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A Daily Diary Examination of Microaggressions and Alcohol Use Among Emerging Adult Bisexual Women: The Role of Alcohol Demand

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A DAILY DIARY EXAMINATION OF MICROAGGRESSIONS AND ALCOHOL USE AMONG EMERGING ADULT BISEXUAL WOMEN: THE ROLE OF ALCOHOL DEMAND

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ABSTRACT

A DAILY DIARY EXAMINATION OF MICROAGGRESSIONS AND ALCOHOL USE AMONG EMERGING ADULT BISEXUAL WOMEN: THE ROLE OF ALCOHOL DEMAND

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Old Dominion University, 2020
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Bisexual women are at far greater risk for alcohol use, alcohol-related negative consequences, and alcohol use disorder than heterosexual or lesbian women. However, research on sexual minority women often combines lesbian and bisexual women into a single group. One possible explanation for the increased alcohol use and associated consequences among bisexual women relates to their experiences of discrimination or microaggressions that are daily insults and comments, intentional or unintentional, about their sexuality from both the heterosexual and sexual minority communities. Thus, it is possible that bisexual women drink to cope with microaggressions. Specifically, bisexual women may drink more and have more alcohol consequences on days when they experience more microaggressions. There may also be individual differences that influence the association between microaggressions and alcohol use and alcohol-related negative consequences. Behavioral economic theory has been applied to examine alcohol demand, which in turn has been shown to be associated with drinking. Therefore, the current study incorporated an Alcohol Purchase Task (APT) to examine alcohol demand indices as a factor that potentially strengthens the relationship between microaggressions and drinking among bisexual women. The current study had two goals: (1) to examine the associations between drinking to cope motives, daily microaggressions, and same-day alcohol use and alcohol-related negative consequences among bisexual women, and (2) to examine if alcohol demand indices moderate the association between daily microaggressions and same-day

alcohol use and alcohol-related negative consequences among bisexual women. A total of 103 emerging adult bisexual women completed a baseline and 28-day daily diary survey. Results indicated that daily microaggressions were associated with same day alcohol use and consequences. Although drinking to cope motivations did not moderate this association, several alcohol demand indices (intensity and breakpoint) moderated the association between microaggressions and same-day alcohol use and/or consequences. Specifically, the association between daily microaggressions and same day alcohol consequences was strongest for those with higher intensity. Also, daily microaggressions were associated with same day alcohol use and consequences for those with lower breakpoint values, but not higher breakpoint values. Results suggest that microaggressions may be one reason for the high rates of drinking among bisexual women. Clinicians should encourage clients who report microaggression experiences to engage in positive coping skills that do not involve alcohol use, and could incorporate an alcohol purchase task into their intake information. In addition, at a larger level, public health campaigns can be implemented to raise awareness about microaggressions and policies can be enacted to discourage microaggressions.

This dissertation is dedicated to my mom, husband, and son

for their continuous love and support.

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CHAPTER I

INTRODUCTION

It is widely documented that compared to lesbian and heterosexual women, bisexual women are at greater risk for alcohol use and alcohol-related negative consequences (Conron, Mimiaga, & Landers, 2010; Gonzales, Przedworski, & Henning-Smith, 2016; Kerr, Ding, Burke, & Ott-Walter, 2015; Parnes, Rahm-Knigge, & Conner, 2017; Ward, Dahlhamer, Galinsky, & Joestl, 2014). However, researchers often combine lesbian and bisexual women into a single sexual minority group (Institute of Medicine, 2011) potentially masking important differences that could explain risky drinking between those with different sexual orientation identities. One possible explanation for the increased alcohol use and associated consequences among bisexual women relates to minority stress theory (Meyer, 2003) and more specifically experiences of microaggressions. Microaggressions are daily insults and comments, intentional or unintentional, about bisexuality both from the heterosexual and sexual minority communities (Nadal, 2013). Consistent with motivational models of alcohol use, bisexual women may drink to alleviate negative psychological distress associated with experiencing microaggressions. Greater daily stress is associated with higher same-day alcohol use (e.g., Aldridge-Gerry et al., 2011; Grzywacz & Almeida, 2008), but there is a gap in the literature about the role of microaggressions on same day drinking among bisexual women.

Individual differences may also influence the association between microaggressions and alcohol use. By employing the Alcohol Purchase Task (APT; see Kaplan et al., 2018 for a review) behavioral economic theory has been applied to understand the decision-making process to drink (Bickel & Vuchinich, 2000). Indices derived from the APT are associated with alcohol use and alcohol-related negative consequences (Murphy et al., 2013; Tripp et al., 2015; Yurasek

et al., 2011). To date, no research has examined the association between indices from the APT and drinking among young bisexual women. Therefore, the proposed research aimed to develop a better understanding about how both between subject differences (e.g., drinking to cope motives, APT indices) as well as how daily microaggressions may impact alcohol use and alcohol-related negative consequences among emerging adult bisexual women using a 28-day daily diary design.

Alcohol Use among Emerging Adult Bisexual Women

Prevalence estimates indicate that bisexual women are more likely to drink, binge drink (i.e., four or more drinks in about two hours), and be diagnosed with an alcohol use disorder (AUD) compared to both heterosexual and lesbian women (Conron et al., 2010; Gonzales et al., 2016; Kerr et al., 2015; Kerridge et al., 2017; Parnes et al., 2017; Ward et al., 2014). For instance, results from the Behavioral Risk Factor Surveillance Survey (BRFSS) revealed that 25 percent of adult bisexual women reported binge drinking in the past month. This rate for bisexual women was significantly higher than that for heterosexual women (11%) and although not statistically compared to lesbian women, was descriptively higher (22%; Fish, Hughes, & Russell, 2018). Similarly, findings from the 2012 to 2013 National Epidemiologic Survey on Alcohol and Related Conditions-III revealed that bisexual adult women were twice as likely as heterosexual women to be diagnosed with an AUD in the past year (Kerridge et al., 2017). Additionally, prevalence estimates from the National Alcohol Survey revealed that compared to heterosexual and lesbian women, a higher percentage of bisexual women reported hazardous drinking and at least one alcohol dependence symptom in the past year (Drabble, Trocki, & Klinger, 2016). Despite these notable disparities, the majority of research studies have combined lesbian and bisexual women into a single group (Institute of Medicine, 2011). Consolidating

sexual minority women into a single group may mask individual differences that could explain why bisexual women drink more than lesbian women. Consequently, there has been a call to examine lesbian and bisexual women separately (Institute of Medicine, 2011) to identify unique risk factors that may influence risky drinking among bisexual women.

Emerging adulthood (18 to 25 years old) is a time when risky drinking (i.e., binge drinking, and heavy drinking, which is defined as binge drinking on five or more days in the past month) is most common (Center for Behavioral Health Statistics and Quality, 2018; Grant et al., 2015). Findings from the 2017 National Survey on Drug Use and Health showed that 55, 35, and 8 percent of emerging adult women reported alcohol use, binge drinking, and heavy alcohol use in the past month, respectively (Center for Behavioral Health Statistics and Quality, 2018). Among a large sample of emerging adult undergraduate students, 68 percent of bisexual women reported drinking in the past 30 days, which was significantly higher than rates for lesbian (60 percent) and heterosexual (58 percent) women (Kerr, Ding, & Chaya, 2014). Findings from the same study revealed that bisexual women were nearly twice as likely as lesbian and heterosexual emerging adult women to report any alcohol consequences (e.g., sexual consequences) in the past 30 days (Kerr et al., 2014). Additionally, results from the 2015 and 2016 National Survey on Drug Use and Health found that compared to emerging adult heterosexual women, bisexual women were more likely to report binge drinking in the past month (Schuler, Rice, Evans-Polce, & Collins, 2018). Although considerable research has examined the etiology of risky drinking among emerging adults, few studies have focused solely on bisexual women, or risk factors uniquely relevant to bisexual women, who are at greatest risk for problematic alcohol use (Conron et al., 2010; Gonzales et al., 2016; Kerr et al., 2015; Kerridge et al., 2017; Parnes et al., 2017).

A nationally representative sample revealed that bisexual behavior (i.e., sex with both men and women) has increased over the past four decades, particularly for women (Twenge, Sherman, & Wells, 2016). Further, women 18 to 24 years old were more likely to identify as bisexual than women 25 to 44 years old (Copen, Chandra, & Febo-Vazquez, 2016) suggesting that emerging adult women may be more likely than older women to identify as bisexual. Emerging adulthood may be a developmental period when bisexual women experience unique stressors related to their sexual orientation identity that may contribute to increased drinking. Thus, emerging adulthood may be a critical time to intervene in order to prevent future problems such as alcohol use disorder among bisexual women. Without additional research that explains contributing factors to risky drinking among emerging adult bisexual women, generic alcohol prevention and intervention programs may not be efficacious with this high-risk group.

Theoretical Overview

Minority stress theory. As compared to heterosexual men and women, research has shown that LGBTQ adolescents and adults have higher rates of physical and psychological health problems (Grant et al., 2014; Hughes, Johnson, Steffen, Wilsnack, & Everett, 2014; Kerr et al., 2013; Mustanski, Garofalo, & Emerson, 2010). For example, results from the National Health and Nutrition Examination Survey revealed that compared to heterosexual adult women, sexual minority women were more likely to have HIV, Hepatitis C, gonorrhea, and reported a greater number of days of poor mental health in the past month (Operario et al., 2015). Moreover, approximately 47 percent of bisexual women report any past year mental health problem which is higher than rates for lesbian (36 percent) and heterosexual (23 percent) women (Bostwick, Boyd, Hughes, West, & McCabe, 2014). In part, these increased health problems for

sexual minority women may be associated with stigma and discrimination attributed to their sexual orientation.

Consistent with minority stress theory, lesbian and bisexual women may experience discrimination related to their sexual orientation identity which increases psychological distress (Meyer, 2003). Meyer (2003) originally developed the minority stress model which provided a novel framework to explain psychopathology among sexual minority individuals. According to the minority stress model there are two types of discrimination or stressors that sexual minority women may experience that could influence psychological functioning. First, distal stressors are objective events that do not necessarily depend on a person's appraisal (e.g., discrimination, victimization). Research among sexual minority individuals has shown that distal stress is positively associated with negative affect, psychological distress, and alcohol misuse (Conlin, Douglass, & Ouch, 2017; Livingston, Christianson, & Cochran, 2016). In addition, in a nationally representative sample of sexual minority women experiencing distal forms of discrimination (e.g., name-calling, discrimination in public) was associated with a greater likelihood of a lifetime diagnosis of a mood disorder including depression and anxiety (Lee et al., 2016). A second type of discrimination are proximal stressors that are subjective and related to self-identity and depend on a person's own appraisal of situations and knowledge of minority status and stigma (e.g., expected rejection, concealment). A daily diary study of sexual minority young adults showed that negative affect increased on days when participants experienced higher than usual internalized stigma and expected discrimination (Mohr & Sarno, 2016). When a person experiences stigmatization or discrimination (e.g., distal stress) they may fear and expect rejection from that same group in the future (e.g., proximal stress). In turn, both types of stressors can precede psychological distress.

Hatzenbuehler (2009) extended the minority stress model by developing an integrated psychological mediation framework to include pathways that link stigma-related and general stressors to psychopathology. The psychological mediation framework provides potential individual differences or mechanisms that clinicians can target when working with clients who have experienced discrimination. One mediator that Hatzenbuehler (2009) proposed to explain the relationship between discrimination and psychological problems was coping motives. This framework argues that experiencing discrimination may trigger maladaptive coping which can cause negative mental health problems. As noted by Hatzenbuehler (2009), the psychological mediation framework aims to determine reasons why minority stress may impact psychological functioning. In contrast, the minority stress model proposed by Meyer (2003) offers a model to examine variables that may strengthen or weaken the association between discrimination related to one's sexual orientation and psychopathology.

Similar to limitations noted previously, the majority of prior research has examined sexual minority stress among sexual minority individuals as a single group. Results have consistently suggested that sexual minority men and women who experience more sexual minority stress have worse mental health outcomes (Lea, de Wit, & Reynolds, 2014; Lehavot & Simoni, 2011; Lewis, Mason, Winstead, Gaskins, & Irons, 2016; Szymanski, Dunn, & Ikizler, 2014). Specific for this project, minority stress is associated with hazardous drinking (Livingston et al., 2016) and AUD in the past year (Slater, Godette, Huang, Ruan, & Kerridge, 2017) among sexual minority individuals. Additionally, among a sample of emerging adult self-identified lesbian and bisexual women, minority stress was associated with alcohol consequences one year later (Wilson, Gilmore, Rhew, Hodge, & Kaysen, 2016). Therefore, sexual minority stress may influence drinking and have long-term interpersonal and health consequences among

sexual minority women. However, examining all sexual minority individuals or lesbian and bisexual women as a single group limits our knowledge of psychosocial differences between those with different sexual orientation identities.

Bisexual women may experience the highest rates of sexual minority stress. Specifically, due to their attraction to, and relationships with men and women, bisexual women may experience discrimination from both heterosexual and sexual minority individuals. This "double discrimination" is also termed binegativity. For example, bisexual men and women aged 18 to 35 reported higher levels of internalized negativity about their sexual identity (i.e., proximal stress), relative to lesbian and gay individuals (Hequembourg & Dearing, 2013). Binegativity is also associated with greater psychological distress and substance use among adult bisexual women (Craney, Watson, Brownfield, & Flores, 2018). Specifically, findings from the 2004 to 2005 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) revealed that sexual orientation based discrimination was associated with a higher likelihood of exceeding the weekly drinking limits (i.e., 14 or more drinks for men, 7 or more drinks for women) among bisexual men and women, but not gay men and lesbian women, or unsure adults (Slater et al., 2017). It could be that bisexual men and women experience more frequent discrimination about their sexual orientation than other adults which influences their alcohol use behaviors. In addition to alcohol use, bisexual women who reported greater stigma from lesbian women and gay men about sexual irresponsibility (e.g., obsessed with sex due to being bisexual) and more hostility (e.g., people not wanting to be their friend because of being bisexual) reported more depressive symptoms (Dyar, Feinstein, & London, 2014). Similarly, among bisexual women, binegativity from heterosexual individuals as well as lesbian women and gay men was associated with more depressive symptoms, alcohol consequences, and binge drinking (Lambe, Cerezo, &

O'Shaughnessy, 2017; Molina et al., 2015). Collectively results suggest that bisexual women may experience more binegativity which in part may explain why they have high rates of psychological distress and elevated drinking rates.

Microaggressions. A specific form of discrimination that may cause stress are sexual orientation microaggressions which are defined as "brief statements that whether intentional or unintentional, communicate hostile or derogatory heterosexist or homophobic insults toward gay, lesbian, bisexual, and queer people" (Nadal, 2013). Prior research has primarily focused on racial microaggressions (e.g., Sue et al., 2007). However, it is important to examine sexual minority specific microaggressions because they are a widespread problem that are exhibited by family and friends, romantic partners, within society and the media, through religion and the government, in schools, and even within the LGBTQ community (Bostwick & Hequembourg, 2014; Nadal et al., 2011). Sexual minority individuals commonly report feelings of shame, guilt, sadness, anxiety, and depression when they experience microaggressions (Nadal et al., 2011) indicating a need to address these common forms of discrimination to reduce mental health problems. Microaggressions are additive social stressors to everyday stressors that bisexual men and women may experience. Among sexual minority individuals, bisexual men and women are more likely to experience microaggressions than lesbian and gay adults (Sarno & Wright, 2013). Despite these findings, there has been limited research on the psychological impact of microaggressions among bisexual women specifically.

Nadal, Whitman, Davis, Erazo, and Davidoff (2016) described three primary forms of sexual orientation microaggressions. The first are microassaults, which are verbal, demeaning insults that are often unintentionally hurtful. Phrases such as "that's so gay" to describe something as negative are common among youth and on college campuses (Kosciw, Greytak,

Bartkiewicz, Boesen, & Palmer, 2012; Sherriff, Hamilton, Wigmore, & Giambrone, 2011; Woodford, Howell, Silverschanz, & Yu, 2012). For example, in the past 12 months, nearly 65 percent of heterosexual emerging adult male college students reported using the phrase "that's so gay" at least once, and 31 percent reported using this phrase 10 or more times (Woodford, Howell, Kulick, & Silverschanz, 2013). Similarly, among sexual minority college students, approximately 90 percent of students reported hearing the phrase "that's so gay" during the past year with over 40 percent hearing the phrase frequently (Winberg et al., 2018; Woodford et al., 2012). These verbal phrases may be unintentionally harmful to sexual minority people and examples of microassaults which impact mental health functioning. Specifically, hearing the phrase "that's so gay" was associated with social isolation, headaches, having a poor appetite, hazardous alcohol use [as determined by scores greater than eight on the Alcohol Use Disorder Identification Test (AUDIT)], and frequent illicit drug use among sexual minority college students (Woodford et al., 2012).

The second form of microaggressions is microinsults which are statements reiterating stereotypes that marginalize the minority person's identity and may be intended to be a joke but lead to feelings of belittlement. Microinsults may be associated with stereotypes about the sexual behaviors of bisexual women. For example, bisexual men and women believe they (i.e., bisexual individuals) are perceived as being more sexually promiscuous by friends and family and incapable of monogamous relationships (Bostwick & Hequembourg, 2014). These perceptions are supported by research among nonbisexual individuals (e.g., heterosexual individuals, gay men, lesbian women) which has shown that nearly 20 percent agree with the statements that "bisexual women are incapable of being faithful in a relationship" and "bisexual women would have sex with just about anyone" (Dodge et al., 2016). In a separate study, after

reading a vignette about two characters on a date, heterosexual participants rated a bisexual woman as being more sexually promiscuous than a nonbisexual woman (Zivony & Saguy, 2018). In part, stereotypes that bisexual women are sexually promiscuous may reflect how they are portrayed in the media (Nadal et al., 2011). These portrayals of bisexual women in the media represent a form of distal discrimination which may impact stereotypes and how people interact with bisexual women. However, not all perceptions about bisexual women being sexually promiscuous may be interpreted as negative. For instance, heterosexual men hold more favorable attitudes about bisexual women than bisexual men which is partially explained by higher ratings of arousal to images of a woman having sex with another woman (Yost & Thomas, 2012). Although heterosexual men may hold positive attitudes about bisexual women, this may be due to stereotypes that bisexual women are sexually promiscuous and may engage in sexual interactions with other women which they find to be sexually arousing. Qualitative research reveals that bisexual women acknowledge the heterosexual male fantasy of two women engaging in sexual interactions for his pleasure (Wandrey, Mosack, & Moore, 2015) suggesting that they may be skeptical of the intensions of heterosexual males when developing relationships with them. That is, bisexual women may be cautious because they think men are only interested in them to fulfill sexual fantasies. These examples of microinsults from nonbisexual men and women may complicate the process of coming out and have negative psychological implications for bisexual women (e.g., McLean, 2007).

The third form of microaggressions is microinvalidations which are statements that negate the feelings of importance or harmfulness of the marginalized group. For instance, claiming that bisexual identity is just a ‘phase’ or promoting monosexuality are common microinvalidations that bisexual women experience (Bostwick & Hequembourg, 2014).

Research among heterosexual men and women has shown that they rate characters portrayed as bisexual as more confused about their sexual identity, relative to characters portrayed as nonbisexual (Zivony & Saguy, 2018). Some bisexual adults are reluctant to even identify as bisexual because they are aware that other individuals may view bisexuality as an illegitimate sexual orientation (Brownfield, Brown, Jeevanba, & VanMattson, 2018). This fear of disclosing their bisexual identity may be similar to proximal stress and increase psychological distress.

To date, the only study to examine the influence of daily microaggressions on same-day psychological outcomes among young adult bisexual men and women found that on days when participants experienced more microaggressions they also reported greater feelings of anxiety (Flanders, 2015). Thus, microaggressions may be negative experiences that result in psychological distress. Emerging adulthood may also be an important age when people experience microaggressions. Although not studied specific for microaggression experiences, perceived discrimination from adults increased throughout adolescents (i.e., high school) for minority students (Black, Latino, and Asian American students) suggesting that as they entered emerging adulthood they experienced more discrimination (Greene, Way, & Pahl, 2006). Additionally, Hispanic youth who experienced increasing levels of discrimination into emerging adulthood were at higher risk of substance use (including alcohol) than those with low and stable experiences of discrimination (Unger, Soto, & Baezconde-Garbanati, 2016). Specific for the current study, bisexual women may have elevated drinking rates due to experiencing more microaggressions during emerging adulthood than other women. A recent cross-sectional study of emerging adult sexual minority individuals found that experiencing sexual orientation microaggressions more frequently was positively associated with alcohol use and alcohol-related consequences (Kalb et al., 2018). However, it is unknown how microaggressions impact same-

day alcohol use among emerging adult bisexual women. Livingston (2017a) highlighted the importance of examining within-person effects of microaggressions on substance use using daily diary designs rather than retrospective reports to capture these behaviors as close to "in the moment" as possible. Microaggressions may fluctuate rapidly from day-to-day, suggesting that these dynamic forms of discrimination should be examined daily to determine the immediate and the cumulative impact on drinking behavior among young bisexual women. For instance, it may be that experiencing more forms of microaggressions is associated with greater alcohol use the same day, or the same week.

Drinking to cope motivations. Motivational models of alcohol use suggest that people drink to regulate negative moods (Cooper, Frone, Russell, & Mudar, 1995). For instance, daily diary studies have shown that on high stress days participants report higher levels of drinking (Aldridge-Gerry et al., 2011; Grzywacz & Almeida, 2008). These findings support the notion that alcohol may be used as a coping mechanism to alleviate negative affect that arises from stressful situations. Prior research has also shown that people who endorse higher drinking to cope motivations report greater alcohol frequency, quantity, and alcohol-related negative consequences (Hasking, Lyvers, & Carlopio, 2011; Kuntsche, Knibbe, Gmel, & Engels, 2005; Merrill & Read, 2010; Mohr et al., 2005; Ostafin & Brooks, 2011; Rice & Van Arsdale, 2010). Among undergraduate college students, compared to those who reported low drinking to cope motivations, participants who reported high drinking to cope motivations had stronger implicit cognitions to use alcohol after a negative mood induction (Ostafin & Brooks, 2011). As such, those who hold higher drinking to cope motivations may be the most likely to drink or have more alcohol-related problems when they experience stress. Further, alcohol may be used as a maladaptive coping mechanism to reduce negative affect. When measured at baseline, drinking

to cope motives strengthened the association between negative affect and same day alcohol use among college student and community samples (Grant, Stewart, & Mohr, 2009; Mohr et al., 2005; Simpson, Stappenbeck, Luterek, Lehavot, & Kaysen, 2014), however, no studies have examined this relationship for emerging adult bisexual women. Despite this limitation, Bostwick and colleagues (2007) found that there were no differences for drinking to cope motivations between heterosexual and bisexual women. Although differences between heterosexual and bisexual women on drinking to cope motivations were minimal, bisexual women may face more frequent microaggressions than other women which increases the likelihood that they will consume alcohol if they have high drinking to cope motivations.

Qualitative studies of sexual minority women (lesbian, bisexual, and queer) reveal that one of the main reasons for drinking is to cope with stress and discrimination related to their sexual identity (Condit, Kitaji, Drabble, & Trocki, 2011; McNair et al., 2016). Consistent with research among presumably heterosexual samples (e.g., Grant et al., 2009; Mohr et al., 2005; Simpson et al., 2014), emerging adult sexual minority women who held higher drinking to cope motivations reported greater alcohol use (Dworkin et al., 2018). Similarly, expectations that alcohol would relieve negative and depressed moods was associated with a higher likelihood of engaging in heavy episodic drinking (i.e., six or more drinks on a single occasion) in the past year among lesbian and bisexual adult women (Fish & Hughes, 2018). However, there remains a critical gap about the daily associations and individual differences of specific reasons why bisexual women, separate from lesbian women, may engage in the most risky drinking. It could be that on days when bisexual women experience more microaggressions they may drink more or experience more alcohol-related consequences, and this relationship may be stronger for bisexual women who report higher motivations to drink to alleviate negative moods.

Behavioral economic theory. Behavioral economic theory integrates components from psychology and microeconomics to understand the decision-making process to drink (Bickel & Vuchinich, 2000). There are many reinforcers in the environment that may influence psychological and behavioral outcomes (e.g., mood, continued alcohol use). Alcohol is one reinforcer. According to behavioral economic theory, problematic drinkers may allocate more resources (e.g., time, money) to obtaining alcohol (reinforcer) relative to other reinforcers available in their environment. One component of behavioral economics is demand. In terms of alcohol use, demand can be conceptualized as the motivation to consume alcohol. At low costs, there may be little change in reported alcohol consumption (i.e., inelastic demand), but as cost increases reported consumption may decrease and eventually become zero (i.e., elastic demand). As such, problematic drinkers may have less change in their reported consumption despite increasing costs (i.e., inelastic demand) due to higher motivations to consume alcohol. Moreover, a demand curve can be estimated that quantifies the change in reported consumption as a function of increasing price. Thus, greater alcohol demand reflects stronger motivations to drink.

The Alcohol Purchase Task (APT) is one measure used to examine the relationship between the cost of alcohol and reported consumption (i.e., alcohol demand; Murphy & MacKillop, 2006; Murphy, MacKillop, Skidmore, & Pederson, 2009; Kaplan et al., 2018; Kiselica, Webber, & Bornovalova, 2016). Researchers have generated alcohol demand curves by using laboratory studies of in-vivo alcohol consumption (e.g., Amlung, Acker, Stojek, Murphy, & MacKillop, 2012; Amlung & MacKillop, 2015) as well as hypothetical self-report scenarios such as the APT (e.g., Hochester, Block-Lerner, Marks, & Erblich, 2018; Murphy et al., 2009). Findings from these studies have shown that results are similar for in-vivo and

hypothetical situations (e.g., Amlung et al., 2012; Amlung & MacKillop, 2015) suggesting that the APT is a valid measure of alcohol demand. The APT provides a hypothetical scenario, typically about a party or bar, and asks participants to estimate how many drinks they would consume at a variety of prices. Greater alcohol demand is reflected by high maximum consumption and monetary expenditures and by minimal changes in reported consumption of alcohol as price increases (i.e., inelastic demand). Several demand indices can be derived from the APT. Intensity is the number of drinks consumed when the cost is $0 (free). Breakpoint is the first increment of cost when the participant enters a consumption value of 0 (i.e., no alcohol consumption). Omax is the greatest expenditure (i.e., when [cost * reported consumption] is highest). Finally, elasticity is the sensitivity of reported alcohol consumption as cost increases and is represented by the demand curve.

Findings reveal that APT demand indices are associated with greater alcohol use and alcohol-related negative consequences (Murphy et al., 2013; Tripp et al., 2015; Yurasek et al., 2011). Among a community sample (age 21 to 45) of heavy drinkers (i.e., 14 or more drinks per week for men, 7 or more drinks per week for women), intensity, breakpoint, and Omax increased following a stress induction task (Amlung & MacKillop, 2014). Similarly, among non-treatment seeking heavy (i.e., AUDIT scores greater than or equal to 8) adult drinkers, those who imagined a stressful situation reported greater alcohol demand than those who imagined a neutral situation (Owens, Ray, & MacKillop, 2015). Given this conceptual understanding, alcohol demand may be an implicit measure of alcohol reward or motivation to drink to alleviate negative moods due to stressful situations.

Alcohol demand indices are also predictive of drinking at follow-up. For instance, among college students who completed a brief motivational interview treatment study for

drinking, baseline alcohol intensity was associated with greater drinking and alcohol problems at the one-month follow-up (Murphy et al., 2015). In a similar study of risky drinking college students, alcohol demand predicted heavy drinking six months after a brief intervention (MacKillop & Murphy, 2007), suggesting that alcohol demand indices may produce implicit measures of reward that self-report or diagnostic criteria are unable to capture. Thus, an APT could be incorporated into intervention and prevention programs as a screening tool to assess for those who may be at the greatest risk for alcohol problems. This knowledge could help identify emerging adult bisexual women who may benefit from more intensive programs aimed at enhancing emotion regulation skills to cope with microaggressions (i.e., stress), and reduce problematic drinking.

Summary

Given the overwhelming evidence that young adult bisexual women are much more likely to engage in risky drinking than their lesbian and heterosexual peers (Conron et al., 2010; Gonzales et al., 2016; Kerr et al., 2015; Kerridge et al., 2017), there is a critical need to develop a better understanding of reasons for these disparities among this group. One critical gap in the literature is the lack of research that examines bisexual women separately from lesbian women (e.g., Institute of Medicine, 2011). Collectively, the reviewed literature suggests that bisexual women may experience binegativity in the form of microaggressions (e.g., Nadal et al., 2013) which may account for the increased drinking rates. Moreover, behavioral economic theory may provide evidence of an important individual difference that could also impact alcohol use. That is, alcohol demand may represent an implicit measure of drinking to cope motivations (e.g., Amlung & MacKillop, 2014; Owens et al., 2015) which could strengthen the association between microaggressions and alcohol use. Finally, a major limitation of prior research is the

lack of knowledge about how daily experiences of microaggressions impact same day alcohol use and related negative consequences (Livingston, 2017a).

Study Purpose

The primary purpose of this study was to examine the daily associations of microaggressions and same-day alcohol use or alcohol-related negative consequences using a 28-day daily diary survey. A daily diary design allowed for less recall bias by inquiring on events that occurred the day before (Gmel & Daeppen, 2007). A secondary goal of the study was to examine factors (i.e., drinking to cope motives, alcohol demand) that may strengthen the association between microaggressions and alcohol use or alcohol-related negative consequences. Participants reported drinking to cope motivations and completed an APT to measure alcohol demand at an initial baseline assessment. Further, participants were asked to report on their microaggression experiences, alcohol use, and alcohol-related negative consequences on each day of the 28-day daily diary period.

This study is significant because it was the first to examine daily levels of microaggressions and alcohol use and negative consequences among bisexual women, and to determine if alcohol demand is an important individual factor that impacts drinking among bisexual women. This study used an integrative framework of minority stress theory and behavioral economic theory to examine alcohol use and consequences among bisexual women who are an at-risk group for alcohol problems (e.g., Kerridge et al., 2017). Findings from this study provide critical and potentially novel information about why bisexual women engage in greater risky drinking. For example, behavioral economic paradigms can be integrated into clinical settings and public health interventions as an easily administered assessment tool (e.g., an APT) to identify individuals at risk for alcohol problems.

Specific Aims

Aim 1. Aim 1 was to examine if daily microaggressions are associated with same-day alcohol use and consequences among emerging adult bisexual women. Consistent with minority stress theory (Meyer, 2003), microaggressions may negatively influence psychological functioning including alcohol use. Prior research has shown that sexual minority stress is associated with greater alcohol use and related problems (Livingston et al., 2016; Slater et al., 2017). Further, a recent daily diary study found that microaggressions were associated with greater psychological distress on the same day among a sample of bisexual men and women (Flanders, 2015). Despite wide documentation that emerging adults (Center for Behavioral Health Statistics and Quality, 2018; Grant et al., 2015) and bisexual women (Conron et al., 2010; Gonzales et al., 2016; Kerr et al., 2015; Kerridge et al., 2017; Parnes et al., 2017; Ward et al., 2014) drink more than other age and sexual identity groups, little research has examined daily factors that may influence alcohol use and negative consequences. Thus, the first aim was to examine the daily associations of microaggression experiences on same day alcohol use and alcohol-related consequences, controlling for the aggregated number of microaggressions experienced during the study.

Hypothesis 1a. It was hypothesized that on days when emerging adult bisexual women experienced more microaggressions they would drink more than on days when they experienced fewer microaggressions, controlling for aggregate microaggressions.

Hypothesis 1b. It was hypothesized that on days when emerging adult bisexual women experienced more microaggressions they would experience more alcohol related negative consequences than on days when they experienced fewer microaggressions, controlling for aggregate microaggressions.

Aim 2. Aim 2 was to examine if drinking to cope motivations moderate the association between daily microaggressions and same day alcohol use and consequences among emerging adult bisexual women. Numerous studies have documented the association between drinking to cope motivations and increased alcohol use (e.g., Hasking et al., 2011; Kuntsche et al., 2005; Merrill & Read, 2010; Mohr et al., 2005; Ostafin & Brooks, 2011; Rice & Van Arsdale, 2010) which is consistent with motivation models of alcohol use (Cooper et al., 1995). Additionally, sexual minority women cite drinking to cope with stressors and discrimination related to their sexual orientation as common reasons for alcohol use (McNair et al., 2016). Although drinking to cope motivations moderated the association between negative affect and same day alcohol use (Grant et al., 2009; Mohr et al., 2005; Simpson et al., 2014), this association has never been examined among a sample of young bisexual women. Thus, this study examined if drinking to cope motivations strengthened the association between daily microaggressions and alcohol use and related consequences among emerging adult bisexual women, controlling for aggregate microaggressions and baseline drinking to cope motivations. See Figure 1.

Hypothesis 2a. Daily microaggressions would have a stronger association with same day alcohol use among emerging adult bisexual women with greater drinking to cope motivations than those with lower drinking to cope motivations, controlling for aggregate microaggressions and baseline drinking to cope motivations.

Hypothesis 2b. Daily microaggressions would have a stronger association with same day alcohol related negative consequences among emerging adult bisexual women with greater drinking to cope motivations than those with lower drinking to cope motivations, controlling for aggregate microaggressions and baseline drinking to cope motivations.

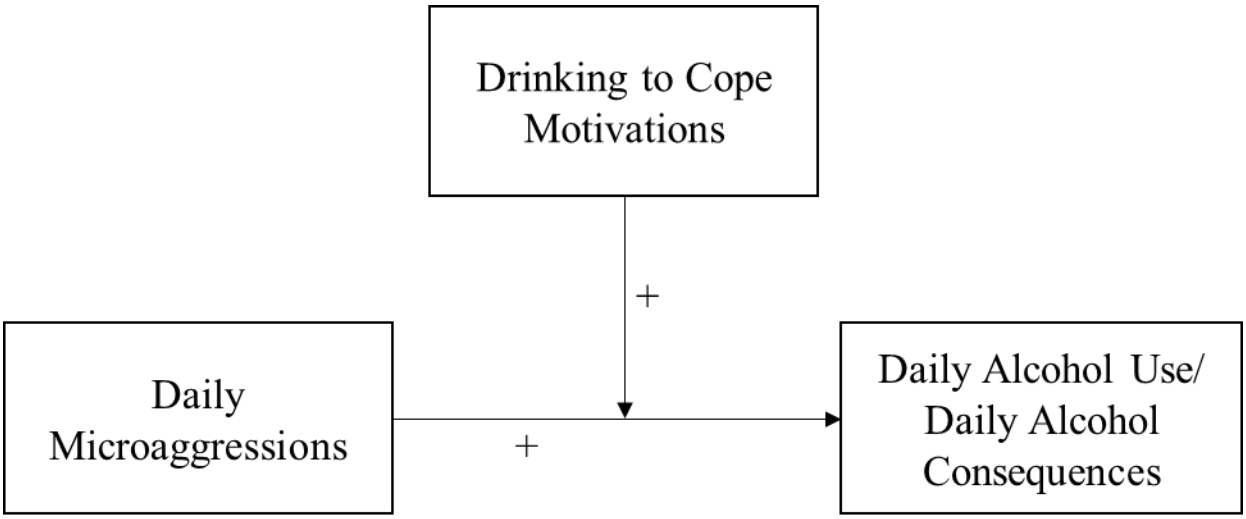

Figure 1. Aim 2: Drinking to cope motivations moderate the association between daily microaggressions and same day alcohol use and alcohol consequences.

Aim 3. Aim 3 was to examine if behavioral economic alcohol demand indices moderate the association between daily microaggressions and same day alcohol use and consequences among emerging adult bisexual women. The APT is a valid measure of alcohol demand, and indices derived from the APT are associated with greater alcohol use and negative consequences (Murphy et al., 2013; Tripp et al., 2015; Yurasek et al., 2011). Similar to drinking to cope motivations, alcohol demand indices are associated with greater alcohol use following a stress induction task suggesting that alcohol demand may represent implicit motives to drink (e.g., Amlung & MacKillop, 2014; Owens et al., 2015). Therefore, this study examined if alcohol demand indices strengthened the association between daily microaggressions and alcohol use and related consequences among emerging adult bisexual women, controlling for aggregate microaggressions and baseline alcohol demand. See Figure 2.

Hypothesis 3a. Daily microaggressions would have a stronger association with same day alcohol use among emerging adult bisexual women with higher alcohol demand than those with lower alcohol demand, controlling for aggregate microaggressions and baseline alcohol demand.

Hypothesis 3b. Daily microaggressions would have a stronger association with same day alcohol related negative consequences among emerging adult bisexual women with higher alcohol demand than those with lower alcohol demand, controlling for aggregate microaggressions and baseline alcohol demand.

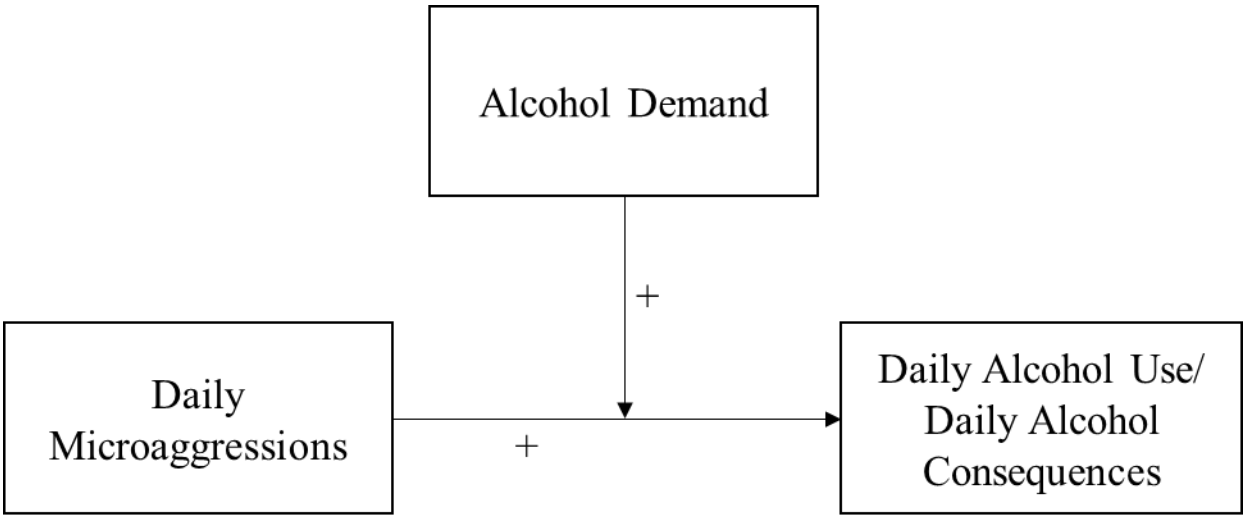

Figure 2. Aim 3: Alcohol demand indices moderate the association between daily microaggressions and same day alcohol use and alcohol consequences.

CHAPTER II

METHOD

Participants

Participants for the current study were recruited primarily from Facebook and other online sources (e.g., Reddit, Tumblr) as well as through Old Dominion University via the psychology participant research pool and student announcements (see Appendix A for recruitment information). Facebook advertisements targeted people living in the United States, were 18 to 25 years old, indicated they were Female in their profile, and matched interests of pansexuality, bisexual community, or LGBT community. Similar to prior research about recruiting hard to reach populations such as sexual minority young adults (Guillory et al., 2018), Facebook advertisements had a brief title (maximum 90 characters) of "Grab coffee on us! Women who drank in past month may be eligible for paid online study" with a link to the screening survey. A longer description about the study was provided after they clicked the survey link. Facebook advertisements reached 23,230 people which resulted in 1,553 link clicks. All other study advertisements provided a brief description that the research study is interested in learning more about daily health behaviors and experiences of young adult women. Specifically, the advertisements included the following information: "Women who are 18 to 25 years old and have drank alcohol in the past 30 days may be eligible for a research survey about daily experiences and health behaviors. Eligible participants will complete a baseline survey, and short daily surveys (5-10 minutes) for 28 consecutive days. All surveys will be completed online. Eligible participants will be compensated up to $38 plus entered into a raffle to win one of four $25 online gift cards." Multiple ways to capture a bisexual identity were measured due to some research suggesting that sexual attraction is stable and perhaps a reliable measure of sexual

identity (Diamond, 2008). Eligible participants were: 1) cisgender female, 2) reported attraction to more than one sex or gender and/or self-identify as bisexual or pansexual, 3) 18 to 25 years old, 4) reported alcohol use at least once per week in the past 30 days, 5) reported at least two binge drinking episodes (4 or more alcoholic drinks over 2 hours) in the past 30 days, and 6) reported experiencing at least one microaggression about their sexual identity per week in the past 30 days.

A total of 910 individuals completed the screening questionnaire (see Figure 3 for CONSORT diagram). Of those who completed the screening, 191 (21.0%) participants were eligible for the current study and 131 (68.6% of those eligible) completed the baseline survey. However, of those who completed the baseline survey 15 participants (11.5%) missed two or more attention checks (out of four attention check items), and after consulting with my dissertation chair, were therefore deemed ineligible for the daily diary part of the study. In addition, there were no differences between those who missed two or more attention checks and those who missed zero or one attention check on several demographic variables including age, $t(129) = 0.38$, $p = .708$, race, $\chi^2(4)= 2.53$, $p = .640$, and employment status, $\chi^2(3)= 4.64$, $p = .201$, suggesting that these groups were demographically similar. This resulted in 116 participants who were eligible and who were contacted for the daily diary portion of the study. Ten (7.6%) participants were unable to be reached because they did not respond to the email to enroll in the daily surveys. Therefore, 106 (80.9%) participants were enrolled in the daily diary portion of the study; however, one participant was unable to receive the daily surveys (i.e., surveys bounced), another participant dropped out of the daily survey portion, and a third participant completed 0 daily surveys. Thus, data presented for this study include 103 emerging adult self-identified bisexual cisgender women who completed at least one daily survey.

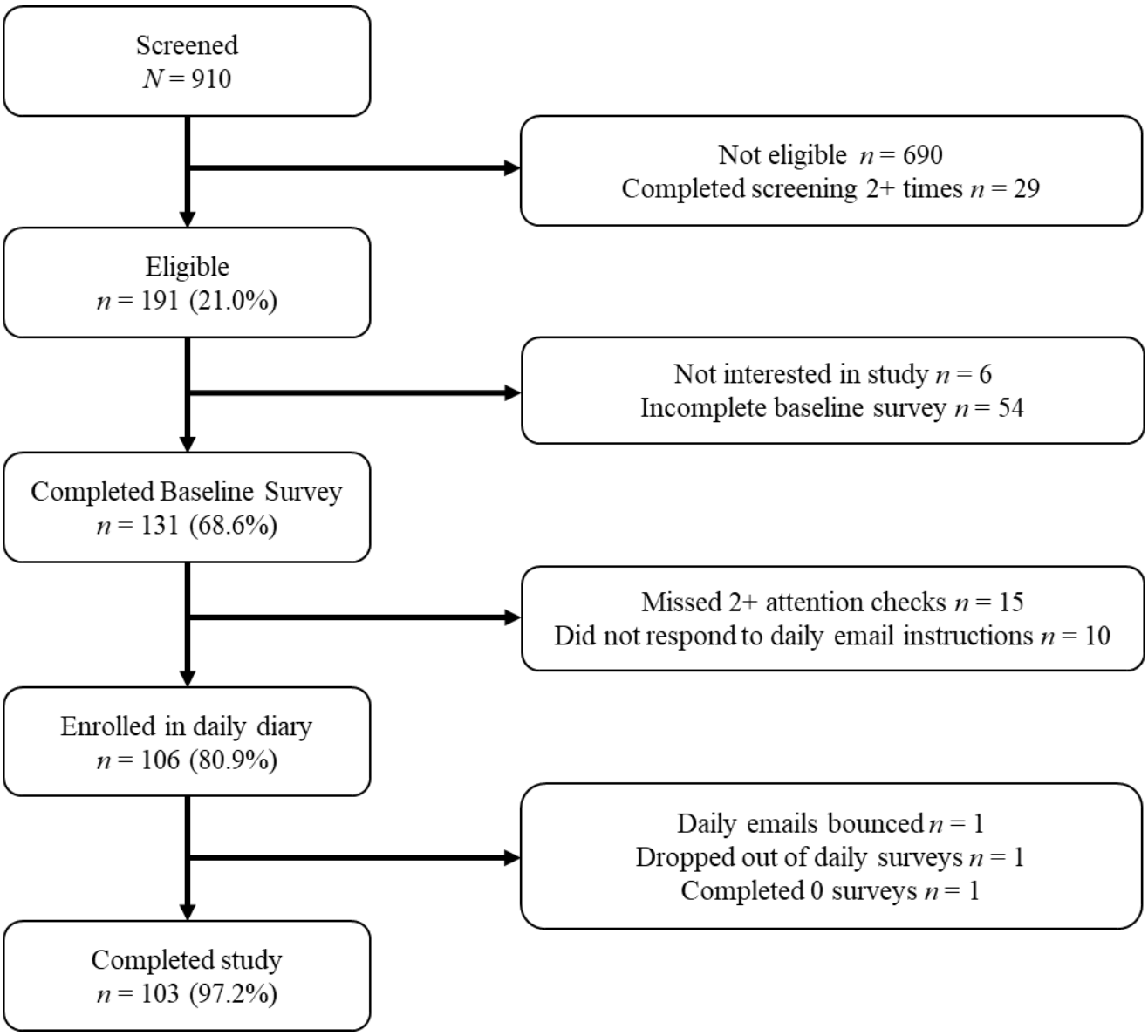

Figure 3. CONSORT diagram for study participants.

Descriptive information for those who completed the baseline only (n = 116) and for those who completed the baseline and daily diary portions of the study (n = 103) are presented in Table 1. In general, those who completed the baseline and daily diary portion of the study were on average 21.94 years old (SD = 1.79), and the majority were White (n = 90; 87.4%), single (n = 65; 63.1%), self-identified as bisexual (n = 73; 70.9%), and were "mostly attracted to women" (n = 52; 50.5%). Chi-square and independent samples t-test analyses were conducted to examine differences between those who completed the baseline only (n = 13) and those that completed the baseline and daily diary surveys (n = 103). An adjusted alpha value ($p < .01$) was used to examine significant differences due to small groups for some of the variables. There were no significant differences between those who completed the baseline only and the baseline and daily diary portion using this adjusted alpha value.

Table 1

Demographic and Sexual Identity Information for Participants who Completed the Baseline and Daily Diary Surveys

Demographic Variables	Completed Baseline *N* = 116	Completed Daily Diary *n* = 103	*p*
Age *M* (*SD*)	21.95 (1.79)	21.94 (1.79)	.913
Race *n* (%)			.085
White	99 (85.3%)	90 (87.4%)	
Black	6 (5.2%)	5 (4.9%)	
Asian	1 (0.9%)	1 (1.0%)	
Multiracial	7 (6.0%)	4 (3.9%)	
Other	3 (2.6%)	3 (2.9%)	
Hispanic (yes) *n* (%)	8 (6.9%)	8 (7.8%)	.298
Employment Status *n* (%)			.647
Unemployed	2 (1.7%)	2 (1.9%)	
Employed part-time	24 (20.7%)	20 (19.4%)	
Employed full-time	39 (33.6%)	34 (33.0%)	
Student	51 (44.0%)	47 (45.6%)	
Relationship Status *n* (%)			.854
Single	73 (62.9%)	65 (63.1%)	
In a relationship	38 (32.8%)	33 (32.0%)	
Married or in a civil union	4 (3.4%)	4 (3.9%)	
Other	1 (0.9%)	1 (1.0%)	
Education Level *n* (%)			.695
Some high school	1 (0.9%)	1 (1.0%)	
High school graduates	18 (15.5%)	17 (16.5%)	
Some college/Associate's degree	58 (50.0%)	51 (49.5%)	
Bachelor's degree	36 (31.0%)	32 (31.1%)	
Master's degree	3 (2.6%)	2 (1.9%)	
Compensated for Baseline *n* (%)			.079
Gift card raffle entry	114 (98.3%)	102 (99.0%)	
Psychology research credit	2 (1.7%)	1 (1.0%)	
Sexual Identity Variables			
Sexual Identity *n* (%)			.014
Heterosexual or straight	7 (6.0%)	5 (4.9%)	
Bisexual	76 (65.5%)	73 (70.9%)	
Pansexual	9 (7.8%)	6 (5.8%)	
Lesbian/Gay	13 (11.2%)	9 (8.7%)	
Queer	8 (6.9%)	7 (6.8%)	
Asexual	2 (1.7%)	2 (1.9%)	
Questioning	1 (0.9%)	1 (1.0%)	
Sexual Attraction *n* (%)			.354

I am only attracted to women	6 (5.2%)	6 (5.8%)	
I am mostly attracted to women	60 (51.7%)	52 (50.5%)	
I am equally attracted to men and women	35 (30.2%)	33 (32.0%)	
I am mostly attracted to men	15 (12.9%)	12 (11.7%)	
Sexual Attraction *M* (*SD*)	63.77 (19.51)	63.66 (18.58)	.902
Age Disclosed Sexual Identity *M* (*SD*)	17.54 (2.69)	17.55 (2.62)	.908
Closet Status *n* (%)			.774
In the closet most of the time	33 (28.4%)	30 (59.1%)	
Half-in and half-out	30 (25.9%)	27 (26.2%)	
Out of the closet most of the time	37 (31.9%)	33 (32.0%)	
Completely out of the closet	16 (13.8%)	13 (12.6%)	

Procedure

Overview. Data collection began in June 2019 and was completed in September 2019. Interested participants first completed an eligibility screen online (see Appendix B). Eligible participants were provided with an informed consent form which informed them that the purpose of the study was to understand daily experiences and health behaviors of young adult women and required completion of an initial survey and brief daily survey for 28 days. After consenting to participate, participants completed a baseline assessment survey. At the conclusion of the baseline assessment participants provided their contact information (e.g., name, email address, and phone number), including their time zone, and indicated if they would like to receive the instructions for part 2 of the study (i.e., the daily surveys) via email or during a brief phone call with the researcher (see Appendix C). All participants elected to receive instructions regarding the daily surveys via email. Participants were emailed instructions for the daily surveys within 24 to 48 hours after completing the baseline survey (see Appendix D). Additionally, participants were informed that the daily surveys would not begin until after they respond to the instructions email. In the written email document, the researcher explained the purpose, importance, procedure, and compensation schedule of the daily surveys. If the researcher was unable to reach the participant, a follow-up email was sent 48 to 72 hours after the previous email. A total of three emails were sent before the participant was considered unreachable (n = 10).

After responding to the instruction email, participants were enrolled in the daily surveys and received daily emails at 6am or 12pm (in accordance with their time zone) for 28 days. Participants had 6 hours to complete each daily survey after they received the email link. In other words, participants chose which time block they preferred to complete the survey (6am – 12pm, or 12pm – 6pm). Participants were not able to complete the survey if the time had passed

for their block (e.g., 12pm or 6pm). The deadline of 6pm was selected for the second survey option in order to keep time blocks consistent and because participants may begin drinking if surveys are completed later in the evening. These daily surveys were designed to be short (i.e., 5 to 10 minutes) and able to be completed on any mobile device (e.g., computer, phone, tablet). All participants were provided with information for mental health and substance use resources at the conclusion of each daily survey. Reminder emails or text messages were sent as necessary (see Appendix E). Specifically, a reminder email was sent to participants after each missed survey. All procedures were approved by the Old Dominion University Institutional Review Board (approval number: 1419382-3).

Compensation. Participants who completed the baseline survey were entered into a raffle to win one of four $25 gift cards or could select to receive SONA research credit. Similar to daily diary compensation from research with good compliance rates (e.g., 75%-87%; Bachrach & Read, 2017; DeHart, Longua Peterson, Richeson, & Hamilton, 2014; Grov, Golub, Mustanski, & Parsons, 2010; Quinn & Fromme, 2012), participants received $1 for each daily assessment survey. Participants earned an additional $4 if they completed 23-27 (82-96%) of the daily assessments or an additional $10 if they completed all 28 (100%) daily assessments. Because the study was completed online, all compensation was in the form of Amazon gift cards that were emailed to the participant weekly. In order to maximize retention rates, a recent methodological study recommended steady compensation for daily surveys (i.e., at the end of each survey week), as opposed to a single compensation payment at the end of the study or increasing compensation across the assessment period (Hall & Nishina, 2018). The compliance rate of the current study was 87.6% (*M* = 24.54 days, *SD* = 5.64, Range = 2-28). One participant was a current psychology student and elected to receive research credit instead of online gift card

compensation for the baseline. See Figure 4 for a diagram of the study procedure and payment schedule.

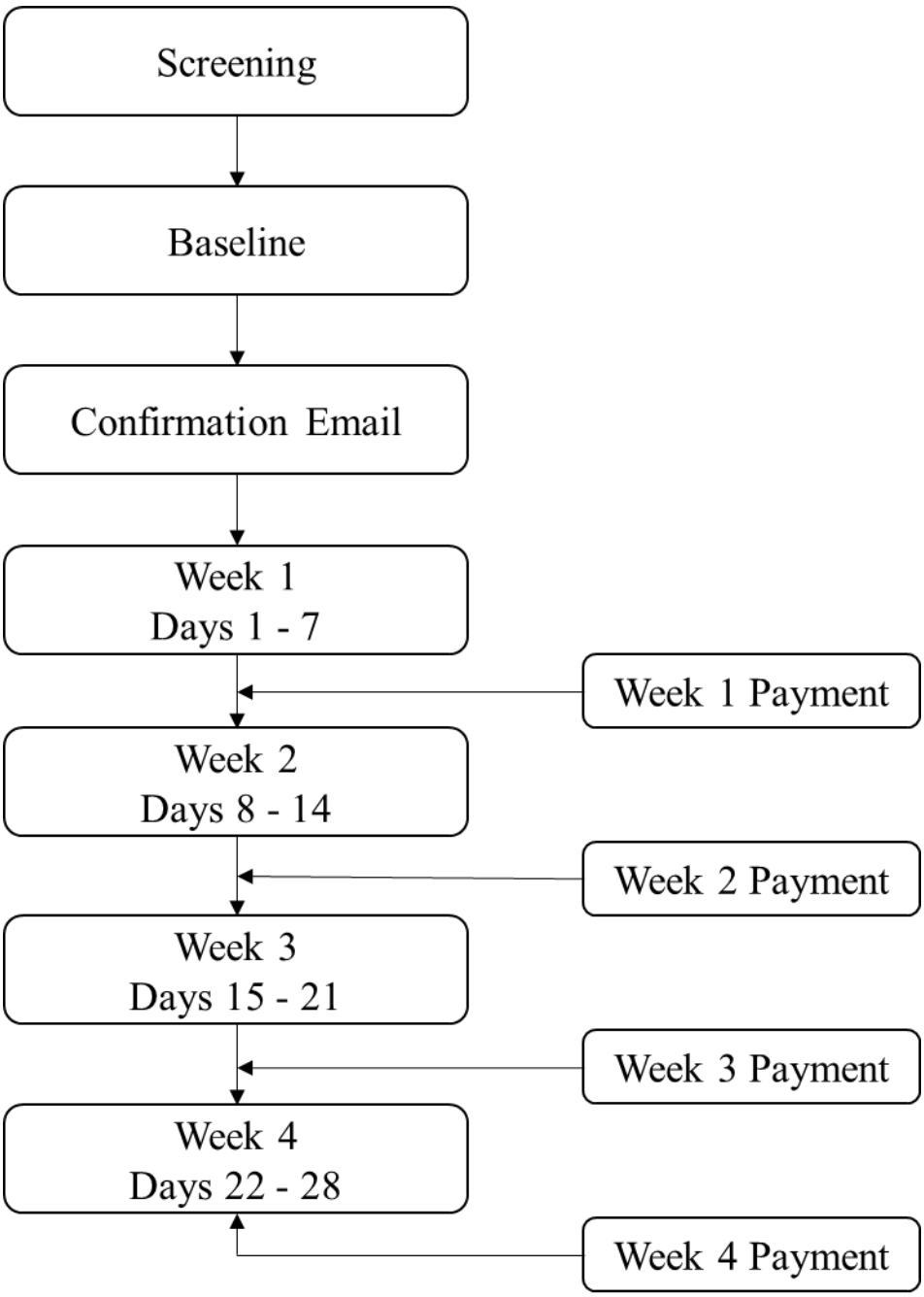

Figure 4. Study procedure and payment schedule.

Materials

Baseline assessment. After reviewing the informed consent and agreeing to participate, eligible participants completed a battery of questionnaires about their alcohol use, alcohol-related negative consequences, drinking to cope motivations, microaggression experiences, and alcohol demand.

Drinking motives. The Drinking Motives Questionnaire (DMQ; Cooper, 1994; see Appendix F) is a 20-item questionnaire that was used to examine motivations for drinking. Participants responded to each question using a 5-point scale where 1 = *almost never/never*, 2 = *some of the time*, 3 = *half of the time*, 4 = *most of the time*, and 5 = *almost always/always*. The DMQ includes four subscales (each with five questions) including: *Social* (e.g., Because it helps you enjoy a party); *Coping* (e.g., To cheer up when you are in a bad mood); *Enhancement* (e.g., Because it's exciting); and *Conformity* (e.g., To be liked) motivations. For the current study, only the coping scale was examined. A mean score was computed for the coping subscale. Higher scores indicated greater motivations to drink. The DMQ is widely used among sexual minority samples and has shown high reliability and construct validity (e.g., Cooper, 1994; Lewis et al., 2016; Merrill & Read, 2010; Talley, Sher, Steinley, Wood, & Littlefield, 2012). Cronbach alpha for the coping subscale of the current study was $\alpha = .89$.

Alcohol demand. An Alcohol Purchase Task (APT) was used to measure alcohol demand (Murphy & MacKillop, 2006; see Appendix G). A recent review article by Kaplan and colleagues (2018) provided recommendations for administering the APT. Based on these recommendations, in addition to providing a picture about standard drinks, the following prompt was provided prior to completing the APT: "*In the questionnaire that follows we would like you to pretend to purchase and consume alcohol during a 5-hour period. Imagine you are in a*

situation in which you usually drink alcohol (at a bar, at a party, at home, with friends, etc.). Imagine that you do not have any obligations the next day (i.e., no work or classes). The following questions ask how many drinks you would purchase at various prices. The available drinks are standard size beer (12 oz), wine (5 oz), shots of hard liquor/distilled spirits (1.5 oz), or mixed drinks containing one shot of liquor/distilled spirits (see the picture below). Assume that you did not drink alcohol or use drugs before, and that you will not drink or use drugs after. You do not have access to any other alcohol than what is available for purchase here and assume you have the same income/savings that you do now. Also, assume that the alcohol you are about to purchase is for your consumption only and you would consume every drink you request. In other words, you can't sell the drinks or give them to anyone else. You also can't stockpile the drinks for later. Everything you buy is, therefore, for your own personal use during the 5-hour period. Please respond to these questions honestly, as if you were actually in this situation." The APT asks participants to estimate how many drinks they would purchase at 17 different price points ($0 [free], $0.05, $0.10, $0.25, $0.50, $1, $1.50, $2, $3, $4, $5, $6, $8, $10, $15, $20, $30). Four demand indices are derived from the APT: *Intensity*; *Breakpoint*; *Omax*; and *Elasticity*. The APT has shown good predictive, concurrent and convergent validity and reliability (see Kaplan et al., 2018 for a review). To score the demand indices, *intensity* was defined as the number of drinks reported when the cost is free ($0), *breakpoint* was the first increment of cost when 0 consumption is reported, and *Omax* was the greatest expenditure for alcohol (e.g., the highest cost for [price * consumption]). *Elasticity* (i.e., demand curves) was estimated by fitting each participant's reported consumption across all prices using Koffarnus, Franck, Stein, and Bickel's (2015) demand curve equation displayed below:

$$Q = Q_0 * 10^{k(e^{-\alpha Q_0 C} - 1)}$$

In the above equation, Q is the reported consumption at price C. Q_0 is the consumption when cost is zero, α is demand elasticity (rate of change in consumption as price changes), and k is the range of the dependent variable (alcohol use or alcohol consequences) in logarithmic units. This equation has been shown to have the best fit for plotting alcohol demand data, can fit all consumption values including zero, and accurately computes parameter values from simulated data. The Demand Curve Analyzer (DCA; Gilroy, Kaplan, Reed, Koffarnus, & Hantula, 2018) was used to estimate all alcohol demand indices.

Demographics. A general background questionnaire assessed basic demographic information (e.g., individual annual income, current residence, relationship status, sex of relationship partner) and outness of sexual minority status (e.g., age of disclosure, being closeted). See Appendix H.

Daily assessment. Daily online surveys were completed for a total of 28 days. Participants were emailed a survey link at 6am or 12pm (depending on what time block they preferred) each day. Data about participant time zone was collected so that surveys were sent at the appropriate times. Participants were reminded that each survey must be completed within 6 hours (e.g., by 12pm or by 6pm). After the time block window closed, the survey link became inactive. Participants were instructed to answer the questions based on their experiences and thoughts for yesterday.

Alcohol use. Participants who reported drinking yesterday were asked how many drinks they consumed and how much time passed between their first drink and their last drink. Participants were reminded how to estimate drinking using a picture of standard drinks. Two alcohol use variables were created. First, whether participants drank alcohol yesterday (0 = *no*, 1

= *yes*) was reported. Second, alcohol quantity was examined as the total number of drinks participants reported consuming yesterday. See Appendix I.

Alcohol consequences. The Daily Alcohol-Related Consequences and Evaluations Measure for Young Adults (Lee et al., 2017; see Appendix J) is a 7-item measure that assessed daily negative alcohol consequences (e.g., "I became aggressive" and "I felt nauseated or vomited"). Participants selected any items that they experienced yesterday. If participants did not experience any alcohol consequences yesterday, they were instructed to select "*None of these things happened*". A total score was computed by summing together the affirmative (i.e., yes) responses, excluding the option for "*None of these things happened*". If participants did not select any alcohol consequences or the option for "*None of these things happened"* it was assumed they skipped this questionnaire and a sum score was not created. This measure has shown good psychometric properties for studying daily alcohol use and consequences among young (18-24 year-old) college students (Lee et al., 2017).

Microaggressions. Regardless of previous day's drinking status, participants were asked about microaggressions they experienced yesterday. Similar to Flanders (2015), a single item was asked about negative experiences related to their sexual identity they experienced yesterday. Specifically, participants responded *yes* (1) or *no* (0) to the question: "Did you experience a negative event that you felt was attributed to your sexual identity yesterday?". This item was not included in analyses. Next, all participants were asked to select all of the microaggressions they experienced yesterday from a list of 9 items. A response option for "*None*" was also included for participants to indicate when they did not experience any of the microaggression experiences on the previous day. Four items that were frequently endorsed (e.g., over 200 endorsements) were adapted from Flanders (2015) daily diary study of microaggressions among bisexual men and

women. These four items examined experiences of: (1) hearing a sexual minority slur, (2) feeling compelled to disclose their sexual identity, (3) being mislabeled as heterosexual, and (4) being mislabeled a homosexual. Additionally, three items that highlighted the *Mistrust, Sexualization,* and *Social Exclusion* subscales of the BMMS-W (Flanders et al., 2019) were examined (e.g., "Did someone ask you inappropriate sexual questions or make sexual advances toward you because of your sexual identity"). Finally, two items were adapted from Livingston (2017b) that used an ecological momentary assessment design to examine microaggressions and stigma among sexual minority individuals. These two items examined treatment of courtesy or respect and the feeling that you were misunderstood or dismissed because of your sexual identity. Participants were instructed to select "*None*" if they did not experience any of these microaggressions yesterday.

The selection of "*None*" was recoded to reflect 0 so that it was not included as a microaggression experienced. The sum of the total number of microaggressions experienced yesterday was computed for each participant for each day. Similar to alcohol consequences, it was assumed that participants skipped the microaggression questionnaire if they did not endorse any microaggression experiences or the response option "*None*", and no microaggression score was computed. Therefore, the possible range of daily microaggression experiences scores ranged from 0 to 9, where higher scores indicated more microaggressions experienced yesterday. To compute aggregate levels of microaggression experiences, the sum of microaggressions experienced across all days reported was computed. See Appendix K.

Filler questions. To keep all surveys similar in terms of length, participants who did not report drinking yesterday were administered 16 additional questions about reasons for not drinking and daily negative consequence items. Participants responded *yes* (1) or *no* (0) to 5

questions adapted from O'Hara, Armeli, and Tennen (2014) to examine reasons for not drinking (e.g., "I couldn't obtain alcohol." and "I had no desire to drink."). These items have been validated as measures of reasons for not drinking using a daily diary design among a sample of college students (O'Hara et al., 2014). Additionally, participants responded *yes* (1) or *no* (0) to 4 other alcohol questions (e.g., "Did you see anyone drinking alcohol yesterday?" and "Do you think any of your friends drank alcohol yesterday?"). To be consistent with questions about alcohol consequences, similar questions were asked that were adapted from Lee et al. (2017) and omitted the prompt of 'due to drinking' to examine daily negative consequences. For example, the question prompt was general and instructed students to respond *yes* (1) or *no* (0) to indicate if each item happened yesterday (as opposed to occurring due to their drinking; e.g., "Yesterday, I couldn't remember what I did."). See Appendix L.

Data Analysis

Power analysis. A two-step power analysis was conducted. In step 1, G*Power 3.1.9.2. (Faul, Erdfelder, Buchner, & Lang, 2009) was used to estimate power for a traditional regression model. Although prior research that has examined associations between negative affect/perceived stress/discrimination and alcohol use/consequences has shown a range of small to medium small effect sizes (e.g., Bodenlos, Noonan, & Wells, 2013: f^2 = .29; Carney, Armeli, Tennen, Affleck, & O'Neil, 2000: f^2 = .08; Hatzenbuehler, Corbin, & Fromme, 2011: f^2 = .18; Martens et al., 2008: f^2 = .06; Park & Grant, 2005: f^2 = .06), a conservative effect size was incorporated for the current study (f^2 = .08). Using G*Power, it was estimated that a sample of 177 participants is needed to observe a small to medium effect size (f^2 = .08) and achieve power of .80 with an alpha level of .05 for six predictors. However, G*Power is unable to estimate the sample size for multilevel models (e.g., nested data). Therefore, step 2 examined how many

unique observations were needed given the multilevel structure of the data. Additionally, step 2 addresses the violated assumption of normality by using a maximum likelihood approach. West, Ryu, Kwok, and Cham's (2011) equation used to estimate power for step 2 is below:

$$N_{effective} = \frac{n_{L1}n_{L2}}{[1 + (n_{L1} - 1)\ \mathrm{ICC}]}$$

This equation accounts for level 1 (daily; n_{L1}) and level 2 (participant; n_{L2}) sample sizes, and the intraclass correlation (ICC) which is the proportion of the variance in the dependent variable that is attributed to variability between people. Based on prior research, a moderate amount of within-person variation was expected with regard to alcohol use (range ICC = .37-.64; Armeli et al., 2010; Braitman, Linden-Carmichael, & Henson, 2017; Feinstein & Newcomb, 2017) and alcohol consequences (range ICC = .40-.52; Bachrach & Read, 2017; Braitman et al., 2017; Kenney et al., 2017). Cross-sectional pilot data recently collected by the author indicated that bisexual women reported drinking an average of 12 days in the past month. Using this information of 12 drinking days for the level 1 measure, level 2 sample size was estimated for a range of ICC values. For instance, for an ICC value of .40, 80 participants are needed ($N_{effective}$ = 178); an ICC value of .50, 95 participants are needed ($N_{effective}$ = 176); an ICC value of .65, 120 participants are needed ($N_{effective}$ = 177). Based on these power estimates, the present study aimed to collect data from 100 participants. Similar one-month daily diary studies found that on average compliance rates are 87% (26 out of 30 days; Bachrach & Read, 2017) and 83% (25 out of 30 days; O'Grady, Cullum, Armeli, & Tennen, 2011). Therefore, attempting to recruit 100 participants was similar to prior research (Dworkin et al., 2018; Flanders, 2015; Simpson et al., 2014) and provided sufficient power for the proposed study given an ICC value between .40 to .50, taking into consideration expected compliance rates of ~85%. Further, results of the power analysis were similar when 10 days of completion (i.e., 85% completion of 12 potential drinking

days) was included as the level 1 value with an ICC value of .40 (80 level 2 participants, $N_{effective}$ = 174), .50 (95 level 2 participants, $N_{effective}$ = 173), and .65 (120 level 2 participants, $N_{effective}$ = 176).

Data cleaning. All analyses were conducted in HLM 6.02 (Raudenbush, Bryk, Cheong, Congdon, & du Toit, 2004) and SPSS 25. The proposed research produced data at multiple levels. Specifically, daily level data (level 1) included measures of microaggressions, alcohol use, and alcohol-related negative consequences measured each day. Person level data (level 2) included the baseline drinking to cope motivations and alcohol demand measures. As a result of data measured at multiple levels, two datasets were created: (1) a level 1 (daily measures) dataset, and (2) a level 2 (baseline measures) dataset.

There were no data missing at baseline for drinking to cope motives or the APT (level 2). However, APT data were unable to be calculated for two participants because they reported inconsistent purchase values. For example, they reported that they would purchase zero drinks for a lower value (e.g., $2.00) and then one or more drinks at higher values (e.g., $8.00). Therefore, because the inability to compute the APT indices was likely due to inattention, and consistent with prior research (e.g., Amlung et al., 2012), APT data were not imputed for these two participants. Listwise deletion is the default method in HLM and was used in the present study to handle missing daily (level 1) data. Thus, HLM is often resilient to missing data because participants who complete fewer days of data collection have less influence on study outcomes. Across all study days, participants completion rates ranged from two to 28 (all days) days with an overall compliance rate of 87.6% (M = 24.54 days, SD = 5.64).

Next, normality and outliers were examined. Normality was assessed using histograms, examining skewness and kurtosis, and outliers were examined using boxplots. Drinking to cope

motivations were normally distributed. In terms of APT indices, breakpoint was normally distributed. Intensity was kurtotic (5.95) and boxplots showed there was one outlier. After winsorizing the outlier for intensity to the next highest value, the variable was normally distributed (kurtosis = 0.50). Similarly, Omax was skewed (3.10) and kurtotic (18.05), and there was one outlier. After winsorizing the outlier for Omax, the variable was normally distributed (skew = 0.68, kurtosis = 0.06). Finally, alpha was skewed (5.84) and kurtotic (42.44) and there were over 10 outliers. Because there were numerous outliers, alpha was transformed by using a natural log transformation. After transforming alpha, skewness (1.11) and kurtosis (1.29) were reduced. Normality and outliers were also examined for the level 1 dataset. Number of drinks and total alcohol consequences reported for drinking days, and total microaggressions experienced were kurtotic (number of drinks = 2.95, alcohol consequences = 2.52, microaggressions = 3.19) and there was a range of outliers (number of drinks = 14, alcohol consequences = 5, microaggressions = 8). Therefore, these variables were transformed using natural log transformation which reduced skew (number of drinks = 0.32, alcohol consequences = 0.89, microaggressions = 0.89) and kurtosis (number of drinks = -0.71, alcohol consequences = -0.53, microaggressions = -0.51).

For all multilevel models, main effects and interaction terms were centered to reduce multicollinearity. Specifically, level 1 predictors were group mean centered to reflect fluctuations from the participant's typical mean. Level 2 predictors were grand mean centered to reflect variations from the average of the entire sample. Both outcome variables (alcohol use quantity and alcohol consequences) were continuous, therefore, normal distributions were specified. A random-effects ANOVA model was computed to determine if predictor variables should be included as fixed or random effects. If tau estimates were significant, determined from

the unit-specific model with robust standard errors, it was determined that there was significant variability among the parameter estimates, and therefore the predictor variables were included as random effects.

Covariates. The aggregate values of microaggressions and the outcome variable (e.g., alcohol use quantity, alcohol consequences) were included as covariates in the models for each aim. Including the aggregate controlled for between person differences in total microaggressions experienced and alcohol use or consequences during the study. In other words, controlling for the aggregate takes into account those who may naturally be higher on microaggression experiences, engage in more drinking, and report greater consequences during the study. Age, race (White vs. other), ethnicity, income, and relationship status (single vs. other) were explored as potential demographic covariates based on prior research (e.g., Bono, Barnes, Dick, & Kendler, 2017; Grant et al., 2012; Keyes et al., 2015; Nicolai, Moshagen, & Demmel, 2012; Popovici & French, 2013). Additionally, several sexual orientation variables were examined as potential covariates including, sexual attraction scale (0 = only attracted to men to 100 = only attracted to women), sexual identity (bisexual vs. other), age of disclosure of sexual identity and perceived level of 'outness'. Lastly, the time that the participant selected to respond to the daily surveys (6am – 12pm or 12pm – 6pm) and whether or not it was a weekend day (Friday, Saturday, or Sunday; 0 = no, 1 = yes) were examined as covariates. Weekend day was examined as a level 1 covariate. All other variables were examined as level 2 covariates.

Each potential covariate was included as the sole predictor of the outcome variable using a series of multilevel analyses in HLM (see Tables 2 and 3). Age, income, relationship status, attraction scale, age of disclosure, outness, and weekend day were significantly associated with daily alcohol use quantity. Similarly, age, income, relationship status, attraction scale, age

of disclosure, outness, and weekend day were associated with alcohol consequences. Further, bivariate correlations revealed that income was significantly associated with intensity (r = .334, p < .001) and Omax (r = .21, p = .036). Also displayed in Tables 2 and 3 are p-values for the covariates when including the main variables of interest (i.e., aggregate of microaggressions and alcohol use or consequences, and main effects and interaction terms). Only weekend day was significantly associated with the outcome variables (alcohol use quantity, alcohol consequences) after including the main variables of interest. Additionally, results were identical with and without controlling for all of the covariates. Therefore, to be parsimonious, only the models controlling for weekend day and aggregate levels of microaggressions and the outcome variable are presented.

Table 2

Covariate Analyses for Alcohol Use

	Single Predictor			All Variables, *p* values					
	B	*SE*	*p*	Aim 1	Aim 2	Aim 3 Intensity	Aim 3 Omax	Aim 4 BP	Aim 4 Elasticity
Age	**0.06**	**0.03**	**.038**	.583	.371	.557	.586	.518	.921
Race (0 = White, 1 = Other)	-0.16	0.11	.157	--	--	--	--	--	--
Hispanic/Latina (0 = no, 1 = yes)	0.24	0.18	.190	--	--	--	--	--	--
Income	**0.06**	**0.03**	**.030**	.209	.222	.218	.227	.234	.163
Relationship status (0 = Single, 1 = Other)	**0.35**	**0.11**	**.003**	.118	.102	.124	.112	.111	.122
Sexual Attraction	**0.01**	**0.003**	**.004**	.343	.341	.346	.357	.363	.359
Sexual Identity (0 = Bisexual, 1 = Other)	-0.07	0.10	.516	--	--	--	--	--	--
Age of Disclosure	**-0.04**	**0.02**	**.036**	.826	.593	.841	.996	.965	.861
Perceived Outness	**0.13**	**0.04**	**.006**	.146	.188	.150	.132	.148	.149
Study Time (0 = 6am-12pm, 1 = 12pm-6pm)	-0.0003	0.11	.998	--	--	--	--	--	--
Weekend Day (0 = no, 1 = yes)	**0.30**	**0.03**	**< .001**	**< .001**	**< .001**	**< .001**	**< .001**	**< .001**	**< .001**

Note. BP = breakpoint. Sexual attraction scale ranged from 0 – 100.

Table 3

Covariate Analyses for Alcohol Consequences

	Single Predictor			All Variables, *p* values					
	B	*SE*	*p*	Aim 1	Aim 2	Aim 3 Intensity	Aim 3 Omax	Aim 4 BP	Aim 4 Elasticity
Age	**0.05**	**0.02**	**.036**	.107	.105	.117	.106	.109	.110
Race (0 = White, 1 = Other)	-0.06	0.11	.583	--	--	--	--	--	--
Hispanic/Latina (0 = no, 1 = yes)	-0.04	0.06	.543	--	--	--	--	--	--
Income	**0.04**	**0.02**	**.024**	.168	.130	.145	.155	.187	.171
Relationship status (0 = Single, 1 = Other)	**0.22**	**0.08**	**.008**	.730	.993	.646	.715	.946	.670
Sexual Attraction	**0.01**	**0.002**	**.006**	.206	.198	.224	.212	.297	.212
Sexual Identity (0 = Bisexual, 1 = Other)	-0.10	0.07	.143	--	--	--	--	--	--
Age of Disclosure	**-0.03**	**0.01**	**.009**	.251	.227	.255	.247	.254	.253
Perceived Outness	**0.09**	**0.04**	**.013**	.162	.124	.176	.187	.155	.170
Study Time (0 = 6am-12pm, 1 = 12pm-6pm)	-0.02	0.07	.774	--	--	--	--	--	--
Weekend Day (0 = no, 1 = yes)	**0.14**	**0.03**	**< .001**	**< .001**	**< .001**	**< .001**	**< .001**	**< .001**	**< .001**

Note. BP = breakpoint. Sexual attraction scale ranged from 0 – 100.

Variability in Outcome Variables

To determine the proportion of total variance in the outcome variable that can be explained within-person, the intraclass correlation coefficient (ICC) was computed for alcohol use quantity and alcohol consequences. Specifically, random effects ANOVA models were computed to obtain the sigma-squared and tau values. For alcohol use quantity, the sigma-squared (σ^2) value was 0.20 and tau (τ_{00}) was 0.22, which resulted in an ICC value of 0.52. This indicates that 52% of the variance in alcohol use quantity is attributed between people. Alternatively, 48% of the variance in alcohol use quantity is attributed within person. For alcohol consequences, the sigma-squared (σ^2) value was 0.16 and tau (τ_{00}) was 0.10, which resulted in an ICC value of 0.38. This indicates that 38% of the variance in alcohol consequences is attributed between people. Put another way, 62% of the variance in alcohol consequences is attributed within person.

In addition to calculating the ICC, the tau estimates for each slope of the model were examined for significance. Tau estimates for the slopes were significant (p's < .025) and therefore, all models were conducted using random effects, as opposed to fixed effects models. In other words, each participant's slope between the predictor and outcome variable was allowed to vary. Tau estimates were also examined as predictors were entered into the model to determine if random or fixed effects models should be conducted. All tau estimates remained significant for all models; thus, models were not respecified and random effects were retained.

Analyses for Aims

Aim 1. As stated previously, microaggressions (level 1) were person-mean centered and the level 2 equation included the aggregate measure of daily microaggressions and the outcome

variables which were grand mean centered. All equations also included weekend day as a group-mean centered level 1 covariate. A sample of the level 1 and level 2 equations are below:

$$\text{Level 1 model: } \text{AlcoholUse}_{ti} = \pi_{0i} + \pi_{1i}(\text{Microagg}_{ti}) + \pi_{2i}(\text{Weekend}_{ti}) + e_{ti}$$

$$\text{Level 2 model: } \pi_{0i} = \beta_{00} + \beta_{01}(\text{AggregateMicroagg}_i) + \beta_{02}(\text{AggregateAlcoholUse}_i) + r_{0i}$$

$$\pi_{1i} = \beta_{10} + r_{1i}$$

$$\pi_{2i} = \beta_{20} + r_{2i}$$

In the level 1 equation, the outcome is the total amount of alcohol use consumed for person/individual *i* on day/time *t*. The coefficient π_{0i} is the intercept for person *i*. The intercept, π_{0i}, represents the predicted number of drinks for person *i* when all other predictors are zero. The within-subject predictors (π_{1i} and π_{2i}) indicate the influence of the same-day measure of microaggressions and weekend day (yes/no) for person/individual *i* on day/time *t*, on the outcome variable of alcohol use. A person and time-specific error term (e_{ti}) was also included to allow each participant to have a unique regression equation for each outcome variable on each day. In the level 2 equations, β_{00} is the intercept across all participants which represents the average amount of alcohol use for the total sample. β_{01} and β_{02} are included as covariates that represent the influence of the average of microaggressions and alcohol use for person/individual *i* on the intercept. β_{10} represents the common slope for the influence of daily microaggressions on alcohol use. Residual error terms (r_{0i}, r_{1i}, and r_{2i}) allowed for random effects.

Aim 2. To examine Aim 2, cross-level moderation analyses examined if higher drinking to cope motives (level 2) strengthen the association between daily microaggressions (level 1) and daily alcohol use/consequences (level 1), relative to lower drinking to cope motives. Each model included the main effects of each predictor, a cross-level interaction term, and covariates (weekend day, aggregate microaggressions, aggregate alcohol use). A sample equation is below:

$$\text{Level 1 model: } \text{AlcoholUse}_{ti} = \pi_{0i} + \pi_{1i}(\text{Microagg}_{ti}) + \pi_{2i}(\text{Weekend}_{ti}) + e_{ti}$$

$$\text{Level 2 model: } \pi_{0i} = \beta_{00} + \beta_{01}(\text{AggregateMicroagg}_i) + \beta_{02}(\text{AggregateAlcoholUse}_i) +$$

$$\beta_{03}(\text{CopingMotives}_i) + r_{0i}$$

$$\pi_{1i} = \beta_{10} + \beta_{11}(\text{CopingMotives}_i) + r_{1i}$$

$$\pi_{2i} = \beta_{20} + r_{2i}$$

The level 1 equation is identical to Aim 1. In the level 2 equation, β_{00} represents the intercept (e.g., the average amount of alcohol use for the total sample). β_{01} and β_{02} represent the main effect for the aggregate of person-level microaggressions and alcohol use. β_{02} represents the main effect of drinking to cope motives for person/individual *i*. In other words, β_{01}, β_{02}, and β_{03} represent the influence of microaggressions, alcohol use, and drinking to cope motivations for person/individual *i* on alcohol use. In the next line, β_{10} represents the main effect for daily (within-person) microaggressions, and β_{11} represents the interaction term of daily microaggressions X coping motives which was used to assess moderation. Similar to Aim 1, residual error terms (r_{0i}, r_{1i}, and r_{2i}) allowed for random effects.

Aim 3. To examine Aim 3, models were estimated to determine whether each of the alcohol demand indices (intensity, breakpoint, Omax, elasticity) moderated the association between daily microaggressions and alcohol use and negative consequences. First, demand indices were computed (see above for description of scoring the APT). Next, HLM was used to examine Aim 3. Each alcohol demand variable (level 2) was examined as a separate moderator and was grand-mean centered. Similar to Aim 2, each model included main effects (e.g., microaggressions, Elasticity), a cross-level interaction term (e.g., Microaggressions x Elasticity), and covariates (e.g., weekend day, aggregate microaggressions, aggregate alcohol use). A sample equation is below:

$$\text{Level 1 model: } \text{AlcoholUse}_{ti} = \pi_{0i} + \pi_{1i}(\text{Microagg}_{ti}) + \pi_{2i}(\text{Weekend}_{ti}) + e_{ti}$$

$$\text{Level 2 model: } \pi_{0i} = \beta_{00} + \beta_{01}(\text{AggregateMicroagg}_{i}) + \beta_{02}(\text{AggregateAlcoholUse}_{i}) +$$

$$\beta_{03}(\text{Elasticity}) + r_{0i}$$

$$\pi_{1i} = \beta_{10} + \beta_{11}(\text{Elasticity}_{i}) + r_{1i}$$

$$\pi_{2i} = \beta_{20} + r_{2i}$$

CHAPTER III

RESULTS

Descriptive statistics for baseline measures showed that average drinking to cope motivations were 15.50 (*SD* = 5.27). Mean alcohol demand indices revealed that participants reported that they would consume 10.31 (*SD* = 6.93, Range = 2 - 31) standard drinks if they were free (i.e., intensity). Additionally, on average, participants first reported they would consume zero drinks (i.e., breakpoint) when the cost was approximately $13 per drink (*M* = 12.96, *SD* = 9.05, Range = 1 - 30). The average maximum amount that participants would spend on alcohol (i.e., Omax) was $22.66 (*SD* = 14.82, Range = 1 - 61). Lastly, average elasticity was 0.002 (*SD* = 0.006, Range = 0.00009 – 0.06) indicating low levels of change in reported consumption as price increased. Correlations for coping motives, alcohol demand indices, and aggregate values of daily alcohol use, alcohol consequences, and microaggressions are shown in Table 4. Drinking to cope motivations were associated with higher intensity values, alcohol use, alcohol consequences, and microaggressions. Daily alcohol use and alcohol consequences were associated with higher intensity as well as Omax. Greater daily alcohol use was correlated with and lower elasticity. In other words, greater daily alcohol use was associated with less change in reported consumption as price increased.

Table 4

Correlations between Drinking to Cope Motives, Alcohol Demand Indices, Daily Alcohol Variables, and Microaggressions

	1.	2.	3.	4.	5.	6.	7.	8.
1. DTC	--							
2. Intensity	.29**	--						
3. Breakpoint	-.06	.28**	--					
4. Omax	-.002	.55***	.70***	--				
5. Elasticity	.19†	-.48***	-.55***	-.75***	--			
6. Alcohol use: DL	.34**	.67***	-.06	.30**	-.27**	--		
7. Alcohol consequences: DL	.22*	.49***	.03	.22*	-.17†	.76***	--	
8. Microaggressions: DL	.26**	.07	-.18†	-.19†	.14	.20*	.45***	--
Mean	15.50	10.31	12.96	22.66	0.002	4.61	0.65	1.30
Standard deviation	5.27	6.93	9.05	14.82	0.006	3.17	0.70	0.41

Note. DTC = drinking to cope motives; DL = aggregate of daily level.

*** $p < .001$. ** $p < .01$. † $p < .10$.

In terms of daily data, there were 2,522 days of daily data collected across all participants. Of these days, 45.9% (*n* = 1,157) were drinking days. It should be noted that one participant did not report drinking during the study period and was therefore not included in analyses that examined alcohol use or consequences. Of those who reported alcohol use during the study period, participants drank an average of 11.34 (*SD* = 5.96, Range = 2 - 24) days out of the 28-day study period. Further, participants reported drinking an average of 4.61 (*SD* = 3.17, Range = 1 - 30) drinks per drinking day. In addition, participants reported an average of 0.65 (*SD* = 0.70, Range = 0 – 6) alcohol consequences on drinking days. For daily microaggression experiences, participants reported at least one microaggression on 41% of the days (*n* = 1,032). The average number of microaggression experiences per participant per day was 1.30 (*SD* = 0.41, Range = 0 - 7). On drinking days, participants reported an average of 1.40 (*SD* = 0.58, Range = 0 - 7) microaggressions per day. HLM analyses revealed that on days when participants experienced microaggressions (yes/no) they were more likely to report alcohol consequences (yes/no; $b = 0.76$, $p = .001$), reported more alcohol consequences (continuous; $b = 0.13$, $p < .001$) and alcohol use (continuous; $b = 0.11$, $p = .007$), and there was a trend that they were more likely to drink (yes/no; $b = 0.30$, $p = .057$). Specific types of alcohol consequences and microaggressions experienced are reported in Table 5.

Table 5

Type of Daily Alcohol Consequences and Microaggression Experiences Reported

	n	%
Alcohol Consequences		
I felt nauseated or vomited	236	20.4%
I had a hangover	230	19.8%
I did something that embarrassed me	125	10.8%
I was rude or obnoxious	95	8.2%
I could not remember what I did while drinking	63	5.4%
I became aggressive	99	3.4%
I hurt or injured myself by accident	27	2.3%
Microaggressions		
Did you hear someone use a sexual minority slur such as "gay" to mean bad or stupid?	337	13.4%
Did someone assume or state that you are heterosexual?	235	9.3%
Were you treated with less courtesy or respect than others because of your sexual identity?	225	8.9%
Were your perspectives/feelings overlooked, misunderstood, or dismissed because of your sexual identity?	209	8.3%
Did you feel compelled to identify your sexual identity to someone else?	173	6.9%
Did you feel that you could not be trusted because of your sexual identity?	168	6.7%
Did someone ask you inappropriate sexual questions or make sexual advances toward you because of your sexual identity?	163	6.5%
Did you feel excluded from social situations or events because of your sexual identity?	158	6.3%
Did someone assume or state that you are homosexual?	105	4.2%

Participant Reactivity

HLM analyses were conducted to examine participant reactivity on microaggressions, alcohol use, and alcohol consequences across the study period. Study day was significantly associated with microaggression experiences (B = -0.01, p = .007), alcohol use (B = 0.004, p = .028), and alcohol consequences (B = -.004, p = .023), controlling for weekday and the aggregate value of the outcome variable. This result indicates that as study day increased, participants reports of microaggression experiences and alcohol consequences decreased, but reports of alcohol use increased.

Aim 1: Main Effects of Daily Measures

Aim 1 was to examine if daily microaggressions were associated with same-day alcohol use and alcohol consequences. It was hypothesized that daily microaggressions would be positively associated with same-day alcohol use and alcohol consequences. Results showed that daily microaggressions were positively associated with same-day alcohol use (B = 0.13, p = .003), controlling for weekend day, and aggregate microaggressions and alcohol use. Similarly, results indicated that daily microaggressions were positively associated with same-day negative alcohol related consequences (B = 0.20, p < .001), controlling for weekend day, and aggregate microaggressions and alcohol consequences. Thus, participants who experienced more microaggressions reported greater same-day alcohol use and consequences.

Aim 2: Drinking to Cope Motives as a Moderator

Aim 2 was to examine if drinking to cope motivations moderated the association between daily microaggressions and same-day alcohol use and consequences. It was hypothesized that microaggressions would have a stronger association with alcohol use among emerging adult bisexual women with greater drinking to cope motivations than those with lower drinking to

cope motivations, controlling for aggregate microaggressions and alcohol use/consequences, and baseline drinking to cope motivations. Contrary to expectations, drinking to cope motivations did not moderate the association between microaggressions and alcohol use (B = -0.01, p = .442) or alcohol consequences (B = -0.003, p = .603). Additionally, drinking to cope motivations were not significantly associated (i.e., no main effect) with alcohol use (B = -0.0002, p = .506) or alcohol consequences (B = 0.0002, p = .331), controlling for daily microaggression experiences, weekend day, aggregate values of microaggression experiences and alcohol use or consequences, and the interaction term. As found previously, there was a main effect of daily microaggressions on alcohol use (B = 0.13, p = .003) and alcohol consequences (B = 0.20, p < .001), even after controlling for drinking to cope motivations.

Aim 3: Alcohol Demand as a Moderator

Aim 3 was to examine if alcohol demand indices moderated the association between daily microaggressions and same-day alcohol use and consequences. It was hypothesized that microaggressions would have a stronger association with alcohol use and consequences for those with greater alcohol demand than lower alcohol demand.

Alcohol use quantity. Table 6 shows the main effects and interaction results of alcohol demand indices as a moderator of the association between daily microaggressions and same-day alcohol use.

Intensity. Intensity did not moderate the association between daily microaggression experiences and same-day alcohol use quantity (B = 0.01, p = .066), controlling for weekend day, and the aggregate of microaggressions and alcohol use quantity. In addition, there was not a main of effect of intensity on alcohol use quantity (B = 0.0001, p = .300).

Breakpoint. Breakpoint significantly moderated the association between daily microaggression experiences and same-day alcohol use quantity (B = -0.01, p = .019), after controlling for weekend day, and the aggregate of microaggressions and alcohol use quantity. Examination of the simple slopes indicated that experiencing microaggressions was associated with same-day alcohol use quantity for those with low breakpoint values (B = 0.09, p = .040). However, for those with higher breakpoint values, the association between microaggressions and same-day alcohol use quantity were not related (B = -0.08, p = .420). See Figure 5. There was not a main effect of breakpoint on alcohol use quantity (B = 0.0001, p = .439), controlling for weekend day, and the aggregate of alcohol use quantity and microaggressions.

Omax. Omax did not moderate the association between daily microaggression experiences and same-day alcohol use quantity (B = -0.002, p = .255), controlling for weekend day, and the aggregate of microaggressions and alcohol use quantity. In addition, there was not a main of effect of Omax on alcohol use quantity (B = 0.00005, p = .148) when including the same covariates.

Elasticity. Elasticity did not moderate the association between daily microaggression experiences and same-day alcohol use quantity (B = -0.04, p = .085), controlling for weekend day, and the aggregate of microaggressions and alcohol use quantity. In addition, there was not a main of effect of elasticity on alcohol use quantity (B = -0.0004, p = .257) when including the same covariates.

Table 6

Alcohol Demand Indices Moderate the Association Between Daily Microaggression Experiences and Same-Day Alcohol Use

	B	*SE*	*p*
Intensity			
Intercept	**1.53**	**0.001**	**< .001**
Intensity	0.0001	0.0001	.300
Microaggressions aggregate	-0.00005	0.001	.968
Alcohol use aggregate	**1.00**	**0.001**	**< .001**
Weekend day	**0.30**	**0.03**	**< .001**
Daily microaggressions	**0.13**	**0.04**	**.002**
Intensity x Microaggressions	0.01	0.005	.066
Breakpoint			
Intercept	**1.53**	**0.001**	**< .001**
Breakpoint	0.0001	0.0001	.439
Microaggressions aggregate	0.00005	0.001	.971
Alcohol use aggregate	**1.00**	**0.001**	**< .001**
Weekend day	**0.31**	**0.03**	**< .001**
Daily microaggressions	**0.13**	**0.04**	**.002**
Breakpoint x Microaggressions	**-0.01**	**0.004**	**.019**
Omax			
Intercept	**1.53**	**0.001**	**< .001**
Omax	0.00005	0.00003	.148
Microaggressions aggregate	0.001	0.001	.680
Alcohol use aggregate	**1.00**	**0.001**	**< .001**
Weekend day	**0.30**	**0.03**	**< .001**
Daily microaggressions	**0.12**	**0.04**	**.003**
Omax x Microaggressions	-0.002	0.002	.255
Elasticity			
Intercept	**1.53**	**0.001**	**< .001**
Elasticity	-0.0004	0.0003	.257
Microaggressions aggregate	0.00002	0.001	.984
Alcohol use aggregate	**1.00**	**0.001**	**< .001**
Weekend day	**0.30**	**0.03**	**< .001**
Daily microaggressions	**0.13**	**0.04**	**.002**
Elasticity x Microaggressions	-0.04	0.03	.085

Note. Bold text indicates statistical significance of $p < .05$.

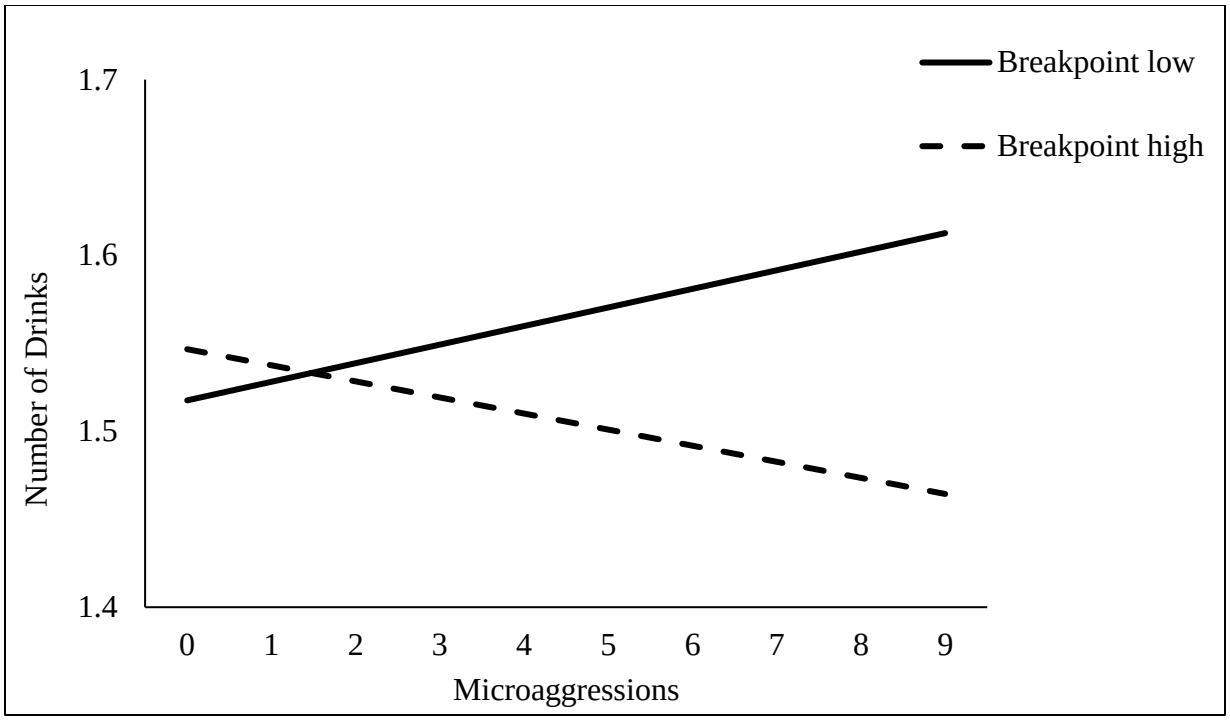

Figure 5. Alcohol demand breakpoint moderates the association between daily microaggression experiences and same-day alcohol use.

Alcohol consequences. Table 7 shows the main effects and interaction results of alcohol demand indices as a moderator of the association between daily microaggressions and same-day alcohol consequences.

Intensity. Intensity significantly moderated the association between daily microaggression experiences and same-day alcohol consequences ($B = 0.01$, $p = .011$), controlling for weekend day, and the aggregate of microaggressions and alcohol consequences. Examination of the simple slopes indicated that the association between microaggressions and same-day alcohol consequences was stronger for those with high intensity ($B = 0.44$, $p < .001$) than those with low intensity ($B = 0.25$, $p < .001$). See Figure 6. There was not a significant main of effect of intensity on alcohol consequences ($B = 0.00002$, $p = .723$).

Breakpoint. Breakpoint significantly moderated the association between daily microaggression experiences and same-day alcohol consequences ($B = -0.01$, $p = .045$), after controlling for weekend day, and the aggregate of microaggressions and alcohol consequences. Examination of the simple slopes indicated that experiencing microaggressions was associated with same-day alcohol consequences for those with low breakpoint values ($B = 0.17$, $p < .001$). However, for those with higher breakpoint values, the association between microaggressions and same-day alcohol consequences were not related ($B = 0.01$, $p = .926$). See Figure 7. There was not a main effect of breakpoint on alcohol use quantity ($B = 0.0004$, $p = .200$).

Omax. Omax did not moderate the association between daily microaggression experiences and same-day alcohol consequences ($B = -0.003$, $p = .215$), controlling for weekend day, and the aggregate of microaggressions and alcohol consequences. In addition, there was not a main of effect of Omax on alcohol consequences ($B = -0.000001$, $p = .968$).

Elasticity. Elasticity did not moderate the association between daily microaggression experiences and same-day alcohol consequences ($B = 0.0002$, $p = .999$), controlling for weekend day, and the aggregate of microaggressions and alcohol consequences. In addition, there was not a main of effect of intensity on alcohol consequences ($B = 0.00001$, $p = .957$).

Table 7

Alcohol Demand Indices Moderate the Association Between Daily Microaggression Experiences and Same-Day Alcohol Consequences

	B	*SE*	*p*
Intensity			
Intercept	**0.37**	**0.001**	**< .001**
Intensity	0.00002	0.0001	.723
Microaggressions aggregate	0.002	0.001	.153
Alcohol consequences aggregate	**1.00**	**0.001**	**< .001**
Weekend day	**0.15**	**0.03**	**< .001**
Daily microaggressions	**0.20**	**0.04**	**< .001**
Intensity x Microaggressions	**0.01**	**0.01**	**.011**
Breakpoint			
Intercept	**0.37**	**0.001**	**< .001**
Breakpoint	0.00004	0.00003	.200
Microaggressions aggregate	0.002	0.002	.174
Alcohol consequences aggregate	**1.00**	**0.001**	**< .001**
Weekend day	**0.14**	**0.03**	**< .001**
Daily microaggressions	**0.20**	**0.04**	**< .001**
Breakpoint x Microaggressions	**-0.01**	**0.004**	**.045**
Omax			
Intercept	**0.37**	**0.001**	**< .001**
Omax	-0.000001	0.00002	.968
Microaggressions aggregate	0.002	0.001	.151
Alcohol consequences aggregate	**1.00**	**0.001**	**< .001**
Weekend day	**0.14**	**0.03**	**< .001**
Daily microaggressions	**0.20**	**0.04**	**< .001**
Omax x Microaggressions	-0.003	0.003	.215
Elasticity			
Intercept	**0.37**	**0.001**	**< .001**
Elasticity	0.00001	0.0001	.957
Microaggressions aggregate	0.002	0.001	.163
Alcohol consequences aggregate	**1.00**	**0.001**	**< .001**
Weekend day	**0.14**	**0.03**	**< .001**
Daily microaggressions	**0.20**	**0.04**	**< .001**
Elasticity x Microaggressions	0.00002	0.02	.999

Note. Bold text indicates statistical significance of $p < .05$.

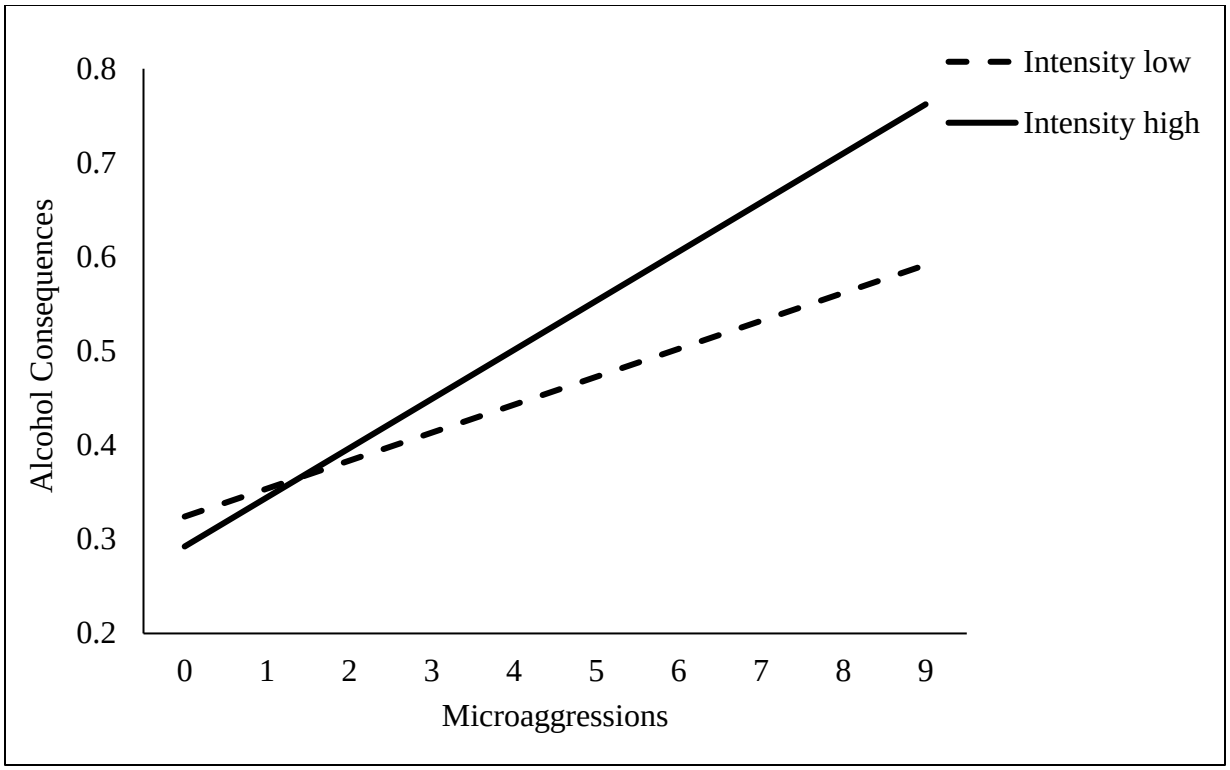

Figure 6. Alcohol demand intensity moderates the association between daily microaggression experiences and same-day alcohol consequences.

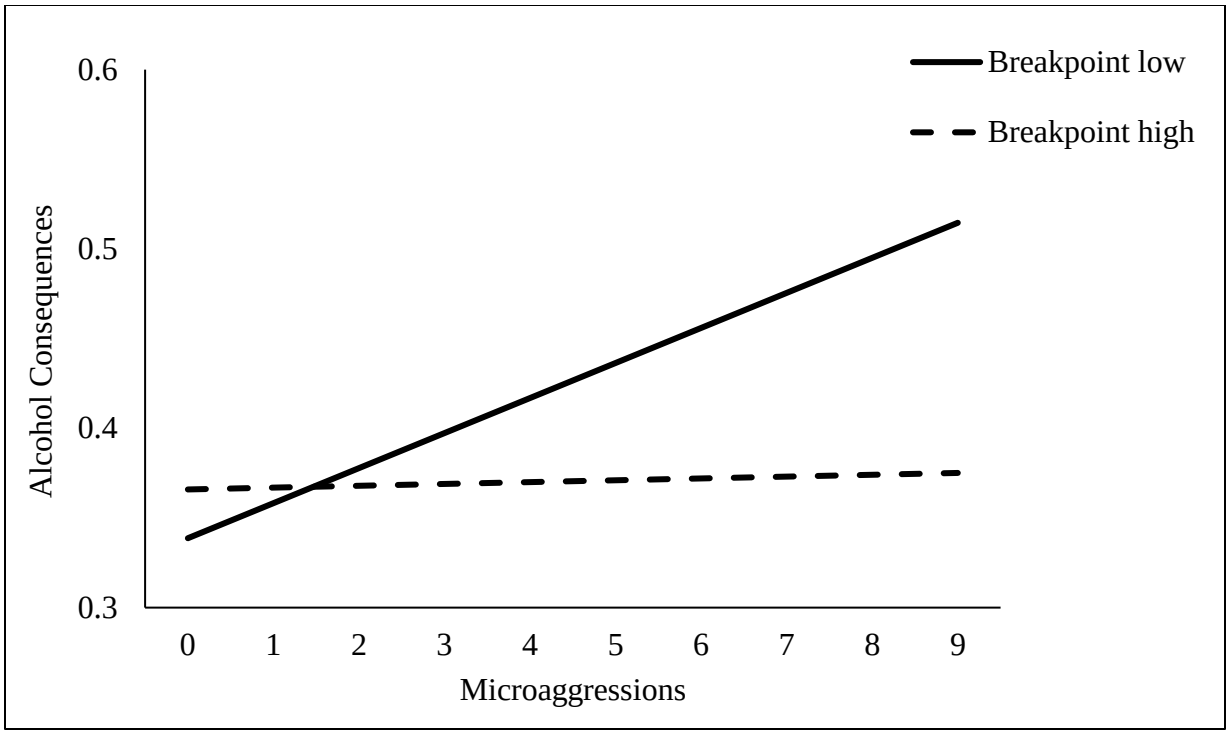

Figure 7. Alcohol demand breakpoint moderates the association between daily microaggression experiences and same-day alcohol consequences.

CHAPTER IV

DISCUSSION

Sexual minority stressors are associated with more risky drinking outcomes among sexual minority individuals (Livingston et al., 2016; Slater et al., 2017; Wilson et al., 2016) and could be one explanation why bisexual women drink more than other women (Conron et al., 2010; Gonzales et al., 2016; Kerr et al., 2015; Kerridge et al., 2017; Parnes et al., 2017; Ward et al., 2014). Microaggression experiences may be particularly related to alcohol use because they may occur routinely. As such, bisexual women may drink to cope with microaggression experiences. To date, limited research has focused on the influence of drinking to cope motivations on the daily association between microaggressions and alcohol use and consequences among bisexual women specifically. In addition to coping motives, there may be individual differences that increase the likelihood that bisexual women drink more when they experience microaggressions. For example, behavioral economic theory posits that risky drinkers may allocate more resources (e.g., money) to obtain alcohol (i.e., higher alcohol demand). It can be conceptualized that those with greater alcohol demand find alcohol to be more reinforcing and may drink more when they experience microaggressions. The current study addressed several critical gaps in prior research by examining if drinking to cope motivations and alcohol demand moderated the association between microaggression experiences and same-day alcohol use and consequences among emerging adult bisexual women using a daily diary design.

Identifying Bisexual Women

This study used several measures to capture sexual identity. Over seventy percent of the sample self-identified as bisexual. However, this resulted in nearly thirty percent identifying as

an identity other than bisexual and approximately five and nine percent identifying as heterosexual or lesbian, respectively. The second measure used to capture sexual identity was reports of sexual attraction. Thus, participants were eligible for the study if they endorsed an identity other than bisexual or pansexual (e.g., heterosexual or lesbian) if they reported that they were not attracted exclusively to men or to women. This discrepancy in self-reported sexual identity and reports of attraction reveal the difficulties in capturing and accurately measuring sexual orientation. In prior research, bisexual was used as an umbrella term to describe many nonmonosexual identities (e.g., Flanders, Ross, Dobinson, & Logie, 2017) possibly because emerging adults may be particularly reluctant to group themselves into a single label. Therefore, in addition to self-reports, measuring sexual attraction may be an additional way that researchers could examine and capture sexual identity (e.g., Diamond, 2008).

Correlation Results

Several alcohol demand indices were correlated with daily average alcohol use and consequences. Intensity (consumption when cost was free) and Omax (maximum amount a person would spend on alcohol) were positively related to daily alcohol use and consequences. In addition, elasticity was negatively correlated with daily alcohol use suggesting that those who reported less change in reported consumption as price increased drank more. These results are consistent with previous research in which sexual identity was not reported, and demonstrate that alcohol demand is associated with more drinking and higher alcohol consequences (e.g., MacKillop et al., 2010; Tripp et al., 2015).

In terms of coping motivations, participants with higher drinking to cope motives reported that they would consume more drinks if the cost was free (i.e., intensity). However, drinking to cope motives were not associated with any other behavioral economic demand

indices. Based on motivational models of coping, a person with higher drinking to cope motives would be theorized to drink to alleviate negative affect (e.g., Cooper, 1994). Dennhardt et al. (2016) found that coping motives mediated the association between intensity and more alcohol problems and suggested that alcohol use may be the most reinforcing when people experience negative affect. Negative affect may increase when bisexual women experience microaggressions, which could explain the positive correlation between intensity and drinking to cope motivations. Drinking to cope motives were also correlated with higher alcohol use, negative alcohol consequences, and microaggression experiences for the daily diary portion of the study. It has been well documented that drinking to cope motives are associated with higher alcohol use and negative alcohol consequences (e.g., Howell, Leyro, Hogan, Buckner, & Zvolensky, 2010; Marshall-Berenz, Vujanovic, & MacPherson, 2011; Martens et al., 2008; Rice & Van Arsdale, 2010).

Daily Associations between Variables

According to sexual minority stress theory (Meyer, 2003), bisexual women may experience microaggressions from monosexual individuals (e.g., heterosexual, lesbian/gay individuals) due to their sexual attractions and potential relationships with men and women. Further, motivational models such as the self-medication hypothesis (Khantzian, 1987) suggest that bisexual women may drink in order to alleviate negative affect from microaggression experiences. A daily diary study of young bisexual men and women found that on days when they experienced more microaggressions they reported higher anxiety symptoms (Flanders, 2015). Despite extensive cross-sectional research documenting the association between discrimination and increased drinking (e.g., Livingston et al., 2016; Slater et al., 2017; Wilson et

al., 2016), few studies have examined how microaggressions may be associated with alcohol use and consequences in an emerging adult bisexual women specifically using a daily diary design.

Daily Microaggressions as Related to Same-day Alcohol Use and Consequences

The first aim of the study was to establish a direct association between daily microaggression experiences and same-day alcohol use and consequences. Hypotheses were supported such that on days when emerging adult bisexual women experienced more microaggressions they drank more and reported more alcohol consequences. Therefore, one explanation for the increased drinking rates among bisexual women may be attributed to microaggression experiences. Although previous cross-sectional research has shown microaggressions are associated with greater alcohol problems among lesbian, gay, and bisexual adults (Scharer & Taylor, 2018), the present study demonstrated this association among bisexual women using a daily diary design. Importantly, results of this study show that those who are already drinking at high levels may drink more on days when they experience microaggressions.

Drinking to Cope Motives Moderate Daily Associations

To build on the first aim of the study, the second aim was to examine if drinking to cope motivations moderated the association between daily microaggressions and same day alcohol use and consequences. Contrary to expectations, drinking to cope motives did not moderate the association between daily microaggressions and same-day alcohol use or consequences. In other words, although microaggressions were associated with same-day alcohol use and consequences, drinking to cope motives did not strengthen this association.

A possible explanation for the lack of significant findings is that drinking to cope motives were high among this sample suggesting there may have been a ceiling effect. Drinking to cope motives may have been high in part, because participants were recruited based on heavy drinking

criteria and experiencing microaggressions weekly. These criteria may be associated with high negative affect that participants may attempt to alleviate by drinking. This premise is further supported by the average drinking to cope motives score which was 15.50. The average drinking to cope motives score in the present study is higher and the standard deviation was lower than that reported in other studies of regular drinking bisexual women with less stringent recruitment criteria (e.g., average drinking to cope motives: Kelley et al., 2018 = 11.48; Kelley, Ehlke, Braitman, & Stamates, 2018 = 12.53). Further support for this contention that drinking to cope motives was high in the sample is that the maximum value of the coping subscale of the Drinking Motives Questionnaire (DMQ; Cooper, 1994) is 25. Another explanation could be that drinking to cope motives may be a dynamic cognitive process that changes as opposed to a constant or unchanging trait level process. Many investigators conceptualize drinking to cope motives to be trait level cognitive processes that are only assessed at one timepoint (e.g., Armeli et al., 2010; Dvorak, Pearson, & Day, 2014; Simpson et al., 2014). However, particularly for risky drinkers, drinking to cope motives may be more likely to fluctuate in the moment based on the person's experiences. For instance, prior research has shown that among college students who report high coping motives (trait level), on days when they experienced high levels of negative affect they were also more likely to report drinking to cope (Arbeau, Kuiken, & Wild, 2011) suggesting drinking to cope may be more accurately conceptualized as a state level variable. If that is the case, on days when emerging adult bisexual women experience more microaggressions they may have higher drinking to cope motives which in turn may be associated with greater alcohol use and consequences. Conceptualizing drinking to cope motivations as a mediator that is measured daily or throughout the day may provide a better explanation of microaggressions and alcohol use/consequence relationships.

Alcohol Demand Indices Moderate Daily Associations

There was a significant interaction between intensity (i.e., consumption when the cost was free) and microaggressions for alcohol consequences. Specifically, the association between microaggressions and same-day alcohol consequences was strongest for participants with higher intensity. In other words, participants who reported they would consume more drinks when they were free reported more alcohol consequences on days when they experienced more microaggressions. At the same time, intensity did not moderate the association between microaggressions and same day alcohol quantity.

Many factors beyond alcohol quantity such as the location where the person was drinking and who they were around may influence the number of consequences they experienced. For example, drinking alone at home or in a social setting may have resulted in a similar number of drinks, but the alcohol consequences (if any) experienced in each location may be different. That is, those who drank in social settings may have experienced more alcohol consequences such as saying something embarrassing or drinking and driving. For instance, patients with injuries in an emergency room were more likely to have drunk in public as opposed to private settings (Andreuccetti et al., 2014). Similarly, among women, attending bars more frequently was associated with experiencing aggression in a bar (Leonard, Quigley, & Collins, 2003), and female college students who drank more frequently at off-campus parties and bars/restaurants were more likely to experience sexual coercion which was explained through their drinking behavior (e.g., binge drinking, alcohol quantity; Ehlke, Kelley, & Braitman, 2019). Contextual elements of the social setting may increase the risk for alcohol consequences. Specifically, for bisexual women with greater alcohol intensity, they may seek out social drinking locations such as parties where drinks are free. Adult bisexual women are more likely than heterosexual

women to drink at bars (Trocki & Drabble, 2008) where they may accept free drinks from other bar patrons. However, by consuming more free drinks they may experience more alcohol consequences such as a hangover, blacking out, or saying something embarrassing. Thus, bisexual women with high alcohol demand, as demonstrated by a greater willingness to consume more drinks if they were free, who drink more often in public establishments may be at the highest risk for negative alcohol-related consequences on days when they experience microaggressions.

Qualitative research has shown that sexual minority women report that a common reason for drinking is to facilitate social connections (McNair et al., 2016). Therefore, it is also important to determine reasons for drinking at different locations. A latent class analysis among sexual minority women found that compared to infrequent drinkers, those who drank frequently in more locations (e.g., parties, bars, and restaurants) were less likely to report drinking to cope motivations and more likely to report social motives for drinking (Fairlie, Feinstein, Lee, & Kaysen, 2018). Therefore, sexual minority women who drink more frequently at locations such as bars and parties may be more likely to drink to facilitate social interactions than to cope with negative moods. This finding is troubling given that adult bisexual women drink more at bars and parties compared to heterosexual and lesbian women (Trocki, Drabble, & Midanik, 2005) which could increase the risk of alcohol-related negative consequences. Drinking motivations may also change based on experiences during the day. Perhaps some bisexual women want to be alone and drink at home on days when they experience microaggressions in order to cope with the negative emotions. Although not studied among bisexual women specifically, undergraduates who reported more depressive symptoms were more likely to report drinking alone which increased alcohol consequences (Keough, O'Connor, Sherry, & Stewart, 2015). In

contrast, other bisexual women may choose to drink at bars or parties on days when they experience microaggressions to facilitate social interactions in an attempt to improve their moods. Although it is assumed that microaggressions lead to feelings of negative affect, perhaps the degree of negative emotions that a person experiences varies. That is, some bisexual women may internalize and ruminate on the microaggression experience whereas others may seek out social connections to improve their moods. This variation in how one interprets and responds to microaggressions may influence their drinking motivations. It is possible that women who drink for social reasons and in public establishments may be at the greatest risk for alcohol-related negative consequences. Taken together, bisexual women may drink in different locations based on how they cope with microaggressions. As such, some bisexual women may choose to cope with microaggressions by drinking at home where the risk for alcohol consequences may be lower, but others may choose to attend social events to interact with other people. Regardless, it could be that bisexual women who seek out locations where alcohol is/can be free (e.g., bars, parties) may be at risk of alcohol consequences on days when they experience more microaggressions.

With regard to other alcohol demand indices, the association between microaggressions and same-day alcohol use was only significant for those with low breakpoint values (i.e., reported consuming zero drinks at a lower price-point). An identical pattern of results was found for alcohol consequences. Interestingly, for participants with high breakpoint values, alcohol use and consequences were not associated with how many microaggressions they experienced. That is, regardless of experiencing more or fewer microaggressions, those with high breakpoint values reported similar alcohol use and consequences. Participants with higher breakpoint values are willing to spend more per drink which may impact where they drink. For instance, if they are

willing to spend more per drink they may go out to bars and restaurants rather than staying home or attending parties where alcohol may be free. Additionally, if their friends engage in similar alcohol use behaviors, they may hold norms that greater drinking is appropriate and acceptable behavior. These results highlight the importance of the influence of microaggressions on drinking among emerging adult bisexual women. Even for participants with low breakpoint values they were more likely to drink and reported greater consequences if they experienced greater microaggressions on the same day.

Clinical Implications

Results showed that microaggressions were directly related to drinking to cope motives, alcohol use and consequences. Although drinking to cope motives collected prior to the daily diary portion of the study did not moderate the daily association between microaggressions and alcohol use or consequences it is important to note that as a whole, participants reported high motivations to drink to reduce negative affect. Therefore, clinicians should assess reasons for drinking with clients who identify as bisexual and display alcohol use problems. It could be that they are drinking to alleviate persistent negative affect from microaggressions that they frequently experience. Overtime, drinking to cope with microaggressions may become an established pattern of behavior. Qualitative research reveals that sexual minority women consume alcohol to form social connections (McNair et al., 2016). Moreover, some research has found that adult bisexual women are more likely to drink at bars than heterosexual women (Trocki & Drabble, 2008). In terms of alcohol quantity, adult bisexual women drink more at bars and parties compared to heterosexual and lesbian women (Trocki, Drabble, & Midanik, 2005). Therefore, bars and parties may be locations where bisexual women go to build social networks; however, alcohol use in these venues may be associated with higher consumption and

greater risk for alcohol consequences. Thus, if in fact, bisexual women who experience microaggressions are likely to drink, it may be important for clinicians to encourage clients who express microaggression experiences to consider coping skills that do not involve alcohol use. More specifically, those that work with bisexual women should encourage them to engage in activities that do not involve drinking.

Clinicians should also foster an inclusive environment and avoid microaggressions during practice. For example, therapists should create an affirmative office environment that includes pamphlets and information with images of same-sex couples, intake information should inquire about sexual orientation, and they should use inclusive language (e.g., use the word partner instead of wife/husband/boyfriend/girlfriend; Spengler, Miller, & Spengler, 2016). An online qualitative research study found that sexual minority adults labeled it unhelpful when their therapists articulated stereotypes and ignored or did not ask if they needed assistance in dealing with issues directly related to their sexual identity (Quinones, Woodward, & Pantalone, 2017). By definition microaggressions are often unintentional and therefore therapists should be cognizant of being inclusive of sexual minority individuals. Trainings specific for those who work with the sexual minority community may be beneficial. In fact, practitioners who work with sexual minority individuals acknowledge that they would be open to trainings about issues that LGBTQ young adults experience (Sherriff, Hamilton, Wigmore, & Giambrone, 2011). Continuation to seek treatment could be encouraged by incorporating information and language that mitigates negative experiences that bisexual women typically report. Further, it is particularly important for clinicians to avoid expressing biases and reiterating stereotypes to their clients. Instead, they should discuss everyday experiences with their bisexual clients to assess for areas that they may be able to help them learn new coping techniques.

Online interventions are an alternative treatment modality to face-to-face interventions that have been shown to be efficacious at reducing alcohol use (White et al., 2010). Online interventions can reach a wide range of individuals using minimal resources and may be particularly advantageous for bisexual populations who may be reluctant to seek formal treatment due to fear of stigma. Specifically, in the current study, over half of the women were in the closet most of the time and only twelve percent were out of the closet all of the time. As such, online interventions may provide "safe spaces" where bisexual women feel a sense of anonymity but can still seek support and treatment. Further, among young sexual minority individuals (ages 14 – 29), online LGBT+ social support served as a buffer for the association between interpersonal stressors (e.g., feeling pressure to hide their sexual identity by other people) and pride/acceptance about their identity; however, offline social support did not impact this association (Wagaman et al., 2020). These findings suggest that online sources of social support about one's sexual identity may provide a positive and unique outlet that is less available offline. Importantly, compared to offline social support, online social support appears to be a protective factor against negative internalized stigma which may be associated with alcohol use.

In one of the few studies to focus specifically on bisexual individuals, Israel and colleagues (2019) tested a theoretically driven online intervention that was designed to reduce internalized stigma among bisexual adult men and women. The intervention was divided into four modules and was intended to be completed in a single 30 to 45-minute online session. Module one included information to help participants identify and assess stereotypical beliefs about bisexuality by presenting them with specific research evidence to combat the stereotypes. The second module was designed for participants to recognize external sources that negative messages about bisexuality may stem from and influence internalized stigma. Specifically, in

module two, participants selected messages that they had received throughout their life and then selected the external source responsible for that message (e.g., family, media, peers, etc.). In order to enhance self-efficacy, participants also provided a qualitative response about how they rejected the negative message. Module three was intended to strengthen participants' rejection of binegative responses by first showing them a video of a bisexual person describing how they handled stigma and then asking them to write a short note providing comfort and support to a young bisexual person who was struggling with their identity. The intention of this note was to allow the participant to express positive affirmations about bisexuality with the intention to change negative internal attitudes. Finally, module four included a list of positive statements about bisexuality as well as viewing a slideshow of positive bisexual-related images with upbeat music to further strengthen biaffirmative attitudes. Similar to the current study, participants in their study self-identified as bisexual or a nonmonosexual identity or reported attractions to multiple genders. Results of Israel et al. (2019) revealed that those who received the online intervention reported lower anticipation of experiencing binegativity, and higher acceptance of their bisexual identity and positive affect, compared to those in the control condition who received information about general stress reduction. Although untested, this type of online intervention may not only reduce internalized stigma, but it may also inadvertently decrease the likelihood that bisexual women will drink to cope with stigma and microaggressions.

Behavioral economic theory could also be adapted in clinical settings. Murphy and Dennhardt (2016) note that intensity and Omax could be easily administered in clinical screenings by using a very brief version of the Alcohol Purchase Task (APT). Results from the present study would suggest that intensity would be particularly important to measure to identify people who may be at the greatest risk for experiencing alcohol consequences. For instance, a

single item could be used to assess for intensity by asking clients how many drinks they would consume if they were free. If this method was incorporated, a standard cutoff amount would need to be determined to recognize those who may be at risk for hazardous alcohol use. One suggestion could be to incorporate the binge drinking cutoff (4 or more drinks for women, 5 or more drinks for men) to indicate hazardous drinking. However, the validity of the binge drinking criterion has been called into question as being indicative of problematic alcohol use (e.g., Pearson, Kirouac, & Witkiewitz, 2015). In general, despite ease and feasibility to incorporate an APT in clinical settings, more research is needed to determine what constitutes problematic drinking.

Drinking refusal skill building interventions could be beneficial for those with high alcohol demand. Specifically, this harm reduction approach could encourage those with high intensity to refuse drinks when they are free. Greater drinking refusal self-efficacy has been associated with fewer drinks per week for college women (Ehret, Ghaidarov, & LaBrie, 2013). Further, among sexual minority youth, those who received an intervention which included drug use refusal skill information were less likely to report drug use and higher drug-use refusal skills at the three month follow-up compared to those in a control group (Schwinn, Thom, Schinke, & Hopkins, 2014). Therefore, using the APT as a screening tool could identify those with high alcohol demand who may benefit from interventions focused on enhancing drinking refusal skills.

Policy Implications

Excessive alcohol use (binge drinking, heavy drinking [8/15 drinks per week for women/men], underage drinking, and consumption by pregnant women) cost the United States $249 billion in 2010, with the majority of these costs resulting from binge drinking (Sacks,

Gonzales, Bouchery, Tomedi, & Brewer, 2015). Thus, reducing the costs associated with excessive drinking is important from a policy standpoint. Results of this study showed that microaggressions may have a primary influence on alcohol use and consequences for emerging adult bisexual women. Therefore, zero tolerance policies focused on reducing microaggressions could have a positive impact on the drinking rates among bisexual women who demonstrate the highest rates of alcohol consumption. In turn, these lower drinking rates could reduce government spending for excessive alcohol use.

An example of how policy has had an impact on sexual minority people is the Supreme Court's monumental ruling in 2015 requiring states to grant and recognize same-sex marriage. Recognition of same-sex marriage is associated with better health outcomes among sexual minority individuals (e.g., Kail, Acosta, & Wright, 2015). For example, a study that examined health outcomes before and after legalization of same-sex marriage in all states found that sexual minority adult participants who lived in states that banned same-sex marriage reported higher internalized homonegativity, anxiety symptoms, and poorer wellbeing relative to those living in states where same-sex marriage was legal (Tatum, 2017). Similarly, prior to the Supreme Court's ruling, Illinois passed the Religious Freedom Protection and Civil Union Act which supported civil unions of same-sex couples. Sexual minority women interviewed after the civil union bill was passed (but prior to it being enacted) reported fewer depressive symptoms, and those interviewed after the bill was enacted reported lower levels of stigma and perceived discrimination than those interviewed prior to the bill passing (Everett, Hatzenbuehler, & Hughes, 2016). Further, results from the same study showed that negative alcohol consequences were lower for both groups after the bill was passed, relative to those interviewed before the bill. Taken together, state and federal laws can have a positive impact on perceived and internal

stigma sexual minority individuals experience as well as improved health outcomes and behaviors such as mental health symptoms and alcohol use. Although these policies may not be able to completely stop discrimination against sexual minority people perhaps targeting young populations (e.g., adolescents or young adults) and microaggression experiences that people are unaware are even hurtful or offensive would be a beneficial first step.

Currently there are no federal protections for sexual minority employees within their workplace. This absence is alarming given the extensive time Americans spend at work. Currently, it is up to businesses to establish anti-discrimination policies that includes sexual identity. Even when organizations have policies protecting sexual minority employees from discrimination, they are often broad and rarely enforced. Researchers have suggested that workplace policies should be specific and provide examples of microaggressions, as well as be thoroughly enforced at all levels of the workplace (e.g., supervisors, coworkers, clients; Galupo & Resnick, 2016). Because microaggressions can be subtle and unintentional forms of discrimination, training that includes specific examples of microaggressions may help employees recognize behaviors that they did not realize were offensive.

Limitations

Several limitations should be noted for the current study. This study was conducted among risky drinking emerging adult bisexual women. Therefore, findings may not be generalizable to other populations such as men, transgender individuals, older adults, and low-risk drinkers. Additionally, defining one's sexual orientation is complex. The current study attempted to capture bisexual women through a variety of questions including self-identification and reports of sexual attractions measured both on a continuum and categorically. Many studies use self-identification as a screening criterion to measure sexual identity. However, some

research suggests that while self-identified sexual identity may fluctuate across time, measures of sexual attraction remain stable (Diamond, 2008). Thus, the current study utilized multiple ways to identify bisexual women and examined self-identification and sexual attraction ratings as potential covariates in analyses.

An average of 0.65 alcohol consequences on drinking days were endorsed at the daily level by participants. This result could be attributed to the measure that was used which only assessed relatively severe consequences (e.g., hangover, blacking out), was only comprised of seven potential alcohol consequences and was developed using a sample of undergraduate college students. Not all participants in the current study were college students. Perhaps participants experienced consequences that were not measured. Similarly, to date, there is no valid measure to examine microaggression experiences among bisexual women. The current study used a combination of questions from previous research (Flanders, 2015; Livingston, 2017b) and a recently developed questionnaire (BMMS-W, Flanders et al., 2019) to examine microaggressions. Despite attempts to capture a wide range of common microaggressions, there may be experiences that were not measured in this study. There was also evidence of participant reactivity such that as the study progressed, participants reported significantly fewer microaggressions and alcohol consequences and more alcohol use. It could be beneficial for future research to provide a brief training or example items of microaggressions that will be assessed daily. Another option could be to omit the first few days of data collection from analyses as the participant is learning to respond to the surveys. Finally, daily surveys assessed experiences and alcohol use that occurred yesterday (i.e., the day before). Although daily surveys are intended to limit retrospective recall bias, reports of experiences and behaviors may still be influenced by the short delay.

Future Directions

A primary focus for future research is to use ecological momentary assessment (EMA) methodology to examine microaggressions, alcohol use and consequences, drinking to cope motives, and alcohol demand. EMA allows researchers to capture dynamic behaviors as in the moment as possible with multiple reports throughout the day as well as self-initiated reports. As such, retrospective recall bias is reduced in EMA designs (Schiffman et al., 2008). Participants could self-initiate a report when they experience a microaggression, have an urge drink, or consume alcohol. This type of design would allow researchers to establish a temporal understanding of how these behaviors occur throughout the day. Further, drinking motives and alcohol demand could be examined as a mediator that may change throughout the day due to experiencing microaggressions which influences alcohol use/consequences. In other words, drinking motives and alcohol demand could be examined as potential mechanisms to target in interventions and clinical practice to reduce drinking among bisexual women. Income was also correlated with several alcohol demand indices suggesting that exploring how microaggressions and alcohol use and alcohol consequences vary for those with different income levels could be important.

Despite a lack of research about bisexual women specifically, it is also important to interpret findings from an intersectionality approach. For example, bisexual women acquire at least two minority status identities in our society (i.e., sexual identity and biological sex). Although not measured in the current study, in addition to their sexual identity, participants may have experienced microaggressions based on their sex (i.e., female). Further, some bisexual women may cultivate several minority identities (e.g., race/ethnicity, religion, ability, socioeconomic status) for which they experience microaggressions. Therefore, future research

should examine multiple types of microaggression experiences. In addition, the association between microaggressions and alcohol use should be examined daily among men.

In addition to alcohol use, compared to heterosexual women, the rates of other substance use (e.g., marijuana, opioid, tobacco) are higher for sexual minority women, particularly bisexual women (Branstrom & Pachankis, 2018; Duncan, Zweig, Hambrick, & Palamar, 2019; Schuler, Dick, & Stein, 2019; Schuler, Stein, & Collins, 2019). For example, results from the 2015-2017 National Survey on Drug Use and Health (NSDUH) revealed that 40% of adult bisexual women reported past year marijuana use and 4.9% were diagnosed with a marijuana use disorder which exceeded rates for lesbian (marijuana use: 26.1%, marijuana use disorder: 2.9%) and heterosexual (marijuana use: 10.3%, marijuana use disorder: 0.6%) women (Philbin, Mauro, Greene, & Martins, 2019). In a separate study using the 2015-2017 NSDUH, compared to lesbian women, bisexual women had higher odds of marijuana use, illicit drug use, and opioid misuse (Schuler & Collins, 2020). Perhaps the elevated rates of substance use, besides alcohol, are in part due to microaggressions. Therefore, it is important for future research to examine the potential role that microaggressions have on use of these other substances and polysubstance use.

CONCLUSIONS

This study was the first to examine the daily association between microaggression experiences and same day alcohol use and alcohol consequences among emerging adult bisexual women. Additionally, this study incorporated an APT to examine if alcohol demand moderated the association between microaggressions and alcohol use/consequences. Drinking to cope motivations were also examined as a potential moderator. On days when bisexual women experienced more microaggressions they reported greater alcohol use and alcohol consequences on the same day. Drinking to cope motivations did not moderate this association. However, breakpoint moderated the association between microaggressions and alcohol use and consequences. Specifically, even for those who reported they would consume zero drinks at a lower price-point (i.e., low breakpoint values), on days when they experienced more microaggressions they reported greater alcohol use and alcohol consequences. Further, those with higher intensity values (i.e., would consume more drinks when the cost was free) reported more alcohol consequences on days when they experienced more microaggressions, than those with lower intensity. Collectively, these results suggest that microaggressions may be an important factor for the high levels of drinking and negative alcohol-related consequences among emerging adult bisexual women. Alcohol demand may also influence this association and be easily administered in a clinical setting. Future research should incorporate longitudinal designs using EMA methods to examine the temporal sequence during a single day of microaggressions, alcohol use and consequences, drinking to cope motives, and alcohol demand.

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APPENDIX A

RECRUITMENT WORDING

Community/Online Recruitment Text

Women who are 18 to 25 years old and have drank alcohol in the past 30 days may be eligible for a research survey about daily experiences and health behaviors.
Eligible participants will complete a baseline survey, and short daily surveys (5-10 minutes) for 28 consecutive days.
All surveys will be completed online.
Eligible participants will be compensated up to $38 plus entered into a raffle to win one of four $25 online gift cards.

Click the link to determine if you are eligible or contact sehlk001@odu.edu for more information

[insert link]

On-Campus/Student Announcements/SONA Recruitment Text

Women who are 18 to 25 years old and have drank alcohol in the past 30 days may be eligible for a research survey about daily experiences and health behaviors.
Eligible participants will complete a baseline survey, and short daily surveys (5-10 minutes) for 28 consecutive days.
All surveys will be completed online.
Eligible participants can choose to receive SONA research credit or be compensated up to $38 plus entered into a raffle to win one of four $25 online gift cards.

Click the link to determine if you are eligible or contact sehlk001@odu.edu for more information

[insert link]

APPENDIX B

SCREENING QUESTIONNAIRE

1. How old are you? _____ (*eligible if 18 – 25*)

2. What type of city/community/town do you live in?
    a. Urban
    b. Suburban
    c. Rural

3. What is your race? (select all that apply)
    a. Caucasian/White
    b. African American/ Black
    c. American Indian/Alaskan Native
    d. Asian
    e. Native Hawaiian/Pacific Islander
    f. Other: _____ (please specify)

4. Are you Hispanic/Latino(a)/Spanish origin?
    a. Yes
    b. No

5. How would you describe your sexual orientation? Would you say that you are:
    a. Heterosexual or straight
    b. Bisexual (*eligible*)
    c. Pansexual (*eligible*)
    d. Lesbian/Gay
    e. Asexual
    f. Demisexual
    g. Queer
    h. Questioning
    i. Other: _____ (please specify)

6. People are different in their sexual attraction to other people. Which best describes your feelings?
    a. I am only attracted to women.
    b. I am mostly attracted to women. (*eligible*)
    c. I am equally attracted to men and women. (*eligible*)
    d. I am mostly attracted to men. (*eligible*)
    e. I am only attracted to men.

7. Using the sliding scale below, indicate how attracted you are to men and women.
    Values closer to 0 indicate only attracted to men.
    Values closer to 100 indicate only attracted to women.
    Values around 50 indicate equal attraction for men and women.

You may also select Not Applicable if appropriate.
Insert sliding scale of 0 – 100 (*eligible if values are between 25 – 75*)

8. What is your employment status? (select all that apply)
    a. Unemployed
    b. Employed part-time
    c. Employed full-time
    d. Student
    e. Homemaker
    f. Retired

9. How would you describe your relationship status?
    a. Single, not dating anyone
    b. Single, dating, but not any one person in particular
    c. Single, dating a main partner but not in an exclusive relationship
    d. Single, exclusively dating one person
    e. Partnered, in an exclusive relationship
    f. Partnered, married or in a civil union
    g. Other: _____ (please specify)

10. Which sex were you assigned at birth? (i.e., what appears on your birth certificate?)
    a. Male
    b. Female (*eligible*)

11. How would you describe yourself?
    a. Male
    b. Female (*eligible*)
    c. Male to female transgender
    d. Female to male transgender
    e. Gender queer/non-conforming
    f. Other: _____ (please specify)

12. Do you own a smartphone?
    a. Yes
    b. No

13. What describes your highest educational level?
    a. Less than high school
    b. Some high school
    c. High school graduate
    d. Some college
    e. Associate's degree
    f. Bachelor's degree
    g. Master's degree
    h. Doctoral/Professional degree

14. In the past 30 days, how often have you drank alcohol?
    a. Never
    b. Once
    c. 2-3 times (less than weekly)
    d. Weekly (once per week) (*eligible*)
    e. 2-4 times per week (*eligible*)
    f. Daily or almost daily (*eligible*)

15. In the past 30 days, how many days have you had at least 4 drinks in about 2 hours? _____ (dropdown list of 0-30) (*eligible if 2 or greater*)

16. Did you experience a negative event that you felt was attributed to your sexual identity at least weekly (e.g., once per week) in the past 30 days? Below are a few examples of possible negative events you may have experienced.
    - Overhead someone use a sexual minority slur such as gay to mean bad or stupid.
    - Someone asked your inappropriate sexual questions or made sexual advances toward you because of your sexual identity.
    - You felt like other people did not trust you because of your sexual identity.
    - You felt excluded from social events because of your sexual identity
    - You were treated with less respect, insulted, or called names because of your sexual identity.
    - You felt like your feelings were ignored because of your sexual identity.

    a. Yes (*eligible*)
    b. No

17. Would your schedule permit you to respond to a brief online survey each morning (6am – 12pm) or afternoon (12pm – 6pm) for the next 28-days?
    a. Yes (*eligible*)
    b. No

APPENDIX C

CONTACT INFORMATION

[*after completing the baseline assessment*] Thank you for completing the baseline survey for the Daily Experiences and Health Behaviors Study! You will be entered into a raffle win 1 of 4 $25 gift cards for completing this baseline survey. If you are an ODU psychology student, you can choose to receive .5 research credit points.

Remember, there is a second part to this study.

- Part 2 of the study involves completing short (5-10 min) daily surveys for 28-days.
- **You can earn up to $38 for completing the daily surveys!**

1. Are you interested in participating in part 2 of this study?
    a. Yes
    b. No

[*if No to Q1*] Thank you for your time completing the baseline survey! You indicated that you do not want to participate in part 2 of the study. You will be entered into a raffle to win 1 of 4 $25 online gift cards. If you are an ODU psychology student, you can choose to receive .5 research credit points instead. Please select how you would prefer to be compensated for completing the baseline survey.

a. Raffle
b. ODU SONA research credits

[*if Raffle entry*] You indicated that you would prefer to be entered into the gift card raffle. Please provide your email address below so we can send you the online gift card if you win. If you do not enter your email address we will be unable to contact you if you win the raffle.

_____ (email address)
_____ (confirm email address)

[*if SONA student*] You indicated that you would prefer to receive research credit for your participation. You will receive .5 research credit points for completing the baseline survey. Please allow up to 2-weeks for credit to be assigned. Please enter your SONA ID number below. Remember, this is different than your ODU MIDAS ID.

_____ (SONA ID number)
_____ (confirm SONA ID number)

[*if Yes to Q1*] The daily surveys will be completed online and are expected to take 5-10 minutes to complete. You will receive an email with a link to a survey each day for 28 days in a row once the daily surveys begin. For study purposes, the surveys must be completed during a 6-hour period. You can choose to receive the email at 6am and will have until 12pm to complete the survey. Or, you can choose to receive the daily emails at 12pm and will have until 6pm to complete the survey. Which time period would you prefer to complete the daily surveys for 28 consecutive days?

a. 6am – 12pm

b. 12pm – 6pm

[*if Yes to Q1*] What is your time zone? We just want to make sure they are sent during the time period that you selected for your time zone.

a. Eastern Time Zone (EST)
b. Central Time Zone (CST)
c. Mountain Time Zone (MST)
d. Pacific Time Zone (PST)
e. Other: _____ (please specify)
f. I'm not sure: _____ (please indicate the zip code where you live [if in the United States, or country/region [if outside of the United States])

[*if Yes to Q1*] We would like to provide you with information about the daily surveys. The daily surveys *will not* start until you receive information about part 2 of the study.
Would you like to receive the instructions for the daily surveys and information about payment by email or during a brief 5-10 minute phone call?

a. Email
b. Phone call

[*if Email instructions is selected*] You indicated that you would prefer to receive the instructions about part 2 of the study by email. Please provide your email address below where we can send you instructions about the daily surveys and how you will be compensated for the daily surveys. The researcher will email you within one week.
Only research staff will have access to your personal contact information.
The daily surveys will not start until after you receive this email.

A. Please provide your first name/preferred name if you feel comfortable: _____
B. What is your email address? _____
C. Please confirm your email address? _____

Sometimes we may need to contact you about the survey or about receiving your payment for the study. Would it be okay if we contacted you by phone (e.g., text message, phone call) if needed during the study period?

A. Yes, my phone number is: _____
    a. Repeat phone number: _____
B. No, please only email me

[*if Yes to phone calls above*] Please indicate what days and times would be the best to reach you by phone, if necessary. (*select all that apply*)

Mondays	Before 8am	8am-10am	10am-12pm	12pm-2pm	2pm-4pm	4pm-6pm	6pm-8pm	After 8pm
Tuesdays	Before 8am	8am-10am	10am-12pm	12pm-2pm	2pm-4pm	4pm-6pm	6pm-8pm	After 8pm
Wednesdays	Before 8am	8am-10am	10am-12pm	12pm-2pm	2pm-4pm	4pm-6pm	6pm-8pm	After 8pm

Thursdays	Before 8am	8am-10am	10am-12pm	12pm-2pm	2pm-4pm	4pm-6pm	6pm-8pm	After 8pm
Fridays	Before 8am	8am-10am	10am-12pm	12pm-2pm	2pm-4pm	4pm-6pm	6pm-8pm	After 8pm
Saturdays	Before 8am	8am-10am	10am-12pm	12pm-2pm	2pm-4pm	4pm-6pm	6pm-8pm	After 8pm
Sundays	Before 8am	8am-10am	10am-12pm	12pm-2pm	2pm-4pm	4pm-6pm	6pm-8pm	After 8pm
None of the above. _____(please specify)								

[*if Phone call instructions was selected*] You indicated that you would prefer to receive the instructions about part 2 of the study by phone call. Please provide your phone number below where we can call you to tell you more about the daily surveys and how you will be compensated for the daily surveys. The researcher will call you within one week.
Only research staff will have access to your personal contact information.
The daily surveys will not start until after the brief phone call.

A. Please provide your first name/preferred name if you feel comfortable: _____
B. What is the best phone number to reach you at? _____
C. Please confirm the best phone number to reach you at? _____
D. Please select the best days/times to reach you for a short 5-10 minute phone call about part 2 of the study. (*select all that apply*)

Mondays	Before 8am	8am-10am	10am-12pm	12pm-2pm	2pm-4pm	4pm-6pm	6pm-8pm	After 8pm
Tuesdays	Before 8am	8am-10am	10am-12pm	12pm-2pm	2pm-4pm	4pm-6pm	6pm-8pm	After 8pm
Wednesdays	Before 8am	8am-10am	10am-12pm	12pm-2pm	2pm-4pm	4pm-6pm	6pm-8pm	After 8pm
Thursdays	Before 8am	8am-10am	10am-12pm	12pm-2pm	2pm-4pm	4pm-6pm	6pm-8pm	After 8pm
Fridays	Before 8am	8am-10am	10am-12pm	12pm-2pm	2pm-4pm	4pm-6pm	6pm-8pm	After 8pm
Saturdays	Before 8am	8am-10am	10am-12pm	12pm-2pm	2pm-4pm	4pm-6pm	6pm-8pm	After 8pm
Sundays	Before 8am	8am-10am	10am-12pm	12pm-2pm	2pm-4pm	4pm-6pm	6pm-8pm	After 8pm
None of the above. _____(please specify)								

We will also need to email you daily surveys. What is the best email to contact you at and send the daily surveys that we will tell you more about over the phone?

A. Email address: _____
B. Repeat email address: _____

[*if Yes to Q1*] How would you prefer to be compensated for completing the baseline survey?

a. I am an ODU student and want to earn SONA research credit
b. I am an ODU student but I want to be entered into the raffle
c. I am not an ODU student and want to be entered into the raffle

[*if Yes to Q1*] How would you prefer to be compensated for completing the daily surveys?

a. I am an ODU student and want to earn SONA research credit
b. I am an ODU student but I want to receive online gift card compensation
c. I am not an ODU student and want to receive online gift card compensation

[*At end of contact information*]: Thank you again for your time and for completing the baseline survey! We will be contacting you within one week to give you more information about the daily surveys and compensation for the daily surveys. The daily surveys will not start until after we contact you with information for these surveys. Thank you again for your participation in the study! If you have any questions you can contact me at sehlk001@odu.edu.

APPENDIX D

DAILY SURVEY EMAIL INSTRUCTIONS

Thank you again for your interest in the Daily Experiences and Health Behaviors Study! We are trying to understand how daily experiences may relate to different health or mood outcomes, so it is important that you try to complete each survey. You indicated that you preferred to receive the instructions for part 2 of the study through email. **You will need to reply to this email before the daily surveys begin** (see below).
Below are some instructions to help explain the daily surveys that you will receive for 28 consecutive days.

- Each morning at **6am** [*change to afternoon at 12pm for those who indicate the 6am-12pm time frame*] you will receive an email with a link to a survey.
- Each survey will ask you to report on your health behaviors, mood and emotions, and experiences **yesterday**.
- You will receive an email at 6am to complete the survey for **28 days in a row**.
- You will have until **12pm** [*change to afternoon at 12pm for those who indicate the 6am-12pm time frame*] to complete each survey. After 12pm the survey link will close and you will no longer be able to access the survey for that day.
- **Each link only works once and only works for that day.** So, it is extremely important that you fill out the daily surveys on the day that we send it to you and to do so between **6am-12pm**. If not, you will miss the chance to complete the survey that day.
- You may complete the survey on any device that is connected to the internet (e.g., laptop, phone, computer, iPad). Because these are online surveys, you will need to have reliable daily access to the internet for the 28-days of this study.

We really appreciate the time that you take to complete the surveys so we will provide you with compensation in the form of an **online gift card** that we will **email** to you each week.

- You will receive **$1 for each survey** that you complete.
- If you complete **23-27 surveys** you will earn an additional **$4**.
- If you complete **all 28 surveys** you will receive an additional **$10**.
- **You can earn a maximum of $38 if you complete all of the surveys!**
- You will be emailed at the **end of each week** with your compensation. So, you will receive 4 total online gift card payments for participating in this study. If you earn any bonus payment, we will send it with your final payment.
- If you are an ODU student and you choose to be compensated with research credit you will receive .25 points for each survey.

Please reply to this email confirming that the time period of 6am – 12pm EST [*change to 12pm – 6pm; and/or the CST, MST, PST*] to complete the surveys will work best for you.

- For example, you can reply "6am – 12pm EST works for me."

The daily surveys will begin the day after you send the confirmation email.

If you are no longer interested in participating, have any questions or are not able to complete 28 short daily surveys (5-10 minutes) please respond to this email (sehlk001@odu.edu) and we will remove you the study. You will still be entered into the raffle for completing the baseline survey if you do not want to participate in the daily survey part of the study.

Thank you again for your participation in the study! **Please remember to reply to this email confirming the time period (e.g., 6am – 12pm) for receiving the daily surveys**.

Sarah Ehlke, M. A.
Health Psychology Doctoral Student
Old Dominion University

APPENDIX E

DAILY SURVEY EMAILS AND REMINDER TEXTS

Hello!

Thank you for your continued participation in the Daily Experiences and Health Behaviors Study. Here is the link for today's survey. Note that this link only works once and only works today. Please complete this survey sometime **today** between **6am and 12pm.**
Don't forget, the survey link will close at 12pm!

[Insert Study Link Here]

Thank you for your participation!

Sarah Ehlke, M. A.
Health Psychology Doctoral Student
Old Dominion University

Reminder texts: Don't forget to check your email for todays survey link. And remember, the survey will close at 12pm. Thanks!

APPENDIX F

DRINKING MOTIVES QUESTIONNAIRE

Below is a list of reasons people sometimes give for drinking alcohol.

In the past 30 days, how often would you drink for the following reasons?

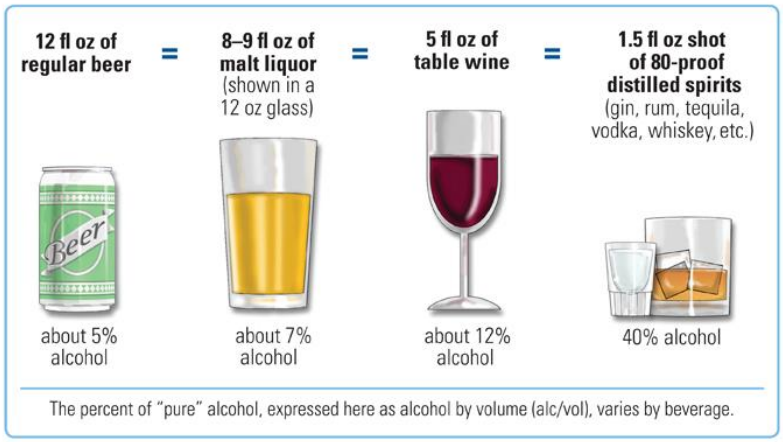
1 = Almost never/never
2 = Some of the time
3 = Half of the time
4 = Most of the time
5 = Almost always/always

1. Because it helps you enjoy a party	1	2	3	4	5
2. To be sociable	1	2	3	4	5
3. Because it makes social gatherings more fun	1	2	3	4	5
4. Because it improves parties and celebrations	1	2	3	4	5
5. To celebrate a special occasion with friends	1	2	3	4	5
6. To forget your worries	1	2	3	4	5
7. Because it helps you when you feel depressed or nervous	1	2	3	4	5
8. To cheer up when you are in a bad mood	1	2	3	4	5
9. Because you feel more self-confident and sure of yourself	1	2	3	4	5
10. To forget about your problems	1	2	3	4	5
11. Because you like the feeling	1	2	3	4	5
12. Because it's exciting	1	2	3	4	5
13. To get high	1	2	3	4	5
14. Because it gives you a pleasant feeling	1	2	3	4	5
15. Because it's fun	1	2	3	4	5
16. Because your friends pressure you to drink	1	2	3	4	5
17. So that others won't kid you about *not* drinking	1	2	3	4	5
18. To fit in with a group you like	1	2	3	4	5
19. To be liked	1	2	3	4	5
20. So you won't feel left out	1	2	3	4	5

APPENDIX G

ALCOHOL PURCHASE TASK

In the questionnaire that follows we would like you to pretend to purchase and consume alcohol during a 5-hour period.
Imagine you are in a situation in which you usually drink alcohol (at a bar, at a party, at home, with friends, etc.). Imagine that you do not have any obligations the next day (i.e., no work or classes). The following questions ask how many drinks you would purchase at various prices. The available drinks are standard size beer (12 oz), wine (5 oz), shots of hard liquor/distilled spirits (1.5 oz), or mixed drinks containing one shot of liquor/distilled spirits (see the picture below).
Assume that you did not drink alcohol or use drugs before, and that you will not drink or use drugs after. You do not have access to any other alcohol than what is available for purchase here and assume you have the same income/savings that you do now. Also, assume that the alcohol you are about to purchase is for your consumption only and you would consume every drink you request. In other words, you can't sell the drinks or give them to anyone else. You also can't stockpile the drinks for later. Everything you buy is, therefore, for your own personal use during the 5-hour period. Please respond to these questions honestly, as if you were actually in this situation.



Remember:

- You are in a situation in which you usually drink alcohol (at a bar, at a party, at home, with friends, etc.)
- You have no access to alcohol other than what is available for purchase here
- Everything you buy is for your own personal use during the 5-hour period

There are no "right" or "wrong" responses. Please answer all questions honestly, thoughtfully, and to the best of your understanding, as if you were actually in this situation.

Thinking of the scenario above, how many standard drinks would you purchase if drinks were:

$0.00 [Free] _____ drinks
$0.05 _____ drinks

$0.10 _____ drinks
$0.25 _____ drinks
$0.50 _____ drinks
$1.00 _____ drinks
$1.50 _____ drinks
$2.00 _____ drinks
$3.00 _____ drinks
$4.00 _____ drinks
$5.00 _____ drinks
$6.00 _____ drinks
$8.00 _____ drinks
$10.00 _____ drinks
$15.00 _____ drinks
$20.00 _____ drinks
$30.00 _____ drinks

APPENDIX H

DEMOGRAPHIC QUESTIONNAIRE

It is important to know something about our participants as a whole, so we request some demographic information. Only grouped data will be used, and you will never be identified.

1. What is your current individual annual income?
    a. Less than $9,999
    b. $10,000 – $19,999
    c. $20,000 – $29,999
    d. $30,000 – $39,999
    e. $40,000 – $49,999
    f. $50,000 – $59,999
    g. $60,000 – $69,999
    h. $70,000 - $79,999
    i. $80,000 - $89,999
    j. $90,000 - $99,999
    k. $100,000 or higher

2. Where is your current residence?
    a. A house, apartment, or room (not affiliated with a college/university)
    b. A parent's or relative's home
    c. A dormitory, residence hall, or apartment on a college campus
    d. A fraternity or sorority house
    e. Other: _____ (please specify)

3. [*if Q3 response is c- f*]: What is the sex of your current partner?
    a. Female
    b. Male
    c. Trans*
    d. Other: _____ (please specify)

4. [*if Q3 response is c- f*]: How long have you been dating this person/in the relationship?
    a. Months: _____
    b. Years: _____

5. [*if Q3 response is c- f*]: Do you live with your partner?
    a. Yes
    b. No

6. What is your height?
    a. Feet: _____
    b. Inches: _____

7. What is your current weight?

a. _____ lbs

8. At what age did you first wonder about your sexual identity? _____ [years]

9. At what age did you first disclose your sexual identity to someone else? _____ [years]

10. Relative to other bisexual (or nonmonosexual) individuals, I am:
    a. Definitely in the closet
    b. In the closet most of the time
    c. Half-in and half-out
    d. Out of the closet most of the time
    e. Completely out of the closet
    f. Prefer not to answer

11. Have you had sex with a man in your lifetime?
    a. Yes
    b. No

12. [*if Q13 is Yes*] Have you had sex with a man in the past year?
    a. Yes
    b. No

13. Have you had sex with a woman in your lifetime?
    a. Yes
    b. No

14. [*if Q15 is Yes*] Have you had sex with a woman in the past year?
    a. Yes
    b. No

APPENDIX I

ALCOHOL USE: DAILY ASSESSMENT

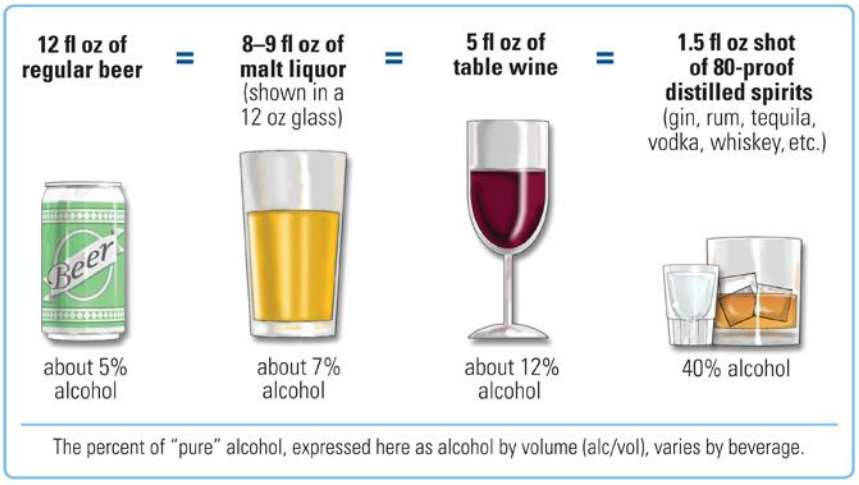
Thinking about yesterday:

1. Did you drink any alcohol yesterday?
   a. Yes
   b. No

IF YES:

For all questions, one standard drink equals:

- 12 oz. of beer (e.g. 1 can or bottle of a 12oz beer is 1 standard drink; a 24 oz. can of beer "tall boy" is 2 standard drinks)
- 5 oz. of wine
- 1.5 oz. of liquor (e.g., 1 shot of liquor)



1. How many drinks did you drink yesterday? _____ drinks
2. At about what time did you start drinking yesterday? _____ am/pm
3. At about what time did you stop drinking? _____ am/pm

APPENDIX J

ALCOHOL CONSEQUENCES: DAILY ASSESSMENT

Select any of the following things that happened to you as a result of your drinking yesterday?

1. I did something that embarrassed me.
2. I was rude of obnoxious.
3. I couldn't remember what I did while drinking.
4. I hurt or injured myself by accident.
5. I felt nauseated or vomited.
6. I became aggressive.
7. I had a hangover.
8. None of these things happened

APPENDIX K

MICROAGGRESSIONS: DAILY ASSESSMENT

1. Did you experience a negative event that you felt was attributed to your sexual identity yesterday?
   a. Yes
   b. No

Select any of the situations that you experienced yesterday related to your sexual identity. Select 'None' if you did not experience any of these.

2. Did you hear someone use a sexual minority slur such as "gay" to mean bad or stupid?
3. Did you feel compelled to identify your sexual identity to someone else?
4. Did someone assume or state that you are heterosexual?
5. Did someone assume or state that you are homosexual?
6. Did someone ask you inappropriate sexual questions or make sexual advances toward you because of your sexual identity?
7. Did you feel that you could not be trusted because of your sexual identity?
8. Did you feel excluded from social situations or events because of your sexual identity?
9. Were you treated with less courtesy or respect than others because of your sexual identity?
10. Were your perspectives/feelings overlooked, misunderstood, or dismissed because of your sexual identity?
11. Were you sexually harassed or sexually assaulted because of your sexual identity?
12. None

APPENDIX L

FILLER QUESTIONS: DAILY ASSESSMENT

A. Reasons for Not Drinking

Below are reasons why people do not drink. Thinking about yesterday, select which statement is a reason you did not drink yesterday.

1. I had to work at my job, on school work, or housework.
2. I had nobody to drink with.
3. I couldn't obtain alcohol.
4. I had no desire to drink.
5. I usually don't drink on this night of the week.
6. None of these reasons.

B. Other Alcohol Questions Developed for Study

7. Did you see anyone drinking alcohol yesterday?
   a. Yes
   b. No

8. Do you think any of your friends drank alcohol yesterday?
   a. Yes
   b. No

9. Were you at a location where you normally drink yesterday?
   a. Yes
   b. No

10. What is the likelihood that you will drink in the next 24 hours?
[*slider scale, 0 = I definitely will not drink, 100 = I definitely will drink*]

C. Daily Negative Consequences

Select any of the following things that happened to you yesterday.

11. I did something that embarrassed me.
12. I was rude or obnoxious.
13. I couldn't remember what I did.
14. I hurt or injured myself by accident.
15. I was nauseous or vomited.
16. I was aggressive.
17. I was exhausted.
18. None of these things happened to me yesterday

VITA

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Education

2020	**Ph.D.** Psychology, Old Dominion University; Norfolk, VA Major Area Paper Title: *An Integrated Model of Routine Activity Theory and Sexual Minority Stress Theory to Explain Alcohol-Involved Sexual Assault Among Bisexual Women* Dissertation Title: *A Daily Diary Examination of Microaggressions and Alcohol Use among Emerging Adult Bisexual Women: The Role of Alcohol Demand* Chair of Dissertation Committee: Michelle Kelley, Ph.D.
2014	**M.A.** Psychology, University of North Carolina Wilmington; Wilmington, NC Thesis Title: *The Impact of Hyperfemininity and Alcohol Use on Implicit Attitudes toward Alcohol and Sexual Behavior in College Women* Chair of Thesis Committee: Nora Noel, Ph.D.
2013	**M.A.** Criminology, University of South Florida; Tampa, FL Thesis Title: *The Impact of Hyperfemininity on Explicit and Implicit Blame Assignment and Police Reporting of Alcohol Facilitated Rape in a Sample of College Women* Chair and Co-chair of Thesis Committee: Amy Cohn, Ph.D. & Kathleen Heide, Ph.D.
2010	**B.A.** Psychology, University of South Florida; Tampa, FL