 243–272). New York: Guilford Press.
- Moeller, S. J., & Crocker, J. (2009). Drinking and desired self-images: Path models of self-image goals, coping motives, heavy-episodic drinking, and alcohol problems. *Psychology of Addictive Behaviors*, 23 (2), 334-340. doi: 10.1037/a0015913
- Morris, J. F., Waldo, C. R., & Rothblum, E. D. (2001). A model of predictors and outcomes of outness among lesbian and bisexual women. *American Journal Of Orthopsychiatry*, 71(1), 61-71. doi:10.1037/0002-9432.71.1.61
- Németh, Z., Urbán, R., Kuntsche, E., Pedro, E. M. S., Nieto, J. G. R., Farkas, J., ... Demetrovics, Z. (2011). Drinking motives among Spanish and Hungarian young adults: A cross-national study. *Alcohol and Alcoholism*, 46(3), 261-269. doi: 10.1093/alcalc/agr019
- Pachankis, J. E. (2007). The psychological implications of concealing a stigma: A cognitive–affective–behavioral model. *Psychological Bulletin*, 133 (2), 328-345. doi: 10.1037/0033-2909.133.2.328
- R Core Team. (2016a). Foreign: Read data stored by minitab, s, sas, spss, stata, systat, weka, dBase,. Retrieved from <https://CRAN.R-project.org/package=foreign>
- R Core Team. (2016b). R: A language and environment for statistical computing. Vienna, Austria: R Foundation for Statistical Computing. Retrieved from <https://www.R-project.org/>

- Revelle, W. (2016). Psych: Procedures for psychological, psychometric, and personality research. Evanston, Illinois: Northwestern University. Retrieved from <https://CRAN.R-project.org/package=psych>
- Rocheft-Maranda, G. (2017, December 21). *Inflated Effect Sizes and Underpowered Tests: How the Severity Measure of Evidence is Affected by the Winner's Curse*. Retrieved from http://philsci-archive.pitt.edu/14237/1/inflated_sev.pdf
- Rosario, M., Reisner, S.L., Corliss, H.L., Wypij, D., Calzo, J., & Austin, S.B. (2014). Sexual-orientation disparities in substance use in emerging adults: a function of stress and attachment paradigms. *Psychology of Addictive Behaviors*, 28 (3), 790–804. doi:10.1037/a0035499
- Rosenkrantz, D. E., Black, W. W., Abreu, R. L., Aleshire, M. E., & Fallin-Bennett, K. (2017). Health and health care of rural sexual and gender minorities: A systematic review. *Stigma And Health*, 2(3), 229-243. doi:10.1037/sah0000055
- Rostosky, S. S., Owens, G. P., Zimmerman, R. S., & Riggle, E. D. (2003). Associations among sexual attraction status, school belonging, and alcohol and marijuana use in rural high school students. *Journal of Adolescence*, 26(6), 741-751. doi: 10.1016/j.adolescence.2003.09.002
- Saghir, M. T., & Robins, E. (1973). *Male and female homosexuality: A comprehensive investigation*. Baltimore, MD: Williams and Wilkins.
- Shannon, L. M., Havens, J. R., Oser, C., Crosby, R., & Leukefeld, C. (2011). Examining gender differences in substance use and age of first use among rural Appalachian drug users in Kentucky. *The American Journal Of Drug And Alcohol Abuse*, 37(2), 98-104. doi:10.3109/00952990.2010.540282

- Shannon, L. M., Perkins, E. B., & Neal, C. (2014). Examining substance use among rural Appalachian and urban non-Appalachian individuals participating in drug court. *Substance Use & Misuse, 49*(3), 285-294. doi:10.3109/10826084.2013.832326
- Skinner, K. D., & Veilleux, J. C. (2016). The interactive effects of drinking motives, age, and self-criticism in predicting hazardous drinking. *Substance Use & Misuse, 51* (10), 1342-1352. doi: 10.3109/10826084.2016.1168448
- Skinner, W., & Otis, M. D. (1992). Drug use among lesbian and gay people: Findings, research design, insights, and policy issues from the Trilogy Project. In J. Kelly (Ed.), *The research symposium on alcohol and other drug problem prevention among lesbians and gay men*. Sacramento, CA: EMT Group, Inc.
- Smart, L., & Wegner, D. M. (2000). The hidden costs of stigma. In T. F. Heatherton, R. E. Kleck, M. R. Hebl, & J. G. Hull (Eds.), *The social psychology of stigma* (pp. 220–242). New York: Guilford Press.
- Stall, R., & Wiley, J. (1988). A comparison of alcohol and drug use patterns of homosexual and heterosexual men: The San Francisco men's health study. *Drug and Alcohol Dependence, 22*(1), 63-73.
- Swank, E., Fahs, B., & Frost, D. M. (2013). Region, social identities, and disclosure practices as predictors of heterosexist discrimination against sexual minorities in the United States. *Sociological Inquiry, 83*(2), 238-258.
- Tabaac, A. R., Perrin, P. B., & Rabinovitch, A. E. (2016). The relationship between social support and suicide risk in a national sample of ethnically diverse sexual minority women. *Journal of Gay & Lesbian Mental Health, 20*(2), 116-126, doi:10.1080/19359705.2015.1135842

- Talley, A. E., Sher, K. J., Steinley, D., Wood, P. K., & Littlefield, A. K. (2012). Patterns of alcohol use and consequences among empirically derived sexual minority subgroups. *Journal of Studies on Alcohol and Drugs, 73* (2), 290–302. doi: 10.15288/jsad.2012.73.290
- Trocki, K., & Drabble, L. (2008). Bar patronage and motivational predictors of drinking in the San Francisco Bay Area: Gender and sexual identity differences. *Journal of Psychoactive Drugs, 40*, 345-356. doi: 10.1080/02791072.2008.10400662
- U. S. Department of Health and Human Services. (2010). *Rethinking drinking: Alcohol and your health* [Brochure]. Retrieved from https://pubs.niaaa.nih.gov/publications/RethinkingDrinking/Rethinking_Drinking.pdf
- Warren, J. C., Smalley, K. B., & Barefoot, K. N. (2017). Recent alcohol, tobacco, and substance use variations between rural and urban middle and high school students. *Journal Of Child & Adolescent Substance Abuse, 26*(1), 60-65. doi:10.1080/1067828X.2016.1210550
- Webb, J. R., & Brewer, K. (2010). Forgiveness and college student drinking in southern Appalachia. *Journal Of Substance Use, 15*(6), 417-433. doi:10.3109/14659891003706373
- Welch, S., Howden-Chapman, P., & Collings, S. C. D. (1998). Survey of drug and alcohol use by lesbian women in New Zealand. *Addictive Behaviors, 23*(4), 543-548.
- West Virginia Bureau for Public Health. (1995). Health risks: The Appalachian lifestyle. *Health Risks: The Appalachian Lifestyle*, Health risks: The Appalachian lifestyle, 1995.
- Whitehead, J., Shaver, J., & Stephenson, R. (2016). Outness, stigma, and primary health care utilization among rural LGBT populations. *PLoS ONE, 11*(1). doi:10.1371/journal.pone.0146139

- Wickham, H. (2009). *Ggplot2: Elegant graphics for data analysis*. Springer-Verlag New York.
Retrieved from <http://ggplot2.org>
- Wickham, H., & Francois, R. (2016). *Dplyr: A grammar of data manipulation*. Retrieved from
<https://CRAN.R-project.org/package=dplyr>
- Wickham, H., & Miller, E. (2016). *Haven: Import and export 'spss', 'stata' and 'sas' files*.
Retrieved from <https://CRAN.R-project.org/package=haven>
- Williamson, I. (2000). Internalized homophobia and health issues affecting lesbians and gay men. *Health Education Research, 15*, 97–107.
- Wills, T. A., Fegan, M. F. (2001). Social networks and social support. In A. Baum, T. A. Revenson, & J. E. Singer (Eds.), *Handbook of health psychology* (p. 209-234). Mahwah, NJ: Erlbaum.
- Wilson, S. M., Gilmore, A. K., Rhew, I. C., Hodge, K. A., Kaysen, D. L. (2016). Minority stress is longitudinally associated with alcohol-related problems among sexual minority women. *Addictive Behaviors, 61*, 80-83. doi: 10.1016/j.addbeh.2016.05.017
- Wray, T. B., Pantalone, D. W., Kahler, C. W., Monti, P. M., & Mayer, K. H. (2016). The role of discrimination in alcohol-related problems in samples of heavy drinking HIV-negative and positive men who have sex with men (MSM). *Drugs and Alcohol Dependence, 166*, 226-234.
- Xie, Y. (2015). *Dynamic documents with R and knitr* (2nd ed.). Boca Raton, Florida: Chapman; Hall/CRC. Retrieved from <http://yihui.name/knitr/>
- Zhang, Z., Infante, A., Meit, M., English, N., Dunn, M., & Bowers, K. H. (2008). An analysis of mental health and substance abuse disparities & access to treatment services in the appalachian region. *National Opinion Research Center*. Retrieved from

[http://www.arc.gov/assets/research_reports/AnalysisofMentalHealthandSubstanceAbuse
Disparities.pdf](http://www.arc.gov/assets/research_reports/AnalysisofMentalHealthandSubstanceAbuseDisparities.pdf)

Appendix A

Demographics

How do you self-identify your gender?

- Female
- Transgender Female
- Gender Queer
- Other (please specify)

What is your current age? ____

Race/Ethnicity (check all that apply):

- Alaskan/Native American
- African American/Black
- Asian
- Caucasian/White
- Hispanic
- Other

Sexual orientation:

- Lesbian
- Bi-sexual
- Pansexual
- Asexual/Nonsexual
- Other, Please Specify: _____

Current religious identification:

- Catholic
- Baptist
 - Southern Baptist
- Muslim
- Buddhist
- Hindu
- Jewish
- Other (Christian)
- Other (Non-Christian)
- Spiritual – religious
- Spiritual – Not religious
- Atheist
- Not religious

Appendix B

Concealment Subscale of Short form LIHS (modified; Szymanski & Chung, 2001)

Please indicate your agreement or disagreement with each of the following statements by writing in the appropriate number from the scale below. There are no right or wrong answers; however, for the data to be meaningful, you must answer each statement given below as honestly as possible. Your responses are completely anonymous. Please do not leave any statement unmarked. Some statements may depict situations that you have not experienced; please imagine yourself in those situations when answering those statements.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Neutral	Slightly Agree	Moderately Agree	Strongly Agree
1	2	3	4	5	6	7
1.	I try not to give signs that I am a sexual minority woman. I am careful about the way I dress, the jewelry I wear, the places, people and events I talk about.					
8.	I wouldn't mind if my boss knew that I was a sexual minority woman.					
14.	I feel comfortable talking to my heterosexual friends about my everyday home life with my same sex partner/lover or my everyday activities with my lesbian friends.					
18.	It is important for me to conceal the fact that I am a sexual minority woman from my family.					
19.	I feel comfortable talking about homosexuality in public.					
22.	I do not feel the need to be on guard, lie, or hide my sexual orientation to others.					
24.	When speaking of my same sex lover/partner to a straight person I change pronouns so that others will think I'm involved with a man rather than a woman.					
26.	If my peers knew my sexual orientation, I am afraid they would not want to be friends					
32.	I act as if my lesbian lovers are merely friends.					
34.	I could not confront a straight friend or acquaintance if she or he made a homophobic or heterosexist statement to me.					

Appendix C

Internalized Stigma Subscale of Short form LIHS (modified; Szymanski & Chung, 2001)

Please indicate your agreement or disagreement with each of the following statements by writing in the appropriate number from the scale below. There are no right or wrong answers; however, for the data to be meaningful, you must answer each statement given below as honestly as possible. Your responses are completely anonymous. Please do not leave any statement unmarked. Some statements may depict situations that you have not experienced; please imagine yourself in those situations when answering those statements.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Neutral	Slightly Agree	Moderately Agree	Strongly Agree
1	2	3	4	5	6	7

2. I can't stand women who are too "butch".
4. I hate myself for not being heterosexual.
5. I believe female homosexuality is a sin.
21. If I could change my sexual orientation and become heterosexual, I would.
25. Being a sexual minority woman makes my future look bleak and hopeless.

Appendix D

Connectedness to the LGBT Community Scale (Frost & Meyer, 2012)

Please indicate to which extent you agree with each statement.

1=Agree strongly

4=Disagree strongly

1. You feel you're a part of your city's LGBT community.
2. Participating in your city's LGBT community is a positive thing for you.
3. You feel a bond with the LGBT community.
4. You are proud of your city's LGBT community.
5. It is important for you to be politically active in your city's LGBT community.
6. If we work together, gay, bisexual, lesbian, and transgender people can solve problems in your city's LGBT community.
7. You really feel that any problems faced by your city's LGBT community are also your own problems.
8. You feel a bond with other people of the same sexual orientation.

Appendix E

Alcohol Frequency

People have various health habits. The following set of questions ask about your alcohol, caffeine, nicotine, and some medications, past and current. Please indicate, on average, how often you have used each of the following substances:

Daily (7)	2-3	Once a	2-3	Once a	Several	Once a	Never (0)
	Times a	Week (5)	Times a	Month	Times a	Year or	
	Week (6)		Month	(3)	Year (2)	Less (1)	
			(4)				

1. Alcohol (e.g., beer, wine, liquor, mixed drinks)

Appendix F

AUDIT-5 (Kim et al., 2013)

Place an X in one box that best describes your answer to each question.

Question	0	1	2	3	4
How many drinks containing alcohol do you have on a typical day when you are drinking?	1 or 2	3 or 4	5 or 6	7 to 9	10 or more
How often during the last year have you found that you were not able to stop drinking once you had started?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
How often during the last year have you failed to do what was normally expected of you because of drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
Have you or someone else been injured because of your drinking?	No		Yes, but not during the last year		Yes, during the last year
Has a relative, friend, doctor, or other health care worker been concerned about your drinking or suggested you cut down?	No		Yes, but not during the last year		Yes, during the last year

Appendix G

Drinking Motives Questionnaire (Cooper, 1994)

Thinking of all the times you drink, how often would you say you drink for all of the following reasons? (1= *almost never/never*, 2= *some of the time*, 3= *half of the time*, 4= *most of the time*, 5= *almost always/always*)

1. To forget your worries.
3. Because it helps you enjoy a party.
4. Because it helps you when you feel depressed or nervous.
5. To be sociable.
6. To cheer you up when you are in a bad mood.
11. Because it makes social gatherings more fun.
14. Because it improves parties and celebrations.
15. Because you feel more self-confident and sure of yourself.
16. To celebrate a special occasion with friends.
17. To forget about your problems.

VITA

SARAH A. JOB

- Education: B.S. Psychology, Tennessee Tech University, Cookeville,
Tennessee, 2016
M.A. Psychology, concentration in Experimental Psychology, East
Tennessee State University, Johnson City, Tennessee, 2018
- Professional Experience: Graduate Assistant, Social Issues and Relations Lab, East
Tennessee State University, Johnson City, Tennessee, 2016-
2018
- Honors and Awards: Graduate Student Excellence in Research Award, M.A. Level.
Department of Psychology, East Tennessee State
University, Johnson City, Tennessee, 2018.
Richard Toelstrup Outstanding Student Award.
Department of Counseling and Psychology, Tennessee Tech
University, Cookeville, Tennessee, 2016.
W. A. Howard Award.
College of Arts and Sciences, Tennessee Tech University,
Cookeville, Tennessee, 2016.