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COPING MOTIVES AS A MODERATOR OF THE ASSOCIATION BETWEEN MINORITY STRESS AND ALCOHOL USE AMONG EMERGING ADULTS OF MARGINALIZED SEXUALITIES AND GENDERS

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Abstract

Alcohol use and negative consequences are higher among individuals of marginalized sexualities and genders (MS/G), and emerging adults within this category face particular risks. According to Meyer's (2003) minority stress model, the higher prevalence of alcohol use and negative consequences among MS/G is an attempt to cope with proximal/internal and distal/external minority stressors. The purpose of this study was to examine whether coping motives moderated the relationship between internal minority stress and alcohol use outcomes. We hypothesized that higher internal minority and emerging adult stressors would be positively associated with higher levels of drinking-related outcomes, and that coping would moderate this association, with those higher in coping motives reporting a stronger positive relationship between internal minority stress and alcohol use outcomes. 122 MS/G college students (ages 18-25) completed an online survey assessing their alcohol use and associated negative consequences, internal and external minority stressors, and drinking motives. Results of hierarchical linear regressions revealed that while coping motives positively, associated with alcohol-related negative consequences ($\beta = .38$, $p < .001$) and quantity of alcohol consumption ($\beta = .22$, $p < .01$), there was not a significant interaction between coping motives and internal minority stressors. However, both coping motives ($\beta = .22$, $p < .01$) and internal minority stressors ($\beta = .22$, $p < .01$) were positively associated with frequency of binge drinking, with a significant interaction between internal minority stress and coping ($\beta = .07$, $p < .05$). These results suggest that MS/G college students who endorse greater coping motives consume greater quantities of alcohol and are at greater risk for alcohol-related negative consequences. Only binge drinking was significantly associated with internal minority stress and moderated by coping, raising the possibility that internal minority stress is significantly related to alcohol use only at higher levels of alcohol consumption.

Keywords: minority stress, LGBTQ, emerging adult, coping motives

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Coping Motives as a Moderator of the Association between Minority Stress and Alcohol Use among People of Marginalized Sexualities and Genders

Alcohol is the most commonly used substance in the world after caffeine, and its use is associated with 5% of all global deaths in individuals younger than 60, with resulting social harms and health care costs exceeding 1% of gross national product in many high and middle-income nations (Rehm et al., 2009). The National Institute on Alcohol Abuse and Alcoholism (NIAAA) defines "low risk" alcohol consumption as no more than three drinks on any single day and no more than seven drinks per week for women and no more than four drinks on any single day and no more than 14 drinks per week for men; only 2% of individuals who drink within these limits have an alcohol use disorder (AUD; Substance Abuse and Mental Health Services Administration, 2016; "Drinking Levels Defined |NIAAA," n.d.). Drinking that exceeds these guidelines (i.e., "at-risk" drinking) and hazardous alcohol use (typically defined as a score of ≥8 on the Alcohol Use Disorders Identification Test; AUDIT; Saunders, Aasland, Babor, de la Fuente, & Grant, 1993) increases risk for the development of an AUD.

At-risk drinking is often characterized by heavy episodic or "binge" drinking— a pattern of alcohol use that leads to a blood alcohol concentration (BAC) of 0.08 g/dL, which usually occurs when four (assigned female at birth) or five (assigned male at birth) drinks are consumed within about two hours (SAMHSA, 2016; "Drinking Levels Defined |NIAAA," n.d.). Hazardous and heavy episodic alcohol use significantly increases risk for a number of negative consequences including: mortality (Xi et al., 2017), hospitalization for alcohol overdose (White, Hingson, Pan, & Yi, 2011), being hurt or injured or being taken advantage of sexually as a result of another's drinking , missing work or school (Read et al., 2003),risky behaviors such as

driving under the influence (Eensoo et al., 2005) and decreased likelihood of condom use after alcohol consumption (Certain et al., 2009).

Approximately 74% of American emerging adults aged 18-25 report past year drinking and 38% report past month heavy episodic drinking (Center for Behavioral Health Statistics and Quality, 2017). This level of consumption exceeds that of all other age groups in the United States (U.S.). For comparison, 69% of adults 26 and older and 22% of youth aged 12-16 report past year drinking and 24% and 5% report past month heavy episodic drinking, respectively (Center for Behavioral Health Statistics and Quality, 2017). This risk seems concentrated in college-attending emerging adults, who consume alcohol more frequently and are at greater risk for alcohol-related negative consequences than age-matched non-student peers (Carter et al., 2010). College-attending emerging adults also report a high prevalence of negative consequences associated with alcohol use such as driving under the influence (29%), injury (11%) and being the victim of physical (12%) or sexual (2%) assault (Hingson, Zha, & Weitzman, 2009). As emerging adults enter college they are exposed to less caregiver oversight, other independent emerging adults, easier access to alcohol, and greater social acceptance of drinking, all of which may spur further increases in alcohol use (Simons-Morton et al., 2016; Helene Raskin White & Jackson, 2004). Emerging adult college student alcohol use behaviors are likely related to the unique context of the college environment, as well as the many developmental changes that occur between the ages of 18 and 25, a period known as emerging adulthood.

Emerging adulthood is a distinct developmental stage

Emerging adulthood represents a distinct developmental stage where levels of alcohol use and the likelihood of developing an AUD peak (Center for Behavioral Health Statistics and Quality, 2017). Emerging adulthood is the developmental stage between adolescence and

adulthood, often defined as between the ages of 18 to 25; it is characterized by changing contexts (e.g., moving out from a caregiver's home or to college) and the new expectations and increased freedoms that accompany this shift. Emerging adulthood occurs within the broader category of young adulthood (age 18-30s; Hicks & Flamez, 2016), and features the emergence of identity and alcohol use factors that extend into this larger category, but that first become salient within this earlier period. Arnett's (2000, 2004, 2005) theory of emerging adulthood was the first to define this developmental stage and identify the features that distinguish it from young adulthood and adolescence. This theory explains the differences between adolescents, adults and emerging adults, and describes features of emerging adulthood that can explain the higher prevalence of alcohol use and heavy episodic drinking during this developmental period.

Arnett (2000, 2004, 2005) proposes that there are five developmental characteristics that distinguish emerging adulthood from other life phases like young adulthood and adolescence: identity exploration, instability of self-concept, increased autonomy, feeling in-between adolescence and adulthood, and experimenting with new life choices. These five developmental characteristics highlight the disparities between emerging adults and other age cohorts with regards to alcohol use. Specifically, a higher prevalence of at-risk use may be the result of incorporating new experiences into a shifting self-concept, and over-use of alcohol to cope with negative affect that arises from the increased awareness of an unstable sense of self (Arnett, 2005). In addition to these unique developmental characteristics, emerging adults may also increase alcohol use because of the novel opportunity to drink legally that did not exist prior, and the associated settings (e.g., college) and expectations that encourage or allow alcohol use that was illegal during adolescence (White & Jackson, 2004).

A temporary increase in alcohol use can be a normative part of identity development and exploration (Schulenberg & Maggs, 2002), and many emerging adults who consume alcohol during this developmental phase reduce their consumption as they age. However, heavy drinkers in emerging adulthood are at increased risk for continuing to engage in hazardous use and heavy episodic drinking, beginning a long-term trajectory of alcohol use that increases risk for the development of an AUD (Sloan et al., 2011). The prevalence of alcohol use among emerging adults, and the reasons for this use, are thus distinct from other age cohorts.

General theory on alcohol use among emerging adults

The over-use of alcohol to cope with negative affect described by Arnett is consistent with the stress dampening and tension reduction models of alcohol use, which also characterize alcohol use as an attempt to avoid or escape unpleasant internal states (Cappell & Herman, 1972; Conger, 1956; Sher, 1987). Motivational models of alcohol use further describe the affective and social outcomes that individuals desire when they consume alcohol (Cox & Klinger, 1988). The "expectation of affective change" is the central tenet of motivational models, which propose four broad categories of motives for drinking: social (i.e., drinking to secure peer approval), coping (i.e., drinking to reduce negative affect), enhancement (i.e., drinking to induce or increase positive affect), and conformity (i.e., drinking to match peers and avoid rejection; Cooper, Frone, Russell, & Mudar, 1995). While emerging adults are most likely to endorse social and enhancement motives, coping motives are associated with heavier alcohol use and negative consequences (Cooper, Kuntsche, Levitt, Barber, & Wolf, 2016; White, Anderson, & Mun, 2016). Drinking to cope is also uniquely associated with intent to reduce negative affect, even when other motives are considered (Hogarth et al., 2018).

While drinking motives reflect the general goals that individuals seek while drinking, individuals may also drink in response to beliefs about how alcohol impacts them physically and affectively (i.e., their *alcohol expectancies)* and about how much and how frequently it is appropriate to drink (i.e., their *alcohol norms*). These different factors often intersect, with motives changing in response to expectancies and vice versa. Expectancies are theorized to precede motives both causally and developmentally and are thus more distal in the decision process to use alcohol. Motives, on the other hand, are more proximal to drinking behaviors (Kuntsche et al., 2005). For those who drink often, or who have already established drinking patterns, motives provide more explanatory power than expectancies, and indeed mediate the association between expectancies and alcohol-related outcomes (Engels, Wiers, Lemmers, & Overbeek, 2005, Kuntsche, Wiers, Janssen, & Gmel, 2010). Reasons for drinking and motives for drinking are sometimes used interchangeably in the literature (e.g., Abbey, Smith, & Scott, 1993), but reasons describe why an individual drinks (Zywiak et al., 1996), where motives more broadly describe desired outcomes for drinking behavior (Cox & Klinger, 1988). Motives better explain variance in alcohol use outcomes, compared with reasons alone, and as such will be the focus of this project.

Although drinking to cope is endorsed less often than enhancement and social motives among emerging adults, it is the best predictor of alcohol-related negative consequences (Merrill et al., 2014) and heavy episodic drinking (C. L. Park & Levenson, 2002; Patrick & Schulenberg, 2011). Further, drinking to cope has been found to moderate changes in alcohol problems during the transition to adulthood, with those high in coping more likely to maintain an unhealthy pattern of consumption into adulthood (Littlefield et al., 2010). Emerging adulthood is characterized as a period of rapid and intense change, and consequently American emerging

adults report higher levels of stress than any other age cohort (American Psychological Association, 2017). Within the large and diverse population of emerging adults, it is thus important to identify at-risk sub-groups and factors within these groups that make certain emerging adults more vulnerable to negative alcohol use outcomes (e.g., risk for developing an AUD and likelihood of heavy episodic drinking persisting past emerging adulthood). Sexual minorities are one such group.

Alcohol use among individuals of marginalized sexualities and/or genders

Gay, lesbian, bisexual and transgender individuals, and other individuals of any marginalized sexuality and/or gender (MS/G), often report heavier (McCabe, Hughes, Bostwick, West, & Boyd, 2009) and more frequent (Tucker et al., 2008) alcohol use compared to heterosexual peers, and in turn more severe alcohol consequences (Reed et al., 2010). Sixty four percent of all MS/G adults (18 and over) report being current drinkers, and 36% report heavy episodic drinking in the past month compared to 56% and 27% of heterosexual adults, respectively (Medley et al. 2016). Further, a 2008 meta-analysis found that MS/G adults have a 2.22 times greater past year risk of alcohol dependence compared to heterosexual adults (King et al., 2008). These disparities have also been observed among MS/G adolescents who are estimated to be more than twice as likely to report any recent alcohol use and more than two times as likely to report any lifetime alcohol use compared to heterosexual adolescents (Marshal et al., 2008). The literature on alcohol consumption specific to MS/G *emerging adults* is summarized next, concluding with a discussion of the theoretical model that is directly relevant to the proposed research.

Quantity and/or frequency of alcohol use among MS/G emerging adults. On measures of quantity and frequency, MS/G emerging adults have been found to consume greater

quantities of alcohol more frequently than cisgender and heterosexual peers. For example, data from the 2015 National Survey on Drug Use and Health found that 64% of MS/G emerging adults drank alcohol within the past month, and 15% met DSM-IV criteria for an AUD over the previous year compared to 58% and 11% of heterosexual emerging adults, respectively (Medley et al. 2016). The American College of Health Association-National College Health Assessment also indicated that MS/G college students were significantly more likely to have consumed any alcohol in the past 30 days compared to heterosexual students, especially when comparing bisexual women to heterosexual women (OR = 1.51; 95% CI = 1.37, 1.67), bisexual men to -heterosexual men (OR = 1.48; 95% CI = 1.23, 1.79), and gay men to heterosexual men (OR = 1.32; 95% CI = 1.10, 1.57; Kerr, Ding, & Chaya, 2014).

Alcohol-related consequences among MS/G emerging adults. In addition to differences in quantity and frequency of alcohol use, studies have also found significant differences in alcohol-related negative consequences when MS/G emerging adults are compared to heterosexual and cisgender emerging adults. For example, Reed et al. (2010) found that MS/G emerging adults were more likely to report negative consequences of alcohol use (e.g., missing school or work) on the Rutger's Alcohol Problem Index (RAPI) compared to heterosexual peers. Talley, Sher, Steinley, Wood, & Littlefield (2012) also found that college-attending men who reported greater homosexual attraction, behavior, or identity throughout their college years reported greater alcohol use and alcohol-related negative consequences than men who maintained a heterosexual identity. Finally, McCabe, Boyd, Hughes, & d'Arcy (2003) found that MS women are more likely to report driving under the influence of alcohol (OR = 2.98, $p < 0.001$), having unplanned sex after drinking (OR = 2.98, $p < 0.01$), having suicidal thoughts after drinking (OR = 7.17, $p < 0.001$), and sexually harassing someone while drinking (OR = 7.62, p <

0.001) compared to heterosexual women, and MS men are significantly more likely to report suicidal ideation after drinking (OR = 3.39, $p < 0.05$) and hangovers (OR = 2.10, $p < 0.05$).

Although many of the studies on alcohol use among MS/G emerging adults have found higher frequency, quantity, and negative consequences of alcohol use compared to heterosexual peers, some studies have produced mixed findings or have found no significant differences between MS/G and cisgender and heterosexual emerging adults (Cochran, Keenan, Schober, & Mays, 2000 ; McCabe, Boyd, Hughes, & d'Arcy, 2003). The discrepancies in the literature on sexual minority status and alcohol use among emerging adults are difficult to interpret given that lack of a consistently applied conceptual model.

The minority stress model and alcohol use among MS/G emerging adults

When a theoretical model is applied in this literature, it is most often Meyer's minority stress model. According to the minority stress model, exposure to internal/proximal (expectations of rejection, concealment, internalized homophobia) and external/distal (discrimination, violence) minority stressors increases distress, which in turn increases the likelihood of engagement in health-compromising behaviors such as alcohol consumption (Meyer, 2003). In the alcohol literature, *proximal* and *distal* refer to the temporal proximity of a given variable to a drinking-related outcomes, with proximal referring to those factors that exert the closet direct influence on drinking behaviors, and distal referring to diffuse sources of influence that contribute to drinking behaviors in a less direct and time sensitive fashion (Feingold et al., 2015; Salvy et al., 2014). In the minority stress literature, these terms are used to reflect distance from the individual, with proximal stress experiences described as occurring within the individual (i.e., intrapersonal experiences), and distal experiences described as those occurring through interaction with others (i.e., interpersonal experiences). In order to bring the

minority stress literature in line with the alcohol literature, *internal stress* will be used in place of proximal stress and *external stress* will be used in place of distal stress.

The higher prevalence of at-risk alcohol use and alcohol-related consequences among MS/G individuals is assumed to be the result of drinking to cope with minority stressors, as depicted in Figure 1. Meyer's model describes how an MS/G individual experiences negative affect following an act of discrimination related to their MS/G status (external stressor) or after a negative thought about themselves or others related to their MS/G status (internal stressor). The individual then attempts to cope with the negative affect and reduce it by consuming alcohol. Although the minority stress model is often cited as an explanation for higher rates of alcohol use among MS/G individuals, most studies do not directly test the coping motives hypothesis proposed by the model. The few studies that have tested aspects of the minority stress model, summarized next, have generally found support for a positive association between internal minority stressors and increased risk for alcohol use and alcohol-related negative consequences.

Internal minority stressors and alcohol use. Many studies have found a significant association between internal minority stressors and alcohol use in samples of MS/G emerging adults (Amadio, 2006; Lea et al., 2014; Lewis et al., 2016; Newcomb & Mustanski, 2010; Pachankis et al., 2014; Wilson et al., 2016). The largest literature exists for internalized homophobia, with both a meta-analysis and an integrated critical review indicating that overall, there is a clinically and statistically significant association between internalized homophobia and negative alcohol-related outcomes such as alcohol use disorders (Newcomb & Mustanski, 2010; Szymanski et al., 2008). The literature on internal minority stressors has focused almost exclusively on internalized homophobia however, leaving a gap in our understanding of the association between concealment and rejection and alcohol-related outcomes among MS/G

emerging adults. In addition, none of these studies concurrently examined coping motives, which is the presumed mechanism that drives MS/G alcohol use.

External minority stressors and alcohol use. Several studies have found external minority stressors to be significantly associated with heavy episodic drinking and/or alcohol-related negative consequences among MS/G emerging adults (Kalb, Gillis, & Goldstein, 2018; Reed et al., 2010), whereas others have not found a significant relationship (Mereish et al., 2017; Russell et al., 2011). Kalb et al. (2018) found that microaggressions and violence were significantly associated with alcohol use and alcohol consequences, and Reed et al. (2010) found that violent experiences and feeling unsafe on campus were significantly associated with higher levels of alcohol use and heavy episodic drinking among MS/G students. A previous study of MS/G adults using ecological momentary assessment data found increased odds of substance use following an external stress experience, with individuals reporting higher alcohol and/or drug use within two hours of the external stress experience (OR = 3.59, $p < .001$; Livingston, Flentje, Heck, Szalda-Petree, & Cochran, 2017).

Contrasted to these results, homophobic bullying and school victimization have not been found to be associated with alcohol use and substance use-related problems in other studies with MS/G adolescents (Mereish, Goldbach, Burgess, & DiBello, 2017) and young adults (Russell, Ryan, Toomey, Diaz, & Sanchez, 2011). There is less research on the relationship between external minority stress and alcohol use among MS/G emerging adults, and more work is needed to determine how and if external stress differs from internal stress.

Minority stressors, coping motives, and alcohol use among MS/G emerging adults

Additional research is needed to investigate the minority stress model's assumption that drinking to cope with internal minority stressors is the primary reason MS/G individuals drink

more than their heterosexual counterparts. We found four published studies that assessed drinking motives among MS/G emerging adults (Bostwick et al., 2007; Dworkin et al., 2018; Ebersole et al., 2012; Talley et al., 2012), and two studies which examined coping motives as a mediator of the association between minority stressors and alcohol use or alcohol-related problems in cross-sectional analyses (Kalb, Gillis, & Goldstein, 2018; Feinstein and Newcomb, 2016). While Bostwick et al. (2007) found no differences in drinking motives between college attending MS women and heterosexual women, Ebersole et al. (2012) found that drinking to cope with depression was significantly positively associated with alcohol use consequences among MS/G college students. In a daily diary study of drinking behavior and motives, Dworkin et al. (2018) also found that MS women who reported higher average daily coping motives over the course of the study were more likely to drink on any given day, compared to those with lower average coping motives. Similarly, in a study of alcohol use, consequences, and motivations for alcohol use across the first four years of college, students who reported increases in same-gender attraction over the four years were more likely to report drinking to cope, compared to peers who identified as exclusively heterosexual throughout college (Talley et al., 2012). Three of these studies support the idea that drinking to cope is associated with a higher risk of alcohol use and alcohol-related negative consequences among MS/G emerging adults, but they do not establish coping motives as a third variable by which minority stressors lead to increased risk for alcohol use among MS/G emerging adults.

Both of the studies that examined coping motives as a mediator of the association between minority stressors and alcohol use found significant indirect effects, although these effects differed by stressor type. Feinstein and Newcomb (2016) found that although coping motives significantly mediated the association between an internal minority stressor (internalized

stigma) and risk of developing an AUD, coping motives did not mediate the association between an external minority stressor (victimization) and AUD risk (based on AUDIT total score). Kalb et al (2018), on the other hand, found that internal minority stressors (internalized heterosexism, parental rejection) were not significantly correlated with alcohol use or consequences, and coping motives significantly mediated the association between external minority stressors (violence based on sexual orientation discrimination, homonegative microaggressions) and alcohol use.

While these two studies examined coping as a mediator, it is possible for coping to act as a moderator of alcohol use as well (Frese, 1986). Some individuals may be more prone to engage in drinking to cope than others. For example, the association between negative affect and subsequent alcohol use has been found to be moderated by coping motives among college students, with a stronger relationship between negative affect and alcohol use among students who report higher levels of coping motives(Armeli et al., 2010; Hussong et al., 2005). Given the integral role coping plays in Meyer's Minority Stress model, it is important for us to consider whether trait-levels of coping plays a role in determining the strength of the association between alcohol use and minority stress among MS/G emerging adult college students. Although previous studies represent an important first step in our understanding of the mechanisms by which minority stressors might increase risk for at-risk alcohol use among MS/G emerging adults, the discrepant results and the cross-sectional nature of these data make it difficult to draw conclusions about mediational processes and leave important gaps in our understanding of the relationship between minority stressors, coping motives, and alcohol use.

Overall summary and critique of the literature

In summary, the reviewed literature suggests that MS/G emerging adults drink more and experience more alcohol-related negative consequences, compared to heterosexual peers, although the reasons for these discrepancies are not yet well-understood. The minority stress model is often applied in research with people of marginalized sexualities and/or genders, but research to date has not considered how developmental stages may impact experience, presentation, and responses to minority stress (Meyer, 2003), nor is there solid empirical support for the role of coping motives in the association between internal minority stress and alcohol use. Arnett's (2005) theory of emerging adulthood highlights areas where emerging adults might experience specific stressors, which in turn lead to increased alcohol use (e.g., identity exploration and instability). Applying Arnett's (2005) theory to MS/G samples can provide insight to additional internal stressors that are specific to MS/G emerging adults. For example, MS/G emerging adults report exploring their identities more and experiencing greater identity instability relative to non-MS/G peers (Brewster & Moradi, 2010; Morgan, 2013). This study examined how differences in identity instability and exploration among MS/G emerging adults may contribute to the disparities found when comparing MS/G and non-MS/G emerging adults' alcohol use.

As stated above, minority stress theory posits drinking to cope as the primary explanation for higher rates of alcohol use among MS/G adults. However, the few empirical studies that have examined coping motives, minority stress experiences, and alcohol use among MS/G emerging adults have several methodological limitations. First, the use of measures that do not capture multiple aspects of both internal and external minority stressors is problematic because both internal and external stress may contribute to alcohol use, and Meyer's theory would suggest that external stress experiences and internal stress experiences should be distinct constructs that are

somewhat associated with each other. Second, the measures of alcohol use reported on often cover a large span of time (e.g. 12 months), and so are not sensitive to an individual's current alcohol use behaviors. Third, none of the previous studies considered developmental factors specific to emerging adults that may impact MS/G alcohol use behaviors. The proposed study will address these limitations by: (1) fully capturing multiple aspects of both internal and external minority stressors; (2) capturing current alcohol use and minority stress over the past 3 months; (3) integrating theoretical aspects of emerging adult alcohol use with Meyer's (2003) minority stress model.

It should also be noted that the theoretical model proposed by Meyer (2003) assumes a temporal ordering in which minority stress experiences directly precede coping motives, which in turn directly precede alcohol consumption. While this process would be best investigated with intensive longitudinal methods (i.e., *event-level studies)*, that allow for the investigation of antecedents to specific drinking events over time, given the relatively new nature of the field, cross-sectional studies examining the global association between minority stress, coping motives, and alcohol -related outcomes are warranted. Global association studies can assess behavior on average over a certain period of time and determine the strength of the association between theoretical predictors and alcohol-related outcome variables, which can then be followed up by more resource-intensive study designs

Study purpose and hypotheses

The purpose of this study was to examine the global association between minority stressors, coping motives, and alcohol use and alcohol-related negative consequences among MS/G emerging adults. An internet-based cross-sectional survey was used to test the overarching

hypothesis that endorsement of coping motives moderates the strength of the association between the experience of internal minority stressors and alcohol-related outcomes.

The hypotheses of this study were as follows:

Hypothesis 1. We predicted that coping motives would moderate the association between the experience of internal minority and emerging adult stressors (internalized heterosexism, concealment, fear of rejection, identity exploration/instability) and **alcohol-related negative consequences**, after controlling for external minority stressors (violence, discrimination, microaggressions), frequency of alcohol consumption, and demographic and drinking motive variables significant at the bivariate level. The association between internal minority stressors and alcohol-related negative consequences was predicted to be stronger among MS/G emerging adults who endorsed higher coping motives.

Hypothesis 2. We predicted that coping motives would moderate the association between the experience of internal minority and emerging adult stressors (internalized heterosexism, concealment, fear of rejection, identity exploration/instability) and **quantity of alcohol consumption** (average number of drinks per drinking day), after controlling for external minority stressors (violence, discrimination, microaggressions), and demographic and drinking motive variables significant at the bivariate level. The association between internal minority stressors and quantity of alcohol consumption was predicted to be stronger among MS/G emerging adults who endorsed higher coping motives.

Hypothesis 3. We predicted that coping motives would moderate the association between the experience of internal minority and emerging adult stressors (internalized heterosexism, concealment, fear of rejection, identity exploration/instability) and **frequency of binge drinking**, after controlling for external minority stressors (violence, discrimination,

microaggressions), and demographic and drinking motive variables significant at the bivariate level. The association between internal minority stressors and frequency of binge drinking was predicted to be stronger among MS/G emerging adults who endorsed higher coping motives.

Methods

Overview

This study collected cross-sectional data through an online, anonymous survey. Participants were considered eligible if they were: (1) between the ages of 18 and 25, (2) non-cisgender and/or non-heterosexual, (3) current drinkers (defined according to the National Survey on Drug Use and Health's definition of consuming more than one alcoholic drink in the past month), and (4) currently attending college in the United States. The survey link was distributed to colleges and universities, MS/G-associated online forums, and through Amazon Mechanical Turk, an online labor market (Miller et al., 2017). A total of 157 colleges were contacted to distribute recruitment materials, 25 colleges responded**,** and participants reported attending 68 different universities in 26 states. Participants were excluded if they did not provide informed consent. A total of 110 participants were recruited from college and university LGBTQ campus center listservs and through LGBTQ related online forums, and 12 participants were recruited through Amazon Mechanical Turk. Comparative demographics between the two recruitment sources are available in Table 1. All procedures were approved by the Syracuse University Institutional Review Board (IRB #:19-084).

Measures

A timeframe of 3 months was used for all measures in order to match general trends in alcohol use to general trends in minority stress experiences.

Screening questionnaire. (Appendix A). Participants provided their age, whether they identify as non-cisgender and/or non-heterosexual, and indicated current drinker status using the National Survey on Drug Use and Health's definition of consuming more than one alcoholic drink in the past month (Medley et al, 2016).

Demographics and potential covariates.

Demographics. **(Appendix B).** The demographic questionnaire asked participants to report race, ethnicity, socioeconomic status, age, residence, educational status, employment status, (full-time, part-time, not working, full-time student, part-time student), income, (less than $19,999, $20,000–$34,999, $35,000–$69,999, $70,000 or higher), and name of college or university attended.

The Campus Pride Index (CPI). Campus climate was measured using the Campus Pride Index (CPI), an over 50 item questionnaire completed by a staff member at each college or university. A rating on a five-point scale is generated from the answers, indexing how inclusive and welcoming institutional policies and student experiences are to MS/G students (http://www.campusprideindex.org). The CPI was not available for schools attended by 62% of participants, and so was not included in any analyses. For the campuses the CPI was available, the mean was 3.78 (*SD*=0.93).

Sexual identity, attraction, and behavior and gender**. (Appendix C).** Sexual orientation was measured with three text entry questions and three multiple choice questions concerning identity, attraction, and behavior to capture sexual orientation. Identity was used as an indicator of sexual orientation in all analyses as it was the only question that indexed current category membership.

The Substance Use Brief Screen (SUBS). **(Appendix D).** The SUBS is a 4-item measure that assesses unhealthy use of alcohol, tobacco, prescription drugs and illicit drugs (McNeely et al., 2015). Participants indicated whether they consumed substances over the past 3 months on three or more days (2), one or two days (1), or never (0). A positive screen occurs if an individual endorses any answer other than "never." Validity was established by positive correlation with tobacco dependence, alcohol use disorder, and any drug use disorder; test-retest reliability was excellent for tobacco (Φ=.96) and drugs (Φ=.78), and good for alcohol (Φ=.63) in a previous study of adult primary care clinic patients (McNeely et al., 2015). In the present sample, the mean was 2.79 (*SD* = 1.07), corresponding with some substance use over the past 3 months. There was no evidence for skewness (.57) or kurtosis (-.22) and Cronbach's alpha indicated acceptable internal consistency (.63).

MS/G Drinking Norms Rating Form (MSG-DNRF**). (Appendix E).** MS/G specific drinking norms were measured by 21 items modified from a previous study of drinking norms among MS women based on the Drinking Norms Rating Form (Baer et al., 1991; Litt et al., 2015). Participants were asked to consider a typical week during the last 3 months and report how much alcohol, on average, a typical person drinks, how much a typical person who shares their gender drinks, and how much a typical person who shares their sexuality drinks for each day of the week. Norms for typical weekly drinking were derived from the sum of the standard number of drinks for each day for sexuality specific norms. In the present sample for a sexuality matched person, the mean was 11.59 drinks per week (*SD* = 8.14), and there was no evidence for skewness (.97) or kurtosis (.98). Cronbach's alpha indicated good internal consistency (.8).

The International Positive and Negative Affect Schedule Short Form (I-PANAS-SF). **(Appendix F).** Negative affect was measured by the 10-item International Positive and Negative

Affect Schedule Short Form modified to reflect 3 months (Thompson, 2007). Participants were asked to consider the intensity and frequency with which they experience different positive and negative affective states on a five-point Likert-type scale, from 1 (never) to 5 (always). Scores range from 5 to 25 points for each subscale. Validity was established by negative correlations with subjective well-being and subjective happiness for negative affect (Thompson, 2007). In the present sample for negative affect, the mean was 13.4 (*SD* = 2.77), and there was no evidence for skewness (.08) or kurtosis (-.15). Cronbach's alpha indicated good internal consistency (.77).

Internal Minority Stress Measures. The Daily Heterosexist Experiences Questionnaire (DHEQ; Balsam, Beadnell, & Molina, 2013) and the Sexual Minority Adolescent Stress Inventory (SMASI; Goldbach, Schrager, & Mamey, 2017) both capture aspects of internal and external stress, but both lack some aspects of Meyer's minority stress model and add others. The SMASI only allows for dichotomous responding and does not account for impact or frequency of stress experienced. The DHEQ allows for participants to indicate whether an event has occurred over the past 12 months, and how much the participant was bothered by the event, but it does not ask how frequently the event occurred and it does not have a factor that aligns with internalized homophobia, one of the main factors under Meyer's theory. In order to provide comprehensive measurement of all aspects of the minority stress model, the current study used subscales from the DHEQ as well as other previously validated measures to capture all aspects of internal (internalized heterosexism, concealment, fear of rejection, identity exploration/instability) and external (violence, discrimination, microaggressions) minority stress.

Internalized homophobia. **(Appendix G).** The Internalized Homophobia Scale (IHS) is a 20-item measure that assesses internalized heterosexist beliefs (Wagner et al., 1994, 1996). Participants rate each item on a five-point Likert-type scale ranging from 1 (strongly disagree) to

5 (strongly agree), with higher scores signaling increased internalized heterosexism. The IHS was created to be used with gay men, so questions were modified in a similar manner to Kalb (2018) in order to be inclusive of other genders and sexual orientations. Scores range from 20 to 100. The measure was modified to reflect a 3-month time period. Validity for this measure has been established through exploratory factor analysis and positive correlations with depression, age of first accepting being gay, degree of integration into the gay community (Fisher, Davis, & Yarber, 2013). In the present sample, the mean was 36.42 (*SD* = 10.43), and there was no evidence for skewness (.28) or kurtosis (-.96). Cronbach's alpha indicated good internal consistency (.87).

Internalized transphobia. **(Appendix H).** The Gender Identity Self-Stigma Scale (GISS) was used to capture internalized transphobia (L. Timmins et al., 2017b). This eight-item measure assess internalized transphobic beliefs on a five-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). Scores range from 8 to 40. The measure was modified to reflect a 3-month time period. In a cross-sectional survey of transgender adults the scale showed excellent internal consistency (Cronbach's $\alpha = .87$; Herek, Gillis, & Cogan, 2009; Timmins, Rimes, & Rahman, 2017d); validity has not been established for this measure, but it is the shortest measure of internalized transphobia and derives questions from existing internalized homophobia measures. In the present sample, the mean was 17.03 (*SD* = 7.64), and there was no evidence for skewness (.6) or kurtosis (-.52). Cronbach's alpha indicated good internal consistency (.87).

Concealment. **(Appendix I).** The Gender and Sexual Minority Presentation Management Inventory (GSMPMI) is five-item measure that assesses attempts to hide MS/G related thoughts and behaviors (Timmins, Rimes, & Rahman, 2017a). Participants rate each item on a five-point Likert-type scale ranging from 1 (never) to 5 (all of the time), with higher scores signaling

increased concealment. Scores range from 5 to 25. The measure was modified to reflect a 3-month time period. In a cross-sectional survey of transgender adults the scale showed excellent internal consistency (Cronbach's α = .91;Timmins et al., 2017d); validity has not been established for this measure, but it is the only measure to capture gender concealment as well as sexual minority identity concealment. In the present sample, the mean was 13.04 (*SD* = 4.99), and there was no evidence for skewness (.11) or kurtosis (.63). Cronbach's alpha indicated good internal consistency (.88).

Rejection. **(Appendices J and K).** Expectancies and experiences of rejection based on sexual orientation and gender were measured with the three-item acceptance concerns subscale of the Lesbian, Gay, and Bisexual Identity Scale (LGBIS-AC; Mohr & Kendra, 2011) and the three-item Vigilance for Others' Suspicions scale (VOS; Timmins, Rimes, & Rahman, 2017c). The LGBIS-AC asks participants to rate concerns over MS stigmatization from 1 (disagree strongly) to 6 (agree strongly). Scores range from 3 to 18. The measure was modified to reflect a 3-month time period. Validity was established by exploratory factor analysis and positive correlations with public homosexual identity, measures of negative psychosocial functioning including depression, guilt, and fear, negative correlations with measures of positive adjustment, including life satisfaction, and self-assurance (Mohr & Kendra, 2011). In the present sample, the mean was 10.54 (*SD* = 3.95), and there was no evidence for skewness (-.23) or kurtosis (-.76). Cronbach's alpha indicated good internal consistency (.78).

The VOS asks participants to rate frequency of concerns over others' perceptions of their MS/G status from 1 = never to 5 = all the time. Scores range from 3 to 15 The measure was be modified to reflect a 3-month time period. In a cross-sectional survey of MG adults, the VOS showed good internal consistency (Cronbach's α = .84; Timmins et al., 2017d)., and is

theoretically derived from Meyer's (2003) concept of internal minority stress arising from concealment of MS/G identity, but other validity has not been established. In the present sample, the mean was 7.73 (*SD* = 2.93), and there was no evidence for skewness (.6) or kurtosis (-.52). Cronbach's alpha indicated good internal consistency (.84).

Identity exploration/instability. **(Appendix L).** The Inventory of the Dimensions of Emerging Adulthood (IDEA; Reifman, Arnett, & Colwell, 2007) is a 31-item measure containing six subscales (Identity Exploration, Experimentation/Possibilities, Negativity/Instability, Other-Focused, Self-Focused, Feeling "In-Between") that assess the factors identified as central to development of adult identity by Arnett (2000, 2005). Only the 7-item Identity Exploration and 7-item Negativity/Instability subscales were given. Participants rate each item on a four-point Likert-type scale ranging from 1 (strongly disagree) to 4 (strongly agree), with higher scores signaling the current time in their life is one of increased exploration or instability. Scores are averaged to produce the final score. The measure was modified to reflect a 3-month time period. Validity was established by exploratory and confirmatory factor analysis and positive correlations with being age 18-23, decision-making avoidance, stress, engagement coping and not yet having a job (Lisha et al., 2014; Reifman et al., 2007). In the present sample, the mean was 3.31 (*SD* = 0.41), and there was no significant evidence for skewness (-.95) or kurtosis (1.56). Cronbach's alpha indicated good internal consistency (.79).

External Minority Stress Measures. The two aspects of external minority stress identified by Meyer are violence and discrimination (2003), but more recent studies have also included microaggressions under this category (Kalb et al., 2018). All three constructs were measured in the present study.

Violence. **(Appendix M).** Verbal and physical violence were measured using nine items derived from previous research with MS populations (Feinstein & Newcomb, 2016; Pilkington & D'Augelli, 1995). Feinstein et al. (2016) replicated Pilkington and D'Augelli's (1995) measure of experiences of physical and verbal violence based on MS identity among MS youth and emerging adults, and this study modified the existing questions to include MG status. Participants indicated the number of times (never, once, twice, three or more times) they experienced physical or verbal violence due to others assuming their MS/G status over the previous 3 months. Scores range from 4 to 36. In the present sample, the mean was 11.8 (*SD* = 3.76), and there was evidence of significant positive skew (3.09) and kurtosis (16.17). Transformations to address skew and kurtosis are described in the data analysis section. Cronbach's alpha indicated good internal consistency (.75).

Discrimination. **(Appendix N).** Discrimination was measured with the six-item Harassment/Discrimination subscale of the Daily Heterosexist Experiences Questionnaire (DHEQ-H/D) (Balsam, Beadnell, & Molina, 2013). Participants used a Likert-type scale to indicate how much an experience bothered them over the past 3 months from 0 (did not happen/not applicable to me) to 5 (it happened, and it bothered me EXTREMELY), with higher scores indicating greater distress in response to experienced discrimination. Scores range from 0 to 30. Validity was established by exploratory and confirmatory factor analysis and positive correlations with depression, anxiety, PTSD, and perceived stress (Balsam et al., 2013). In the present sample, the mean was 6.43 (*SD* = 6.28), and there was no evidence for skewness (1.04) or kurtosis (0.33). Cronbach's alpha indicated good internal consistency (.76).

Microaggressions. **(Appendix O).** The Homonegative Microaggressions Scale (HMS) is a 45-item measure containing four subscales (Assumed Deviance, Second-Class Citizen,

Assumptions of Gay Culture, Stereotypical Knowledge and Behavior) that assess instances of intentional and unintentional hostility or negative messages related to MS that an individual encountered over the past 6 months (Wright & Wegner, 2012). A five-point response scale was used for each item ranging from 1 (never/hardly ever/not at all), to 5 (consistently/a great deal). The combined Assumed Deviance and Second-Class Citizen 17-item subscale was given, similar to Kalb et al. (2018). The measure was modified to reflect a 3-month time period. Scores range from 17 to 85. Validity was established by exploratory and confirmatory factor analysis and positive correlations with problems surrounding developing a gay identity and holding a negative identity and negative correlations with self-esteem (Wright & Wegner, 2012). In the present sample, the mean was 37.31 (*SD* = 16.7), and there was no evidence for significant skewness (1.5), but there was high kurtosis (2.65) Cronbach's alpha indicated excellent internal consistency (.92).

Drinking Motives. (Appendix P). Cooper's (1994) Drinking Motives Questionnaire-Revised (DMQ-R) is a 20-item measure containing five questions for each of four different drinking motives that participants rate for frequency 1 = almost never/never to five = almost always/always. Motives include: social ("Because it helps you enjoy a party"), coping ("To forget your worries"), enhancement ("Because it's fun"), and conformity ("To fit in with a group you like")." Scores range from 5 to 20 for each subscale. Validity was established by confirmatory factor analysis and positive correlations between drinking motives and heavy alcohol use, alcohol use quantity, frequency of alcohol use, and experiencing problems over the past 6 months with parents, friends, dating partners, at school, or at work related to alcohol use (Cooper, 1994). In the present sample, the mean for coping motives was 12.74 (*SD* = 5.34), and there was no evidence for skewness (.46) or kurtosis (-.78). Cronbach's alpha indicated good

internal consistency (.85). The mean for social motives was 15.32 (*SD* = 5.17), and there was no evidence for skewness (.03) or kurtosis (-.83). Cronbach's alpha indicated good internal consistency (.86). The mean for enhancement motives was 14.37 (*SD* = 5.46), and there was no evidence for skewness (.26) or kurtosis (-.87). Cronbach's alpha indicated good internal consistency (.86). The mean for conformity motives was 12.74 (*SD* = 5.34), and there was no evidence for skewness (2.00) or but there was high kurtosis (4.39). Cronbach's alpha indicated good internal consistency (.84).

Outcome measures.

Frequency and quantity of alcohol use. **(Appendix Q).** Frequency of alcohol consumption, frequency of binge drinking, and quantity of alcohol consumption was assessed with three items (*Recommended Alcohol Questions | National Institute on Alcohol Abuse and Alcoholism (NIAAA)*, 2003). These items were chosen in order to capture patterns of alcohol use using the minimum number of questions, to match timeframes on minority stress measures (3 months), and to allow for comparison with large majority non-MS/G emerging adult samples (e.g., the National Alcohol Survey). Participants indicated **frequency of alcohol consumption** over the past 3 months on a scale of 0 (I did not drink any alcohol in the past 3 months) to 9 (every day). In the present sample, the average was 3.42, corresponding to drinking two to three times a month, and there was no evidence for skewness (0.08) or kurtosis (-0.17). Participants indicated **quantity of alcohol consumption** over the past 3 months on a scale of 0 (I did not drink any alcohol in the past month) to 10 (25 or more drinks). In the present sample, the average was 2.78, corresponding to three to four drinks and there was no evidence for significant skewness (0.86) or kurtosis (1.91). Participants indicated **frequency of binge drinking** over the past 3 months on a scale of 0 (I did not drink four or five drinks within two hours) to 9 (Every

day). In the present sample, the average was 1.37, corresponding to one or two days of binge use, and there was no evidence for significant skew (1.39), but there was high kurtosis (2.14).

***Alcohol-related negative consequences*. (Appendix R).** The Rutgers Alcohol Problem Index (RAPI; White & Labouvie, 1989; White, Labouvie, & Papadaratsakis, 2005) is an 18-item measure that assesses negative outcomes associated with alcohol use. Participants indicated the **frequency of negative consequences** that have occurred over the previous 3 months (never, one-two times, three-five times, six-ten times, more than ten times). Example items include: "Neglected your responsibilities" and "Tried to control your drinking by trying to drink only at certain times of day or certain places." Scores range from 0 to 72. The RAPI was chosen as it has high reliability with MS/G emerging adult samples (Cronbach's $\alpha = .93$; Reed et al., 2010), it contains fewer items than the 24-item Brief Young Adult Alcohol Consequences Questionnaire (B-YAACQ; Kahler, Strong, & Read, 2005), it allows for participants to indicate the frequency of consequences rather than a dichotomous yes/no, and all items are taken from other validated measures in the field. In the present sample, the mean was 5.61 ($SD = 7.35$) corresponding to five to six consequences over the past 3 months, and there was significant skewness (3.09) and kurtosis (16.17) Cronbach's alpha indicated good internal consistency (.89).

Procedures

Recruitment. College LGBTQ student organizations and resource centers were contacted to request dissemination of study materials through official listservs. A brief description of the study and eligibility requirements was distributed with a survey link by each participating organization or resource center through their mailing list. Additional participants were recruited through Amazon Mechanical Turk using the same materials. Recruitment was intended to be completed through LGBTQ resource center list-servs and associated

organizations, but slow recruitment over the summer of 2019 led us to consider Amazon Mechanical Turk to reach our recruitment target. Mechanical Turk has been found to produce data of comparable quality to other recruitment methods (Kees et al., 2017). Recruitment materials stated that the study was intended to gather information on the substance use patterns and motivations of emerging adults belonging to all marginalized sexualities and genders. Potentially eligible participants had the option to follow the link and decide to participate following the online informed consent. The survey was administered via Research Electronic Data Capture (REDCap)—a "mature, secure web application for building and manage online surveys and databases" that is "specifically geared to support data capture for research studies" (project-redcap.org).

Screening, enrollment, & informed consent. Participants completed a brief prescreen through REDCap to confirm eligibility. Eligible participants were then directed to an online consent form summarizing the survey contents and outlining their rights as a research participant. Participants had the option of clicking "yes" or "no" to confirm their intent to participate and proceed to the survey. Participants completed the survey on their own devices in a location of their choosing. Of the 314 participants who completed the screener, 57% were eligible and 69% of those eligible completed the full survey. The survey took participants an average of 25 minutes to complete. Upon completion of the survey, participants were directed to a separate page unconnected to their survey responses where they could enter their email address if they wished to be placed in a lottery to win one of two $50 Amazon gift cards as compensation. Participants who were recruited through Amazon Mechanical Turk were compensated $0.25 for their time, which is consistent with Amazon Mechanical Turk compensation amounts found in the literature (Buhrmester et al., 2011; Mason & Suri, 2012).

Data Analysis Plan

All analyses were conducted using the Statistical Package for Social Sciences (SPSS) version 25. Moderation analyses were performed using the SPSS PROCESS macro (Hayes, 2017). The criterion for statistical significance was set to an alpha level of .05. Internal minority stressors were examined while controlling for external stressors, as coping motives have been shown to be more strongly associated with internal stressors. Alcohol-related negative consequences were examined as they have been found to differ significantly between MS/G and non-MS/G emerging adults, and can contribute to the diagnosis of an Alcohol Use Disorder (C. O'Brien, 2011). We also considered quantity of alcohol consumption and frequency of binge drinking, as both contribute to the development of alcohol tolerance, and are significantly associated with the negative outcomes described earlier. We controlled for frequency when examining alcohol-related negative consequences (RAPI) as an outcome in order to account for the increase in consequences related to increased drinking instances. The use of these measures allowed us to draw comparisons to large national data sets that use the same measures (Blanco et al., 2008; Hingson, Zha, & Smyth, 2017). Finally, we considered identity exploration and instability as additional areas of internal stress that MS/G emerging adults might experience differently than other MS/G age cohorts.

Data management. Data collection was monitored daily throughout the study for completions and common errors by human inspection and by computer algorithms. Any survey responses that (1) did not indicate any MS/G status (2) did not contain one at least 75% complete measure of either quantity of alcohol consumption, frequency of alcohol consumption, or alcohol-related negative consequences (RAPI), (3) did not contain at least 75% completed

measures for all factors of both internal or external stress, or (4) did not contain an at least 75% completed drinking motives questionnaire were examined for completeness.

Power Analysis. An a priori power analysis was conducted to determine the number of participants with complete responses required to evaluate the association between minority stress, coping motives, and alcohol-related negative consequences (RAPI), quantity of alcohol consumption, and frequency. G-power statistical power software (Faul et al., 2007, 2009) was used to conduct a power analysis for a linear multiple regression with five predictors (representing gender, external minority stress, internal minority stress, coping motives, and the interaction between coping motives and internal minority stress). The power analysis was conducted for the change in R_2 associated with the interaction term. Alcohol-related negative consequences, produced the greatest N, and so was used as the dependent variable in the power analysis. No prior research has examined coping motives as a moderator of the association between a complete minority stress variable (internal or external) and alcohol-related negative consequences. However, previous research with MS emerging adult men indicates an indirect effect size of .07 for coping motives as a mediator of the association between internalized homosexual stigma and alcohol-related negative consequences, with the total model explaining 23% of the variance (Feinstein & Newcomb, 2016). Two power analyses were run to determine optimal sample sizes. Results of the power analyses suggested that a sample of $N = 173$ would provide a power of .95 to detect a similar effect, and a sample of $N = 110$ would provide power of .80.

Preliminary analyses. Summary scores and descriptive statistics were computed for all study variables including minority stress variables. Means, medians, standard deviations, percentiles, and ranges were generated for continuous variables, and frequencies and proportions

were used for categorical and ordinal variables. Each variable was examined for outliers, skewness, kurtosis, and non-normality. Transformation of the data was conducted as-needed. Demographic, negative affect, drinking norms, and other substance use variables that were significantly correlated with the dependent variables in bivariate analyses as well as external stress and recruitment source were included in step 1 of the hierarchical regression models described next. Detailed descriptions of preliminary analysis and statistics are contained in the results section.

Because there is no single measure that captures internal or external minority stress, and in order to avoid running multiple models, we created latent variables from the minority stress measures. Given the number of different constructs that contribute to minority stress, it would be possible to place each measure as an independent variable in the model. However; running a similar model multiple times in this way increases the likelihood that statistically significant results would be found for some due to random sampling error. This raises the risk that we would incorrectly reject the null hypothesis, when there is actually no relationship between whatever internal minority stress measure we use as an independent variable and our alcohol use outcome. To account for multiple testing, we created a latent variable, aggregating internal minority stress factors to preserve our .05 α level. We created one variable for internal minority stress (created from the following scales: internalized homophobia, internalized transphobia, concealment, rejection, identity exploration/instability) and one for external minority stress (created from the following scales: violence, discrimination, microaggressions). This process is described in the results section.

Primary Analyses. Hierarchical linear regression was used for the primary analyses. Covariates that were significantly correlated with the dependent variables, in addition to the

external minority stressor latent variable and recruitment source were entered at Step 1, the internal minority stressor latent variable and coping motives were entered at Step 2, and an interaction term (internal minority stressor latent variable * coping motives) at Step 3. All predictors were centered on the grand mean during moderation. To assist with visualizing the moderation effect, conditioning values were set at 1 SD below the mean, at the mean, and 1 SD above the mean when graphing any significant interactions. Separate regression models were run for each dependent variable (quantity of alcohol consumption, frequency of binge drinking, and alcohol-related problems).

Results

Descriptive statistics

Participants were 122 U.S. college-attending emerging adults between the ages of 18 and 25 who did not identify as cisgender and/or heterosexual and were self-reported current drinkers. The average age of participants was 20.88 years (*SD* = 2.00), 88% were full-time college students, and 76% were white. All participants identified as MS/G, with 46% of participants indicating a marginalized sexuality only, 3% indicating a marginalized gender only, and 51% indicating both a marginalized gender and a marginalized sexuality. The sample was mixed gender, with 37% of participants identified as women, 29% as men, 26% as non-binary, 4% as agender, and 4% indicated that none of the preceding categories fit. Overall, a majority of participants identified as bisexual (54%) and 43% of participants identified as transgender. The majority of participants experienced attraction to women (81%).

Comparison of the two recruitment sources on demographics via chi square tests indicated a significant difference for age ($p < .001$), income ($p < .001$), financial situation ($p < .05$), college attendance status ($p < .001$), and transgender status ($p < .005$); all other differences

were non-significant. Recruitment source was thus included as a covariate in the primary regression analyses. Our survey had a 69% completion rate, which is not unusual given the length of our survey and the emotional difficulty associated with answering questions about minority stress and alcohol use (Liu & Wronski, 2018). Comparison of those who completed the survey and those who did not on demographics via chi square tests indicated a significant difference for income ($p < .05$); all other differences were non-significant. Factors contributing to incompletion could have included length of the survey relative to compensation (Liu & Wronski, 2018) and the non-interactive format of the content (K. Park et al., 2019). Our materials identified MS/G community membership and cultural competence within the research team, potentially buffering effects that decrease completion (Institute of Medicine (US) Committee on Lesbian, 2011). It is also possible that participants who did not complete the survey differed from those who completed due to other factors like not feeling sufficiently represented by MS/G related questions or other concerns related to question content.

Means and standard deviations for the three alcohol use variables (quantity of alcohol consumption, frequency of binge drinking, and score on the RAPI) is found in Table 2, and the individual minority stress variables are shown in Table 3. Participants reported a mean of 3.42 (*SD* = 1.22) on the drinking frequency assessment, which corresponds to drinking two to three times per month over the past 3 months, a mean of 1.37 (*SD* = 1.57) on the binge drinking frequency assessment, which corresponds to consuming four or more/five or more drinks one or days over the past 3 months, and a mean of 2.78 (*SD* = 1.37) on quantity of alcohol consumption, which corresponds to drinking two drinks during a typical drinking session over the past 3 months. In terms of alcohol-related problems, the average RAPI score was 5.61 (*SD* = 7.35),

indicating that on average participants experienced between five and six negative consequences of alcohol use over the past 3 months.

Participants reported an average of 11.8 (*SD* = 3.76) on violence, corresponding with three instances of violence and an average of 6.43 (*SD* = 6.18) on the DHEQ-H/D, corresponding with at least two instances of harassment in the past 3 months. Participants reported high levels of concealment (*M* =13.04, *SD* = 4.99) and internalized transphobia (*M* =17.03, *SD* = 7.64). Levels of internalized homophobia were moderate (*M* = 36.42, *SD* = 10.43), and sexuality-based drinking norms indicated that, on average, participants believed that others sharing their sexuality identity drank 11.59 (*SD* = 8.14) alcoholic drinks per week. Participants reported an average of 37.31 (*SD* = 16.7) on the HMS, corresponding with experiencing microaggressions "occasionally" over the past 3 months.

Preliminary analyses.

Assessment of univariate outliers. Item level responses were examined for outliers truncated to three standard deviations above or below the group mean of each measure (Tabachnick & Fidell, 2007). Outliers were found on the RAPI, the DMQ conformity subscale, and the MSG-DNRF for typical, sexuality matched, and gender matched. All outliers were well above the cutoff z score of 3.29 and in all cases the scores were changed on an item level to be equal to one standard deviation above the next largest value within the cutoff (Tabachnick & Fidell, 2007). On the IDEA, one record also exceeded the cutoff, but was less than one *SD* near the next lowest value, and so the score was maintained. On the Violence scale, three records had z scores greater than 3.29, but given the number of outliers and the irregularity of the distribution, this variable underwent an inverse transformation to achieve a more normal distribution. After transformation, no records had z scores above 3.29 on the Violence scale.

Missing data. Survey responses were examined for randomness of missing data through the SPSS Missing Data Module. Three participants did not have a single week completed above 75% on the MSG-DNRF, and so were not included in the final analysis. All other measures for all other participants fell above the 75% complete cutoff, and so were included in the final analysis.

Assessment of normality and nonlinearity. The RAPI and the Violence scale failed to meet assumptions of normality as evidenced by both skewness and kurtosis above cutoffs (Skewness > 2.0, Kurtosis > 2.0; George & Mallery, 2010). In order to address this a square root transformation was performed on the RAPI bringing skew and kurtosis to 0.54 and 0.27, respectively. The Violence scale was not normal after a square root or logarithmic transformation, but after an inverse transformation final skew was -0.87 and final kurtosis was 0.14. The HMS, 3-month frequency of binge drinking, and the MSG-DNRF for typical and gender matched displayed acceptable skewness, but high kurtosis. Given that the sample exceeds 100, the potential underestimation of variance associated with this positive kurtosis disappears, and these variables were not transformed (Tabachnick & Fidell, 2007). Linearity was evaluated between outcome variables (alcohol-related negative consequences (RAPI), quantity of alcohol consumption, and frequency of binge drinking) and predictor variables. Normal Q-Q plots showed that linearity was acceptable for all outcome measures. Visual examination of residual scatterplots was used to determine that all outcomes were homoscedastic (Tabachnick & Fidell, 2007).

Minority stress latent variables. The minority stress latent variables were derived from the following scale totals: Internalized homophobia (IHS), Internalized transphobia (GISS), Concealment (GSMPMI), Rejection (VOS and LGBIS-AC), Identity Exploration/instability

(IDEA), Violence, Discrimination (DHEQ-H/D), and Microaggressions (HMS). All variables could be assumed to be normally distributed and there was no significant evidence of skew or kurtosis amongst the indicator variables after transformations. An exploratory factor analysis (EFA) was conducted on the total score of nine measures with oblique rotation (oblimin). Bartlett's test of sphericity was significant ($\chi 2$ (36) = 292.14, p <.001). The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) was 0.72 for the analysis, which is above the acceptable minimum of 0.50 (Field, 2018). This indicates that the patterns of correlations are compact and factor analysis can be used to reliably identify distinct factors (Field, 2018). An oblique rotation was used because we assumed the minority stress latent variables would be correlated. Initial eigenvalues were obtained, and three factors had eigenvalues over Kaiser's criterion of 1.00, explaining 64% of the variance. However; the third factor had an eigenvalue of 1.05 and visual examination of the scree plot inflexions suggested a two-factor solution. In addition, the two-factor solution was consistent with our *a priori* and theoretically-informed selection of measures for the latent minority stress variables. The EFA was re-run constrained to two factors to produce the final loadings (see Table 4).

Of these two factors, the first had an Eigenvalue of 3.13 and explained 35% of the variance and the second had an Eigenvalue of 1.60 and accounted for 18% of the variance. The two-factor solution explained a total of 53% of the variance. The first factor was derived from the LGBIS-AC, VOSS, IDEA, GSMPMI, GISS and IHS measures and matched the predicted Internal Minority Stress variable. The second factor was derived from the violence, DHEQ-H/D and HMS measures and matched the predicted External Minority Stress variable. The correlation between these two factors was (-.28), indicating that while the two factors are related, they share

less than 10% of the variance, and so multicollinearity is not a concern (Tabachnick & Fidell, 2007).

Potential covariates. Bivariate associations between the following potential control variables and the three primary outcome variables were examined: demographics, sexual identity, substance use, drinking norms, and negative affect (see Table 5). Paired sample t-tests were conducted to compare the means of sexuality drinking norms, gender drinking norms, and typical drinking norms. There was no significant difference in the scores for sexuality drinking norms (M = 11.59, SD = 8.14) and typical drinking norms (M = 11.08, SD = 6.59, $t(121)$ =0.79, p = .43). There was no significant difference in the scores for sexuality drinking norms (M = 11.59, SD = 8.14) and gender drinking norms (M = 11.63, SD = 8.11), $t(121)$= 0.08, p = .94). Finally, there was no significant difference in the scores for gender drinking norms (M = 11.63, SD = 8.11) and typical drinking norms (M = 11.08, SD = 6.59, $t(121)$=0.89, p = .38). In addition, sexuality drinking norms have been shown to relate to alcohol use outcomes with a similar population (Litt et al., 2015), and so only sexuality drinking norms were included in the final models.

The following variables were significantly correlated with the **alcohol-related negative consequences** (**RAPI)** outcome variable and thus included as covariates in Step 1 of the primary hierarchical regression analyses: other substance use, drinking norms, negative affect, social motives, and enhancement motives. The following variables were significantly correlated with the **quantity of alcohol consumption** outcome variable and thus included as covariates in Step 1 of the primary hierarchical regression analyses: other substance use, drinking norms, age, social motives, conformity motives, and enhancement motives. Finally, the following variables were significantly correlated with the **frequency of binge drinking** outcome variable and thus

included as covariates in Step 1 of the primary hierarchical regression analyses: other substance use, drinking norms, working status, social motives, conformity motives, and enhancement motives. All models controlled for recruitment source and external minority stressors. Alcohol frequency was also included as a covariate in the alcohol alcohol-related negative consequences (RAPI) model.

Assessment of multicollinearity. Spearman's ρ was computed for correlations involving ordinal variables, and Pearson product-moment or point-biserial correlations were computed for correlations involving continuous and dichotomous variables, respectively. A correlation coefficient of .8 was used as the cutoff for significant multicollinearity (Field, 2018). Significant bivariate correlations between all of the predictor variables were greater than .18 and less than .59, suggesting limited concerns with multicollinearity (Field, 2018).

Primary Analyses

Hypothesis 1: Alcohol-related negative consequences (RAPI). The unadjusted model found internal minority stress (β = .18, $p < .05$), and coping motives (β = .57, $p < .001$) to be significantly associated with alcohol related negative consequences, explaining a little over 40% of the variance *(*R^2 = .42, $p < .001$). The interaction between coping motives and internal minority stress was not significant with a non-significant change in R^2 (See Table 7). The results of hierarchical linear regression revealed that at Step 1, alcohol frequency (β = .35, $p < .001$), negative affect (β = .28, $p < .001$), drinking norms (β = .14, $p < .05$), and enhancement motives (β = .29, $p < .01$) were significantly associated with alcohol-related negative consequences, explaining almost 50% of the variance (R^2 = .47, $p < .001$). The addition of internal minority stress and coping motives in Step 2, explained an additional 11% ($p < .001$) of the variance, which was driven by a significant direct effect of coping motives (β = .38, $p < .001$). The

interaction between coping motives and internal minority stress was not significant in Step 3 and the change in R^2 at Step 3 was also not significant (β = .027, 95% CI [-.02, .07], t = 1.16, p =.25). The final model explained 59% of the variance in alcohol-related negative consequences (see Table 6).

Hypothesis 2: Quantity of alcohol consumption. The unadjusted model found coping motives (β = .33, p < .001) to be significantly associated with alcohol related negative consequences, explaining 15% of the variance (p < .001). The interaction between coping motives and internal minority stress was not significant with a non-significant change in R^2 (see Table 7). The results of hierarchical linear regression revealed that at Step 1 drinking norms (β = .19, p < .05) was significantly associated with quantity of alcohol consumption, explaining 22% of the variance (p < .001). The addition of internal minority stress and coping motives in Step 2, explained an additional 5% (p < .001) of the variance, which was driven by a significant direct effect of coping motives (β = .22, p < .01). The interaction between coping motives and internal minority stress was not significant in Step 3 and the change in R^2 at Step 3 was also not significant (β = -.01, 95% CI [-.07, .05], t =-0.36, p =.72). The final model explained 27% of the variance in quantity of alcohol consumption (see Table 6).

Hypothesis 3: Frequency of binge drinking. The unadjusted model found internal minority stress (β = .18, p < .05) and coping motives (β = .36, p < .001) to be significantly associated with alcohol related negative consequences, explaining 20% of the variance (p < .001). The interaction between coping motives and internal minority stress was significant (β = .07, p < .05), with a significant change in R^2 (p < .05). The results of hierarchical regression revealed that at Step 1 no covariate was significantly associated with frequency of binge drinking, and the model explained nearly 20% of the variance (R^2 = .17, p < .001). The addition

of internal minority stress and coping motives in Step 2, explained an additional 12% ($p < .001$) of the variance, which was driven by significant direct effects of coping motives ($\beta = .26$, $p < .01$) and internal minority stress ($\beta = .23$, $p < .05$). The interaction between coping motives and internal minority stress was significant in Step 3 ($\beta = .07$, $p < .05$), explaining an additional 9% of the variance ($p <. 05$). The final model explained 32% of the variance in frequency of binge drinking (see Table 6).

The significant interaction between coping motives and internal minority stress was examined using the SPSS PROCESS macro Model 1. Other substance use, drinking norms, working status, social motives, conformity motives, and enhancement motives, recruitment source and external minority stressors were entered as covariates, internal minority stress as *X*, coping motives as *M*, and frequency of binge drinking as *Y*. When coping was one standard deviation above the mean, there was a significant positive association between internal minority stress and frequency of binge drinking ($\beta =.75$, 95% CI [.29,1.2], $t = 3.24$, $p < .01$). At the mean value of coping, there was a significant positive association between internal minority stress and frequency of binge drinking ($\beta =.37$, 95% CI [.03,.71], $t = 2.14$, $p < .05$). When coping was one standard deviation below the mean, there was a non-significant negative association between internal minority stress and frequency of binge drinking ($\beta =-.01$, 95% CI [-.52,.5], $t = -0.02$, $p = .98$; See Figure 3).

Post-Hoc Analysis

All models were rerun post-hoc without the 12 Mechanical Turk participants to evaluate whether there were differences based on recruitment source beyond what was controlled for. Given the small size of the Mechanical Turk sample, it was difficult to evaluate irregularities in the same fashion as the larger data set. While coping motives still significantly predicted alcohol

consequences (β = .42, $p < .001$), quantity of alcohol use (β = .24, $p < .01$), and binge alcohol use after removing the Mechanical Turk participants ((β = .29, $p < .01$; see Table 8), the model for binge alcohol use was significantly different. Coping motives no longer significantly moderated the relationship between internal minority stress and binge alcohol use, and internal minority stress was no longer significant when it was stepped into the model. The effect size we discovered is slightly smaller than our study was powered for, and more covariates were included in the final model than we considered in our initial power analysis. It is probable that a sample size of 110 was not sufficient to detect a moderation effect with 8 covariates, 2 predictors, and an interaction term, rendering our listserv sample too small to detect the effect.

Discussion

This study examined how minority stress and coping motives are associated with alcohol use among MS/G college students. Our findings provide some support for the minority stress model, and suggest that while certain alcohol use behaviors may be predicted by internal minority stress, others may not. Our results are novel in that they are the first to examine the relationship between coping motives, internal minority and emerging adult stress and alcohol use among MS/G emerging adult college students. It was predicted that the association between internal minority stress and alcohol-related negative consequences, quantity of alcohol consumption, and frequency of binge drinking would be stronger among MS/G emerging adults who endorsed higher coping motives. This hypothesis was partially supported, with internal minority stress significantly associated with frequency of binge drinking, but not alcohol-related negative consequences or quantity of alcohol consumption. However, consistent with the general literature on drinking motives, MS/G emerging adults who endorsed higher coping motives were significantly more likely to report alcohol-related negative consequences and higher quantity of

alcohol consumption. Participants who endorsed higher coping motives and higher internal minority stress were significantly more likely to report higher frequency of binge drinking, with coping motives significantly moderating the relationship.

While internal minority stress was significantly related to frequency of binge drinking, we did not find a significant relationship between alcohol-related negative consequences or quantity of alcohol consumption. While the sample includes current drinkers, they are not all "at risk"; at risk drinkers follow a distinct developmental trajectory of alcohol use behaviors during emerging adulthood (Jackson, Sher, Gotham, & Wood, 2001; Sher, Jackson, & Steinley, 2011), using alcohol more frequently and experiencing more consequences (Lee, Chassin, & Villalta, 2013). While reported quantity of alcohol consumption was in line with previous studies (Coulter, Marzell, et al., 2016), participants in this study reported lower frequency of binge drinking, (Kalb et al., 2018), and fewer alcohol-related negative consequences than similar previous studies of MS/G emerging adults (Reed et al., 2010). The lower rates of consequences could be partially explained by the lower rates of binge drinking. Speculatively, protective factors like perceived family support (Newcomb et al., 2015), or protective behavioral strategies could have contributed to the lower levels of alcohol use reported in this sample (Ebersole et al., 2012). If the effects of internal minority stress are only significant at higher levels of alcohol use, this sample may have contained too few participants drinking at those levels to detect a significant effect for alcohol-related negative consequences or quantity of alcohol consumption.

In contrast to the relatively low rates of alcohol use, the sample reported greater exposure to violence and discrimination (Feinstein & Newcomb, 2016), as well as greater negative affect (Thompson, 2007), and internal minority stress compared to other MS/G emerging adult samples (Denton, Rostosky, & Danner, 2014; Timmins, Rimes, & Rahman, 2017d). This is relevant to

the interpretation of our findings because potential oversampling of highly minority stressed individuals could have reduced the total variability in the sample, resulting in null findings. However; this high level of stress did not seem to correspond to reported levels of alcohol use or alcohol-related negative consequences. This is surprising given stress dampening and tension reduction theories of alcohol use, which would predict higher general levels of alcohol use in a highly stressed sample. Prior research has found combined internal and external minority stress predicts alcohol use consequences (Wilson et al., 2016) and alcohol quantity (Newcomb et al., 2015), but only for MS women. Combined gender samples have found associations between internal minority stress and drinking quantity to be non-significant (Murchison et al., 2017), and the near evenly split gender ratio of our sample could have obscured any effects of internal minority stress on quantity of alcohol consumption and alcohol-related negative consequences specific to MS women.

While internal minority stress was related only to frequency of binge drinking, coping motives predicted all alcohol use outcomes, indicating that drinking to cope is a robust predictor of greater alcohol use as well as alcohol-related negative consequences. This is consistent with prior research with MS/G populations that has found coping motives to be associated with alcohol use consequences (Ebersole et al., 2012), and greater alcohol consumption (Dermody et al., 2013; Fairlie et al., 2018; Merrill et al., 2014). With regards to alcohol-related negative consequences, the variables included in our model accounted for nearly 60% of the variance; given the high variance explained by alcohol frequency, negative affect, and enhancement motives, it is important to consider how these variables may act as a proxy for alcohol-related negative consequences. This is not entirely unexpected, as research quantifying the relationship between alcohol-related negative consequences and quantity and frequency of alcohol use found

23% of the variance is explained by these factors among college students (Prince et al., 2018), and negative affect and coping motives predicted 11% and 21% respectively (Martens et al., 2008). While coping motives tend to be cited less often than social or enhancement as a reason to drink by MS/G emerging adults (Ebersole et al., 2012; Fairlie et al., 2018), the strength of the association for all outcomes highlights the importance of evaluating motives when considering alcohol risk behaviors among this population. Future studies could consider if MS/G individuals employ distinct strategies to cope with minority stress, and the ways coping motives interact with other stress variables to influence alcohol use behaviors.

Coping motives significantly moderated the association between internal minority stress and frequency of binge drinking, demonstrating that the strength of the association between internal minority stress and frequency of binge drinking changes based on level of coping motives. This interaction expands on the statistical mediation effects found by Feinstein & Newcomb (2016) and Kalb et al. (2018) for minority stress, coping motives, and alcohol use, clarifying that while these variables relate to each other broadly, the interaction effect is not significant for those low in coping. For those high in coping, the positive association between internal stress experiences and frequency of binge drinking is stronger, indicating that they are even more likely to engage in binge drinking when they are experiencing high internal minority stress compared to MS/G college students low in coping motives. Binge drinking among college students is distinctly responsive to coping motives (Trojanowski et al., 2019; Helene R. White et al., 2016), but potentially alcohol-related negative consequences and quantity of alcohol consumption are more sensitive to other drinking motives like social or enhancement motives. It is also possible that binge drinking was the only outcome variable to index at-risk drinkers, and that we would see significant moderation for alcohol-related negative consequences and quantity

of alcohol consumption in a sample containing only at-risk MS/G emerging adults. Additional research could extend these findings by examining how other drinking motives interact with internal minority stress and alcohol use outcomes.

Though coping motives were most salient theoretically, other variables were also significantly related to alcohol use outcomes. Within this sample, negative affect, drinking norms, social and enhancement motives significantly predicted alcohol-related negative consequences, highlighting the confluence of factors that place MS/G emerging adults at risk for greater alcohol-related negative consequences (Talley et al., 2012). Quantity of alcohol consumption was significantly associated with drinking norms, which aligns with previous research linking higher levels of sexuality related drinking norms among MS women to higher daily alcohol use (Litt et al., 2015). These results suggest that MS/G emerging adults who endorse coping motives consume greater quantities of alcohol and are at greater risk for alcohol-related negative consequences, but that internal minority stress may not contribute directly to this risk. MS/G emerging adults are at risk for negative alcohol use outcomes compared to cisgender and heterosexual peers due to a variety of factors, and those who endorse drinking to cope may face additional risks beyond those experienced by their low coping peers.

Summary

While our models accounted for a significant (30% - 57%) proportion of the variance in alcohol-related outcomes among MS/G emerging adults, there were likely unmeasured variables that may also contribute to alcohol use in this population. For example, factors such as impulsivity, sensation seeking (Ashenhurst et al., 2015), and gender roles have also been shown to predict binge drinking in emerging adults (Vaughan et al., 2014). These factors may impact MS/G emerging adults differently from heterosexual emerging adults; for example, sensation

seeking has been found to relate to sexual orientation (Stief et al., 2014; Trocki et al., 2009) and masculine gender role incongruence has predicted identity distress (Parmenter et al., 2019). It is important to consider the complex combinations of factors that can explain alcohol use behaviors, and to continue building models that acknowledge the unique experiences of marginalized groups. Our results show that MS/G emerging adults who report greater coping motives are more likely to experience alcohol-related negative consequences, to drink more frequently, and to consume greater quantities. However; our hypothesis was only partially supported, as levels of coping only moderated the relationship between internal minority stress and frequency of binge drinking.

Limitations

This study has several important limitations. First, the sample was primarily White and non-Hispanic or Latinx. A more diverse sample is needed to increase generalizability and account for the intersections between race, gender, and sexual orientation that impact experiences of stigma and minority stress. The little research that has been done emphasizes how intersections of gender, race, and sexual orientation shape health behaviors (Hayes, Chun-Kennedy, Edens, & Locke, 2011; Kertzner, Meyer, Frost, & Stirratt, 2009; Rodriguez-Seijas, Eaton, & Pachankis, 2019), placing certain groups, like MS women of color (Mereish & Bradford, 2014), at particular risk for greater alcohol use and substance use problems. Recent scholarship has examined how to measure this intersectional minority stress (Balsam et al., 2011), identifying Racism in LGBT Communities, Heterosexism in Racial/Ethnic Minority Communities, and Racism in Dating and Close Relationships as experiences of minority stress unique to MS/G people of color. These distinct racial minority stressors may have an additive or interactive effect with MS/G minority stress. Alcohol use among people with multiple

marginalized identities has not been examined as closely as white MS/G, and more research is needed to evaluate if existing models capture the experiences of non-white MS/G individuals.

Second, our sample was recruited primarily from LGBTQ resource center listservs and organizations, meaning that MS/G emerging adults who attended schools without these resources or who do not join these mailing lists were underrepresented. A lack of resources and supports on campus may contribute to a negative campus climate for MS/G students (Garvey et al., 2017). Low feelings of safety related to MS/G identity were related to negative substance use consequences among college students (Reed et al., 2010), while living in a school district with policies that were not affirming was associated with heavy episodic drinking and more drinking days among MS/G youth (Coulter, Birkett, et al., 2016). Our participants may have been more connected to the MS/G community and felt safer on campus, which may limit the applicability of our findings for MS/G college students who lack on campus supports. A portion of our sample was also recruited through Amazon Mechanical Turk, and so may not have had the same level of on-campus connection as the rest of our sample. Amazon Mechanical Turk is known to differ from the general population on demographics like race, gender, and income (Buhrmester et al., 2011; Difallah et al., 2018; Miller et al., 2017; Ross et al., 2009), but no work has examined college student or MS/G workers specifically. More research is needed to evaluate the demographic composition and potential differences between specific populations of Amazon Mechanical Turk workers and their general population counterparts.

In addition, the theoretical models this study relies on presume an event level association between minority stress experience, coping motives, and alcohol use outcomes, with instances of minority stress precipitating individual drinking events. Participants were asked to consider their alcohol use and minority stress experiences in aggregate over the past 3 months, but alcohol use

and minority stress are not consistent day to day, and there is no way for us to link any experience of minority stress to subsequent drinking behavior. This study is therefore unable to investigate temporal ordering and/or make statements about the causal nature of the relationship between internal minority stress, coping motives, and alcohol use. Our results indicate that MS/G emerging adults who are higher in coping motives are more likely to experience alcohol-related negative consequences, and to drink more frequently and in higher quantities, but we cannot infer from our data that alcohol was being used to cope during a specific drinking event. Intensive longitudinal data are required to verify if minority stress experiences precede drinking events in real-time and if differences in coping motives can explain differences in the strength of the relationship between events of minority stress and alcohol use. However, this study used global association data as a first step to evaluate the general trends that would be apparent over time if these models accurately described MS/G emerging adult drinking patterns.

Directions for Future Research and Implications for Clinical Practice

Future studies should continue to integrate emerging adult theories of alcohol use with the minority stress model, potentially adapting the model so that it is more applicable and more accurate in predicting MS/G emerging adult alcohol use. Greater variability in alcohol use behaviors and internal minority stress would help evaluate if our results generalize to MS/G emerging adults who are at risk drinkers or who experience less internal minority stress. It is also important for future studies to consider how supportive college structures and local legal statutes are of MS/G individuals, and how rates of internal and external minority stress may vary based on these factors (Riggle et al., 2010). Future research should deliberately sample from colleges at all levels of support, reaching out to colleges without LGBTQ resource centers or clubs.

It is also important to gather information about how MS/G emerging adults respond to stress in other areas of their lives and if minority stress provokes a distinct response from other negative affect inducing situations like conflicts with friends, health concerns or financial difficulties. Meyer's Minority Stress Model proposes that stressors relating to concealing one's MS/G identity are uniquely experienced by MS/G individuals, and that being targeted for an identity-related characteristic might induce stronger and more lasting negative affect than violence or harassment without an identity component (Meyer, 2003). Race and ethnicity may provide additional sources of stress (Meyer, 2010), moderating the relationship between MS/G minority stress and alcohol use outcomes, which is consistent with a syndemic framework of substance use (Scheer & Pachankis, 2019). Future studies should collect more information about other life stressors that MS/G emerging adults are experiencing, and compare the ways that MS/G emerging adults cope with the different kinds of stress.

Much of the research on this topic has been cross sectional, and methodological and theoretical development is needed. Event level studies could expand on the findings presented here. Daily dairies or ecological momentary assessment (EMA) would be helpful for understanding minority stress experiences as well as alcohol use and alcohol-related negative consequences over time, allowing for comparison between distinct instances of minority stress and alcohol use. The current study demonstrated that emerging adult constructs can be integrated with the minority stress model, but further research is necessary to understand and anticipate risk factors and patterns of alcohol use among MS/G emerging adult college students.

While our findings suggest important directions for research, they have clinical implications as well. Our study raises the possibility that MS/G emerging adults who drink to cope are at increased risk for alcohol-related negative consequences. While coping motives

proved significantly associated with all alcohol use outcomes, so too were enhancement and social motives. Mental health providers working with MS/G emerging adults should thus not only assess alcohol use, but also examine the motives for the reported drinking. It is also important to consider how other factors like race and ethnicity influence minority stress experiences and alcohol use outcomes. This sample was majority white, but MS/G individuals identify as non-white at a higher rate than the general population (*LGBT Data & Demographics – The Williams Institute*, n.d.). Intersections between race, ethnicity, gender, and sexual orientation could impact alcohol use outcomes in ways our sample was not powered to detect. Our findings suggest nuance to interpretations of MS/G emerging adult college student drinking under the minority stress model, and illustrate the depth and breadth of research required to address alcohol use within this unique, high risk, population.

Conclusions

MS/G emerging adults are a population often found to be at high risk for alcohol use and related consequences compared to cisgender and heterosexual peers (McCabe, Hughes, Bostwick, West, & Boyd, 2009; Reed et al., 2010). Alcohol use among MS/G emerging adults has been hypothesized to arise from minority stress experiences, but little research has been done to evaluate multiple aspects of this model simultaneously. MS/G emerging adult alcohol use has been predicted by coping motives (Dworkin et al., 2018), and by internal minority stress (Lewis et al., 2016; Wilson et al., 2016), but more research is still needed that examines all three of these factors together. Other factors, especially those known to predict general emerging adult drinking, should be considered as potential explanations for the discrepant findings between studies. More research is needed to examine the factors that contribute to alcohol use behaviors

among MS/G emerging adults and to further refine the theories that are applied to this unique population.

Table 1

Participant Demographic Characteristics

Variable	Total (N =122) %	Listservs (N = 110) %	mTurk (N = 12) %	T	$\chi 2$
Age	M = 20.88 (SD = 2.00)	M = 20.65 (SD = 1.91)	M = 23 (SD = 1.48)	115.4***	
Race or Ethnicity					1.88
White	76%	76%	75%		
Mixed Race	10%	9%	17%		
Black	6%	6%	8%		
Asian	5%	6%	0%		
Another race or ethnicity	3%	3%	0%		
Hispanic or Latinx					1.99
Yes	12%	11%	25%		
No	88%	89%	75%		
School Status					10.65**
Full-time	88%	91%	58%		
Part-time	12%	9%	42%		
Employment					2.29
Part-time	48%	48%	42%		
Not currently working	33%	34%	25%		
Full-time	18%	16%	33%		
Past Year Income					30.32***
Less than $10,000	65%	68%	33%		
$10,000-19,000	16%	16%	17%		
$20,000-29,000	3%	1%	17%		
$30,000-39,000	3%	1%	17%		
$40,000-49,000	4%	3%	17%		
$50,000-59,000	1%	1%	0%		
$60,000-69,000	1%	1%	0%		
Financial Situation					9.65*
I have enough to live comfortably	50%	48%	25%		
I can barely get by	37%	33%	42%		
I cannot get by	10%	7%	33%		
Transgender Status					9.89**
Transgender	43%	47%	0%		
Cisgender	57%	53%	100%		

Notes: mTurk = Amazon Mechanical Turk. 2% of listserv participants refused to indicate employment, 9% refused to indicate past year income, 4% refused to indicate financial situation.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 2
Descriptive Statistics for Substance Use Variables

	N	Mean	*SD*	Range	Skewness	Kurtosis	α
Drinking Frequency	*122*	3.42 (2-3 times a month)	*1.74*	0 (Never) – 8 (every day)	0.08	-0.17	*n/a*
Quantity of Alcohol Consumption	*122*	2.78 (3-4 drinks)	*1.37*	0 (zero) - 8 (16-18 drinks)	0.86	1.91	*n/a*
Frequency of Binge Drinking	*122*	1.37 (1 or 2 days)	*1.57*	0 (never) -8 (every day)	1.39	2.14	*n/a*
Tobacco Use	*122*	.54 (never)	*0.83*	0 (never)-2 (3 or more days)	1.04	-0.72	*n/a*
Other Substance Use (SUBS)	*122*	2.79	*2.07*	0 (never)-8 (3 or more days for all items)	0.57	-0.22	*.63*
Alcohol-Related Negative Consequences (RAPI)	*122*	5.61	*7.35*	0-55	3.09	16.17	*.89*
Coping Motives (DMQ)	*122*	12.74	*5.43*	5-25	0.46	-0.78	*.85*
Social Motives (DMQ)	*122*	15.32	*5.17*	5-25	0.30	-0.83	*.86*
Enhancement Motives (DMQ)	*122*	14.37	*5.46*	5-25	0.26	-0.87	*.85*
Conformity Motives (DMQ)	*122*	7.82	*3.81*	5-25	2.00	4.39	*.84*

Note: SD = Standard Deviation, DMQ = Drinking Motives Questionnaire, RAPI =The Rutgers Alcohol Problem index, SUBS = The Substance Use Brief Screen

Table 3
Descriptive Statistics for Minority Stress and Control Variables

	N	Mean	*SD*	Range	Skewness	Kurtosis	α
Microaggressions (HMS)	*122*	37.31	*16.70*	16-100	1.50	2.65	*.92*
Internalized homophobia (IHS)	*122*	36.42	*10.43*	19-60	0.28	-0.96	*.87*
Violence	*122*	11.80	*3.76*	9-28	3.09	16.17	*.75*
Discrimination (DHEQ-H/D)	*122*	6.43	*6.18*	0-24	1.04	0.33	*.76*
Negative Affect (PANAS)	*122*	13.40	*2.77*	7-21	0.08	-0.15	*.77*
Sexuality Drinking Norms (MSG-DNRF)	*122*	11.59 drinks	*8.14*	0-40	0.97	0.89	*n/a*
Identity exploration /instability (IDEA)	*122*	3.31	*0.41*	1.79	-0.95	1.56	*.79*
Rejection (VOS)	*122*	7.73	*2.93*	3-15	0.60	-0.52	*.84*
Rejection (LGBIS-AC)	*122*	10.54	*3.95*	3-18	-0.23	-0.76	*.78*
Concealment (GSMPMI)	*122*	13.04	*4.99*	5-25	0.11	0.63	*.88*
Internalized Transphobia (GISS)	*122*	17.03	*7.64*	8-36	0.60	-0.52	*.87*

Note: SD = Standard Deviation, IHS = The Internalized Homophobia Scale, GISS = The Gender Identity Self-Stigma Scale, LGBIS-AC = Lesbian, Gay, and Bisexual Identity Scale – Acceptance Concerns, VOS = Vigilance for Others' Suspicions, IDEA = The Inventory of the Dimensions of Emerging Adulthood, DHEQ-H/D = Daily Heterosexist Experiences Questionnaire - Harassment/Discrimination, HMS =The Homonegative Microaggressions Scale, MSG-DNRF = MS/G Drinking Norms, PANAS-P = The International Positive and Negative Affect Schedule Short Form – Positive, PANAS-N, The International Positive and Negative Affect Schedule Short Form – Negative

Table 4

Pattern Matrix for Internal and External Minority Stress Latent Variables

	Internal	External
Internalized homophobia (IHS)	**.42**	.12
Internalized transphobia (GISS)	**.51**	-.16
Concealment (GSMPMI)	**.58**	-.25
Rejection (LGIS-AC)	**.54**	-.042
Rejection (VOS)	**.68**	-.16
Identity exploration/instability (IDEA)	**.50**	.10
Discrimination (DHEQ-H/D)	.035	**-.84**
Microaggressions (HMS)	.18	**-.41**
Violence	-.13	**-.87**

Note: Exploratory Factor Analysis with Oblimin Rotation and Kaiser Normalization, **bold** values indicate significant factor loadings >.4. IHS = The Internalized Homophobia Scale, GISS = The Gender Identity Self-Stigma Scale, LGBIS-AC = Lesbian, Gay, and Bisexual Identity Scale – Acceptance Concerns, VOS = Vigilance for Others' Suspicions, IDEA = The Inventory of the Dimensions of Emerging Adulthood, DHEQ-H/D = Daily Heterosexist Experiences Questionnaire - Harassment/Discrimination, HMS =The Homonegative Microaggressions Scale

Table 5
Significant Bivariate Correlations Between Outcome and Potential Control Variables

Variables	Alcohol-Related Negative Consequences (RAPI)	Quantity of Alcohol Consumption	Frequency of Binge Drinking
Substance use	.33**	.27**	.3**
Enhancement motives	.42**	.30**	.25**
Social motives	.19*	.32**	.29**
Conformity motives	.14	.3**	.21*
External Minority Stress	-.22*	-.08	-.03
Negative affect	.32**	0.06	.08
Drinking Norms	.24**	.3**	.25**
Age	-.16	-.22*	-.11
Working status	-.05	-.18	-.23*

Note. Substance use measured by the SUBS; Drinking norms measured by MS/G Drinking Norms - Sexuality; Negative affect measured with the PANAS.
*$p < 0.05$, **$p < 0.01$

Table 6

Results of Hierarchical Regression Models for Alcohol-Related Negative Consequences, Quantity of Alcohol Consumption, and Frequency of Binge Drinking

	Alcohol-Related Negative Consequences (RAPI)			Quantity of Alcohol Consumption			Frequency of Binge Drinking		
	β	SE	ΔR^2	β	SE	ΔR^2	β	SE	ΔR^2
Step 1			.47***			.22***			.17**
External Minority Stress	-.12	.11		-.06	.13		-.02	.15	
Recruitment source	.11	.36		.18	.42		.17	.47	
Substance Use	.12	.07		.08	.08		.17	.09	
Drinking Norms	.14*	.13		.19*	.01		.14	.02	
Social Motives	-.13	.03		.07	.03		.14	.04	
Enhancement Motives	.29**	.02		.10	.03		.10	.04	
Alcohol Frequency	.35***	.06							
Negative Affect	.28***	.04							
Age				-.17	.06				
Conformity Motives				.17	.04		-.02	.04	
Working Status							-.08	.1	
Step 2			.11***			.05*			.12***
Internal Minority Stress	.06	.14		.09	.15		.23*	.18	
Coping Motives	.38***	.02		.22**	.02		.26**	.03	
Step 3			.01			.001			.03*
Coping × Internal Minority Stress	.03	.02		-.1	.03		.07*	.03	
Total R^2			.59***			.27***			.32***

Note: Coefficients shown are from the step on which the variables were entered; β=standardized beta, SE=standard error. ***p < .001, **p < .01, *p < .05.

Table 7

Unadjusted Results of Hierarchical Regression Models for Alcohol-Related Negative Consequences, Quantity of Alcohol Consumption, and Frequency of Binge Drinking

	Alcohol-Related Negative Consequences (RAPI)			Quantity of Alcohol Consumption			Frequency of Binge Drinking		
	β	SE	ΔR^2	B	SE	ΔR^2	β	SE	ΔR^2
Step 1			.42***			.15***			.20***
Internal Minority Stress	.18*	.13		.13	.14		.18*	.16	
Coping Motives	.57***	.02		.33***	.02		.36***	.03	
Step 2			.01			.01			.03*
Coping × Internal Minority Stress	.03	.03		-.02	.03		.07*	.03	
Total R^2			.43***			.15***			.23***

Note: Coefficients shown are from the step on which the variables were entered; β=standardized beta, SE=standard error. ***p < .001, **p < .01, *p < .05.

Table 8

Results of Hierarchical Regression Models for Alcohol-Related Negative Consequences, Quantity of Alcohol Consumption, and Frequency of Binge Drinking for Listserv Participants

	Alcohol Consequences			Quantity of Alcohol on a Typical Day			Binge Alcohol Use		
	β (SE)	SE	ΔR^2	β	SE	ΔR^2	β (SE)	SE	ΔR^2
Step 1			.44***			.28***			.2**
External Minority Stress	-.16*	.12		-.13	.12		-.11	.15	
Substance Use	.10	.08		.08	.08		.14	.09	
Drinking Norms	.11*	.01		.17	.01		.10	.02	
Social Motives	-.04	.03		.22	.03		.29*	.03	
Enhancement Motives	.29**	.02		.07	.03		.12	.03	
Alcohol Frequency	.36***	.07							
Negative Affect	.26**	.04							
Age				-.19*	.06				
Conformity Motives				.13	.03		-.02	.04	
Working Status							-.02	.12	
Step 2			.13***			.06*			.09**
Internal Minority Stress	.01	0.14		.09	.15		.12	.18	
Coping Motives	.42***	0.02		.24**	.02		.29**	.03	
Step 3			.01			.01			.03
Coping × Internal Minority Stress	.01	0.03		-.04	.03		.02	.04	
Total R^2			.57***			.36***			.3***

Note: Coefficients shown are from the step on which the variables were entered; β=standardized beta, SE=standard error. ***p < .001, **p < .01,*p < .05.

Figure 1: *Minority Stress Theory* (Meyer, 2003)

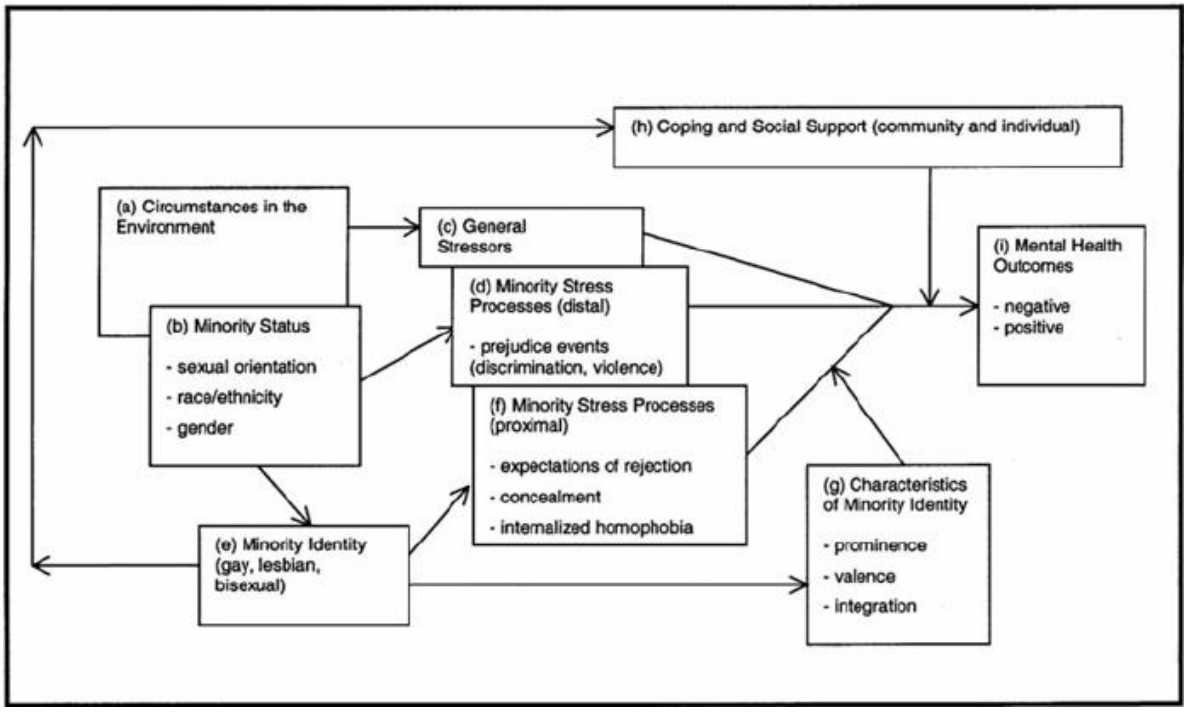


Figure 2: *Coping Motives as a Moderator of the Relationship between Internal Minority Stress and Alcohol Use and Consequences*

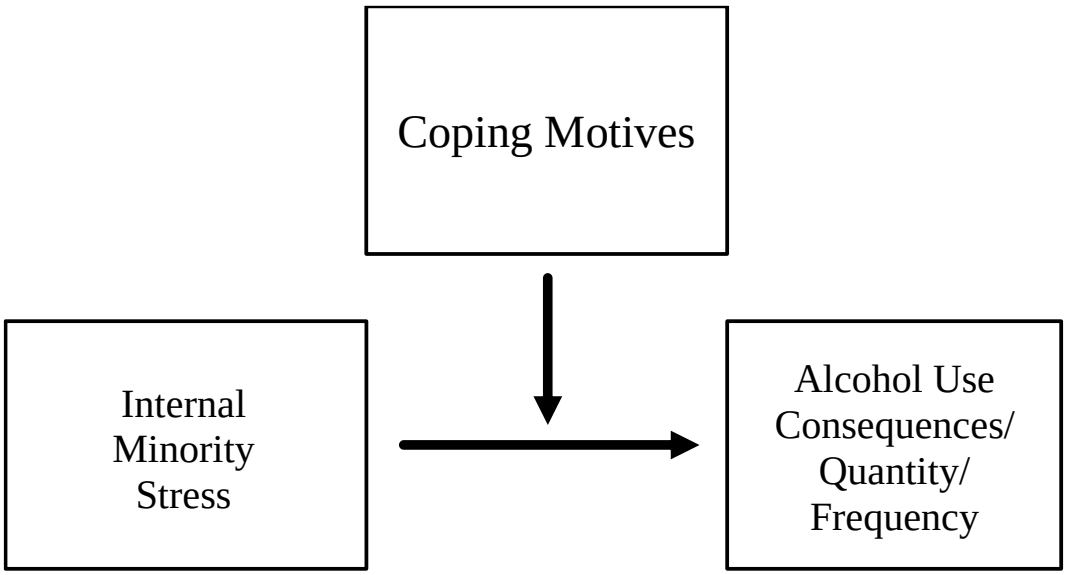
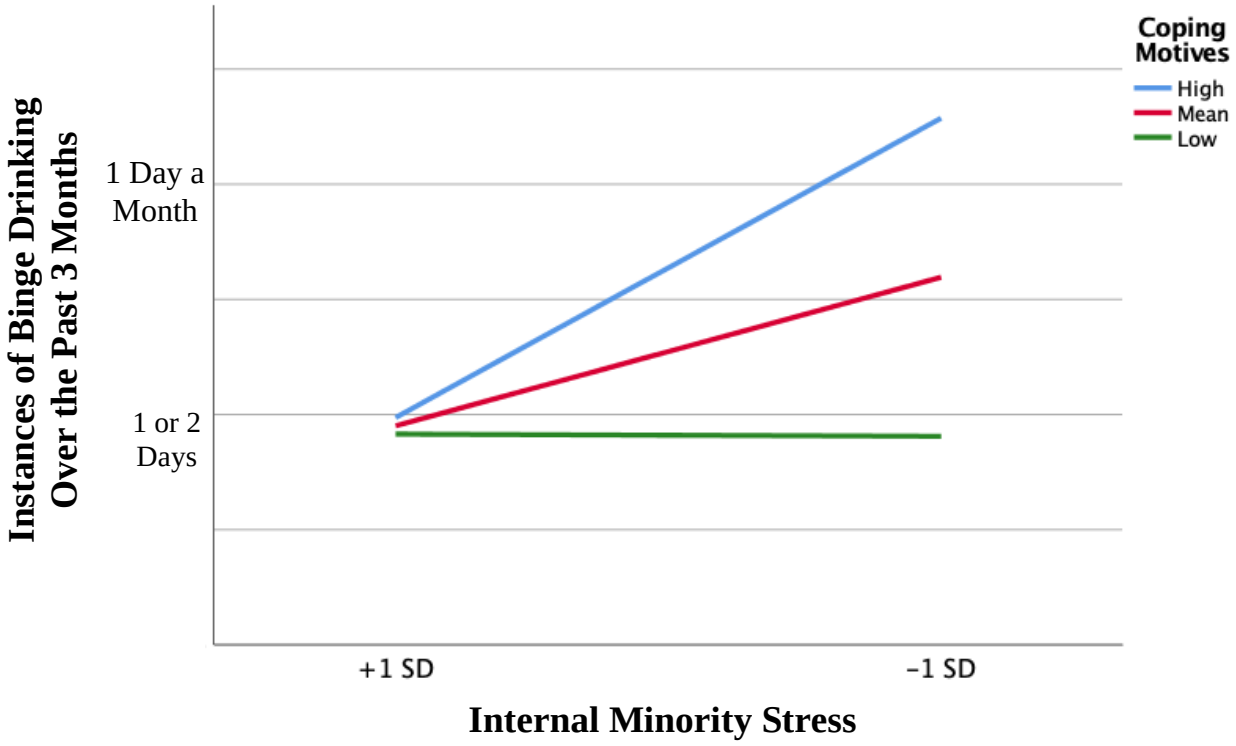


Figure 3: *Moderation of the Association Between Internal Minority Stress and Frequency of Binge Drinking by Coping Motives*



List of Appendices

Appendix A.

Screening Questionnaire

What is your age? _____

Do you identify as cisgender?
◯ Yes
◯ No

Do you identify as heterosexual?
◯ Yes
◯ No

Have you consumed more than one alcoholic drink in the past 30 days?
◯ Yes
◯ No

Appendix B.

Demographics

How old are you? _____

Where are you living now, such as your own apartment/house, a hotel, staying with someone else? (Choose one)
- ◯ Your own house or apartment
- ◯ Someone else's house/apartment (other than your partner)
- ◯ Rooming, boarding, half-way house, or group home
- ◯ Shelter
- ◯ Welfare hotel, SRO, or month-to-month hotel
- ◯ Dormitory
- ◯ Drug or other treatment facility
- ◯ On the streets, or in parks, subways, abandoned buildings
- ◯ Refuse to Answer

What is the highest level of education you have completed? (Choose one)
- ◯ No formal education
- ◯ Did not graduate from high school
- ◯ High school graduate or GED
- ◯ 2 years of college/AA degree/technical school training
- ◯ College graduate (BA/BS)
- ◯ Master's degree
- ◯ Doctorate/Medical degree/Law degree
- ◯ Refuse to Answer

What is your estimated total personal income for the previous tax year (January-December)? (Choose one)
- ◯ Less than $10,000
- ◯ $10,000-19,999
- ◯ $20,000-29,999
- ◯ $30,000-39,999
- ◯ $40,000-49,999
- ◯ $50,000-59,999
- ◯ $60,000-69,999
- ◯ $70,000-79,999
- ◯ $80,000-89,999
- ◯ 9. $90,000-99,999
- ◯ $100,000 or more
- ◯ Refuse to Answer

Are you currently in school? (Choose one)
- ◯ Full-time
- ◯ Part-time
- ◯ Not in school
- ◯ Refuse to Answer

Are you currently working... (Choose one)
- ◯ Full-time (35 hours a week, or more)
- ◯ Part-time (less than 35 hours per week)
- ◯ Not currently working
- ◯ Refuse to Answer

What is the name of your college or university? _____

Which of the following statements best describes your financial situation: (Choose one)
- ◯ I have enough money to live comfortably.
- ◯ I can barely get by on the money I have.
- ◯ I cannot get by on the money I have.
- ◯ Refuse to Answer

Do you identify as Hispanic or Latino?
- ◯ Yes
- ◯ No
- ◯ Refuse to Answer

How do you identify your race or ethnicity? (Choose one)
- ◯ American Indian/Alaska Native
- ◯ Asian/Pacific Islander
- ◯ Black or African American
- ◯ Caucasian/White
- ◯ Mixed Race
- ◯ Another ethnicity (specify)
- ◯ Refuse to Answer

How would you describe your ethnicity? _____

Appendix C.

Sexual Identity, Attraction, and Behavior

We are interested in how people self identify their sexual orientation and gender. Please skip any questions you do not feel comfortable answering.

How would you define your sexual identity? _____

What gender/s of people are you attracted to? _____

Who have you had sexual and/or romantic relationships with? _____

The following questions repeat the previous three, but utilizing some broad categories that are often used in research to describe gender and sexual identity for statistical analysis. This study seeks to highlight instances where people might feel forced to identify with inaccurate categories given limited options. If you do not feel comfortable answering these questions, please skip to the next page.

How would you define your sexual identity?

- ◯ bisexual/pansexual
- ◯ asexual
- ◯ only homosexual/lesbian/gay
- ◯ mostly homosexual/lesbian/gay
- ◯ only heterosexual
- ◯ mostly heterosexual
- ◯ none of these fit

What gender/s of people are you attracted to?

- ☐ none
- ☐ nonbinary people
- ☐ agender people
- ☐ men
- ☐ women
- ☐ none of these fit

Who have you had sexual and/or romantic relationships with?

- ◯ no past or current relationships
- ◯ other gender/s
- ◯ same gender/s
- ◯ same and other gender/s
- ◯ none of these fit

What is your gender? _____

What is your gender?

- ◯ non-binary/gender non-conforming
- ◯ agender
- ◯ woman
- ◯ man
- ◯ none of these fit

Do you consider yourself transgender?

- ◯ Yes
- ◯ No

Appendix D.

The Substance Use Brief Screen (SUBS)

In the past 3 months how many days did you use tobacco?	◯ Three or more days in the past 3 months ◯ one or two days in the past 3 months ◯ never in the past 3 months
In the past 3 months how many days did you have 4 or more alcoholic drinks in a day including wine or beer?	◯ Three or more days in the past 3 months ◯ one or two days in the past 3 months ◯ never in the past 3 months
In the past 3 months how many days did you use any illegal drug including marijuana?	◯ Three or more days in the past 3 months ◯ one or two days in the past 3 months ◯ never in the past 3 months
In the past 3 months how many days did you use any Prescription Medications "recreationally" (just for the feeling or using more than prescribed)?	◯ Three or more days in the past 3 months ◯ one or two days in the past 3 months ◯ never in the past 3 months

Appendix E.

MS/G Drinking Norms Rating Form (MSG-DNRF).

Consider a typical week over the past 3 months. How much alcohol, on average (measured in number of drinks), do you think a typical person your age drinks each day of a typical week?

Monday: _____

Tuesday: _____

Wednesday: _____

Thursday: _____

Friday: _____

Saturday: _____

Sunday: _____

Consider a typical week over the past 3 months. How much alcohol, on average (measured in number of drinks), do you think a typical person your age who shares your gender drinks each day of a typical week?

Monday: _____

Tuesday: _____

Wednesday: _____

Thursday: _____

Friday: _____

Saturday: _____

Sunday: _____

Consider a typical week over the past 3 months. How much alcohol, on average (measured in number of drinks), do you think a typical person your age who shares your sexuality drinks each day of a typical week?

Monday: _____

Tuesday: _____

Wednesday: _____

Thursday: _____

Friday: _____

Saturday: _____

Sunday: _____

Appendix F.

The International Positive and Negative Affect Schedule Short Form (I-PANAS-SF)

Thinking about yourself and how you normally feel. Over the past 3 months, to what extent did you generally feel:

	1 - never	2	3	4	5 - always
Upset	○	○	○	○	○
Hostile	○	○	○	○	○
Alert	○	○	○	○	○
Ashamed	○	○	○	○	○
Inspired	○	○	○	○	○
Nervous	○	○	○	○	○
Determined	○	○	○	○	○
Attentive	○	○	○	○	○
Afraid	○	○	○	○	○
Active	○	○	○	○	○

Appendix G.

The Internalized Homophobia Scale (IHS)

The following are some statements that individuals can make about their gender identity and/or sexual orientation. The phrase LGBTQ is used to capture any identity outside of heterosexual and cisgender, but we recognize it may not be a term you identify yourself with. Keeping the past 3 months in mind, please read each one carefully and decide the extent to which you agree with the statement, then select the answer that best reflects how much you agree or disagree with the statement.

Being LGBTQ is a natural expression in human beings.	○ Strongly Disagree ○ Mildly Disagree ○ Neutral ○ Mildly Agree ○ Strongly Agree
I wish I were heterosexual and cisgender.	○ Strongly Disagree ○ Mildly Disagree ○ Neutral ○ Mildly Agree ○ Strongly Agree
When I am sexually attracted to another LGBTQ person, I do not mind if someone else knows how I feel.	○ Strongly Disagree ○ Mildly Disagree ○ Neutral ○ Mildly Agree ○ Strongly Agree
Most problems that LGBTQ people have come from their status as an opressed minority, not from their sexual orientation or gender per say.	○ Strongly Disagree ○ Mildly Disagree ○ Neutral ○ Mildly Agree ○ Strongly Agree
Life as an LGBTQ person is not as fulfilling as life as a cisgender and heterosexual person.	○ Strongly Disagree ○ Mildly Disagree ○ Neutral ○ Mildly Agree ○ Strongly Agree
I am glad to be LGBTQ.	○ Strongly Disagree ○ Mildly Disagree ○ Neutral ○ Mildly Agree ○ Strongly Agree
Whenever I think a lot about being LGBTQ, I feel critical about myself.	○ Strongly Disagree ○ Mildly Disagree ○ Neutral ○ Mildly Agree ○ Strongly Agree
I am confident that my LGBTQ status does not make me inferior.	○ Strongly Disagree ○ Mildly Disagree ○ Neutral ○ Mildly Agree ○ Strongly Agree
Whenever I think a lot about being LGBTQ, I feel depressed.	○ Strongly Disagree ○ Mildly Disagree ○ Neutral ○ Mildly Agree ○ Strongly Agree

If it were possible, I would accept the opportunity to be completely heterosexual and cisgender.	○ Strongly Disagree ○ Mildly Disagree ○ Neutral ○ Mildly Agree ○ Strongly Agree
I wish I could become more attracted to other genders.	○ Strongly Disagree ○ Mildly Disagree ○ Neutral ○ Mildly Agree ○ Strongly Agree
If there were a pill that could change my sexual orientation and/or gender identity, I would take it.	○ Strongly Disagree ○ Mildly Disagree ○ Neutral ○ Mildly Agree ○ Strongly Agree
I would not give up being LGBTQ even if I could.	○ Strongly Disagree ○ Mildly Disagree ○ Neutral ○ Mildly Agree ○ Strongly Agree
Being LBGTQ is deviant.	○ Strongly Disagree ○ Mildly Disagree ○ Neutral ○ Mildly Agree ○ Strongly Agree
It would not bother me if I had children who wereLGBTQ	○ Strongly Disagree ○ Mildly Disagree ○ Neutral ○ Mildly Agree ○ Strongly Agree
Being LGBTQ is a satisfactory and acceptable way of life for me.	○ Strongly Disagree ○ Mildly Disagree ○ Neutral ○ Mildly Agree ○ Strongly Agree
If I were heterosexual and cisgender, I would probably be happier.	○ Strongly Disagree ○ Mildly Disagree ○ Neutral ○ Mildly Agree ○ Strongly Agree
Most LGBTQ people end up lonely and isolated.	○ Strongly Disagree ○ Mildly Disagree ○ Neutral ○ Mildly Agree ○ Strongly Agree
For the most part, I do not care who knows I am LGBTQ.	○ Strongly Disagree ○ Mildly Disagree ○ Neutral ○ Mildly Agree ○ Strongly Agree
I have no regrets about being LGBTQ.	○ Strongly Disagree ○ Mildly Disagree ○ Neutral ○ Mildly Agree ○ Strongly Agree

Appendix H.

The Gender Identity Self-Stigma Scale (GISS)

Please rate how much you personally agree or disagree with each of the following statements. Please be as honest as possible. Keeping the past 3 months in mind, indicate how much each statement actually applies to you, rather than how you think you should feel.

I have tried to stop feeling like the gender I do in general.	○ Strongly Disagree ○ Mildly Disagree ○ Neutral ○ Mildly Agree ○ Strongly Agree
If someone offered me the chance to change my gender identity, I would accept the chance.	○ Strongly Disagree ○ Mildly Disagree ○ Neutral ○ Mildly Agree ○ Strongly Agree
I wish I werent of my gender identity.	○ Strongly Disagree ○ Mildly Disagree ○ Neutral ○ Mildly Agree ○ Strongly Agree
I feel that my gender identity is a personal shortcoming for me.	○ Strongly Disagree ○ Mildly Disagree ○ Neutral ○ Mildly Agree ○ Strongly Agree
I would like to get professional help in order to change my gender identity from what it is to something else.	○ Strongly Disagree ○ Mildly Disagree ○ Neutral ○ Mildly Agree ○ Strongly Agree
I have tried to feel more like the sex I was assigned at birth.	○ Strongly Disagree ○ Mildly Disagree ○ Neutral ○ Mildly Agree ○ Strongly Agree
I feel alienated from myself because of my gender identity.	○ Strongly Disagree ○ Mildly Disagree ○ Neutral ○ Mildly Agree ○ Strongly Agree
I wish that I could identify more closely with the sex I was assigned at birth.	○ Strongly Disagree ○ Mildly Disagree ○ Neutral ○ Mildly Agree ○ Strongly Agree

Appendix I.

The Gender and Sexual Minority Presentation Management Inventory (GSMPMI)

Some people engage in strategies in order to not appear LGBT+. Keeping the past 3 months in mind, please indicate whether these items apply to you, only counting times in which you do this to not appear LGBT+ (irrespective of whether you are or not).

I try to control how I talk (e.g. the pitch of my voice).	○ Never ○ Rarely ○ Sometimes ○ Often ○ All of the time
I try to modify my gestures and mannerisms.	○ Never ○ Rarely ○ Sometimes ○ Often ○ All of the time
I try to act more masculine or feminine.	○ Never ○ Rarely ○ Sometimes ○ Often ○ All of the time
I check myself in order to see if there is anything that gives me away.	○ Never ○ Rarely ○ Sometimes ○ Often ○ All of the time
I try change my appearance.	○ Never ○ Rarely ○ Sometimes ○ Often ○ All of the time
I often wonder whether others judge me for my sexual orientation.	○ Disagree Strongly ○ Disagree ○ Disagree Somewhat ○ Agree Somewhat ○ Agree ○ Agree Strongly
I can't feel comfortable knowing that others judge me negatively for my sexual orientation.	○ Disagree Strongly ○ Disagree ○ Disagree Somewhat ○ Agree Somewhat ○ Agree ○ Agree Strongly
I think a lot about how my sexual orientation affects the way people see me.	○ Disagree Strongly ○ Disagree ○ Disagree Somewhat ○ Agree Somewhat ○ Agree ○ Agree Strongly
I become preoccupied with whether people suspect me of being LGBT+.	○ Never ○ Rarely ○ Sometimes ○ Often ○ All of the time

I pay close attention to whether people suspect me of being LGBT+.	○ Never ○ Rarely ○ Sometimes ○ Often ○ All of the time
I am quick to notice changes in how someone is treating me if they have reason to suspect me of being LGBT+.	○ Never ○ Rarely ○ Sometimes ○ Often ○ All of the time

Appendix J.

Lesbian, Gay, and Bisexual Identity Scale – Acceptance Concerns (LGBIS-AC)

Some people engage in strategies in order to not appear LGBT+. Keeping the past 3 months in mind, please indicate whether these items apply to you, only counting times in which you do this to not appear LGBT+ (irrespective of whether you are or not).

I try to control how I talk (e.g. 1 the pitch of my voice).	○ Never ○ Rarely ○ Sometimes ○ Often ○ All of the time
I try to modify my gestures and mannerisms.	○ Never ○ Rarely ○ Sometimes ○ Often ○ All of the time
I try to act more masculine or feminine.	○ Never ○ Rarely ○ Sometimes ○ Often ○ All of the time
I check myself in order to see if there is anything that gives me away.	○ Never ○ Rarely ○ Sometimes ○ Often ○ All of the time
I try change my appearance.	○ Never ○ Rarely ○ Sometimes ○ Often ○ All of the time

Appendix K.

Vigilance for Others' Suspicions (VOS)

I become preoccupied with whether people suspect me of being LGBT+.	◯ Never ◯ Rarely ◯ Sometimes ◯ Often ◯ All of the time
I pay close attention to whether people suspect me of being LGBT+.	◯ Never ◯ Rarely ◯ Sometimes ◯ Often ◯ All of the time
I am quick to notice changes in how someone is treating me if they have reason to suspect me of being LGBT+.	◯ Never ◯ Rarely ◯ Sometimes ◯ Often ◯ All of the time

Appendix L.

The Inventory of the Dimensions of Emerging Adulthood (IDEA)

First, please think about this time in your life. By time in your life, we are referring to the present time, plus the last few years that have gone by, and the next few years to come, as you see them. In short, you should think about a roughly five-year period, with the present time right in the middle.
For each phrase shown below, please place a check mark in one of the columns to indicate the degree to which you agree or disagree that the phrase describes this time in your life. For example, if you Somewhat Agree that this is a time of exploration, then on the same line as the phrase, you would select Somewhat Agree.

Keeping the past 3 months in mind, this time in your life is:

time of confusion?	◯ Disagree Strongly ◯ Somewhat Disagree ◯ Somewhat Agree ◯ Strongly Agree
time of feeling restricted?	◯ Disagree Strongly ◯ Somewhat Disagree ◯ Somewhat Agree ◯ Strongly Agree
ime of feeling stressed out?	◯ Disagree Strongly ◯ Somewhat Disagree ◯ Somewhat Agree ◯ Strongly Agree
time of instability?	◯ Disagree Strongly ◯ Somewhat Disagree ◯ Somewhat Agree ◯ Strongly Agree
time of high pressure?	◯ Disagree Strongly ◯ Somewhat Disagree ◯ Somewhat Agree ◯ Strongly Agree
time of finding out who you are?	◯ Disagree Strongly ◯ Somewhat Disagree ◯ Somewhat Agree ◯ Strongly Agree
time of unpredictability?	◯ Disagree Strongly ◯ Somewhat Disagree ◯ Somewhat Agree ◯ Strongly Agree
time of many worries?	◯ Disagree Strongly ◯ Somewhat Disagree ◯ Somewhat Agree ◯ Strongly Agree
time of separating from parents?	◯ Disagree Strongly ◯ Somewhat Disagree ◯ Somewhat Agree ◯ Strongly Agree
time of defining yourself?	◯ Disagree Strongly ◯ Somewhat Disagree ◯ Somewhat Agree ◯ Strongly Agree

time of planning for the future?

- ◯ Disagree Strongly
- ◯ Somewhat Disagree
- ◯ Somewhat Agree
- ◯ Strongly Agree

time of seeking a sense of meaning?

- ◯ Disagree Strongly
- ◯ Somewhat Disagree
- ◯ Somewhat Agree
- ◯ Strongly Agree

time of deciding on your own beliefs and values?

- ◯ Disagree Strongly
- ◯ Somewhat Disagree
- ◯ Somewhat Agree
- ◯ Strongly Agree

time of learning to think for yourself?

- ◯ Disagree Strongly
- ◯ Somewhat Disagree
- ◯ Somewhat Agree
- ◯ Strongly Agree

Appendix M.

Violence over the past 3 months

Think back over the past 3 months for the questions below.

How many times were you verbally insulted (yelled at, criticized) because you are or were thought to be LGBTQ?	◯ never ◯ Once ◯ Twice ◯ Three or More Times
How many times were you threatened with physical violence because you are or were thought to be LGBTQ?	◯ never ◯ Once ◯ Twice ◯ Three or More Times
How many times has someone threatened to tell someone else you are LGBTQ?	◯ never ◯ Once ◯ Twice ◯ Three or More Times
How many times have you had objects thrown at you because you are or were thought to be lLGBTQ?	◯ never ◯ Once ◯ Twice ◯ Three or More Times
How many times have you been punched, kicked, or beaten because you are or were thought to be LGBTQ?	◯ never ◯ Once ◯ Twice ◯ Three or More Times
How many times was your personal property damaged because you are or were thought to be LGBTQ?	◯ never ◯ Once ◯ Twice ◯ Three or More Times
How many times were you followed or chased because you are or were thought to be LGBTQ?	◯ never ◯ Once ◯ Twice ◯ Three or More Times
How many times were you sexually assaulted because you are or were thought to be LGBTQ?	◯ never ◯ Once ◯ Twice ◯ Three or More Times
How many times were you spat upon because you are or were thought to be LGBTQ?	◯ never ◯ Once ◯ Twice ◯ Three or More Times

Appendix N.

Daily Heterosexist Experiences Questionnaire - Harassment/Discrimination (DHEQ-H/D)

The following is a list of experiences that LGBT people sometimes have. Please read each one carefully, and then respond to the following question: How much has this problem distressed or bothered you during the past 3 months?

Being called names such as "fag" or "dyke"	◯ Did not happen/not applicable to me ◯ It happened, and it bothered me NOT AT ALL ◯ It happened, and it bothered me A LITTLE BIT ◯ It happened, and it bothered me MODERATELY ◯ It happened, and it bothered me QUITE A BIT ◯ It happened, and it bothered me EXTREMELY
Being treated unfairly in stores or restaurants because you are LGBT	◯ Did not happen/not applicable to me ◯ It happened, and it bothered me NOT AT ALL ◯ It happened, and it bothered me A LITTLE BIT ◯ It happened, and it bothered me MODERATELY ◯ It happened, and it bothered me QUITE A BIT ◯ It happened, and it bothered me EXTREMELY
People laughing at you or making jokes at your expense because you are LGBT	◯ Did not happen/not applicable to me ◯ It happened, and it bothered me NOT AT ALL ◯ It happened, and it bothered me A LITTLE BIT ◯ It happened, and it bothered me MODERATELY ◯ It happened, and it bothered me QUITE A BIT ◯ It happened, and it bothered me EXTREMELY
Being verbally harassed by strangers because you are LGBT	◯ Did not happen/not applicable to me ◯ It happened, and it bothered me NOT AT ALL ◯ It happened, and it bothered me A LITTLE BIT ◯ It happened, and it bothered me MODERATELY ◯ It happened, and it bothered me QUITE A BIT ◯ It happened, and it bothered me EXTREMELY
Being verbally harassed by people you know because you are LGBT	◯ Did not happen/not applicable to me ◯ It happened, and it bothered me NOT AT ALL ◯ It happened, and it bothered me A LITTLE BIT ◯ It happened, and it bothered me MODERATELY ◯ It happened, and it bothered me QUITE A BIT ◯ It happened, and it bothered me EXTREMELY
People staring at you when you are out in public because you are LGBT	◯ Did not happen/not applicable to me ◯ It happened, and it bothered me NOT AT ALL ◯ It happened, and it bothered me A LITTLE BIT ◯ It happened, and it bothered me MODERATELY ◯ It happened, and it bothered me QUITE A BIT ◯ It happened, and it bothered me EXTREMELY

Appendix O.

The Homonegative Microaggressions Scale (HMS)

The following questions ask you about experiences you've had in the recent past (the past 3 months). In the past 3 months:

How often have people conveyed that it is your choice to be gay?	◯ Hardly ever/never/ not at all ◯ Occasionally but rarely/a little bit ◯ Occasionally/from time to time/ somewhat ◯ Consistently/often/ a good deal ◯ Constantly/a great deal ◯ Not applicable
How often have people changed the subject/topic when reference to your sexual orientation comes up?	◯ Hardly ever/never/ not at all ◯ Occasionally but rarely/a little bit ◯ Occasionally/from time to time/ somewhat ◯ Consistently/often/ a good deal ◯ Constantly/a great deal ◯ Not applicable
How often have people assumed you were a pervert or deviant	◯ Hardly ever/never/ not at all ◯ Occasionally but rarely/a little bit ◯ Occasionally/from time to time/ somewhat ◯ Consistently/often/ a good deal ◯ Constantly/a great deal ◯ Not applicable
How often have people assumed you were a pedophile?	◯ Hardly ever/never/ not at all ◯ Occasionally but rarely/a little bit ◯ Occasionally/from time to time/ somewhat ◯ Consistently/often/ a good deal ◯ Constantly/a great deal ◯ Not applicable
How often have people told you it's wrong to be gay or said you were going to hell because of your sexual orientation?	◯ Hardly ever/never/ not at all ◯ Occasionally but rarely/a little bit ◯ Occasionally/from time to time/ somewhat ◯ Consistently/often/ a good deal ◯ Constantly/a great deal ◯ Not applicable
How often have people said blanket statements about how society is full of diversity minimizing your experience of being different?	◯ Hardly ever/never/ not at all ◯ Occasionally but rarely/a little bit ◯ Occasionally/from time to time/ somewhat ◯ Consistently/often/ a good deal ◯ Constantly/a great deal ◯ Not applicable
How often have people said things like "I watched Will & Grace" to show they know about gay culture?	◯ Hardly ever/never/ not at all ◯ Occasionally but rarely/a little bit ◯ Occasionally/from time to time/ somewhat ◯ Consistently/often/ a good deal ◯ Constantly/a great deal ◯ Not applicable
How often have people equated themselves and their experience to yours as a minority?	◯ Hardly ever/never/ not at all ◯ Occasionally but rarely/a little bit ◯ Occasionally/from time to time/ somewhat ◯ Consistently/often/ a good deal ◯ Constantly/a great deal ◯ Not applicable
How often have people made statements about why gay marriage should not be allowed?	◯ Hardly ever/never/ not at all ◯ Occasionally but rarely/a little bit ◯ Occasionally/from time to time/ somewhat ◯ Consistently/often/ a good deal ◯ Constantly/a great deal ◯ Not applicable

How often have people made statements against LGB individuals adopting?

- ◯ Hardly ever/never/ not at all
- ◯ Occasionally but rarely/a little bit
- ◯ Occasionally/from time to time/ somewhat
- ◯ Consistently/often/ a good deal
- ◯ Constantly/a great deal
- ◯ Not applicable

How often have people told you to act differently at work or school in order to hide your sexual orientation?

- ◯ Hardly ever/never/ not at all
- ◯ Occasionally but rarely/a little bit
- ◯ Occasionally/from time to time/ somewhat
- ◯ Consistently/often/ a good deal
- ◯ Constantly/a great deal
- ◯ Not applicable

How often have people told you to dress differently at work or school in order to hide your sexual orientation?

- ◯ Hardly ever/never/ not at all
- ◯ Occasionally but rarely/a little bit
- ◯ Occasionally/from time to time/ somewhat
- ◯ Consistently/often/ a good deal
- ◯ Constantly/a great deal
- ◯ Not applicable

How often have people told you not to disclose your sexual orientation in some context (like work or school)?

- ◯ Hardly ever/never/ not at all
- ◯ Occasionally but rarely/a little bit
- ◯ Occasionally/from time to time/ somewhat
- ◯ Consistently/often/ a good deal
- ◯ Constantly/a great deal
- ◯ Not applicable

Appendix P.

Drinking Motives Questionnaire (DMQ)

Listed below are 20 reasons people might be inclined to drink alcoholic beverages. Using the five-point scale below, decide how frequently your own drinking is motivated by each of the reasons listed over the past 3 months.

To forget your worries.	◯ Almost never/Never ◯ Some of the time ◯ Half of the time ◯ Most of the time ◯ Almost always/Always
Because your friends pressure you to drink.	◯ Almost never/Never ◯ Some of the time ◯ Half of the time ◯ Most of the time ◯ Almost always/Always
Because it helps you enjoy a party.	◯ Almost never/Never ◯ Some of the time ◯ Half of the time ◯ Most of the time ◯ Almost always/Always
Because it helps you when you feel depressed or nervous.	◯ Almost never/Never ◯ Some of the time ◯ Half of the time ◯ Most of the time ◯ Almost always/Always
To be sociable.	◯ Almost never/Never ◯ Some of the time ◯ Half of the time ◯ Most of the time ◯ Almost always/Always
To cheer up when you are in a bad mood.	◯ Almost never/Never ◯ Some of the time ◯ Half of the time ◯ Most of the time ◯ Almost always/Always
Because you like the feeling.	◯ Almost never/Never ◯ Some of the time ◯ Half of the time ◯ Most of the time ◯ Almost always/Always
So that others wont kid you about not drinking	◯ Almost never/Never ◯ Some of the time ◯ Half of the time ◯ Most of the time ◯ Almost always/Always
Because it's exciting.	◯ Almost never/Never ◯ Some of the time ◯ Half of the time ◯ Most of the time ◯ Almost always/Always

To get high.

- ◯ Almost never/Never
- ◯ Some of the time
- ◯ Half of the time
- ◯ Most of the time
- ◯ Almost always/Always

Because it makes social gatherings more fun.

- ◯ Almost never/Never
- ◯ Some of the time
- ◯ Half of the time
- ◯ Most of the time
- ◯ Almost always/Always

To fit in with a group you like.

- ◯ Almost never/Never
- ◯ Some of the time
- ◯ Half of the time
- ◯ Most of the time
- ◯ Almost always/Always

Because it gives you a pleasant feeling.

- ◯ Almost never/Never
- ◯ Some of the time
- ◯ Half of the time
- ◯ Most of the time
- ◯ Almost always/Always

Because it improves parties and celebrations.

- ◯ Almost never/Never
- ◯ Some of the time
- ◯ Half of the time
- ◯ Most of the time
- ◯ Almost always/Always

Because you feel more self-confident and sure of yourself.

- ◯ Almost never/Never
- ◯ Some of the time
- ◯ Half of the time
- ◯ Most of the time
- ◯ Almost always/Always

To celebrate a special occasion with friends.

- ◯ Almost never/Never
- ◯ Some of the time
- ◯ Half of the time
- ◯ Most of the time
- ◯ Almost always/Always

To forget about your problems.

- ◯ Almost never/Never
- ◯ Some of the time
- ◯ Half of the time
- ◯ Most of the time
- ◯ Almost always/Always

Because its fun.

- ◯ Almost never/Never
- ◯ Some of the time
- ◯ Half of the time
- ◯ Most of the time
- ◯ Almost always/Always

To be liked.

- ◯ Almost never/Never
- ◯ Some of the time
- ◯ Half of the time
- ◯ Most of the time
- ◯ Almost always/Always

So you wont feel left out.

- ◯ Almost never/Never
- ◯ Some of the time
- ◯ Half of the time
- ◯ Most of the time
- ◯ Almost always/Always

Appendix Q.

Alcohol Use

During the past 3 months, how often did you usually have any kind of drink containing alcohol?

- ◯ Never
- ◯ 1 or 2 times over the past 3 months
- ◯ once a month
- ◯ 2-3 times a month
- ◯ once a week
- ◯ twice a week
- ◯ 3 to 4 times a week
- ◯ 5 to 6 times a week
- ◯ Every day

During the past 3 months, how many alcoholic drinks did you have on a typical day when you drank alcohol?

- ◯ I did not drink alcohol
- ◯ 1 drink
- ◯ 2 drinks
- ◯ 3 to 4 drinks
- ◯ 5 to 6 drinks
- ◯ 7 to 8 drinks
- ◯ 9 to 11 drinks
- ◯ 12 to 15 drinks
- ◯ 16 to 18 drinks
- ◯ 19 to 24 drinks
- ◯ 25 or more drinks

During the last 3 months, how often did you have 5 or more (testosterone dominant system) or 4 or more (estrogen/progesterone dominant system) drinks containing any kind of alcohol in within a two-hour period?

- ◯ Never
- ◯ 1 or 2 days over the past 3 months
- ◯ one day a month
- ◯ 2 to 3 days a month
- ◯ one day a week
- ◯ two days a week
- ◯ 3 to 4 days a week
- ◯ 5 to 6 days a week
- ◯ Every day

Appendix R.

The Rutgers Alcohol Problem Index (RAPI)

Different things happen to people when they are drinking ALCOHOL, or as a result of their ALCOHOL use. Some of these things are listed below. Please indicate how many times each has happened to you during the last 3 months while you were drinking alcohol or as the result of your alcohol use.

How many times did the following things happen to you while you were drinking alcohol or because of your alcohol use during the last 3 months?

Got into fights, acted bad, or did mean things.	◯ Never ◯ 1-2 times ◯ 3-5 times ◯ 6-10 times ◯ More than 10 times
Went to work or school high or drunk.	◯ Never ◯ 1-2 times ◯ 3-5 times ◯ 6-10 times ◯ More than 10 times
Caused shame or embarrassment to someone.	◯ Never ◯ 1-2 times ◯ 3-5 times ◯ 6-10 times ◯ More than 10 times
Noticed a change in your personality.	◯ Never ◯ 1-2 times ◯ 3-5 times ◯ 6-10 times ◯ More than 10 times
Felt that you had a problem with school.	◯ Never ◯ 1-2 times ◯ 3-5 times ◯ 6-10 times ◯ More than 10 times
Tried to cut down on drinking.	◯ Never ◯ 1-2 times ◯ 3-5 times ◯ 6-10 times ◯ More than 10 times
Suddenly found yourself in a place that you could not remember getting to.	◯ Never ◯ 1-2 times ◯ 3-5 times ◯ 6-10 times ◯ More than 10 times
Passed out or fainted suddenly.	◯ Never ◯ 1-2 times ◯ 3-5 times ◯ 6-10 times ◯ More than 10 times

Had a fight, argument, or bad feelings with a friend.	◯ Never ◯ 1-2 times ◯ 3-5 times ◯ 6-10 times ◯ More than 10 times
Kept drinking when you promised yourself not to.	◯ Never ◯ 1-2 times ◯ 3-5 times ◯ 6-10 times ◯ More than 10 times
Felt you were going crazy.	◯ Never ◯ 1-2 times ◯ 3-5 times ◯ 6-10 times ◯ More than 10 times
Felt physically or physiologically dependent on alcohol.	◯ Never ◯ 1-2 times ◯ 3-5 times ◯ 6-10 times ◯ More than 10 times
Was told by a friend or neighbor to stop or cut down drinking.	◯ Never ◯ 1-2 times ◯ 3-5 times ◯ 6-10 times ◯ More than 10 times

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CURRICULUM VITAE

Jeremy M Ramos

EDUCATION

Syracuse University, Syracuse, New York
Clinical Psychology Doctoral Program, August 2017 - present
Advisor: Sarah E. Woolf-King Ph.D., M.P.H.

Bristol Community College, Fall River, Massachusetts
Associate of Arts in Psychology, June 2012

Smith College, Northampton, Massachusetts
Bachelor of Arts in Psychology, May 2015

HONORS AND AWARDS

2011 – 2012 – Dean's List, Bristol Community College
2012 – Curriculum Award, Bristol Community College
2012 – Graduated Suma Cum Laude, Bristol Community College
2014 – Praxis Internship Funding, Smith College
2015 – Liberal Arts Commendation, Smith College

RESEARCH EXPERIENCE

Syracuse University, Psychology and Health Laboratory, Syracuse, NY
Graduate Research Assistant, May 2018 – August 2019
Supervisor: Dr. Sarah E. Woolf-King, Ph.D., M.P.H.
Assisted with project coordination and qualitative data collection for a pilot comparative effectiveness randomized clinical trial of Acceptance and Commitment Therapy for HIV-infected hazardous drinkers entitled *Brief Acceptance and Commitment Therapy for HIV-Infected At-Risk Drinkers (NIAAA 1R34AA026246-01A1).* Collected and managed data for an event-level study examining the relationship between alcohol consumption and high-risk behavior among HIV+ men who have sex with men entitled *Alcohol Use and High Risk Behavior Among HIV-Positive Men (NIAAA 5K01AA021671-06)*

The Miriam Hospital and Brown University, Weight Control and Diabetes Research Center, Providence, RI
Research Assistant, June 2015 - July 2017
Supervisors: Dr. Rena R. Wing, Ph.D.; Angelica McHugh M.Ed.
Recruited participants and collected data for an NIH funded research consortium consisting of seven clinical trials, all examining the efficacy of interventions to reduce gestational weight gain in women with overweight or obesity through randomized control trials.
Assisted with recruitment for a randomized controlled trial examining the efficacy of a pre-pregnancy lifestyle intervention for people who had previously experienced gestational diabetes entitled *Prevention of Gestational Diabetes Through Lifestyle Modification Before Pregnancy (5R01HD084282-03).* Funding for the consortium was provided through *NIH National Heart,*

Lung, and Blood Institute (NHLBI) (HL114377). Lifestyle Interventions for Expectant Moms (LIFE-Moms) is supported by NIH through the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK; U01 DK094418, U01 DK094463, U01 DK094416, 5U01 DK094466 [Research Coordinating Unit]), NHLBI (U01 HL114344, U01 HL114377), the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD; U01 HD072834), the National Center for Complementary and Integrative Health, the NIH Office of Research in Women's Health, the Office of Behavioral and Social Sciences Research, the Indian Health Service, and the Intramural Research Program of the NIDDK.

Smith College, Northampton, MA
Research Assistant, February 2015 – May 2015
Supervisor: Dr. Byron L. Zamboanga, Ph.D.
Conducted research on drinking game behaviors.

Smith College, Language Laboratory, Northampton, MA
Research Assistant, September 2014 - May 2015
Supervisor: Dr. Jill de VIlliers, Ph.D.
Conducted research on the role of language in perceptual feature category formation.

Bradley Hospital and Brown Medical School, Bradley Sleep Lab, Providence, RI
Data Management Intern, June 2014 – August 2014
Supervisor: Caroline Gredvig -Ardito
Managed and integrated data for projects related to sleep research.

CLINICAL EXPERIENCE

Syracuse University, Psychological Services Center, Syracuse, NY
Student Clinician, June 2019 - Present
Provide individual therapy in a university-based outpatient training facility to adults with diverse psychiatric conditions and conduct clinical/neuropsychological assessments (e.g., ADHD assessment) with adults, adolescents, and children.

SSTARBIRTH, Cranston, RI
Student Intern, May 2014 - August 2014
Supervisor: Judith Gorman, LCSW, LCDCS.
Ran client groups on neuroscience and the psychology of addiction for recently post-partum or pregnant individuals receiving inpatient substance abuse rehabilitation and treatment under supervision. Assisted in clerical, administrative, and treatment related planning and aided clients in accessing Section 8 housing and other assistance programs.

Fellowship Health Resources, Fall River, MA
Recovery Support Worker, June 2012 - August 2015
Aided with daily living tasks, scheduling and coordination, and medication assistance for residential and community clients with diverse psychiatric conditions. Dispensed medications for psychiatric and medical symptoms and monitored and recorded client behavior and medication responses.

PEER-REVIEWED MANUSCRIPTS

Sheinfil, A. Z., Foley, J. D., **Ramos, J.**, Antshel, K. M., & Woolf-King, S. E. (2019). Psychotherapeutic depression interventions adapted for sexual and gender minority youth: A systematic review of an emerging literature. Journal of Gay & Lesbian Mental Health, 23(4), 380–411.

Audley, S., Grenier, K., Martin, J., & **Ramos, J.** (2017). Why Me? An Exploratory Qualitative Study of Drinking Gamers' Reasons for Selecting Other Players to Drink. *Emerging Adulthood*, *6*, 216769681770325.

Zamboanga, B. L., Audley, S., Iwamoto, D. K., Tomaso, C. C., **Ramos, G.**, & Schwartz, S. J. (2016). "What's in a game?" Acculturation and drinking game behaviors among Asian American young adults. *Asian American Journal of Psychology*, *7*(3), 195–204.

PRESENTATIONS

Listed in reverse chronological order

Sheinfil, A. Z., Babowitch, J. D., **Ramos, J**., Woolf-King, S. E., (2019, March). Development of an Experimental Affect Induction Procedure to Test the Effect of Affect on Intentions to Engage in Condomless Sex. Poster presented at the Society of Behavioral Medicine 40th Annual Meeting and Scientific Sessions, Washington, DC.

Babowitch, J. D., Sheinfil, A. Z., **Ramos, J**., Firkey, M., Woolf-King, S. E., (2019, March). Changes in Depressive Symptoms and Antiretroviral Medication Adherence among Men Who Have Sex with Men Living with HIV. Poster presented at the Society of Behavioral Medicine 40th Annual Meeting and Scientific Sessions, Washington, DC.

Babowitch, J.D., **Sheinfil, A.Z.,** Ramos, J., Vanable, P.A., & Sweeney, S.M. (2018, April). Pre-Exposure Prophylaxis to Prevent HIV Transmission for Serodiscordant Couples: Perspectives of People Living with HIV. Poster presented at the annual meeting of the Society of Behavioral Medicine, New Orleans, LA.

Ramos, G., Clark, A., de Villiers, J. (2015, April) Investigations of Implicit Concept Formation in Adults. Poster presented at Celebrating Collaborations, Northampton, MA

Ramos, G., Martin, S. (2012, April) Alien: Historical Events, Jungian Archetypes, and the Abduction Encounter Poster presented at Massachusetts Statewide Undergraduate Research Conference, Amherst, MA

TEACHING EXPERIENCE

Guest Lecturer, Health Psychology, Behavioral health disparities among LGBTQ adolescents & emerging adults, Fall 2018
Graduate Teaching Assistant, Foundations of Human Behavior, Fall 2017 – Spring 2018

PROFESSIONAL MEMBERSHIP

Syracuse University

2019 – Future Professoriate Program
2018 – Graduate Student Member, Committee for Increasing Diversity and Inclusion, Psychology Department, Syracuse University
2017 – 2018 Graduate Student Co-Chair, Diversity Committee, Graduate Student Organization, Syracuse University

Professional Society Membership

2017 – Graduate Student Member, Event Committee, Psychology Action Committee, Syracuse University
2015 – Psi Chi Honor Society Member
2012 – Phi Theta Kappa Honor Society Member