

PSYCHOLOGICAL DISTRESS, SUBSTANCE USE, AND SEXUAL RISK-TAKING
AMONG LESBIAN, GAY, AND BISEXUAL COLLEGE STUDENTS

by

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LIST OF ABBREVIATIONS

Abbreviation	Description
LGB	Lesbian, Gay, and Bisexual
EMA	Ecological Momentary Assessment
LGBT	Lesbian, Gay, Bisexual, and Transgender
FBI	Federal Bureau of Investigation
STI	Sexually Transmitted Infections
MSM	Men who have sex with men
PI	Primary Investigator
OCD	Obsessive-Compulsive Disorder

ABSTRACT

The present study was designed to contribute to the growing literature of health disparities among lesbian, gay, and bisexual (LGB) college students by investigating psychological distress, substance use, and sexual risk-taking behaviors as it relates to sexual minority status (Study 1), and also by examining how daily stressors influence risk-taking episodes in LGB individuals using ecological momentary assessment (EMA; Study 2). In study 1, participants were asked to complete a survey that included measures of stimulant use and misuse, marijuana use, perceived stress, suicidal ideation, self-worth, impulsivity, and depression. Those who identified as LGB were also given a measure of internalized homophobia. In study 2, LGB individuals screened from study 1 completed a 3-week long EMA study with 2 surveys per day, including measures of LGB-specific discrimination, stress, social influences, substance-specific cravings, substance use, and sexual risk-taking. It was predicted that, in study 1, LGB individuals would report higher levels of psychological distress, sexual risk-taking behaviors, and substance use compared to their heterosexual counterparts, and internalized homophobia would be positively associated with psychological distress. In study 2, we hypothesized that daily stressors, including LGB-specific discrimination, would precede risk-taking behaviors. LGB individuals reported higher levels of psychological distress, marijuana use and sexual-risk taking, and there was a positive association between internalized homophobia and several psychological distress domains in study 1, complimenting the hypothesis. Study 2 found that cravings and social influences were both predictors of drug use.

I. INTRODUCTION

Lesbian, Gay, and Bisexual (LGB) individuals are at increased risk, in comparison to their heterosexual counterparts, for psychiatric disorders (Fergusson, Horwood, & Beautrais, 1999; Meyer, 2003; Oswalt & Wyatt, 2011), including depression and anxiety (Balsam, Beauchaine, Mickey, & Rothblum, 2005), and involvement in risk-taking behaviors, including unsafe sexual practices and problematic substance use (Conron, Mimiaga, & Landers, 2010). Additionally, LGB individuals are at a higher risk of suicidal ideation, suicide attempts, and non-suicidal self-injurious behaviors (Balsam, et al., 2005).

Sexual orientation is not what places sexual minorities at increased risk for mental health problems. Exposure to discrimination, victimization, and stigmatization has been linked to higher levels of depression and anxiety symptoms, as well as increased rates of psychiatric disorders (Mays & Cochran, 2001). LGB individuals experience unique discrimination and victimization specific to their sexual identity due to the stigmatization of queer people in American society, and these environmental factors are what increase their risk (Mays & Cochran, 2001; Levine & Leonard, 1984; Meyer, 1995). This may include housing and employment discrimination, medical care and basic civil rights discrimination, or discrimination in the form of harassment (McCabe, Bostwick, Hughes, West, & Boyd, 2010).

This chapter will present the current understanding of health disparities among LGB individuals, including an overview of Meyer's minority stress model, a review of empirical studies of health disparities within the LGB community, and the implications internalized homophobia has on LGB health. This review will establish a foundation for

the current studies, which investigated psychological distress, internalized homophobia, and risk-taking behaviors (negative coping) among LGB individuals (study 1) and daily stressors, including LGB-specific discrimination, as it related to risk-taking behaviors (negative coping; study 2).

Minority Stress

The minority stress model (Meyer, 2003) provides a leading framework for understanding and explaining psychological health disparities among LGB individuals (Michaels, Parent, & Torrey, 2016; Frost, Parsons, & Nanin, 2007; Pachankis et al., 2015; Rendina, Golub, Grov, & Parsons, 2012; Rendina, et al., 2017). The model addresses proximal and distal processes of minority stress, where external events such as LGB-specific discrimination are viewed as distal stressors, and internal influences such as internalized homophobia and LGB identity concealment are viewed as proximal stressors (Michaels et al., 2016). Meyer (2003) provides an explanation for negative health outcomes as a result of repeated stigma and discrimination that LGB individuals experience on a day-to-day basis, leading to internalized homophobia, negative attitudes towards oneself, and rejection sensitivity (Pachankis, Goldfried, & Ramrattan, 2008; Rendina, et al., 2017). The minority stress model can be viewed in Figure 1. Study 1 focuses on minority status and identity, general stressors, including perceived stress, proximal factors, including internalized homophobia and self-worth, and mental health outcomes (psychological distress), including depression, suicidal ideation, and impulsivity, as well as risk-taking behaviors (negative coping) such as substance use and sexual risk-taking. Study 2 looks at minority status and identity, distal factors, including daily LGB-specific discrimination, and engagement in risk-taking episodes (negative

coping), including substance use and sexual risk-taking.

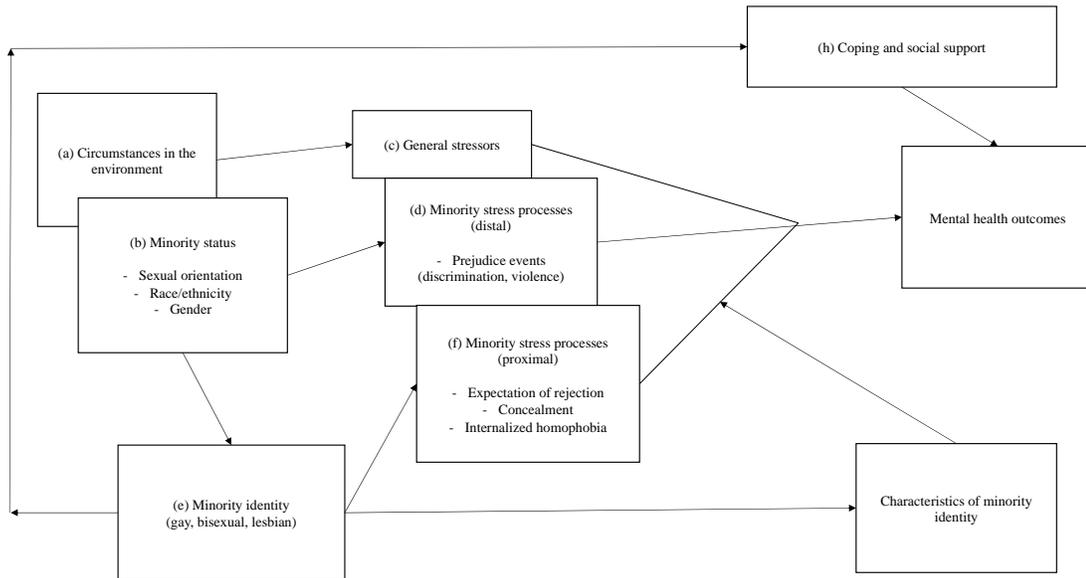


Figure 1: Minority Stress Model. Reprinted from “Prejudice, Social Stress, and Mental Health in Lesbian, Gay, and Bisexual Populations: Conceptual Issues and Research Evidence,” by I. H. Meyer, 2003, *Psychological Bulletin*, 129, p. 679. Copyright 2003 by the American Psychological Association.

LGB individuals are disproportionately at greater risk of prejudice events, including discrimination, victimization, and violence (Meyer, 2003). In fact, a recent poll distributed by NPR, the Robert Wood Johnson Foundation, and the Harvard T.H. Chan School of Public Health found that the majority of sexual and gender minorities have experienced slurs (57%) and offensive statements or comments (53%) specific to their sexual or gender identity (Zhang, 2017). Additionally, at least 20% of sexual and gender minorities report being discriminated against in the workplace and 22% when trying to rent or buy housing (Zhang, 2017). Another study found that, after adjusting for known

demographic correlates of discrimination, including race/ethnicity, level of education, marital status, and income, over 75% of LGB individuals reported discrimination specific to their sexual orientation (Mays & Cochran, 2001). A study focusing on the relationship between discrimination and substance use disorders in LGB individuals found that 61.3% of LGB individuals surveyed had experienced 1 or more types of discrimination (sexual orientation discrimination, race discrimination, or gender discrimination) within the past year, and more than one-third of respondents reported some form of LGB-specific discrimination (McCabe et al., 2010).

LGB-specific prejudice, discrimination, and violence has been seen throughout history, from the extermination of homosexuals by Nazis during the Holocaust (Meyer, 2003) to the Stonewall Riots in 1969 in response to police brutality against the lesbian, gay, bisexual, and transgender (LGBT) community, and the assassination of the first gay elected official in the state of California, Harvey Milk, in 1978. More recently, in 2016, 49 people were killed in a mass shooting at Pulse, a gay nightclub in Orlando, Florida. The Federal Bureau of Investigation (FBI) released 2017 statistics showing a 17% percent increase in reported hate crimes from 2016 (Dashow, 2018). Of the 7,175 hate crimes reported in 2017, 1,130 of them were based on sexual orientation bias and 119 on gender identity bias (Dashow, 2018). However, hate crime reporting is not mandatory, so the true number of LGBT-related hate crimes are more than likely greater than the reported number.

Another factor that impacts health disparities among sexual minorities is internalized homophobia (Meyer, 2003). Internalized homophobia is defined as a “gay person’s direction of negative social attitudes toward the self” (Meyer & Dean, 1998),

and is present regardless of negative events such as discrimination and violence, and even if one's minority status (sexual orientation) is concealed successfully from others. This self-stigmatization can be explained further through the self-labeling process (Meyer, 2003). Thoits (1985, p. 222) explains that we are able to use our social identities to "role-take," which enables us to view ourselves from an imagined perspective of another person and by doing so, can anticipate and respond to the reaction of others regarding an action or behavior. Internalized homophobia is, thus, internalizing the perceived attitudes of society towards sexual minority individuals (Meyer, 2003).

Common experiences among LGB individuals might be being introduced at a young age to the idea that heterosexual relationships are the only acceptable kinds of relationships. Parents might instill at a young age their disapproval for homosexual relationships by making comments when seeing a homosexual couple either on the street or on television, or by being disapproving of their son or daughter participating in activities stereotypically performed by the opposite sex (e.g. not allowing boys to play with dolls and not allowing girls to play sports or get dirty). LGB individuals, at a young age, can internalize these thoughts of same-sex relationships, which can later turn into internal conflict (or internalized homophobia) when they are coming to terms with their LGB status during their teenage or young adult years. This internal conflict, in addition to the stressors and discriminations that LGB individuals experience on a day-to-day basis, might contribute to the negative mental health outcomes of LGB individuals (Rendina, et al., 2017).

Internalized homophobia has been linked to various negative mental health outcomes, including lower global self-esteem, higher clinical symptoms of depression

and anxiety, and lower positive affect (Herek, Gillis, & Cogan, 2015). Additionally, exposure to harassment or discrimination has been directly associated with increases of both internalized homophobia and depressive symptoms (Michaels, et al., 2016), suggesting that personal experiences of LGB-specific discrimination translates to one's social attitude towards one's sexual orientation.

There are certain societal factors that contribute to internalized homophobia and negative health outcomes in LGB individuals. Heterosexism is a systematic privileging of heterosexuality relative to homosexuality, based on the presumption that heterosexuality and heterosexual privilege and power are the societal norm (Chesir-Teran, 2003). This heterosexist norm can be an added struggle for LGB individuals navigating through a heterosexual-dominated society. Heterosexism may create internal struggles for LGB individuals who feel forced to conform to the societal standards of sexuality.

Until 1973, the American Psychiatric Association Board of Directors listed homosexuality in the Diagnostic and Statistical Manual for Mental Disorders (DSM) (Herek, 2004). Homosexuality was labeled a disease by medical and mental healthcare professionals, which caused inevitable conflict for LGB individuals in society. Though homosexuality is no longer considered a disease by medical and mental health professionals, and society's acceptance of homosexuality has increased tremendously in recent years, heteronormativity still pervades society.

LGB individuals are surrounded by a heteronormative environment where normal is considered being heterosexual, their sexuality is framed as an abnormality, and day-to-day activities and events adhere to heterosexual behavior (Arambula, 2016). Heteronormativity is the belief that individuals are categorized into two distinct

categories, man and woman, and that each group is expected to act accordingly to their natural roles in life. It also includes the belief that heterosexuality is the only normal sexual orientation (all others being abnormal), and that marriage and relationships are only between man and woman. Additionally, the ideal portrayal of marriage and family, as we seen in all forms of media, is most often represented by opposite-sex relationships and marriages. This can create challenges and conflict for LGB individuals in places of work and in social groups that are not LGB-driven.

Heterosexism can also be seen in healthcare settings. LGB individuals are at risk of receiving inadequate care and treatment from their healthcare providers due to stigma and other societal and cultural factors (Dean et al., 2000). Additionally, the healthcare system is relatively heteronormative, meaning that patients, unless disclosed previously, are often assumed to be heterosexual and involved in heterosexual relationships. This means that LGB individuals, who are at increased risk of contracting certain sexually transmitted infections (STI) including HIV, are not receiving proper information on sexual health and education from their primary care physicians (Dean et al., 2000).

In summary, the minority stress model helps us to understand health disparities within LGB individuals as resulting from proximal and distal stressors, including LGB-specific discrimination and internalized homophobia. In the current studies, we sought to examine the minority stress model by identifying differences in psychological distress and risk-taking behaviors among LGB vs. non-LGB individuals (study 1) and investigating daily stressors, including LGB-specific discrimination, as it is related to risk-taking behaviors (negative coping; study 2).

Psychological Distress

Compared to the general population, college-age adults (18-25) have a higher prevalence of psychological distress (Adams, Knopf, & Jane Park, 2014), and the rates are even higher among college-age LGB individuals (Meyer, 2003; Lindley, Walsemann, & Carter, 2012). In fact, a study investigating the prevalence of mood and anxiety disorders among LGB individuals found that LGB men and women, in comparison to their non-LGB counterparts, showed higher lifetime prevalence for any mood and anxiety disorder, as well as specific disorders, including major depressive disorder (MDD), dysthymia, panic disorder, social phobia, and generalized anxiety disorder (GAD; Bostwick, Boyd, Hughes, & McCabe, 2010). Based on a meta-analysis conducted by King et al. (2008), the prevalence of past-year depression in LGB individuals is at least twice as likely than that of heterosexual individuals. A study examining GAD and MDD across sexual and gender minorities found significantly higher rates of both disorders as compared to heterosexual and cisgender individuals (Borgogna, McDermott, Aita, & Kridel, 2019). Additionally, studies have found higher prevalence of obsessive-compulsive disorder (OCD), specific phobia, history of self-harm, and psychosis in LGB individuals compared to heterosexual individuals (Chakraborty, McManus, Brugha, Bebbington, & King, 2011). Also, mood disorders and anxiety disorders are both risk factors for suicide attempts (Bolton et al., 2008). In fact, a study found that upwards of 70% of individuals who reported a lifetime history of at least one suicide attempt met criteria for at least one anxiety disorder (Nepon, Belik, Bolton, & Sareen, 2010). This can be translated to LGB individuals, who are at greater risk for these disorders.

Compared to their heterosexual counterparts, research suggests LGB individuals

are at a much greater risk for suicidal ideation and suicide attempts (McDaniel, Purcell, & D'Augelli, 2001). In the United States, there is an estimated 5% lifetime prevalence of suicide attempts (Nock et al., 2008), and this rate increases anywhere from 20% to 42% among LGB individuals (Remafedi, 1999). Though there is not a way to accurately measure rates of completed suicides within the LGB population, one can assume, due to the higher rates of suicidal ideation and suicide attempts, that rates of completed suicides among LGB individuals are significantly greater than heterosexual individuals.

The minority stress model seeks to explain this increased psychological distress among LGB individuals as resulting from daily LGB-specific stressors and discriminations, and internalized homophobia. The current study seeks explain the increased psychological distress among LGB individuals as resulting from these daily LGB-specific discriminations and stressors, and also to predict risk-taking behaviors as a result of these stressors.

Risk-Taking Behaviors (Negative Coping)

Research has shown that substance use disorders are more prevalent in LGB individuals than their heterosexual counterparts (McCabe et al., 2010; Cochran, Ackerman, Mays, & Ross, 2004). It is estimated that LGB men and women are two to three times more likely than heterosexual individuals to participate in substance abuse (Cochran et. al., 2004; Bux, 1996). Though there is some variability among types of substances most commonly used by LGB individuals (probably due to the almost exclusive use of convenience sampling in LGB-related studies), previous research has found that LGB individuals report higher use and misuse of all substances, and the most commonly used substances include alcohol, marijuana, and cocaine (Cochran, Keenan,

Schober, & Mays, 2014; Woody et al., 2001; Cochran, Keenan, Schober, & Mays, 2014). A study including 8,735 homosexual men in a total of 20 cities found that over half (54%) participated in binge drinking within the past 30 days (Wejnert, Xia, Doyle, Paz-Bailey, & the NHBS Study Group, 2016). Additionally, 56% had used a noninjectable drug (excluding drinking) in the past year; marijuana (47%), cocaine (19%), and ecstasy (11%) were some of the most common substances used (Wejnert, et al., 2016). Most notably, previous research has seen alcohol abuse and dependence in up to 30% of LGB individuals (Cochran et.al., 2014; Fiefield, 1975; Lohrenz, Connely, Coyne, & Spare, 1978).

In general, individuals who engage in substance use experience a number of negative consequences as a result, including, but not limited to, suicide attempts (Reed, Prado, Matsumoto, & Amaro, 2009; Perkins, 2002), unprotected sex and unintentional sexual activity (Perkins, 2002; Hingson, Heeren, Zakocs, Kopstein, & Wechsler, 2002), and personal injuries and death (Perkins, 2002; Hingson, Heeren, Winter, & Wechsler, 2005). LGB individuals not only participate in substance use at a greater rate, but also experience the previously noted negative consequences associated with substance use to a much greater extent in comparison to their heterosexual counterparts (Reed et al., 2009; McCabe, Boyd, Hughes, & d'Arcy, 2003). There is much speculation about the cause for this increased use of alcohol and drug use among LGB individuals, but various studies have revealed associations between internalized homophobia and substance use (Dudley, Rostosky, Korfhage, & Zimmerman, 2004; Hequembourg & Dearing, 2013).

Specifically, Hequembourg et al. (2013) identified positive associations between internalized homophobia and several substance use variables, including alcohol use

severity, marijuana dependence, and cocaine dependence. Further, while examining correlates of high-risk sexual behaviors among men who have sex with men (MSM), Dudley et al. (2004) found a direct association between internalized homophobia and both alcohol and marijuana use.

Gay and bisexual men under 30 are at an increased risk for HIV in the US (Halkitis & Figueroa, 2013). Though gay and bisexual men are thought to only make up about 2% of the U.S. population (though this percentage could be skewed because this only accounts for self-identified gay and bisexual men and not all men who have sex with men), gay and bisexual men account for 70% of new HIV infections in the U.S. (Centers for Disease Control and Prevention [CDC], 2014). The cause for this has been long debated, but a large proportion of recent research suggests that sexual minority stigma may be associated with sexual impulsivity and risky sexual behaviors, such as no-condom sexual intercourse (Rendina, et al., 2017; Pachankis, et al., 2015; Preston, Augelli, Kassab, & Starts, 2007).

In a study investigating risky sexual behavior, gay and bisexual African-American men reported a high prevalence of unprotected anal sex within the past 6 months (52%) (Peterson et al., 1992). Gay and bisexual African-American men were also more likely to have participated in unprotected anal sex if they were considered low income, had been paid for the sexual encounter, and/or had injected illicit drugs prior to the sexual encounter (Peterson et al., 1992).

Additionally, the internet has become a venue for gay and bisexual men to connect with and meet new sexual partners (Kakietek, Sullivan, & Heffelfinger, 2011), which might explain the rising number of new STIs, including HIV infections (Fenton &

Imrie, 2005). Research reveals that up to 50% of homosexual men have found sexual partners online, and many speculate that finding sexual partners online might be associated with risky sexual behaviors, such as unprotected anal intercourse, which puts gay men at increased risk for HIV infection (Kakietek et al., 2011; Benotsch, Kalichman, & Cage, 2002).

Current Study: Hypotheses and Rationale

The current studies were designed to investigate psychological distress and risk-taking behaviors among LGB individuals. The first survey identified differences in psychological distress domains and substance use among LGB vs. non-LGB individuals, and study 2 utilized EMA techniques to record daily reports of stressors and risk-taking episodes. The hypotheses were that: (1) LGB individuals would report higher levels of psychological distress and substance use (study 1), (2) increased internalized homophobia among LGB individuals would be positively associated with increased psychological distress (study 1), and (3) increased daily stressors would precede risk-taking episodes among LGB individuals (study 2).

In study 1, participants, regardless of sexual orientation, were asked to complete a survey that included measures of stimulant use, marijuana use, perceived stress, suicidal ideation, self-worth, impulsivity, and depression. Those who identified as LGB were also given a measure of internalized homophobia. Based on previous research, it was predicted that LGB individuals would report increased levels of psychological distress across all domains, higher reports of sexual risk-taking, and more frequent substance use versus their heterosexual counterparts. Additionally, based on Meyers' (2003) minority stress model, it was predicted that increased rates of internalized homophobia would be

positively associated with increased psychological distress among LGB individuals.

Prior research has shown increased rates of psychological distress (Meyer, 2003; Lindley et al., 2012; Bostwick et al., 2010; King et al., 2008) and increased levels of substance use (McCabe et al., 2010; Cochran et al., 2004; Bux, 1996) among LGB individuals compared to their heterosexual counterparts. Additionally, Meyer's (2003) model provides the theoretical framework explaining these increased levels of psychological distress as resulting from stressors specific to LGB individuals, including internalized homophobia and LGB-specific discrimination.

In study 2, participants were prompted to complete a survey via their personal cell phones twice daily for three weeks. The surveys measured daily LGB-specific discrimination, perceived stress, substance-specific cravings, social influences, alcohol use, and drug use. Based on previous research, we hypothesized that increased daily stressors, including LGB-specific discrimination, cravings, and perceived stress, as well as social influences, would precede risk-taking behaviors. While study 1 focuses on proximal factors associated with risk-taking behaviors, Study 2 looks at distal factors, including daily LGB-specific discrimination, and engagement in risk-taking episodes (negative coping), including substance use and sexual risk-taking.

In summary, study 1 investigated psychological distress domains, internalized homophobia, and risk-taking among LGB individuals. It was predicted that LGB individuals would report higher levels of psychological distress, substance use, and sexual risk-taking in comparison to their heterosexual counterparts, and that increased levels of internalized homophobia among LGB individuals would be positively associated with increased psychological distress and risk-taking behaviors. Study 2

examined daily stressors as it relates to risk-taking behaviors. It was predicted that increased daily stressors, including LGB-specific discrimination, perceived stress, and substance-specific cravings, as well as social influences, would precede risk-taking behaviors, including alcohol use, drug use, and sexual risk-taking.

II. STUDY 1: RESEARCH METHODS AND DESIGN

Participants

A total of 965 individuals were recruited to participate. They were between the ages of 18-26 years old and were Texas State University students recruited through the Texas State Human Subjects Pool, SONA. They were compensated for participation in the form of course credit in an introductory-level Psychology course.

Measures

Perceived Stress Scale—Revised

The Perceived Stress Scale (PSS) was modified by Wickrama et al. (2013) to reflect two distinct factors: psychological competency and psychological vulnerability. Psychological competency measures positive thoughts and feelings with regards to life circumstances in the past month and is measured on a 5-point Likert-type scale from never (0) to very often (4); higher scores indicate a higher degree of the measured construct. Respondents were given five items from the PSS (Cohen et al., 1983). Some questions included are “How often have you felt that you were effectively coping with important changes that were occurring in your life?” and “How often have you felt confident about your ability to control the irritations in your life?” The internal consistency was 0.80.

Psychological vulnerability measures depressed feelings with regards to life circumstances in the past month and is measured on a 5-point Likert-type scale from never (0) to very often (4) with higher scores indicating a higher degree of the measured construct. Some questions included are “How often have you been upset because of something that happened unexpectedly?” and “How often have you felt that you were unable to control the important things in your life?” The internal consistency was 0.85. The correlations between both factors were not statistically significant ($r = -.10$, $p = .22$) meaning there is good discriminant validity, and the two factors should be investigated separately in this study.

Suicidal Ideation

Suicidal ideation was measured using the Suicide Ideation Measure developed by Light et al. (2003). This measure follows the accepted guidelines for measuring suicide attempts by asking respondents six items relating to suicide during the past 12 months. These items included questions involving thoughts and feelings relating to suicide, including questions on intentionality and ideation. The items are (1) thought of harming yourself, (2) felt that life was not worth living, (3) felt that your family would be better off if you were dead, (4) felt so sad that you wished you were dead, and (5) talked to someone else about the idea of taking your own life. The responses are dichotomous and presented in a yes/no format.

The ideation items was summed into two scales for latent variable analyses: affective ideation and behavioral ideation. The internal reliability for the affective ideation was 0.78 and the internal reliability for the behavioral ideation was 0.75.

Self-Worth

Self-worth was measured using the Feelings of Self-Worth Measure (FSW) (Critcher & Dunning, 2015). This measure has 14 items, rated on a scale ranging from 1 (not at all) to 9 (extremely). After a principal components analysis, items were loaded on two orthogonal factors: positive feelings of self-worth and negative feelings of self-worth. There are 8 items on the positive feelings of self-worth factor, some of which include “I currently feel proud” and “I currently feel confident.” Internal reliability for the positive feelings of self-worth factor was 0.92. There are 6 items on the negative feelings of self-worth factor, some of which include “I currently feel ashamed” and “I currently feel bothered.” Internal reliability for the negative feelings of self-worth factor was 0.91.

Impulsivity

The short-form version of the UPPS-P (SUPPS-P) developed by Lynam (2013) was used to measure impulsive tendencies. The SUPPS-P consists of 20 items measured on a scale from (1) strongly agree to (4) strongly disagree. The measure has five subscales, including (1) negative urgency, (2) lack of perseverance, (3) lack of premeditation, (4) sensation seeking, and (5) positive urgency. When tested, negative urgency had an internal reliability of 0.78 and includes questions like “when I feel bad, I will often do things I later regret in order to make myself feel better now and “sometimes when I feel bad, I can’t seem to stop what I am doing even though it is making me feel worse.” Lack of perseverance had an internal reliability of 0.79 and includes questions like “I generally like to see things through to the end” (reverse coded) and “unfinished tasks really bother me” (reverse coded). Lack of premeditation had an internal reliability of 0.85 and includes questions like “my thinking is usually careful and purposeful and “I

like to stop and things over before I do them” (reverse coded). Sensation seeking had an internal reliability of 0.74 and includes questions like “I quite enjoy taking risks” and “I would enjoy the sensation of skiing very fast down a high mountain slope.” Finally, positive urgency had an internal reliability of 0.85 and included questions like “when I am in a great mood, I tend to get into situations that could cause me problems” and “I tend to lose control when I am in a great mood.”

Depression

Depression was measured using the depression subsection of the DASS-42 (Lovibond & Lovibond, 1995), which consists of 14 items presented on a 4-point severity/frequency scale. Participants were asked if they have experienced each symptom over the past week. Some items include “I felt downhearted and blue,” “I found it hard to wind down,” and “I felt terrified.” Internal consistency for the depression subscale was 0.91.

Internalized Homophobia

Internalized homophobia was measured using a set of 11 items on a 5-point scale ranging from (0) strongly disagree to (4) strongly agree. Only participants who identified as LGB during the demographics section of the survey were prompted to complete these items. Some items include “I resent my sexual orientation,” “my sexual orientation makes me feel like a freak,” “when I think about my sexual orientation, I feel unhappy,” and “I often ask myself: why can’t my sexual orientation just be normal?” Higher scores indicated greater levels of internalized homophobia. Five of these questions came from the Revised Internalized Homophobia Scale (IHP-R) (Herek, Gillis, & Cogan, 2009). Internal consistency for the IHP-R was 0.82.

Substance Use

There were two substance use surveys: one measure for stimulant misuse and one measure for marijuana use. The stimulant use survey involved questions regarding the misuse of prescription medication (Vyvanse, Ritalin, Adderall, Concerta, methylphenidate, dextroamphetamine, Focalin, and Metadate). Misuse involved either using someone else's prescription medication or using your own prescription stimulant medication in a way the prescriber did not intend, like using the medication more often or using more pills, at times you were not supposed to, or over a longer period of than the prescriber intended. Additionally, the stimulant survey assessed frequency of misuse, the motive for most typical misuse (to lose weight, to concentrate better, to stay awake, etc.), the source of the stimulant medication, and the route through which the medication was ingested (orally, through snorting, injecting, smoking).

The marijuana survey involved a shortened version of the DFAQ-CU (Cuttler & Spradlin, 2017). The marijuana survey covered questions involving marijuana use frequency, method of ingestion (joints, blunts, hand pipe, etc.), primary form of cannabis used (marijuana, concentrates, edibles), and age of marijuana use onset.

Risky Sexual Behavior

Risky sexual behavior was measured with a questionnaire developed by Baams (2014) that involved questions regarding age of first sexual encounter, total partners in the past 2 months and lifetime, whether the participant has given or received money or something else for sex, frequency of sex without a condom, if they have ever stripped or done something sexual in front of a webcam, and if they have ever contracted a sexually transmitted infection. Participants were asked to respond with either (1) never, (2)

sometimes, or (3) a lot.

Procedure

Participants completed an online survey; this took 30-45 minutes, and consent was obtained prior to completion of any survey items. After entering the study online, the participants saw a screen with the text of the consent form. At the bottom of the page, an item read “By clicking yes (below), you acknowledge that you have read the consent form (above) and that you have decided to participate. Clicking no indicates you do not wish to participate.” The survey included items involving perceived stress, suicidal ideation, impulsivity, depression, internalized homophobia (for those who identify as LGB), substance use, and sexual risk-taking. Those participants who identified as LGB were redirected at the end of the survey to enter contact information if they wished to participate in the follow-up EMA study (study 2).

Analytic Strategy

To assess differences in psychological distress domains among LGB individuals, sexual orientation served as the independent variable (LGB vs. non-LGB). First, univariate comparisons were conducted to assess differences in psychological distress (perceived stress, depression, self-worth, impulsivity, and suicidal ideation) between the comparison groups. Independent t-tests were used. Next, a binary logistic regression was run for each psychological distress domain (perceived stress, depression, self-worth, impulsivity, and suicidal ideation), controlling for age and gender/sex. Regressions were also run for marijuana use (weekly use, monthly use, and lifetime use) and stimulant misuse (monthly misuse and yearly misuse) and risky sexual behavior (condomless sex, unknown sex partners in past month, unknown sex partners in lifetime, and STI history).

This model was developed to determine key psychological distress domains and risk-taking behaviors associated with sexual minority status. Finally, to test within-group relationships, a Pearson Correlation was run for all psychological distress domains and internalized homophobia among LGB individuals to investigate the relationships of the variables. All analyses were conducted using SPSS version 25.0 (IBM Corp, Armonk, NY).

Results

Table 1 shows the demographic characteristics of the participants in study 1. The majority of participants were female (80.94%), 18.01% were male, 0.73% were gender non-conforming, and 0.31% declined to say. 87.81% of participants identified as heterosexual and 13.89% identified as LGB. Of the LGB individuals, 2.13% identified as Gay, 7.83% identified as bisexual, and 2.13% identified as Lesbian. The breakdown of racial and ethnic identity is also listed in table 1. Of the 965 participants, 41.76% reported being Latino/a or Hispanic. The majority of participants identified as white (67.47%), followed by African American (15.35%), other (7.98%), Asian American/Pacific Islander/Native Hawaiian (5.05%), Native American/Alaskan Native (3.43%), and South Asian/Middle Eastern (0.71%).

Table 1: Demographic characteristics of participants in study 1.

Demographics	Percentage	Race/Ethnicity	Percentage
Gender		Latino/a or Hispanic	
Male	18.01%	Yes	41.76%
Female	80.94%	No	58.24%
Gender Non-Conforming	0.73%		
Prefer Not To Say	0.31%	African American/Black	15.35%
Sexual Orientation		White	67.47%
Gay	2.24%	Asian American/Pacific Islander/Native Hawaiian	5.05%
Bisexual	7.83%	South Asian/Middle Eastern	0.71%
Lesbian	2.13%	Native American/Alaskan Native	3.43%
Heterosexual	87.81%	Other	7.98%
Comparison Group			
LGB	13.89%		
Non-LGB	87.81%		

Table 2 shows the data for the comparisons of the psychological distress domains between LGB and non-LGB individuals. LGB individuals ($M = 37.7$, $SD = 6.9$) displayed higher levels of perceived stress than non-LGB individuals ($M = 35.8$, $SD = 7.0$) [$t(924) = -2.6$, $p = .009$]. Additionally, compared to non-LGB individuals ($M = 24.9$, $SD = 9.1$), LGB individuals ($M = 28.4$, $SD = 10.1$) reported significantly higher depressive symptoms [$t(924) = -3.7$, $p < .001$]. Self-worth scores were recoded so that higher scores reflect lower self-worth. LGB-individuals ($M = 60.5$, $SD = 51.8$) rated lower self-worth as compared to non-LGB individuals ($M = 51.8$, $SD = 19.3$) [$t(596) = -3.6$, $p < .001$], reflective by higher scores. Suicidal ideation was significantly higher in LGB individuals ($M = 1.5$, $SD = 1.9$) compared to non-LGB individuals ($M = 0.8$, $SD = 1.6$) [$t(125.7) = -4.0$, $p < .001$]. Finally, compared to non-LGB individuals ($M = 41.3$, $SD = 7.5$), LGB individuals ($M = 44.0$, $SD = 7.5$) reported higher levels of impulsivity.

Table 2: Relationship between comparison groups and psychological distress domains.

	Non-LGB	LGB	Statistical Significance
Perceived Stress	35.8 (7.0)	37.7 (6.9)	p = .009
Depression	24.9 (9.1)	28.4 (10.1)	p < .001
Self-Worth	51.8 (19.3)	60.5 (20.2)	p < .001
Suicidal Ideation	0.8 (1.6)	1.5 (1.9)	p < .001
Impulsivity	41.3 (7.5)	44.0 (7.6)	p = .001

Binary logistic regressions were run for each psychological distress domain (see Table 3) to determine specific mental health outcomes associated with sexual minority status. Higher scores for each psychological distress domain were significantly reflective of LGB status. For each unit increase of perceived stress, the odds of LGB status increased by 1.039 times (p = .009). Additionally, those with higher depressive symptoms (p < .001), lower self-worth (p = .001), higher impulsivity (p = .001), and suicidal ideation (p < .001) were significantly more likely to identify as LGB.

Table 3: Binary Logistic Regressions of psychological distress domains.

	Beta	SE	Wald	p-value	Odds ratio	95% CI lower	95% CI upper
Perceived Stress	.038	.015	6.817	.009	1.039	1.010	1.070
Depression	.036	.010	12.862	< .001	1.037	1.017	1.058
Self-Worth	.021	.006	12.084	.001	1.022	1.009	1.034
Impulsivity	.048	.014	11.535	.001	1.049	1.020	1.078
Suicidal Ideation	.232	.052	20.230	<.001	1.262	1.140	1.396

Binary logistic regressions were run for marijuana use (weekly, monthly, and lifetime use), stimulant misuse (monthly misuse and yearly misuse), and sexual risk-taking behavior (condomless sex, unknown sex partners in past month, unknown sex partners in lifetime, and STI history; see Table 4) to determine specific risk-taking behaviors associated with sexual minority status. Significant differences were found in marijuana use and sexual risk-taking behaviors. Those who reported increased weekly marijuana use ($p < .001$), monthly marijuana use ($p = .001$), and lifetime marijuana use ($p = .022$) were more likely to identify as LGB. Additionally, individuals who reported a greater number of unknown sexual partners in the past month ($p = .025$) and in their lifetime ($p = .030$) were more likely to identify as LGB. There were no significant differences found in stimulant misuse, condomless sex, or STI history ($p > .05$).

Table 4: Binary Logistic Regressions of risk-taking behaviors.

Marijuana	B	S.E.	Wald	df	sig.	Exp(B)	Lower	Upper
Weekly	.039	.035	15.839	1	< .001	1.149	1.073	1.231
Monthly	.058	.049	10.396	1	.001	1.171	1.064	1.290
Lifetime	.018	.052	5.232	1	.022	1.125	1.017	1.245
Stimulant	B	S.E.	Wald	df	sig.	Exp(B)	Lower	Upper
Monthly	.152	.488	.098	1	.755	1.164	.448	3.028
Yearly	.659	.665	.981	1	.322	1.933	.525	7.124
Sexual Activity	B	S.E.	Wald	df	sig.	Exp(B)	Lower	Upper
Condomless	.013	.296	.002	1	.965	1.013	.568	1.808
Unknown M	.064	.118	4.993	1	.025	1.302	1.033	1.641
Unknown L	.035	.108	4.705	1	.030	1.264	1.023	1.563
STI History	-.409	.536	.581	1	.446	.664	.232	1.901

Finally, to test within-group relationships, a Pearson correlation was run for all psychological distress domains and internalized homophobia among LGB individuals to test relationships of the variables (see table 5). There was a positive significant correlation between depression scores and impulsivity ($p < .001$), suicidal ideation ($p < .001$), internalized homophobia ($p = .050$), and self-worth (higher self-worth scores reflect lower self-worth; $p < .001$). There was a positive significant correlation between self-worth and both suicidal ideation ($p < .001$) and internalized homophobia ($p = .017$). Finally, there was a positive significant relationship between internalized homophobia and suicidal ideation ($p = .014$).

Table 5: Correlations between psychological distress variables.

Measure	1	2	3	4	5	6
1. Perceived Stress	--					
2. Depression	.095	--				
3. Self-Worth	.078	.601**	--			
4. Impulsivity	-.096	.318**	.216	--		
5. Suicidal Ideation	-.109	.584**	.460**	.122	--	
6. Internalized Homophobia	.116	.191**	.283*	.166	.239*	--
Mean	40.8	28.9	60.5	44.0	1.5	19.0
Standard Deviation	7.0	10.3	20.2	7.5	1.9	9.6

III. STUDY 2: RESEARCH METHODS AND DESIGN

Participants

A total of 20 participants were recruited from study 1 to participate in the second study. To be eligible for study 2, participants needed to identify as LGB. During study 1, there was a demographic question asking the participant's sexual orientation. Individuals who identify as LGB were directed, at the end of the study, to a page explaining study 2 and their contact information was requested. These participants were provided monetary compensation for participation in study 2 (\$1 per survey completed and a \$15 bonus for completed at least 80% of the 42 surveys, equaling up to \$57).

Measures

The EMA survey, which each participant completed twice daily for three weeks using their personal cell phone, consisted of items measuring LGB discrimination (items

1-3, below), perceived stress (items 4-7), cravings (items 8-10), social settings (item 11), substance use (items 12 and 13), and sexual activity (items 14-18). Items included: (1) have you experienced any LGB-specific discrimination today? (2) if yes, what happened? (3) was this discrimination directed towards you or someone else? (4) since the last survey, have you felt that you were unable to control the important things in your life? (5) since the last survey, have you felt confident about your ability to handle your personal problems? (6) since the last survey, have you felt that things are going your way? (7) since the last survey, have you felt difficulties were pulling so hard that you could not overcome them? (8) have you had cravings for any substances today? (9) if yes, which substances? (10) rate from 1-10 how much you were craving each substance, 1 being little craving and 10 being intense craving, (11) were you in any social settings today in which you normally use substances or substances were readily available? (12) have you used alcohol today? (13) have you used drugs? (14) are you sexually active? (15) have you had sexual intercourse since the last survey? (16) did you use protection? (17) did you know the person prior to the sexual encounter? (18) were you under the influence of any substances while having sexual intercourse?

Procedure

The EMA survey was completed daily by the participant on their personal cell phone. Only a baseline/eligibility appointment and a final payment appointment were face-to-face meetings at Texas State University. The initial baseline/eligibility appointment took 30-45 minutes, and each individual EMA session took 5 minutes. Participants received a notification to complete a survey twice daily between the hours of 9:00 AM and 11:59 PM (time varied slightly depending on participant's personal

sleep/wake cycle). Participants had 90 minutes to complete the survey and did not receive surveys within 4 hours of another survey. This was a three-week (21-day) study, resulting in 42 potential EMA sessions and 3.50 potential hours taking EMA surveys. The final appointment for payment took 10 minutes. Participants received \$1.00 for each completed EMA survey, and a \$15 bonus for completing at least 80% of the daily EMA surveys. Assuming 100% EMA session completions, participants earned up to \$57. A total time estimate participants were involved with the EMA study is 4.20 hours (.5 for baseline; 3.50 for EMA sessions, and .2 for the final appointment).

Informed consent was solicited by the primary investigator (PI) during the initial baseline/eligibility appointment. After greeting the participant, the PI gave them an informed consent form, asked them to read it fully, and then asked them to remember or write down any questions about the research. After allowing sufficient time to read the form, the PI returned and solicited questions about the informed consent document/study. The PI emphasized the sensitive data collected, the time commitment of the research, procedures for dealing with distress, and that the research was completely voluntary (including the ability of the participant to withdraw for any reason at any time without penalty). Consent was obtained prior to any study procedures being conducted. The EMA software used was LifeData.

Analytic Strategy

Descriptive statistics were run to investigate forms of LGB-specific discrimination, types of cravings, and types of substances used. A multilevel model was created identifying behaviors (substance use and sexual risk-taking) as dependent variables and stressors (LGB-specific discrimination, perceived stress, cravings) as well as social

influences as independent variables. Using the mixed model command in SPSS, we examined daily reports of LGB-specific discrimination and perceived stress and compared them to dependent variables in order to see if these independent variables were predictors of risk-taking behaviors. A Pearson correlation was also run for both the independent and dependent variables to determine the relationships of the variables. All analyses were conducted using SPSS version 25.0 (IBM Corp, Armonk, NY).

Results

Table 6 shows the demographic characteristics of the participants (N=20) in study 2. The majority of participants were female (75%) while 25% were male. Of the participants, 20% identified as gay, 35% as lesbian, and 45% as bisexual. Additionally, of the 20 participants, 40% reported being Latino/a or Hispanic. The majority of participants identified as white (75%) followed by 14% African American/Black, and finally 10% Native American/Alaskan Native.

Table 6: Demographic characteristics of participants in study 2.

Demographics	Percentage	Race/Ethnicity	Percentage
Gender		Latino/a or Hispanic	
Male	25.0%	Yes	40.0%
Female	75.0%	No	60.0%
Sexual Orientation		African American/Black	15.0%
Gay	20.0%	Native American/Alaskan Native	10.0%
Lesbian	35.0%	White	75.0%
Bisexual	45.0%		

Descriptive statistics were run to investigate forms of LGB-specific discrimination, types of cravings, and types of substances used (see table 7). There were 25 total reports of discrimination, 13 of which were LGB-specific jokes, 10 were rude comments made about LGB status, 1 was a threat made due to LGB status, and 1 was another form of LGB-specific discrimination not listed. Of the 217 cravings reported over the 3-week period, 50 were alcohol cravings, 117 were marijuana cravings, 5 were cocaine cravings, 3 were MDMA cravings, 19 were opioid cravings, 22 were prescription stimulant cravings, and 1 was a craving for benzodiazepines. Of the 149 reports of substance use, 28 were alcohol in the form of shots, 27 were alcohol in the form of mixed drinks, 16 were beer, 5 were wine, 66 were marijuana, 3 were cocaine, 1 prescription opioids, and 1 was prescription stimulants.

Table 7: Descriptives of LGB-specific discrimination, cravings, and substance use.

	Frequency	Percent		Frequency	Percent
Discrimination			Alcohol Use		
Jokes	13	52%	Shots	28	36.8%
Rude Comments	10	40%	Mixed Drinks	27	35.5%
Harassment	0	0%	Beer	16	21.1%
Threats	1	4%	Wine	5	6.6%
Other	1	4%	Drug Use		
Cravings			Marijuana	66	90.4%
Alcohol	50	23%	Cocaine	3	4.1%
Marijuana	117	53.9%	MDMA	0	0%
Cocaine	5	2.3%	Heroin	0	0%
MDMA	3	1.4%	Opioids	1	1.4%
Heroin	0	0%	Stimulants	3	4.1%
Opioids	19	8.8%	Benzos	0	0%
Stimulants	22	10.1%			
Benzos	1	0.46%			

Table 8 shows the Pearson Correlation matrix for all variables. There was a positive significant correlation between LGB-specific discrimination and social influences ($p < .001$), alcohol use ($p < .001$), drug use ($p < .001$), and sexual risk-taking ($p < .001$). There was a positive significant correlation between sexual risk-taking and social influences ($p < .001$), alcohol use ($p < .001$), and drug use ($p < .001$). A positive significant correlation was found between perceived stress and social influences ($p < .001$). Both social influences ($p < .001$) and alcohol use ($p < .001$) were positively and significantly correlated with drug use. Finally, there was a positive significant relationship between alcohol use and social influences ($p < .001$).

Table 8: Correlations between EMA variables.

Measure	1	2	3	4	5	6
1. Social Influences	--					
2. Alcohol Use	.419**	--				
3. Drug Use	.452**	.236**	--			
4. Perceived Stress	.107**	.031	.092	--		
5. Risky Sex	.198**	.601**	.174**	-.006	--	
6. LGB-Specific Discrimination	.161**	.214**	.132**	.030	.454**	--
Mean	.11	.06	.10	1.9	.51	.03
Standard Deviation	.31	.24	.30	.71	2.2	.16

The predictor variables for the mixed model analysis included stressors (LGB-specific discrimination, perceived stress, and cravings), as well as social influences. The dependent variables included risk-taking behaviors (alcohol use, drug use, and sexual risk-taking). First, as fixed effects, LGB-specific discrimination, perceived stress, cravings, and social influences were entered into the model. These were tested with each behavior. Stressors were not significant predictors of alcohol use ($p > .05$) or sexual risk-taking ($p > .05$). However, both cravings ($p < .001$) and social influences ($p < .001$) were predictors of drug use (see table 9).

Table 9: Mixed Model analysis for the dependent variable, drug use.

	Estimate	Std. Error	df	t	Sig.	Lower Bound	Upper Bound
Perceived Stress	-.002	.005	119.86	-.280	.780	-.012	.009
Social Influences	.490	.027	420.32	17.88	< .001	.436	.544
Cravings	.204	.022	415.78	9.32	< .001	.161	.247
LGB Discrimination	.003	.047	90.34	.058	.954	-.090	.096

IV. GENERAL DISCUSSION

The current studies add to the literature by highlighting proximal and distal factors associated with psychological distress and risk-taking behaviors among LGB college students, as well as indicate specific stressors related to these risk-taking behaviors. We found that higher levels of psychological distress across all domains predicted LGB status. Additionally, increased levels of internalized homophobia were positively associated with increased depressive symptoms, lower self-worth, and greater suicidal ideation, complimenting the previous research of Herek et al. (2015). Increased levels of marijuana use were also predictors of LGB status, supporting Cochran et al. (2014), as was higher rates of unknown sexual partners, supporting Pantalone, Tomassilli, Starks, Golub, & Parsons, (2015). However, we did not find support for other predictors of LGB status that were identified in the literature, specifically stimulant use (Woody et al., 2001) and condomless sex (Pachankis et al., 2015). It is possible that the college setting of our studies plays an important role in this discrepancy. Though previous research has identified increased levels of stimulant use among LGB individuals, research has also identified increased levels of stimulant use among college students (Johnston, O'Malley, Bachman, Schulenberg, & Miech, 2016). Most notably, studies have found that stimulant use is significantly more common among college students who are white, male, and Greek organization members (Johnston et al., 2016). Thus, other factors related to college student stimulant use might outweigh LGB status. This might also be said about the lack of significant findings for condomless sex. Though research has shown increased levels of condomless sex among LGB individuals (Pachankis, et al., 2015), research has also shown an increased level of condomless sex

among adults less than 25 years old (Lance, 2001). Other covariates, including age or college student status, might be leading to these insignificant findings. It should also be noted that 80.94% of participants were female. Women who have sex with women do not use condoms when engaging in sexual intercourse. This might also be a contributing factor as to why there were no significant findings for condomless sex.

While there is a well-established understanding of and substantial evidence for health disparities among LGB individuals, no studies have measured unique daily stressors (LGB-specific discrimination, perceived stress, and substance-specific cravings), social influences, and risk-taking behaviors (alcohol use, drug use, and sexual risk-taking) among LGB individuals in real-time using, using validated methods such as EMA. Consistent with prior research, including McCabe et al. (2010), and with the hypothesis, LGB-specific discrimination was positively associated with alcohol use, drug use, and sexual risk-taking behavior. Additionally, sexual risk-taking was positively associated with alcohol use and drug use. Social influences did also play a significant role in risk-taking, having significant associations with sexual risk-taking, alcohol use, and drug use. Though LGB-specific discrimination was not a predictor of risk-taking behaviors as it was in previous research, including Meyer (2003), Pachankis et al. (2008), and Rendina, et al. (2017), both social influences and substance-specific cravings did predict drug use. It should also be noted that 70% of participants in the EMA study did not experience any form of LGB-specific discrimination in the 3-week timeframe. Though this is good news and potentially speaks of the campus climate at Texas State University, this is not consistent with previous research. Possible implications might include lack of understanding of what was being asked with regards to LGB-specific

discrimination. One participant in the final appointment informed the PI that they marked 'no' to the discrimination question every time because they thought it was only asking about physical discrimination and not other forms of discrimination specific to LGB status. Possible resolutions for this might be educating participants at the initial appointment the different forms of discrimination that are being asked.

Limitations

Several limitations of these studies should be acknowledged. First, the EMA portion was a pilot study with a small sample size ($N = 20$), and these results should be extended into future research. Second, the results are only generalizable to the sociodemographic characteristics of the participants. Due to convenience sampling, participants matched the sociodemographic characteristics of psychology majors, being largely female (81.8%). In future studies, these factors should be adjusted so that the sample can better reflect the college LGB population by recruiting from other majors and departments. Third, there may have been a lack of understanding of what was being asked with regards to LGB-specific discrimination, resulting in a high number of participants reporting they had not experienced any in the 3-week timeframe. In future studies, this needs to be addressed by educating participants at the initial appointment of the different forms of discrimination that are being asked. Fourth, EMA correlations did not account for within-subject multiple measures. The data are not independent, which the correlation assumes. Finally, this study used self-report, so there is potential for self-report bias.

Conclusion

In summary, these studies presented evidence supporting previous research, including Meyer's (2003) minority stress model. Combined, these two studies provided a novel look into psychological distress and specific daily stressors in relation to risk-taking behaviors among LGB individuals. Results suggest that LGB individuals do indeed experience psychological distress at a significantly greater rate than their heterosexual counterparts. Results also suggest a greater frequency of risk-taking behaviors among LGB individuals, and a possible relationship between the two. Further research might incorporate the minority stress model with gender or ethnic minorities. Additionally, a revised recruitment process and screening criteria for the EMA study could provide for a better sample of LGB college students.

APPENDIX SECTION

APPENDIX A: STUDY 1 SONA SURVEY

Start of Block

1.1 What is your age?

1.2 Do you identify as a Latino or Hispanic person (A person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish cultural origin regardless of race)?

- Yes
- No
-

1.3 What is your race, as you identify it? (check all that apply)

- African American/Black
- Caucasian American/White
- Asian American/Pacific Islander/Native Hawaiian
- South Asian American/Middle Eastern
- Native American/Alaskan Native
- Other (please specify): _____
-

1.4 Which gender do you identify as?

- Male
- Female
- Gender Non-Conforming
- Transgender
- Prefer Not to Answer
- Other (please specify): _____
-

1.5 What is your sexual orientation?

- Lesbian
- Gay
- Bisexual
- Pansexual
- Queer
- Questioning
- Asexual
- Heterosexual/Straight
- Prefer Not to Answer
- Other (please specify): _____

1.6 On average, how many hours of sleep did you get per night in the past week?

End of Block

Start of Block

2.1 Have you ever been prescribed a stimulant medication (such as Vyvanse, Ritalin, Adderall, Concerta, methylphenidate, dextroamphetamine, Focalin or Metadate)?

- Yes
- No

Display This Question:

If Have you ever been prescribed a stimulant medication (such as Vyvanse, Ritalin, Adderall, Concert... = Yes

2.2 Are you currently prescribed a stimulant medication?

- Yes
 - No
-

2.3 Have you ever misused a stimulant medication (such as Vyvanse, Ritalin, Adderall, Concerta, methylphenidate, dextroamphetamine, Focalin or Metadate)?

By misused, we mean using someone else's prescription medication or using your own stimulant medication in a way the prescriber did not intend, like using the medication more often or using more pills, at times you were not supposed to, over a longer period than the prescriber intended.

- Yes
- No

Skip To: End of Block If Have you ever misused a stimulant medication (such as Vyvanse, Ritalin, Adderall, Concerta, methy... = No

2.4 Have you misused a stimulant medication in the past 12 months?

- Yes
- No

Display This Question:

If Have you misused a stimulant medication in the past 12 months? = Yes

2.5 How many times have you misused a stimulant medication in the past 12 months?

Display This Question:

If Have you misused a stimulant medication in the past 12 months? = Yes

2.6 Have you misused a stimulant medication in the past 30 days (i.e., the past month)?

- Yes
- No

Display This Question:

If Have you misused a stimulant medication in the past 30 days (i.e., the past month)? = Yes

2.7 How many times have you misused a stimulant medication in the past 30 days (i.e., past month)?

2.8 Why do you typically misuse stimulant medication? Please select all reasons you have misused in the past.

- To lose weight
- To concentrate better
- To stay awake
- To study better
- To experiment
- To feel better or get high
- To change the effects of another drug
- Because I'm hooked

Display This Question:

If If Why do you typically misuse stimulant medication? Please select all reasons you have misused in the past. q://QID9/SelectedChoicesCount Is Greater Than 1

Carry Forward Selected Choices from "Why do you typically misuse stimulant medication? Please select all reasons you have misused in the past."



2.9 What is the most important single reason for why you typically misuse stimulant medication?

- To lose weight
 - To concentrate better
 - To stay awake
 - To study better
 - To experiment
 - To feel better or get high
 - To change the effects of another drug
 - Because I'm hooked
-

2.10 Where do you get stimulant medication for misuse from? Please select any source you have ever used.

- It is my own medication
- I get it from a friend/roommate for free
- I get it from family for free
- I take it from a friend/roommate without asking
- I take it from family without asking
- I buy it from a friend
- I buy it from family
- I buy it from a stranger or dealer
- I get it in some other way

Display This Question:

If If Where do you get stimulant medication for misuse from? Please select any source you have ever used. q://QID11/SelectedChoicesCount Is Greater Than 1

Carry Forward Selected Choices from "Where do you get stimulant medication for misuse from? Please select any source you have ever used."



2.11 What single source is the one you usually use to get stimulant medication for misuse?

- It is my own medication
- I get it from a friend/roommate for free
- I get it from family for free
- I take it from a friend/roommate without asking
- I take it from family without asking
- I buy it from a friend
- I buy it from family
- I buy it from a stranger or dealer
- I get it in some other way

2.12 How have you ever misused stimulant medication? Please select all of the ways you have misused stimulants in the past.

- I took the pill orally
- I snorted it
- I injected it
- I smoked it

End of Block

Start of Block

3.1 Have you ever used cannabis (marijuana)?

- Yes
- No

Skip To: End of Block If Have you ever used cannabis (marijuana)? = No

3.2 Which of the following best captures when you last used cannabis (marijuana)?

- Over a year ago
 - 9-12 months ago
 - 6-9 months ago
 - 3-6 months ago
 - 1-3 months ago
 - less than 1 month ago
 - Last week
 - This week
 - Yesterday
 - Today
 - I am currently high
-

Display This Question:

If Which of the following best captures when you last used cannabis (marijuana)? = Today

Or Which of the following best captures when you last used cannabis (marijuana)? = I am currently high

3.3 How high are you right now?

- I am not at all high
 - I am a little bit high
 - I am moderately high
 - I am very high
 - I am extremely high
-

3.4 Which of the following best captures the average frequency you currently use cannabis (marijuana)?

- Less than once a year
 - Once a year
 - Once every 3-6 months (2-4 times/yr)
 - Once every 2 months (6 times/yr)
 - Once a month (12 times/yr)
 - 2-3 times a month
 - Once a week
 - Twice a week
 - 3-4 times a week
 - 5-6 times a week
 - Once a day
 - More than once a day
-

3.5 How many days of the past week did you use cannabis (marijuana)?

- 0 days
 - 1 day
 - 2 days
 - 3 days
 - 4 days
 - 5 days
 - 6 days
 - 7 days
-

3.6 Approximately how many days of the past month did you use cannabis (marijuana)?

3.7 Which of the following best captures the number of times you have used cannabis (marijuana) in your entire life?

- 1-5 times in my life
 - 6-10 times in my life
 - 11-50 times in my life
 - 51-100 times in my life
 - 101-500 times in my life
 - 501-1000 times in my life
 - 1001-2000 times in my life
 - 2001-500 times in my life
 - 5001-10,000 times in my life
 - More than 10,000 times in my life
-

3.8 Which of the following best captures your pattern of cannabis (marijuana) use throughout the week?

- I only use cannabis on weekends
 - I only use cannabis on weekdays
 - I use cannabis on weekend and weekdays
-

3.9 How many hours after waking up do you typically first use cannabis (marijuana)?

- 12-18 hours after waking up
 - 9-12 hours after waking up
 - 6-9 hours after waking up
 - 3-6 hours after waking up
 - 1-3 hours after waking up
 - Within 1 hour of waking up
 - Within 1/2 hour of waking up
 - Immediately upon waking up
-

3.10 How many times a day, on a typical weekday, do you use cannabis (marijuana)?

3.11 How many times a day, on a typical weekend, do you use cannabis (marijuana)?

3.12 What is the primary method you use to ingest cannabis (marijuana)?

- Joints
- Blunts (cigar sized joints)
- Hand pipe
- Bong (water pipe)
- Hookah
- Vaporizer (e.g., Volcano, Vape pen)
- Edibles
- Other _____

3.13 Which of the following methods to ingest cannabis (marijuana) do you regularly (at least 25% of the time) use? [mark all that apply].

- Joints
- Blunts (cigar sized joints)
- Hand pipe
- Bong (water pipe)
- Hookah
- Vaporizer (e.g., Volcano, Vape pen)
- Edibles
- Other _____

3.14 What is the primary form of cannabis (marijuana) you use?

- Marijuana
- Concentrates (e.g., oil, wax, shatter, butane hash oil, dabs)
- Edibles
- Other _____

3.15 How old were you when you first tried cannabis (marijuana)?

3.16 How old were you when you first started using cannabis (marijuana) regularly (2 or more times/month)?

End of Block

Start of Block

4.1 Please rate to what extent you have experienced each of the following over the past week.

	Most of the time	Some of the time	Seldom	Never
--	------------------	------------------	--------	-------

I felt downhearted and blue.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt sad and depressed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I could see nothing in the future to be hopeful about.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt that I had nothing to look forward to.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt that life was meaningless.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt that life was worthwhile.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt I was pretty worthless.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt I wasn't worth much as a person.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt that I had lost interest in just about everything.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I was unable to become enthusiastic about anything.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I couldn't seem to experience any positive feelings at all.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I couldn't seem to get any enjoyment out of the things I did.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I just couldn't seem to get going.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I found it difficult to work up the	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

initiative to do things.

End of Block

Start of Block

5.1 Please read each of the following statements and choose the response that best fits you.

	Never	Rarely	Sometimes	Often	Very often
How often have you felt that you were effectively coping with important changes that were occurring in your life?	<input type="radio"/>				
How often have you felt confident about your ability to handle your personal problems?	<input type="radio"/>				
How often have you felt things were going your way?	<input type="radio"/>				
How often have you been able to control the irritations in your life?	<input type="radio"/>				
How often have you been able to control the way you spend your time?	<input type="radio"/>				
How often have you been upset because of something	<input type="radio"/>				

that happened unexpectedly?

How often have you felt that you were unable to control the important things in your life?

How often have you felt nervous and stressed?

How often have you found that you could not cope with all the things that you had to do?

How often have you been angered because of things that happened outside of your control?

How often have you found yourself thinking about things that you have to accomplish?

How often have you felt difficulties were piling up so high that you could not

overcome
them?

End of Block

Start of Block

6.1 Have you experienced any of these following thoughts or feelings relating to suicide during the past 12 months?

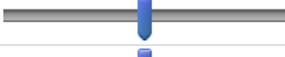
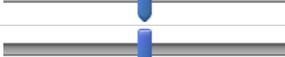
	Yes	No
Thought of harming yourself	<input type="radio"/>	<input type="radio"/>
Felt that life was not worth living.	<input type="radio"/>	<input type="radio"/>
Felt that your family would be better off if you were dead.	<input type="radio"/>	<input type="radio"/>
Felt so sad you wished you were dead.	<input type="radio"/>	<input type="radio"/>
Felt that you would kill yourself if you could.	<input type="radio"/>	<input type="radio"/>
Talked to someone else about the idea of taking your own life.	<input type="radio"/>	<input type="radio"/>

End of Block

Start of Block

7.1 Please read each of the following statements and label how much you agree with the statement with 1 being 'not at all' and 9 being 'extremely'

	Not at all	Extremely						
	1	2	3	4	6	7	8	9
I currently feel proud.								
I currently feel confident.								
Overall, I feel positively toward myself right now.								
I feel like a successful individual.								
I currently feel pleased with self.								

I feel good about myself right now.	
I feel very much like a person of worth.	
I do not feel very confident in myself right now.	
I currently feel uneasy.	
I currently feel humiliated.	
I currently feel ashamed.	
I currently feel bothered.	
I feel inferior at this moment.	
I am frustrated or rattled.	

End of Block

Start of Block

Q56 Please read each of the following statements and label how much you agree with the statement with 1 being 'strongly agree' and 4 being 'strongly disagree'

	Strongly Agree (1)	Agree (2)	Disagree (3)	Strongly disagree (4)
When I feel bad, I will often do things I later regret in order to make myself feel better now. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sometimes when I feel bad, I can't seem to stop what I am doing even though it is making me feel worse. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I am upset, I often act without thinking. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I feel rejected, I will often say things that I later regret. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I generally like to see things through to the end. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unfinished tasks really bother me. (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Once I get going on something, I hate to stop. (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I finish what I start. (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My thinking is usually careful and purposeful. (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I like to stop and think things over before I do them. (10)

I tend to value and follow a rational, "sensible" approach to things. (11)

I usually think carefully before doing anything. (12)

I quite enjoy taking risks. (13)

I welcome new and exciting experiences and sensations, even if they are a little frightening and unconventional. (14)

I would like to learn to fly an airplane. (15)

I would enjoy the sensation of skiing very fast down a high mountain slope. (16)

When I am in a great mood, I tend to get into situations that could cause me problems. (17)

I tend to lose control when I am in a great mood. (18)

Others are shocked or worried about the things I do when I am feeling very excited. (19)

I tend to act without thinking when I am really excited. (20)

End of Block

Start of Block

8.1 Have you ever had sex?

- Yes
 No

Skip To: End of Block If Have you ever had sex? = No

8.2 Have you ever had sex that was consensual? This means that you were not forced and that you agreed to have sex.

- Yes
 No

Skip To: Q9.4 If Have you ever had sex that was consensual? This means that you were not forced and that you agree... = No

8.3 How old were you when you first had consensual sex?

8.4 How many total partners have you had in the past 2 months?

- 0
 1
 2
 3
 More than 4
-

8.5 How many total partners have you had in your lifetime?

- 0 partners
 - 1-2 partners
 - 3-5 partners
 - 6-10 partners
 - 11 or more partners
-

8.6 Have you ever given money or something else for having sex?

- Yes
 - No
-

8.8 Have you ever received money or something else for having sex?

- Yes
 - No
-

8.9 Have you ever had sex without a condom?

- Yes
- No

Skip To: Q9.10 if Have you ever had sex without a condom? = No

8.10 How often do you have sex without a condom?

- Always
 - Often
 - Sometimes
 - Once
 - Never
-

8.11 Have you ever stripped or done something sexual in front of a webcam?

- Yes
 No

8.12 Have you ever had a sexually transmitted disease such as gonorrhea (clap), syphilis, or chlamydia?

- Yes
 No

End of Block: Risky Sexual Behavior Questions

Start of Block: Internalized Homophobia Questions

Display This Question:

*If What is your sexual orientation? = Lesbian
Or What is your sexual orientation? = Gay
Or What is your sexual orientation? = Bisexual
Or What is your sexual orientation? = Pansexual
Or What is your sexual orientation? = Queer
Or What is your sexual orientation? = Questioning
Or What is your sexual orientation? = Asexual
Or What is your sexual orientation? = Other (please specify):*

9.1 Please read each of the following statements and label how much you agree with each one.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
I resent my sexual orientation.	<input type="radio"/>				
My sexual orientation makes me feel like a freak.	<input type="radio"/>				
When I think of my sexual orientation, I feel depressed.	<input type="radio"/>				
When I think about my sexual	<input type="radio"/>				

orientation, I
feel unhappy

Because my
sexual
orientation, I
feel like an
outcast.

I often ask
myself: Why
can't my
sexual
orientation just
be normal?

I feel that my
sexual
orientation is
embarrassing.

I envy people
who do not
have a sexual
orientation like
mine.

I feel that my
sexual
orientation is a
personal
shortcoming
for me.

If someone
offered me to
be completely
heterosexual, I
would accept
the chance.

I would like to
get
professional
help in order to
change my
sexual
orientation to
straight.

Display This Question:

If Which gender do you identify as? = Transgender

Or Which gender do you identify as? = Gender Non-Conforming

Or Which gender do you identify as? = Other (please specify):

9.2 Please read each of the following statements and label how much you agree with each one.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
I resent my gender identity or expression.	<input type="radio"/>				
My gender identity or expression makes me feel like a freak.	<input type="radio"/>				
When I think of my gender identity or expression, I feel depressed.	<input type="radio"/>				
When I think about my gender identity or expression, I feel unhappy	<input type="radio"/>				
Because my gender identity or expression, I feel like an outcast.	<input type="radio"/>				
I often ask myself: Why can't my gender identity or expression just be normal?	<input type="radio"/>				
I feel that my gender identity or expression is embarrassing.	<input type="radio"/>				

I envy people who do not have a gender identity or expression like mine.

I feel that my gender identity or expression is a personal shortcoming for me.

I would like to get professional help in order to change my gender identity or expression

If someone offered me to change my gender identity or expression, I would accept the chance.

End of Block

Start of Block

Display This Question:

If What is your sexual orientation? = Lesbian

Or What is your sexual orientation? = Gay

Or What is your sexual orientation? = Bisexual

Or What is your sexual orientation? = Queer

10.1 Based on your responses, you are invited to participate in a second research project examining how changes in real-time stress, mood, and social situations influence substance use and risky sexual behaviors in Lesbian, Gay, and Bisexual (LGB) individuals. In order to participate, you must be between the ages of 18 and 25, own an iPhone or Android phone, and identify as LGB. The study will be over the course of a 3-week period, and participants can earn up to \$57 for participating in this study.

If you wish to participate, please create a self-generated identifier that can later link your responses from

this survey to the second portion of this study. Responses will not be linked to you.

Without any spaces, please use the following questions to create your self-generated identifier:

- (1) What are the first three letters of your mother's first name?
- (2) What day of the month is your birthday?
- (3) What is the last digit of your cell phone number?

So, if you mother's first name is Karen, your birthday is August 24, 1994, and your phone number is 555-555-0099, your self-generated identifier would be Kar249.

Display This Question:

If What is your sexual orientation? = Lesbian

Or What is your sexual orientation? = Gay

Or What is your sexual orientation? = Bisexual

Or What is your sexual orientation? = Queer

10.2 If you would like to participate, please click here

End of Block

APPENDIX B: PARTICIPANT INFORMATION

Start of Block

Based on your responses, you are invited to participate in a second research project examining how changes in real-time stress, mood, and social situations influence substance use and risky sexual behaviors in Lesbian, Gay, and Bisexual (LGB) individuals. In order to participate, you must be between the ages of 18 and 25, own an iPhone or Android phone, and identify as LGB. The study will be over the course of a 3-week period, and participants can earn up to \$57 for participating in this study.

In order for researchers to contact you regarding next steps, please enter your name, email, and telephone number. Your name, email, and telephone number will not be linked to your responses from the previous survey.

What is your name?

What is your email?

What is your telephone number?

End of Block

APPENDIX C: STUDY 2 EMA QUESTIONNAIRE

LGB Discrimination, Specific Stress

1. Have you experienced any LGB specific discrimination today?
 - a. If yes, what happened?
 - i. Jokes were made about LGB status
 - ii. Rude comments were made about LGB status
 - iii. Physical harassment due to LGB status
 - iv. Threats were made due to LGB status
 - v. Other: _____
 - b. If yes, was this discrimination directed towards you or someone else?
 - i. Towards me
 - ii. Someone else

Perceived Stress

1. Since the last survey, have you felt that you were unable to control the important things in your life?
2. Since the last survey, have you felt confident about your ability to handle your personal problems?
3. Since the last survey, have you felt that things are going your way?
4. Since the last survey, have you felt difficulties were pulling so hard that you could not overcome them?

Cravings

1. Have you had cravings for any substances today?
 - a. If yes, which substance(s)? Select all that apply.
 - i. Alcohol
 - ii. Marijuana
 - iii. Cocaine
 - iv. MDMA (Molly, Ecstasy)
 - v. Heroin
 - vi. Prescription opioids
 - vii. Prescription stimulants
 - viii. Benzodiazepines
 - b. If yes to any substance, rate from 1-10 how much you were craving each substance, 1 being little craving and 10 being intense craving.
 - i. Alcohol 1 2 3 4 5 6 7 8 9 10
 - ii. Marijuana 1 2 3 4 5 6 7 8 9 10
 - iii. Cocaine 1 2 3 4 5 6 7 8 9 10
 - iv. MDMA (Molly, Ecstasy) 1 2 3 4 5 6 7 8 9 10
 - v. Heroin 1 2 3 4 5 6 7 8 9 10
 - vi. Prescription opioids 1 2 3 4 5 6 7 8 9 10
 - vii. Prescription stimulants 1 2 3 4 5 6 7 8 9 10
 - viii. Benzodiazepines 1 2 3 4 5 6 7 8 9 10

Social Setting

1. Were you in any social settings today in which you normally use substance or substances were readily available?
 - a. If yes, what social setting?
 - i. A bar, nightclub, or concert
 - ii. A party

- iii. With a friend who you frequently use substances with
- iv. Other: _____

Substance Use

- 2. Have you used alcohol today?
 - a. If yes, how much?
- 3. Have you used drugs?
 - a. If yes, which ones?
 - i. Marijuana
 - ii. Cocaine
 - iii. MDMA (Molly, Ecstasy)
 - iv. Heroin
 - v. Prescription opioids
 - vi. Prescription stimulants
 - vii. Benzodiazepines

Sexual Activity

- 1. Are you sexually active?
 - a. If yes, have you had sexual intercourse since the last survey?
 - i. If yes, did you use protection?
 - ii. Did you know this person prior to the sexual encounter?
 - iii. Were you under the influence of any substances while having sexual intercourse?
 - 1. If yes, which substance? _____

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