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Does Recall of Lesbian, Bisexual, and Gay Discrimination Experiences Increase Delay
Discounting for Sexual and Non-Sexual Outcomes?

by

Shelby E. Pemberton, M.A.

A dissertation

submitted in partial fulfillment

of the requirements for the degree of

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Sincerely,

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Approved for Renewal: Continuing Review Approval on 04/29/2022

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Does Recall of Lesbian, Bisexual, and Gay Discrimination Experiences Increase Delay Discounting for Sexual and Non-Sexual Outcomes?

Dissertation Abstract - Idaho State University (2023)

Discrimination against people who are lesbian, gay, or bisexual is common and such experiences are associated with an increased risk of substance use and risky sexual behavior. Delay discounting (DD) may represent a potentially important behavioral mechanism that underlies this relationship, given the empirical relationship between DD, substance abuse, and sexual risk-taking. In the present study, a national sample of adults ($N = 102$) who identified as lesbian, bisexual, and gay were recruited from Amazon Mechanical Turk (MTurk). Participants were assigned randomly to either reflect on (and type for 10 minutes about) either a time they were treated unfairly due to their sexual orientation (experimental group) or upon their common daily routine (control group). Participants then completed delay discounting tasks for hypothetical money and sexual outcomes. Participants also completed self-report measures, including exploring current affect, sexual behaviors, daily heterosexist experiences, and alcohol and drug use. An ANCOVA with SES and baseline negative affect covariates revealed no main effect of the discrimination manipulation on either delay discounting task. The absence of a main effect made the planned mediational analyses unnecessary. The impact of discrimination experiences on risk-taking behaviors may not be as straightforward as anticipated but there also are important concerns about our study sample that may have limited a legitimate test of our study hypotheses. The present study allows for additional understanding of potential limitations and provides a foundation for future research to investigate the underlying mechanisms involved in the relationship between discrimination experiences and risk-taking behaviors.

Keywords: delay discounting, discrimination, lesbian, gay, bisexual, risky sexual behaviors

Introduction

LGBTQ+ Discrimination

Discrimination involves putting group members at a disadvantage or treating them unfairly due to their group membership (Plous, 2003), such as their sex, race, age, disability, ethnicity, gender identity, sexual orientation, immigrant status, and religion, among others. Discrimination may appear overt, conscious and deliberate with intention to cause harm or as seemingly meaningless and unharmed, and may be at the interpersonal or institutional level (Plous, 2003; Pascoe & Richman, 2009; Sue, 2010; Shelton & Delgado-Romero, 2013; Pager & Shepherd, 2008). The stress response associated with discrimination experiences accumulates over time to lead to a wide range of negative physiological, behavioral, and psychological health outcomes and health-related behaviors (Lewis et al., 2015; Meyer, 2003) and even the mental preparation or anticipation of discrimination can significantly impact health (Herek et al., 2015; Hicken et al., 2013; Seelman, et al., 2017). There is substantial evidence that discrimination experiences are associated with an increased risk of depression, anxiety, psychological distress, hypertension, breast cancer, substance use, and risky sexual behavior (Paradies, 2006; Pascoe & Richman, 2009; Williams et al., 2003; Williams & Mohammed, 2009).

In spite of progress with respect to equal rights and civil liberties for lesbian, gay, bisexual, transgender, queer and other individuals identifying with a sexual or gender minority identity (LGBTQ+) individuals, discrimination experiences against lesbian women, bisexual individuals, and gay men due to their sexual orientation and their exposure to discrimination are surprisingly common. Fifty-seven percent of individuals who identify as lesbian, bisexual, and gay have experienced some form of discrimination related to their sexual orientation (Dwyer, 2017; Casey et al., 2019). Discrimination experiences for LGBTQ+ individuals range from

verbal harassment to physical violence and sexual assault (Balsam et al., 2005; Factor & Rothblum, 2007; Herek et al., 2009; Lombardi et al., 2002), with 51% of LGBT adults reporting experiencing physical violence (Casey et al., 2019). Discrimination also can include unfair or poor treatment in the workplace and by law enforcement officers, service workers, and healthcare workers (Irwin, 2002; Mays & Cochran, 2001; Pizer et al., 2011). Casey and colleagues (2019) also found that roughly 18% of LGBT adults reported avoiding health care due to fears of discrimination and some gay men and lesbian women report not disclosing their sexual orientation in healthcare setting due to actual or anticipated reactions to their disclosure (Durso & Meyer, 2013).

Individuals who identify as a sexual minority—especially among racial/ethnic minorities (Casey et al., 2019)—encounter discrimination across multiple domains and remain underserved and understudied (Lunn et al., 2019). In 2019, the National Institutes of Health designated sexual and gender minorities as a “health disparity population” for research due to the numerous health care inequities, including worse mental health outcomes (Pérez-Stable, 2019; Kidd et al., 2016; Yarns, et al., 2016; Steele, et al., 2017). This present study and literature review did not include or examine gender minority individuals (e.g., those who identify as transgender, nonbinary, gender non-conforming) and their experiences; however, it is important to state that those identifying as trans or nonbinary, especially those holding multiple intersecting historically oppressed identities, experience even higher rates of discrimination and violence (Su et al., 2016).

Minority Stress Model

The Minority Stress model (Meyer, 2003) is a framework that explains the experiences of sexual minority individuals, including their experience of stress, coping mechanisms, and the

effect on their mental health outcomes. The model begins with general environmental circumstances, including one's sexual minority identity and factors such as socioeconomic status and leads to a development of a sexual minority identity or a type of personal identification with one's minority status. Environmental circumstances lead to exposure of stressors (e.g., job loss, death of a family member) but also include stressors unique to one's sexual identity. These include environmental discrimination and anti-gay violence but also personal identity stressors such as concealment and expectations of rejection. An individual's personal sexual minority identification could either weaken or strengthen these stressors' influences and related mental health outcomes. This identification may provide social support from within the LGBTQ+ community or individuals coping mechanisms that help mitigate the effects of environmental and personal identity stressors on mental health.

Building upon the minority stress model, Hatzenbuehler (2009) recommends incorporating an additional layer to become the mediational model of health disparity. Hatzenbuehler's additional layer incorporates emotion regulation, coping styles, and interpersonal interactions as mediators among environmental sexual identity-related stressors and mental health outcomes (See Figure 1). This expanded model suggests that cognitive and affective responses mediate the relationship between discrimination and mental health outcomes, including externalizing psychopathology.

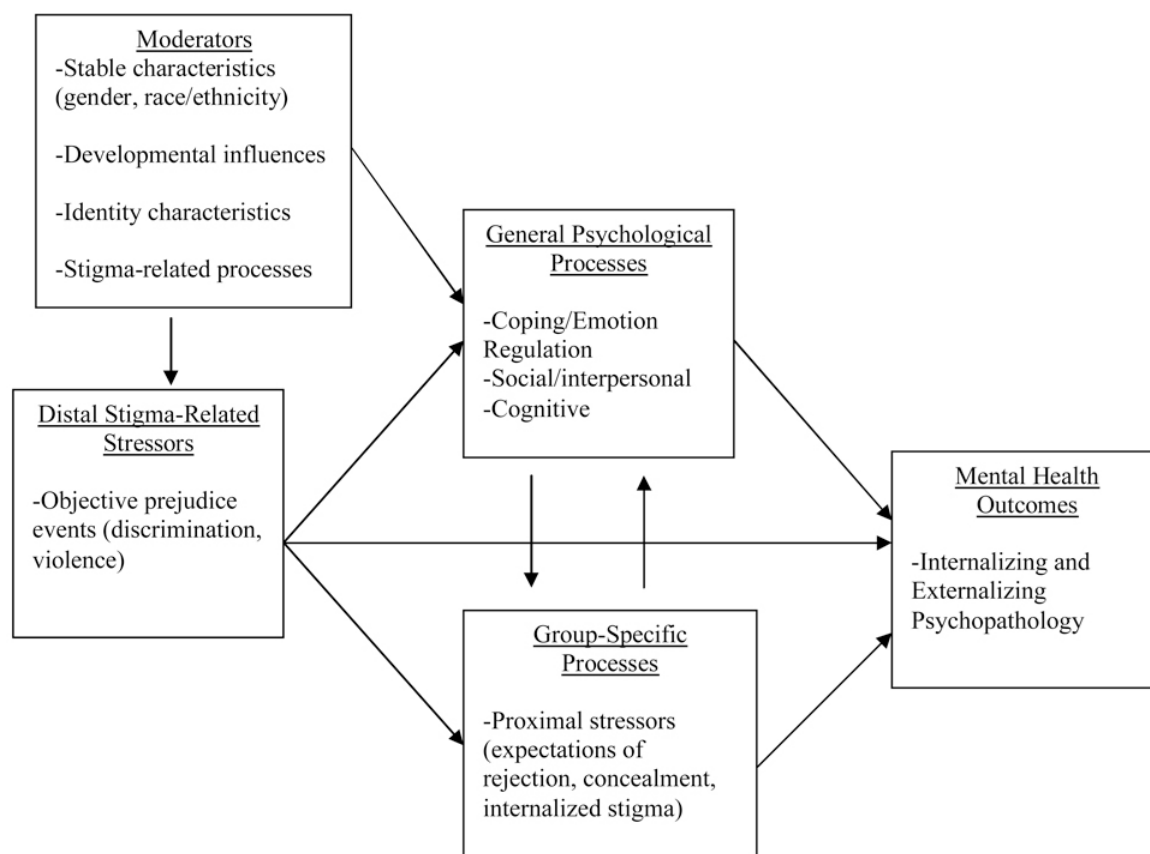


Figure 1

*Integrative mediation framework of group-specific and general psychological processes
(Hatzenbuehler, 2009)*

LGBTQ+ Discrimination and Mental Health Outcomes

Discrimination literature mainly focuses on how racism and sexism affect health (Krieger et al., 2006; Mohammed, 2009; Paradies, 2006; Pavalko et al., 2003), such as higher rates of chronic diseases and general health disparities, but negative health outcomes have also been reported in the context of discrimination against LGBTQ+ individuals (Beech et al., 2021; Homan, 2019; Stelkia, 2023; Factor & Rothblum, 2007; Lombardi et al., 2002; Balsam et al., 2005; Herek et al., 2009). Research consistently links LGBTQ+ discrimination experiences to

elevated mental health issues among queer and transgender individuals, including higher levels of anxiety and depressive symptoms, increased odds of meeting diagnostic criteria for anxiety or depressive disorders, and reports of anxious and depressed mood (Cochran et al., 2003; Clements-Nolle et al., 2001; Reisner et al., 2015; Swank et al., 2013; Feinstein et al., 2012; Herek et al., 1999; Mays & Cochran, 2001; Livingston et al., 2020). Notably, lesbian, gay, and bisexual adults who reported encountering day-to-day discrimination are more than twice as likely to suffer from an affective disorder (Mays & Cochran, 2001). Additionally, sexual minority individuals experience a higher prevalence of childhood victimization, poorer physical health, and discrimination from family and friends compared to heterosexual individuals (Anderson et al., 2015; Figueroa & Zoccola, 2016).

Research also links discrimination experiences and suicidality in LGBTQ+ individuals; sexual minorities are at a greater risk for suicidality and twice as likely to report suicidal ideations as heterosexual individuals, with gay and bisexual men being four times as likely to attempt suicide over their lifetimes as heterosexual men (Cochran & Mays, 2000, 2009; Haas et al., 2011; King et al., 2008). Sexual minority adults also experience problems related to substance use at disproportionately higher rates than the general population (Cochran et al., 2004; Demant et al., 2015; Hatzenbuehler, 2008; King et al., 2008; McCabe et al., 2009; Schuler et al., 2018) but these problems are even more pronounced among those who experience more frequent sexual orientation-based discrimination (Casey et al., 2019; Lee, et al., 2019; Lehavot & Simoni, 2011). These correlational studies complement Livingston and colleagues' (2017) findings, using ecological momentary assessment methods, that discrimination experiences among sexual and gender minority individuals were followed by increased use of nicotine and other substances throughout the day and evening. As the evidence suggests, experiencing

discrimination persistently leads to negative health and mental health effects for LGBTQ+ individuals.

It is important to note that pathology does not rest upon those who do not identify as heterosexual, but the overall system that was created on and maintains heteronormative social pressures that disproportionately impact individuals who identify as sexual minorities (Riggs & Treharne, 2016; Meyer, 2003; Livingston et al., 2017). Moreover, it is pivotal to recognize those individuals holding sexual minority identities with intersecting historically oppressed identities, as these negative consequences are predicted to be compounded and their decision-making may be significantly impacted.

LGBTQ+ Discrimination and Risky Sexual Behavior

Much like the relationship between racial discrimination and risky sexual behavior (RSB) in racial minorities (Roberts et al., 2012), there is a clear relationship between RSB and LGBTQ+ discrimination. Gay and bisexual men continue to account for 66% of new HIV infections in the United States (CDC, 2021) mainly because rates of unprotected anal intercourse continue to remain high in some groups of men who have sex with men (Yang et al., 2014; CDC, 2021). Some findings on sexual health practices in lesbian and bisexual women suggest that in general lesbians have a high number of sexual encounters (Rosario et al., 2014; Rosario et al., 1999; Singh et al., 2011; Tornello et al., 2014; Ybarra et al., 2016) and that STIs are a significant health issue for lesbians (Lindley et al., 2007). These preliminary studies suggest the majority of lesbian women engage in high-risk sexual behaviors. However, more recent sexual risk behavior and college-oriented sexual behavior literatures have excluded lesbian and bisexual women's sexual experiences (Jaffe et al., 2021).

RSB is broadly defined as sexual activity that increases the chance of exposure to a negative outcome (Chawla & Sarka, 2019; Kann et al., 2018). There is no ‘gold standard’ measure for RSB; operational definitions of RSB vary across studies and include number of sexual partners, sexual intercourse without using a condom, early sexual activity, history of STI tests and positive tests for STIs, HIV/AIDS, and unexpected and/or unwanted pregnancy (e.g., Bryan et al., 2012; Mirzaei et al., 2016; Chawla & Sarkar, 2019; Potard et al., 2019; Vasilenko et al., 2015). Mirzaei and colleagues (2016) also discuss how negative consequences may not only be health related but can include family conflict, relationship harm, financial difficulties, and even legal concerns.

Problematically, though, researchers frequently use condom use in their measures of RSBs among lesbian women (e.g., Beadnell et al., 2005; Levy et al., 2009), which might misrepresent the frequency of behaviors that place them at risk for negative health outcomes. Marrazzo and colleagues (2005) found within their group of women who had sex with another woman in the past year reported that common sexual activities included nonpenetrative sex and penetrative sex with body parts, including fingers and hands. For example, several studies indicate that lesbian women are significantly less likely to use condoms during sex (Pinto, et al., 2005; Rosario, et al., 2014; Ybarra et al., 2016); therefore, condom use may not represent a meaningful protection against negative health outcomes when the sexual act includes neither a penis nor a risk for pregnancy. Consistent with this, Pinto and colleagues (2005) reported that the most common explanation for lesbian women not utilizing condoms was that there was not a need. This suggests that traditional measures for RSB may not adequately capture risks associated with sexual behavior among lesbian women (but also see Marrazzo et al., 2005).

Overall, there are still many unanswered questions about the prevalence and factors associated with risky sexual behavior in this population.

Discrimination, Negative Affect, and Health Risk Behaviors

The damaging effects of discrimination on negative affect are well-established (e.g., García Coll et al., 1996; Greene et al., 2006; Sellers et al., 2003; Roberts et al., 2012). Discrimination experiences create unique stressors that contribute to negative affect (Hatzenbuehler et al., 2009), which can lead to a variety of coping responses (Polusney & Follette, 1995). Livingston and colleagues (2017) suggest negative affect as a possible link between discrimination experiences and increased nicotine and other substance use. Indeed, Hatzenbuehler and colleagues (2009) found that the lesbian, gay, and bisexual individuals also experienced alcohol-related problems, which they reported may be related to an attempt to cope and decrease negative affect from the discriminatory experience. Coping with discrimination-related negative affect with sexual activity, or substance use, is consistent with the potential pathway proposed by Hatzenbuehler's (2009) mediation model. Therefore, coping with negative affect due to experiences of discrimination due to being lesbian, bisexual, or gay may be linked to various forms of psychopathology and engagement in negative health-related behaviors.

Risky sexual behavior also may also be a type of avoidant coping in which individuals engage in behavioral strategies to avoid and/or reduce negative internal emotional experiences, such as negative affect (Polusny & Follette, 1995). For example, Roberts and colleagues (2012) found that adolescents with discrimination encounters also experienced negative affect that was associated with seeking out deviant peers and, eventually, with more engagement in risky sexual behavior. Therefore, negative affect is a potential mechanism underlying the relationship between sexual orientation discrimination and risky sexual behavior. Additionally, previous

research consistently links the experience of negative emotion with engaging in self-defeating behaviors (e.g., Baumeister & Scher, 1988; Leith & Baumeister, 1996) and since discrimination experiences are found to be accompanied by increased negative affect, it is possible that negative affect mediates the link between discrimination and health decisions (Pascoe & Richman, 2011).

Mediation by negative affect is also consistent with recent developmental theories, which posit that the specific effects of discrimination depend on how adolescents respond both cognitively and emotionally to discriminatory experiences (Myers, 2009; Sellers et al., 2006; Spencer et al., 1997). However, Hatzenbuehler (2009) reports that more research addressing the mediation framework is needed and more information related to the effects of discrimination on lesbian, gay, and bisexual individuals in the general research literature is also needed.

Laboratory Study of Negative Affect and Discrimination on Decision-Making

Emotional experiences have the ability to undermine rational decision making (Bechara, 2004; Bechara, 2005; Dolan, 2007; Dreisbach, 2006). Patterns of risky decision making while experiencing intense emotions are associated with alcohol consumption, tobacco cravings, compulsive shopping, drug use during the first year of college, and risky sexual behaviors (Anestis et al., 2008; Billieux et al., 2008; Cyders & Smith, 2007). Negative affect is one risk candidate for engaging in risky sexual behavior (Jardin et al., 2017) and can be studied in a laboratory environment. For example, Lighthall and colleagues (2009) had individuals engage in the Balloon Analogue Risk Task 15 minutes after completing a stress challenge or control task. They found that stress, measured by cortisol levels, increased risk taking among men. Van den Bos and colleagues (2008) explored the impact of emotional experiences and decision-making utilizing a behavioral Trust Game, finding higher levels of feeling betrayal influenced participants' motivation to reciprocate and engage in cooperative behavior.

Cyders and Smith (2008) theorize that experiencing intense positive or negative emotions can shift our focus to the immediate context resulting in decision-making for short-term rewards rather than future goals or benefits. Individuals also tend to make judgements consistent with their affective states; when experiencing negative affect, individuals judge the future more negatively compared to those not experiencing negative emotion (Johnson & Tversky, 1983) but those experiencing pleasure make decisions to optimize their pleasure moving forward (Mayer et al., 1992). Therefore, our judgments typically change with our affective states. Affect can also directly bias individual choices (Gray, 1999; Shah et al., 2002). Gray (1999) demonstrated that intense unpleasant feelings often lead to decisions that will enhance their affect in the short-term, focusing on what is best in the moment, regardless of potential long-term negative consequences. These consequences can vary drastically in severity, extent, and valence to the extent that they could be negative, disadvantageous, or even harmful.

However, negative consequences may not stop an individual from making similar decisions that lead to similar consequences again in the future. Humans tend to be more sensitive to immediate than to delayed consequences of their behavior (Lattal, 2010). Oreg and Bayazit (2009) report that individuals experiencing negative affect attempt to minimize or reduce their emotional or psychological discomfort or pain to return to their baseline emotional experience or neutral affect. Individuals with increased depressive symptoms demonstrate less inhibitory control than baseline, which is associated with impulsive decisions (Moriya & Tanno, 2008).

Impulsivity is a multifaceted construct that refers to traits or behaviors, such as an inability to delay gratification, engaging in behaviors without thought of consequences, or sensation seeking (de Wit, 2008; MacKillop et al., 2016; Costa & McCrae, 1992; Weafer et al., 2013; Odum, 2011b; Whiteside & Lynam, 2001). Numerous studies indicate a significant

relationship among different aspects of impulsivity and sexual risk taking, such as unsafe sexual activity, sexual infidelity, and also infrequent condom use for men (Chesson et al., 2006; Daugherty & Brase, 2010; Johnson & Bruner, 2012; Lawyer & Mahoney, 2017; Lawyer & Schoepflin, 2013). Herrmann and colleagues (2015) also suggest relations between risky sexual intercourse, such as unprotected anal intercourse, and other risk behaviors may be mediated by decision-making processes or underlying impulsive traits, which provides rationale to further examine these relations (Patterson et al., 2005; Semple et al., 2006). However, Strickland and Johnson (2021) argue that the construct of impulsivity, as it has been defined in psychological research, has led to difficulties in interpreting and replicating finds due to the construct itself being vague and inconsistent. They suggest a move away from talking about ‘impulsivity’ as a meaningful construct and focusing on behavioral processes that can more accurately measure and understand the mechanisms of change that contribute to behaviors that are considered “impulsive.” Behavioral measures may be a potential avenue of exploration to determine how discrimination and potential discrimination-related negative affect influences risky sexual behavior in lesbian women, bisexual individuals, and gay men. Therefore, laboratory measures, such as delay discounting, may be essential in clarifying this relationship.

Retrospective accounts of discrimination-related emotional reactions and behaviors have important limitations. Krieger (2012) found that self-report measures on discrimination experiences likely underestimate the effects of discrimination on the individual as these measures do not account for individuals’ unwillingness or inability to discuss the events and the nuanced nature of each experience. Lewis and colleagues (2015) report that when individuals do not identify with administered questions in self-report measures then their unique emotional aspects related to their experiences may not be fully induced, which is vital to understanding

relationships between environmental factors, emotional responses, and individual decision-making. Therefore, self-report measures may not effectively evoke emotional reactions as a recall and writing procedure.

Some laboratory procedures, such as those that use autobiographical recall, may offset some of the limits of retrospective accounts. Experiments allow for exposure of discrimination experiences, including recounting perceived encounters with discrimination (Pascoe & Richman, 2009), which can examine the immediate physiological, emotional, cognitive, and behavioral impacts and responses. Due to the control within experimental frameworks, strong causal inferences can be made when using a laboratory autobiographical recall procedure of discrimination experiences as an independent variable (Richman et al., 2017). This provides clarification among perceived discrimination experiences and their impacts. Pascoe and Richman (2011) asked half of their African American participants to recall a time when they experienced racial discrimination and then make a series of food choices. They were more likely to make unhealthy food choices compared to those who did not recall discrimination experiences. This study revealed a potential real-world effect on decision making when recalling individual discrimination experiences.

Augustine and Larsen (2011) support the efficacy of autobiographical recall as a form of mood induction. Their research demonstrated that inducing negative emotions through autobiographical recall had implications for decision-making and judgments, suggesting a relationship with negative affect. More generally, experimental studies around the broad effects of discrimination within the LGBTQ+ community are needed and autobiographical recall procedures appear to be one promising avenue to continue utilizing.

Delay Discounting

Delay (or temporal) discounting is the most common laboratory-behavioral discounting measure and refers to the devaluing of a reward or outcome based upon delay in its receipt (Ainslie, 1975; Rachlin et al., 1991; Green & Myerson, 2004). In general, the subjective value of the reward diminishes the longer one must wait to receive that reward. In delay discounting tasks, individuals make a series of choices between a smaller reward that is immediately available and a larger reward with a delayed availability (e.g. \$3.50 now or \$10 in one week) to learn how an individual values the reward after the delay. When the immediate reward is very small, the larger-later option is generally chosen; however, as the immediate reward's value increases across the series of choices, individuals tend to ultimately choose the smaller-sooner reward. The point when individuals switch their choice from the larger-later reward to the smaller-sooner reward is called the indifference point, which establishes the subjective value of the larger-later reward at that delay. For example, if an individual chooses a \$10 reward that is available after one week instead of the immediate reward of \$5, \$6, or \$7, but eventually chooses \$8 available immediately instead of \$10 available after a week delay, then the individual's indifference point would equal \$7.50. Therefore, the individual subjectively values immediately receiving \$7.50 as the same as receiving \$10 in one week.

This process is repeated across multiple delays, typically yielding indifference points that typically diminish as the delay to the larger reward increases. Graphically plotting individual indifference points can demonstrate patterns of behavioral choices. These patterns can be described using a hyperbolic function, where the delay to the large reward is plotted along the x-axis and subjective value of the reward is plotted along the y-axis. Changes in the value of the

reward as a function of delay can be described mathematically using a hyperbolic decay function (Mazur, 1987; Eq. 1):

$$V = \frac{A}{1+kD}$$

where V represents the individual's subjective value of A , which is the reward, at the specified delay (D) while k acts as a free parameter devised to capture the rate that an individual discounts rewards over multiple delays. In delay discounting, higher k values indicate a preference for smaller-sooner (or more impulsive) outcomes. Therefore, the steeper the rate of discounting, the more impulsive the individual's behavioral choices.

Commodity-specific Discounting

Monetary outcomes are most frequently used in DD tasks but researchers have also characterized DD in relation to tobacco (Baker et al., 2003), alcohol (Petry, 2001; Vuchinich & Simpson, 1998), illicit drugs (Kirby & Petry, 2004), food (Rasmussen et al., 2010), and erotica (Lawyer, 2008), among other commodities. These different types of rewards, or commodities, differentially correlate to certain discounting patterns, therefore selecting an appropriate commodity is critical. Depending on the commodity, individuals may discount certain commodities more steeply than others, especially when more tempted by the rewards. Specifically, when the reward being discounted is chocolate, some individuals may find it enjoyable and tempting and would therefore demonstrate a steeper delay discounting pattern than those who do not enjoy or are not tempted by chocolate, meaning individuals exhibit commodity specific discounting patterns (Tsukayama & Duckworth, 2010).

Discounting of other commodities, compared to discounting of money, usually presents more impulsive, or steeper, delay discounting rates. Alcohol (Lemley et al., 2016), cigarettes (for smokers only; Baker et al., 2003; Odum, 2011a), and food (Odum et al., 2006) are discounted at

steeper rates than money in healthy populations. These comparisons are confounded by differences in unit price (i.e., the price one is willing to pay/spend in terms of money, time, and effort to obtain the good) between money and the commodity being compared (even when attempting to equate monetary value of both commodities). In substance abusing populations, the individuals' substance of choice, such as heroin and cocaine, may be more steeply discounted than money (which was standardized to be equal in unit price with money; Kirby et al., 1999; Madden et al., 1997; Coffey et al., 2003).

Lawyer et al. (2010) found that the discounting paradigm could be used to characterize impulsive choices for sexual outcomes (e.g., 5 minutes of sexual activity now vs. 10 minutes of sexual activity in 1 day). Individuals who demonstrate steep rates of discounting for sexual activity indicate that they prefer shorter periods of sexual activity over longer periods of sexual activity at a later time. There is evidence for commodity specificity such that individuals display higher rates of discounting for sexual activity than money (Jarmolowicz et al., 2013; Johnson & Bruner, 2012). Additionally, unlike discounting for money, higher rates of discounting for sexual activity are associated with HIV sexual risk behaviors (Johnson & Bruner, 2012). Other research has found varying effects of commodity specificity, where discounting for sexual activity predicts sexual excitability but not non-sexual outcomes or sexual inhibition (Lawyer & Schoepflin, 2013).

As mentioned above, it is important to thoughtfully choose the commodity to be discounted. For example, Lawyer and Schoepflin (2013) showed that patterns of delay discounting for sexual activity are differentially associated with sexual outcomes compared to non-sexual outcomes. They found that sexual outcomes, like sexual excitability (i.e., how one reacts to sexual stimuli), were associated with sexual activity delay discounting rates. However,

monetary discounting and sexual outcome measures were unrelated. Consequently, when examining impulsivity related to specific outcomes, it is beneficial to use a decision-making paradigm that involves factors associated with that outcome.

Therefore, to accurately examine one's impulsive behavior around their sexual actions it is important to examine an individual's choice patterns related to the sexual activity. Further, Lawyer and colleagues (2010) found discounting for sexual activity provides an opportunity to better understand real-world sexual behaviors.

Present Study

This study seeks to address gaps within behavioral choice delay discounting literature by examining effects of recalling discrimination experiences on decision making in lesbian women, bisexual individuals, and gay men. Specifically, this study will address whether recall of discrimination experiences among lesbian women, bisexual individuals, and gay men differentially impact delay discounting for monetary and sexual outcomes. Hatzenbuehler's (2009) mediation framework addition to the Minority Stress model (Meyer, 2003) provides a basis for how lesbian, bisexual, and gay discrimination is related to coping behaviors, such as risky sexual activity, and how negative affect could be mediating this relationship. However, sexual activity related choices in lesbian women, bisexual individuals, and gay men in relation to discrimination experiences remains unclear and more research is needed.

Since autobiographical recall induces emotions (Augustine & Larsen, 2011) and affects decision making (Pascoe & Richman, 2011), incorporating behavioral measures will allow for an experimental examination of the immediate impacts related to discrimination that helps examine and fill the gaps that are present within the literature. Further, experimental studies examining decision making in general related to lesbian, bisexual, and gay individuals, especially related to

discrimination experiences, are lacking within the research literature. Therefore, for this novel study, delay discounting is used to investigate whether recall of perceived discrimination experiences affect behavioral choice across two domains (i.e., money and sexual activity) in lesbian women, bisexual individuals, and gay men.

The following hypotheses were formulated based upon the aforementioned literature:

Hypotheses

Hypothesis 1: There will be a main effect of recalling and writing about a discrimination experience on discounting task outcomes, such that the group recalling and writing about past discrimination experiences will have a significantly higher k on both the monetary and sexual activity discounting scores than those in the neutral recall and writing group.

Hypothesis 2: The experience of negative affect related to recalling and writing about a discrimination experience will mediate the relationship between the discrimination manipulation and delay discounting k scores for sexual activity, such that the experience of negative affect is associated with steeper delay discounting for sexual activity as indicated by larger k scores.

Hypothesis 3: The experience of negative affect related to recalling and writing about a discrimination experience will mediate the relationship between the discrimination manipulation and delay discounting k scores for money, such that the experience of negative affect is associated with steeper delay discounting for money as indicated by larger k scores.

Method

All established requirements and ethical standards for the use of human research subjects set forth by the Idaho State University (ISU) Institutional Review Board (IRB) were met (IRB-FY2021-200).

Participants

Power analysis

An initial *a priori* power analysis using G*Power indicated a total sample size of 620 participants (i.e., 310 participants per group) was needed to detect an effect with high power for an independent samples t-test. For this analysis, the alpha level was set to .05 and power was set to .80 (i.e., $1 - \beta$; $\beta = .20$), which are typical settings in *a priori* power analyses. Due to this being novel research, the effect size for this analysis was set to $d = .2$, which is considered a small effect size. After difficulties with data collection, the effect size was changed to $d = .5$, which is a medium effect size, which is also typically used when no previous study information is available. Due to the change in effect size, a total sample size of 102 participants (i.e., 51 participants per group) was needed to detect an effect with high power for an independent samples t-test. A total of 102 participants were included in the present study.

Demographics

Participants were adult individuals that identified as a cisgender man (35.3%) or woman (64.7%) and also lesbian (23.5%), bisexual (59.8%), or gay (16.7%; $N = 102$) who are Amazon Mechanical Turk (MTurk) participants (workers). Interested workers completed a brief screening questionnaire (Appendix A), which contained questions about demographics, willingness to answer questions about providing sensitive personal information, and whether they have experienced discrimination (i.e., Have you experienced discrimination or been treated unfairly due to your sexual orientation?). Workers were eligible to participate in the study if in the screening questionnaire they identified as female and lesbian, male and gay, or male or female and bisexual, were willing to provide sensitive personal information, and had experienced discrimination/been treated unfairly due to their sexual orientation. Participants who completed

all aspects of the study, passed several attention checks, and provided the randomly generated code received a compensation of \$1.50.

Recruitment

Participants were recruited through Amazon Mechanical Turk (MTurk), which at the time was seen as an innovative and accessible internet data collection platform that brokers relationships between researchers (“requestors”) and participants (“workers”). MTurk has become one of the most prominent crowdsourced sampling methods in the social sciences for surveys and experiments (Levay et al., 2016). MTurk provides researchers with around-the-clock access to a global pool of participants that is both efficient and cost-effective (MTurk.com). Amazon identifies all eligible participants by screening registered workers based on criteria set by the researcher and MTurk uses these criteria to screen the worker pools for eligibility. One potential benefit provided by MTurk to participants is that participants are able to complete the studies they are eligible for from the comfort and privacy of their own home while being compensated a variety of small, monetary rewards that are cost-effective for researchers and that have the potential to rapidly accrue for participants.

Amazon brings the researcher's study (HITs, i.e., Human Intelligence Tasks) directly to eligible participants. Amazon filters published studies into lists that are provided to millions of registered participants who have been screened by MTurk for eligibility to participate based on inclusion criteria of the study. Qualified workers are provided a list of available HITs they are eligible for and it does not highlight any study over another (Paolacci et al., 2010).

For the present study, we recruited MTurk workers who reported themselves to MTurk as living at a U.S. address, having the ability to read and write in English without accommodations, and being 18-years-of-age or older (ages 22 to 66; M age = 36.08; 76.5% Caucasian; 66.6%

married or dating and living with partner). They also demonstrated no previous completions of the study, whose ratio of approved/submitted Human Intelligence Tasks (HITs; tasks that investigators submit to MTurk for participants to complete) was higher than 95%, and were willing to provide voluntary, informed consent.

There are difficulties associated with traditional recruitment strategies for lesbian women, bisexual individuals, and gay men (e.g., fear of being “outed”), and crowdsourcing websites like MTurk provide a promising place for conducting internet-based research with individuals in the LGBTQ+ community (Herrmann et al., 2015). MTurk workers were recruited using a HIT request titled “Individuals Wanted for a Survey on Life Experiences and Decision Making.” This title was created to attract individuals to complete the task without priming individuals to the discrimination manipulation aspect or the focus on LGB individuals to ensure that individuals participating do identify as LGB. Further, in some cases, respondents may decide not to participate in studies knowingly focused on LGBTQ+ individuals due to triggering social desirability concerns and being a member of a stigmatized group and this can reduce the overall response rate and the sample being less representative of the larger population (Lee, 1993; Tourangeau and Yan, 2007; Tourangeau et al., 2000).

Materials

Self-Report Measures

Screening Questionnaire. The screening questionnaire (Appendix A) surveyed participants’ gender and sexual orientation and their willingness to answer questions about sensitive personal information, in addition to a general question on whether they have experienced discrimination based on their sexual orientation.

Demographics. The demographics questions (Appendix B) surveyed participants' age, sexual orientation, gender identity, racial/ethnic background, relationship status, religious preference, level of education, and socioeconomic status.

Positive and Negative Affect Schedule (PANAS; Appendix C). The PANAS is a 20-item, self-report measure used to assess the intensity of positive and negative affect (Watson et al., 1988). The measure contains a 5-item Likert-type scale for both positive and negative affect, and can be used to measure current and past reports of subjective affect (Hirsh et al., 2010). The PANAS has high internal consistency estimates for both positive ($\alpha = .86-.90$) and negative affect ($\alpha = .84-.87$), with low correlations between the two subscales ($r = -.12$ to $-.23$), and good test-retest reliability (Watson et al., 1988).

Daily Heterosexist Experiences Questionnaire (DHEQ; Appendix D). The DHEQ is a 50-item comprehensive measure of day-to-day minority stress or discrimination experienced by individuals that identity as lesbian, gay, bisexual, and transgender (Balsam, Beadnell, & Molina, 2013). Participants indicated the extent to which they have encountered heterosexist experiences, and the total score is the sum of occurrences. The DHEQ contains 9 subscales: Gender Expression (6 items; $\alpha = .86$), Vigilance (6 items; $\alpha = .86$), Parenting (6 of items; $\alpha = .83$), Harassment and Discrimination (6 of items; $\alpha = .85$), Vicarious Trauma (6 of items; $\alpha = .82$), Family of Origin (6 of items; $\alpha = .79$), HIV/AIDS (6 of items; $\alpha = .79$), Victimization (4 of items; $\alpha = .87$), and Isolation (4 of items; $\alpha = .76$). For each of the 50 items, participants respond to "How much has this problem distressed or bothered you during the past 12 months?" using the following response categories 0 = *did not happen/not applicable to me*, 1 = *it happened, and it bothered me NOT AT ALL*, 2 = *it happened, and it bothered me A LITTLE BIT*, 3 = *it happened, and it bothered me MODERATELY*, 4 = *it happened, and it bothered me QUITE A BIT*, 5 = *it*

happened, and it bothered me EXTREMELY. A time frame of 12 months is provided to add specificity to participant responses. The DHEQ demonstrates good internal reliability ($\alpha = .92$) as demonstrated by item factor loadings and Cronbach's alphas.

Extent of Concealment (Appendix E). The Extent of Concealment (short version) measure is a 22-item, self-report instrument that assesses cognitive, affective, and behavioral components of concealment of gender and sexual identity and the impact on mental health (Brennan et al., 2021). Concealment strongly and positively predicts psychological distress, as well as within the previous week lower well-being, increased symptomology and problems, and functional deficits (Brennan et al., 2021). Participants respond to statements on when they hid their gender and/or sexual orientation, the focus will be on sexual orientation for this study, and they will rate how often they had the experiences described in the statements provided. Items are rated on a 5-point Likert scale (1 = *never*, 2 = *rarely*, 3 = *occasionally*, 4 = *frequently*, or 5 = *very frequently*). The total score is calculated as a sum of the scores across items. The scale has shown both good internal consistency for the total sample (Cronbach's $\alpha = .94$) and cisgender LGB individuals (Cronbach's $\alpha = .95$). This measure also demonstrated strong concurrent validity in positively predicting psychological distress and self-stigma.

Sexual Behaviors Questionnaire (SBQ; Appendix F). The SBQ is a 14-item, self-report instrument that queries that frequency of participants' sexual behaviors over the last month, including sexual activity with and without a condom, number of different partners, drug and alcohol use surrounding sexual activity, and tendencies to engage in sexual activity with unknown (i.e., known less than 24 hours) partners. It also asks participants first age of sex, number of pregnancies, and lifetime STI contraction. These questions were adapted from the Sexual Risk Survey (SRS; Turchik & Garske, 2009), which is a 23-item self-report measure of

sexual risk-taking behaviors over the last six months. The SRS has evidenced adequate factor structure and good psychometric properties (e.g., internal consistency reliability = .88, test-retest reliability = .93) within a college student sample (Turchik & Garske, 2009).

Questions 1 through 10 had point values assigned to correspond with each possible response (e.g., “No times” = 0, “1-2 times” = 1, “3-5 times” = 2, etc.) in order to obtain a total score for this measure. Participants were not able to view the point values assigned but were asked to choose out of the provided responses. To control for the possible effects of recent sexual gratification, participants also answered questions about their most recent sexual experiences, including when they last participated in sexual activity with a partner resulting in orgasm and when they last reached orgasm by self-gratification (i.e., masturbation).

An additional item was added at the beginning of the SBQ to assess engagement in sexual risk behaviors that are broader than those addressed in the SBQ and capture negative aspects of sexual behavior that include unwanted sexual consequences in behavioral, health, interpersonal, emotional, financial, and/or legal domains. Specifically, the question asked: “Unwanted sexual consequences include behavioral, health, interpersonal, emotional, financial, and/or legal consequences that were unwanted. How often have you engaged in sexual behaviors that led to unwanted consequences?”. The item used a 5-point Likert scale (1 = *never*, 2 = *rarely*, 3 = *occasionally*, 4 = *frequently*, or 5 = *very frequently*). This item was administered in order to more accurately capture lesbian women’s risky sexual behavior that goes beyond health risks, which are typically addressed in RSB research.

Sexual Desire Inventory – 2 (SDI-2; Appendix G). The SDI-2 is a 14-item self-report that assesses sexual desire, which assesses two main dimensions: dyadic sexual desire (items 1 to 9) and solitary sexual desire (items 10 to 13; Spector et al., 1996). Dyadic sexual desire is

understood as the interest that an individual has in engaging in sexual activity or intimacy with a sexual partner. Solitary sexual desire refers to an individual's interest in engaging in sex with him/herself. Due to item 14 referring to the time length that a person may feel comfortable without engaging in any sexual activity, it is not included in the two dimensions. Many items are rated on a 9-point Likert scale (e.g., 0 = *no desire* to 8 = *strong desire*). However, in items 1, 2, and 10, participants are provided an 8-point Likert scale (e.g., 0 = *not at all* to 7 = *more than once a day*), since these questions assess sexual desire in the previous month. The scores are computed from the sum of items. Therefore, higher total scores represent higher levels of sexual desire, which also applies to each of the two main dimensions. Good to excellent levels of internal consistency were found for both factors: .86 for dyadic sexual desire and .96 for solitary sexual desire (Spector et al., 1996).

Short Michigan Alcohol Screening Test (SMAST; Selzer et al., 1975; Appendix H).

The SMAST is a 13-item self-report instrument that is the short version of the 25-item Michigan Alcoholism Screening Test (MAST). The SMAST is a screening tool for alcohol abuse and dependence during the past 12 months. The instrument provides questions with “yes” or “no” choices and each “yes” equates to 1 point. The instrument provides a total score that ranges from 0 to 13. A total score of 1 or 2 indicates that there is no alcohol problem. A total score of 3 indicates a borderline alcohol problem while 4 or more indicates there may be an alcohol problem. Shields and colleagues (2007) found that the SMAST obtained a Cronbach's alpha of .79. Rumpf and colleagues (1997) found the SMAST had a sensitivity of 48% and a specificity of 95% to detect current or lifetime disorders. It is also strongly recommended that the DAST-10 be used along with the SMAST.

Drug Abuse Screening Test (DAST-10; Skinner, 1982; Appendix I). The DAST-10 is a 10-item self-report instrument that is the short version of the 28-item DAST. The DAST-10 yields a quantitative index of the degree of drug abuse related consequences during the past 12 months. The instrument provides questions with “yes” or “no” choices with each “yes” being 1 point, except for item 3 for which a “no” answer receives 1 point. The instrument yields a total score that ranges from 0 to 10. Scores of 1 to 2 are within the low level of problems related to drug abuse while scores 3 to 5 within a moderate level, 6 to 8 within substantial, and 9 to 10 signify severe levels of problems related to drug abuse. Villalobos-Gallegos and colleagues (2015) found that two versions of the DAST (DAST-20 and DAST-10) obtained a Cronbach’s alpha above .80 on optimal goodness of fit and areas under the curve were both above .90. Therefore, they found that the DAST-10 is reliable and valid for drug use disorder assessment and screening. An additional item will be added to assess for current nicotine use status, which will be analyzed separately and not counted toward the DAST-10 total score.

Writing Tasks

Discrimination Writing Task. An autobiographical recall procedure similar to that used in similar research (Pascoe & Richman, 2011) was used to promote recall of a discrimination experience. Participants were asked to recall a time when they were treated unfairly due to their sexual orientation for three minutes and will be instructed to type about their experience for 10 minutes. The following prompt was provided as instructions for the task:

“For this task, we will ask you to recall and write about a time when you were treated unfairly due to your sexual orientation. For the purpose of this task, please first reflect on one of the most impactful memories from your life when you were treated unfairly for three minutes. Then please write out the event with as much

detail as possible for 10 minutes. Details can include when, where, what occurred, and who was involved. How did you feel emotionally? What did you experience physically? What could you see? What could you smell? What was going on around you? What were you thinking?"

Control Writing Task. Recalling and writing about a most common daily routine served as the task in the control condition. The participants were asked to recall their most common daily routine for three minutes and were instructed to type about their experience for 10 minutes. The task contains no sexual or monetary content. The control writing task was derived from previous discrimination research (Pascoe & Richman, 2011) and was used to control for the effects of recalling past experiences, as well as the effects of writing about their own experience that is not expected to be a reminder of past discriminatory experiences or influence negative or position emotion and delay discounting. The following prompt was provided as instructions for the task:

"For this task, we will ask you to recall and write about your most common daily routine. For the purpose of this task, please first reflect on your most common daily routine for three minutes. Then please write out your routine with as much detail as possible for 10 minutes. Details can include when, where, what occurred, and who was involved. How did you feel emotionally? What did you experience physically? What could you see? What could you smell? What was going on around you? What were you thinking?"

Delay Discounting Tasks

Delay Discounting of Money. The Monetary Choice Questionnaire (MCQ; Kirby et al., 1999; Appendix J) was used to assess delay discounting for money. The MCQ is a short-form

measure of delay discounting that poses a series of fixed choices between a smaller, immediate reward and a larger reward that would be received after between 7 to 186 days. The outcomes were all hypothetical. The participants discounting rates were determined by scoring procedures described by Kirby et al. (1999). The k values used in the MCQ have a range of 10 discrete parameter values: 0.00016, 0.00025, 0.00063, 0.0016, 0.0039, 0.010, 0.0126, 0.065, 0.16, and 0.25. As the parameter values increase, the immediate outcome is more likely to be selected by more impulsive individuals (e.g., indifference between \$34 now and \$50 in 30 days corresponds to a k of 0.016; Kirby, 2009).

The original MCQ comprises 27 questions, which includes 9 items that assess discounting for small (\$25-35), medium (\$50-60), and large (\$75-85) monetary outcomes. In this study, participants answered only the 9 items from the medium magnitude to be consistent with the 9-item Sexual Choice Questionnaire described below. There was no time limit to complete the MCQ and participants were allowed to change their responses throughout the task if needed.

Delay Discounting of Sexual Activity (Appendix K). Delay discounting for sexual activity was measured using the Sexual Choice Questionnaire (SCQ), which is similar to the MCQ but for sexual activity. The SCQ prefaces the questions by providing a statement, “sexual activity’ means different things for different people, but you should answer each question in terms of whatever kind of sexual activity you personally find very appealing.” The SCQ is composed of 9 items, and each item involves a choice between a smaller, immediate reward and a larger reward provided after a specified delay, the delay ranges from 12 hours to 4 months. The k values used in the SCQ have a range of 9 discrete parameter values: 0.0043, 0.024, 0.035, 0.066, 0.084, 0.155, 0.229, 0.39, and 0.85. As the parameter values increases the immediate outcome is more likely to be selected by more impulsive individuals (e.g., indifference between

23 minutes of sexual activity now and 35 minutes of sexual activity in 4 months corresponds to a k of 0.0043). For example, participants choose between “would you prefer 10 minutes now or 30 minutes in 1 month.” The outcomes, as with the MCQ, were hypothetical.

Quality Assurance Measures. Prior to initiating the study, participants were informed that upon reading through the informed consent, they would be given a three-question quiz covering its content. Therefore, participants were required to respond to the quiz questions with 100% accuracy before they are able to agree to or decline the terms of the informed consent. In the event a participant responded with less than 100% accuracy, they were redirected to the beginning of the informed consent section for review as many times necessary.

There were also four attention checks included in the survey administration to ensure that participants were paying attention to study instructions: (1) One question on the Extent of Concealment questionnaire that read, “Please select four for this item”; (2) One DAST-10 question stated “Please check ‘yes’ for this question”; (3) One DHEQ read “Please select 2 for this item”; and (4) One SDI-2 question read “Please select 8 for this item.” Additionally, we added a CAPTCHA (Completely Automated Public Turing test to tell Computers and Humans Apart, which is a security measure known as challenge-response authentication) after the demographics were completed that participants had to pass in order to continue their participation. At the end of the survey, participants also were requested to submit their responses or withdraw their responses.

Additionally, zero-delay choice was added to the MCQ in order to detect potential automated responses or “bots”. Participants answered a zero-delay choice within the MCQ (i.e., “would you rather have \$100 now or \$20 now?”). This choice did not affect one’s discounting rate. This was added as money has an objective value and is typically desirable (Heyman &

Ariely, 2004). It is possible that the zero-delay question was misunderstood by potentially true participants which is why there were multiple other screening procedures in place. However, throughout all participant responses, no participants only failed this zero-delay choice without also failing one of the other quality assurance measures (See Table 1).

A zero-delay choice was also added to the SCQ but was not utilized as a criterion to exclude participants from the study. Instead, it aimed to capture individual differences in decision-making processes and shed light on the complexity of sexual choices in various contexts. Diversity of responses were considered valuable for our study objectives, as it enabled a more comprehensive exploration of the range of decision-making tendencies related to immediate sexual activity. By including participants with varying inclinations toward the zero delay choice (84 participants chose 1 minute of sexual activity now and 18 chose 20 minutes now), we aimed to accurately represent the real-world heterogeneity of sexual decision-making.

Finally, also to ensure the authenticity of participant responses, a thorough examination of autobiographical responses provided during the study was conducted. This examination was also not used as a means to exclude participants but rather as an additional step to safeguard data quality. Responses were scrutinized for potential discrepancies that might indicate non-genuine or “bot” responses (see Table 2 for examples). Any identified discrepancies were considered as flags for further investigation, rather than grounds for participant exclusion, as this carries the risk of false positives or false negatives in detecting non-genuine responses. Flagged responses were all found to fail at least one other quality assurance measure.

Procedures

Participants were assigned randomly to discrimination and control writing conditions using Qualtrics’ randomizer which also ensures for even sample sizes. All participants completed

both the monetary and the sexual activity delay discounting tasks which were counterbalanced across participants. All procedures were completed online and so each individual participated from different locations throughout the United States. Each individual was administered the screening questions, and if screened in, then they were shown the informed consent (Appendix M). If the participant willfully gave consent to participate, then the study commenced.

Debriefing (Appendix L). At the conclusion of the study, participants were presented with a debriefing script that included more information regarding the true purpose of the study, brief treatment resources, and a prompt that they had completed the study and could leave the study link to return to their homepage or exit out of MTurk.

Results

Alterations to Original Proposed Analyses

Importantly, as mentioned, the present study initially aimed to recruit a total of 600 participants, with the expectation of detecting a small effect size. However, during the recruitment process on MTurk, unforeseen difficulties with “bots” were encountered. Specifically, over 1,000 participants were rejected for not passing attention checks and failing to complete the study, which suggested that they were not genuine participants but rather “bots” or automated scripts (See Table 2 for examples). Consequently, a revised proposal and IRB application were submitted, and the effect size was modified to medium. It was predicted that these modifications would not affect the significance of the results.

Screening

There were no missing data observed in the dataset as participants were required to answer all survey questions, except for demographic questions, in order to proceed to the next section. Notably, all participants answered all demographic questions.

To ensure data quality and identify potential issues with automated responses or inconsistent patterns of responding, the monetary delay discounting data for the MCQ underwent thorough screening using the automated scoring sheet developed by Kaplan and colleagues (2016). This scoring sheet allowed for the detection of potential inconsistencies in participants' responses, which could indicate unreliable or automated data. The delay discounting data were entered into the scoring sheet, and response consistency was calculated. This metric provided insights into the consistency or inconsistency in participants' responses across the delay discounting task. Out of the 102, nine participants (8.8% of the sample) demonstrated inconsistencies ($< .75$ consistency) in their delay discounting data, but all data were retained for analysis.

For the SCQ, the sexual activity delay discounting data underwent thorough screening using an automated scoring sheet, similar to the scoring sheet developed by Kaplan and colleagues (2016), that was adapted for the SCQ to detect for potential inconsistencies in participants' responses. The data were entered into the scoring sheet, and response consistency was calculated. Out of the 102 participants, ten participants (9.8% of the sample) demonstrated inconsistent response patterns ($< .75$). After careful examination, it was determined that these cases exhibited response patterns that deviated from expected patterns. This difference in number of nonsystematic response patterns between discounted commodities followed the current literature (Smith et al., 2018), given that monetary discounting yields more systematic response patterns than non-monetary commodities as demonstrated with these results. All SCQ data were retained for statistical analysis.

Notably, the majority of participants reported preferring the smaller reward (1 minute of sexual activity now) over the larger reward (20 minutes of sexual activity now) on the SCQ zero-

delay choice option, which was unexpected. It is unlikely the recall and writing group had an effect on participants' no delay choices, as there was not a significant difference between the groups on the number of participants choosing the smaller outcome over the larger outcome for sexual activity ($\chi^2 = 1.00, p > .05$). Importantly, analyses were conducted to examine the relationships between SDI2 score and the responses to the zero-delay SCQ question. However, no significant relationships were found between these variables ($r = -.12, p = .239$).

Demographic Data

Demographic data for both samples are in Table 3. Independent t-tests and chi-square analyses were conducted to determine if there were between-group differences on demographic characteristics. No significant differences were found between the experimental and control recall groups on measures of age, gender, sexual orientation, race, education, and religion. However, a significant difference was found between groups on the variable of relationship status ($\chi^2 = 11.26, p < .05$) and socioeconomic status ($\chi^2 = 9.74, p < .05$), with a greater proportion of participants in the control group identifying as married and in the upper-middle class compared to the experimental group. These differences were unexpected and may be explored further in future research (See Table 3), especially given Haushofer and Fehr's (2014) report of a relationship between socioeconomic status and discounting. In any cases, analyses were completed controlling for SES as a covariate.

Relationship status was not included as a covariate in the analyses due to the lack of empirical justification in the delay discounting literature for its inclusion as a covariate. While relationship status may be associated with sexual decision-making, its impact on the specific relationship between sexual desire and the decision-making process of immediate versus delayed

sexual activity has not been established in previous research. Therefore, it was deemed appropriate to proceed without including relationship status as a covariate in the present study.

Descriptive Data for Self-Report Measures

Table 4 contains descriptive data for all study measures. Notably, several of the measures did not meet the assumptions of normality despite attempts at transformation. Therefore, nonparametric Mann-Whitney U tests were conducted to analyze the differences between groups. No statistically significant differences were found between the experimental and control groups in terms of any of the administered self-report measures.

However, the DHEQ Occurrence scale provided insights into participants' experiences of daily heterosexist encounters. The data revealed a low occurrence of such experiences ($M = 42.17$, $SD = 9.43$) and the DHEQ Distress scale revealed a corresponding low level of distress related to these experiences ($M = 2.13$, $SD = 0.96$), indicating that participants, on average, reported infrequent instances of heterosexist events and relatively low distress associated with them. This is notable as it may impact participants' views of discriminatory experiences and whether they experience a significant change in affect or impacts on decision-making.

Further, exploring the additional item on unwanted sexual consequences, participants in both the experimental and control groups on average reported they have "rarely" experienced unwanted consequences due to sexual behaviors (Experimental: $M = 1.82$, $SD = 0.84$; Control: $M = 2.09$, $SD = 0.91$; Total: $M = 1.95$, $SD = 0.88$). Importantly, the present sample was comprised of roughly 65% cisgender women who identify as lesbian or bisexual and based on previous research suggesting high sexual risk behaviors amongst queer women (Rosario et al., 2014; Rosario et al., 1999; Singh et al., 2011; Tornello et al., 2014; Ybarra et al., 2016; Lindley et al., 2007), this finding was somewhat unexpected. However, this finding may help demonstrate how

this population's sexual risk behaviors have been misdefined and misrepresented within the literature, or excluded completely (Jaffe et al., 2021).

Correlational Analyses

To examine the relationship between delay discounting measures and self-report measures, correlational analyses were employed. Due to the non-normal distribution of the delay discounting k values that could not be normalized, Spearman's rank correlation was deemed appropriate for this analysis. Correlations among all variables can be found in Table 5.

There were several significant correlations observed within the data; however, there were not many unexpected, strong correlations found. There were strong correlations found amongst related measures, such as the SDI-2 and both the SDI-2 dimensions (solitary and dyadic), SDI-2 and SBQ as they both explore sexual behaviors and desires, the SMAST, DAST, and an additional nicotine item. The strongest unexpected correlation was found between the SBQ and both scales for the DHEQ; Occurrence ($\rho = 0.50, p < .01$) and Distress ($\rho = 0.48, p < .01$). This strong observed correlation could be due to participants' sexual orientation as this impacts both sexual behaviors and experiences of heterosexist discrimination.

Regarding moderate correlations, there was a significant positive correlation between monetary delay discounting and the SBQ ($\rho = 0.32, p < .01$), indicating that individuals with higher monetary delay discounting scores reported more frequent engagement in sexual behaviors. Similarly, significant positive correlations were also found between monetary delay discounting and the SMAST ($\rho = 0.28, p < .05$) and the DAST-10 ($\rho = 0.35, p < .01$). These findings suggest that higher levels of monetary delay discounting are associated with increased alcohol and drug use and potential related concerns, which has been seen within the literature (MacKillop et al., 2011; Petry, 2002; Mitchell et al., 2005).

Independent Variable Manipulation Check

A total of 102 participants completed the PANAS before and after the recall and writing task and delay discounting measures. A repeated measures ANOVA was conducted to explore the impact of the recall and writing task group membership on participants' negative affect. Box's Test of equality was significant ($p < .001$), which violates the assumption of homogeneity. Nevertheless, Pituch and Stevens (2016) suggest that the multivariate test results are fairly robust when the ratio of the largest to smallest group size is equal or nearly equal (e.g., $n < 1.5$), which applies to the current study as both groups have equal group sizes. Additionally, Mauchly's Test of Sphericity indicated that the assumption of sphericity for the time the PANAS was administered was met, $W = 1$, $\chi^2(0) = .00$, $p > .05$. Therefore, the standard results of the repeated measures ANOVA for negative affect are reported.

There was no main effect for group ($F(1, 100) = 1.25$, $p = .266$; See Table 6) but there was a main effect of time ($F(1, 100) = 21.85$, $p < .05$) and a group x time interaction ($F(1,100) = 26.39$, $p < .05$, $\eta_p^2 = 0.21$; See Figure 2). This suggests that the experimental and control groups exhibited different levels of NA at baseline but also that the discrimination recall procedure differentially impacted negative affect for those participants. Given the different levels of NA at baseline, negative affect was included as a covariate in analyses. The influence of the discrimination writing task on positive affect was not part of the study purpose, but is included here for descriptive purposes. There was a main effect for group ($F(1, 100) = 8.39$, $p < .05$, $\eta_p^2 = .08$; See Table 6) and time ($F(1, 100) = 10.76$, $p < .05$) and a group x time interaction ($F(1,100) = 15.18$, $p < .05$, $\eta_p^2 = 0.132$; See Figure 3). These findings suggest that the discrimination recall group, but not the control group experienced a decrease in positive affect as a function of the task. Exploring the relationship with positive affect was included for further description of the

data, but due to the primary focus being negative affect and its relationship with the independent variable, we controlled for baseline negative affect and not positive affect.

Primary Analyses

Hypothesis 1: Main Effect of Recalling a Discrimination Experience on Delay Discounting

To test the first hypothesis, we used an ANCOVA (analysis of covariance). The non-normal distribution of k scores for the MCQ and SCQ (despite attempts at transformation; see Figure 4 and Figure 5) initially prompted us to consider a non-parametric test of this hypothesis. However, this would not allow us to account for covariates. A review of the literature suggests that the ANCOVA is robust in the context of violations of normality assumptions and its ability to account for confounding variables (Tabachnick & Fidell, 2019; Stevens, 2009). For example, Maxwell and Delaney (2004) conducted simulations comparing ANCOVAs to nonparametric alternatives and found that ANCOVAs performed well even when normality assumptions were violated.

Therefore, to account for potential confounding factors, an analysis of covariance (ANCOVA) was performed, with socioeconomic status (SES) and baseline negative affect included as covariates. The ANCOVA revealed no significant main effect of the recall and writing group on either monetary delay discounting ($F(1, 98) = .06, p > .05, \eta_p^2 = .001$; See Figure 6) or sexual activity delay discounting ($F(1, 98) = 2.20, p > .05, \eta_p^2 = .02$) measures after controlling for the influence of SES and baseline negative affect. These findings suggest that, contrary to our hypotheses, recalling and writing about past discrimination experiences did not result in significantly higher k values compared to the control group. Thus, the results did not support Hypothesis 1, suggesting the absence of a main effect of recalling and writing about a discrimination experience on discounting task outcomes.

Hypothesis 2: Negative Affect as a Mediator for Sexual Activity Discounting

The second hypothesis that negative affect would mediate the relationship between the discrimination manipulation and delay discounting k scores for sexual activity was not supported by the data. There was no significant main effect of recalling and writing about a discrimination experience on delay discounting k scores for sexual activity. As a result, it was not possible to determine if the experience of negative affect mediated the relationship between the discrimination manipulation and sexual activity discounting, as predicted in the hypothesis.

Although the initial hypothesis proposed that negative affect would mediate the relationship between the dichotomous independent variable (group) and sexual activity discounting, the analysis was conducted to explore the mediation process, even in the absence of a significant main effect. Group (experimental or control) was the independent variable (X), change in negative affect was the mediator (M), and sexual activity discounting k score was the dependent variable (Y; See Figure 7). A mediation analysis was conducted using simple linear regression analyses in SPSS and a Sobel Test calculator was also used to examine the potential mediating role of negative affect. The hypothesized mediation model proposed that negative affect would mediate the relationship between group and sexual activity discounting. Additionally, a Sobel test was performed to assess the significance of the indirect effect.

The analysis involved three main steps: (1) assessing the relationship between the independent variable (group) and the mediator (negative affect), (2) examining the relationship between the mediator (negative affect) and the dependent variable (sexual activity discounting), and (3) testing the indirect effect of the independent variable (group) on the dependent variable (sexual activity discounting) through the mediator (negative affect) using the Sobel test. As

expected, the results of the mediation analysis revealed non-significant indirect effects of group on sexual activity discounting through negative affect ($Z = -0.98$, S.E. = 0.006, $p = 0.326$).

Sobel test (Eq. 2):

$$z = \frac{a*b}{\sqrt{(a^2s_b^2 + b^2s_a^2)}}$$

where a represents the regression of group onto negative affect, b represents the regression of negative affect onto sexual activity discounting scores, s_a represents the standard error of a , and s_b represents the standard error of b , will evaluate the significance of the indirect effect (i.e., $a*b$ path), which yields a z score. If the z score has an absolute value greater than 1.96, it can be concluded that mediation occurred and the indirect effect is significant.

However, the results of the mediation analysis did not yield any significant effects. The relationship between group and negative affect was not statistically significant ($\beta = -6.098$, $p = .568$). Similarly, the relationship between negative affect and sexual activity discounting was not significant ($\beta = 0.001$, $p = 0.585$). Consequently, the indirect effect of the independent variable (group) on the dependent variable (sexual activity discounting) through negative affect as the mediator was also not significant.

This finding suggests that the relationship between experimental group and delay discounting for sexual activity may not be mediated by negative affect as initially hypothesized. The lack of significant main effect raises questions and calls for further investigation.

Hypothesis 3: Negative Affect as a Mediator for Monetary Discounting

The third hypothesis, which proposed that the experience of negative affect would mediate the relationship between the discrimination manipulation and delay discounting k scores for money was not supported by the data. There was no significant main effect of recalling and

writing about a discrimination experience on delay discounting k scores for money, and therefore, it was not possible to determine if the experience of negative affect mediated the relationship between the discrimination manipulation and monetary discounting, as predicted in the hypothesis. Similarly to the second hypothesis, a mediation analysis was planned to investigate the potential mediating role of negative affect (M) on the relationship between group (X) on delay discounting for money (Y; See Figure 8). However, the results did not reveal a significant difference between the two groups, and as a result, the mediation analysis produced insignificant results.

Again, a mediation analysis was conducted to explore the process using simple linear regression analyses in SPSS and a Sobel Test calculator was utilized to examine the various effects. As stated above, three main steps were taken in order to assess the relationships amongst the independent variable, mediator, and dependent variable. The relationship between group and negative affect was not statistically significant ($\beta = -6.098, p = 0.791$). Similarly, the relationship between negative affect and sexual activity discounting was not significant ($\beta = -0.002, p = .319$). As expected, non-significant indirect effects of group on monetary discounting through negative affect were found ($Z = 0.98, S.E. = 0.01, p = .326$).

However, the current findings suggest that the relationship between experimental group and delay discounting for money may not be mediated by negative affect as initially hypothesized. The lack of significant main effect raises questions and calls for further investigation. Alternative explanations for the absence of a significant main effect should be considered. It is possible that other unmeasured variables or complex interactions among variables may account for the relationship between recalling and writing about a discrimination experience on delay discounting for money. Future research should explore these possibilities

and consider additional factors that may impact the observed relationship. Overall, despite the attempt to conduct a mediation analysis, the lack of a significant main effect between recalling and writing about a discrimination experience on delay discounting for money prevented the examination of mediating effects.

Discussion

The present study examined the behavioral mechanisms underlying the relationship between recall of discrimination experiences and delay discounting for monetary and sexual rewards among individuals identifying as lesbian, gay, and bisexual. We also aimed to explore whether negative affect mediated this relationship, given its empirical associations with substance abuse and risky sexual behavior. We recruited a national sample of lesbian, gay, and bisexual adults recruited from Amazon's MTurk research platform. Participants were randomly assigned to reflect either on and write about a time when they were treated unfairly due to their sexual orientation or upon their common daily routine just before completing measures of delay discounting for money and sexual activity.

Contrary to our hypotheses, the study yielded no significant results regarding the main effect of recalling a discrimination experience on delay discounting for sexual activity or money after controlling for the influence of socioeconomic status and baseline negative affect. These results suggest that recalling a discrimination experience did not lead to significant changes in delay discounting for either money or sexual activity. Additionally, due to not finding a main effect, the other two hypotheses that negative affect would mediate the relationship between the discrimination manipulation and delay discounting k scores for sexual activity and money were not supported by the data. The results from the present study suggest that there may not be a relationship between recall and writing about a discrimination experience on either monetary or

sexual activity delay discounting. The findings of the present study run contrary to previous research suggesting a direct relationship between discrimination experiences and certain health-related decision-making processes. In particular, Pascoe and Richman (2011) found that experiencing racial discrimination may increase the tendency to make healthier food choices after they received a negative evaluation and Livingston et al. (2017) proposed negative affect as a link between experiencing discrimination and increased nicotine and substance use.

These divergent findings raise important questions about the underlying mechanisms and contextual factors that may contribute to the complex relationship between discrimination experiences and risk-taking behaviors but also some important methodological considerations that merit attention before drawing substantive conclusions from this study. Our study was conceptually similar to Pascoe and Richman (2011), but they focused on food decisions and racial discrimination and reported significant results when provided real food, whereas the present study examined delay discounting specifically for hypothetical sexual activity and money and also sexual orientation-based discrimination. Likewise, Livingston and colleagues (2017) explored the impact of discrimination experiences on substance use risk in sexual and gender minority individuals and used ecological momentary assessment (EMA), which is distinctly different from our cross-sectional study. These differences in the specific domains assessed and the identities held by participants and type of discrimination, including the potential of differing discrimination experiences for those holding intersecting identities (e.g., those who identify as Black and queer or trans and queer) may have contributed to the disparate findings. Therefore, specific tasks and measures employed in each study may have influenced the observed outcomes, highlighting the importance of considering the specific context and methods employed when interpreting and comparing research findings.

Furthermore, the methodology employed by Livingston and colleagues (2017) differed from the present study, which could also contribute to the discrepancies in findings. They utilized EMA to examine the relationship between discrimination experiences and nicotine and substance use in real-time. Their study captured participants' experiences and behaviors in naturalistic settings, providing a unique perspective on the potential influence of discrimination on substance use. The contrasting results between their study and this present study further underscore the potential complexity of empirical efforts to examine the relationship between discrimination, risk-taking behaviors, and health-related decision making.

In addition to some methodological differences from foundational studies for this project, one potentially critical limitation to the present study was our recruitment of participants through MTurk. Since beginning the data collection process, it became clear that data gathered using MTurk is potentially problematic. Several studies conducted in our lab (Camp & Lawyer, 2023; Malvini & Lawyer, 2023) using data from MTurk yielded data that were of questionable quality and are consistent with recently-published peer-reviewed reports of decreasing data quality from studies utilizing MTurk (Chmielewski & Kucker, 2020). Regardless of the origin, automated responding in MTurk samples are common. Ahler et al. (2021) reported that 10-30% of MTurk respondents are fraudulent and Pozzar et al., 2020 reported that over 90% of their sample was fraudulent. In our study, over 3,000 participants (97.1%) did not meet screening criteria due to failed attention checks and exhibited suspicious scripts for narrative responses (see Table 1 for participant screening information and Table 2 for examples), suggesting the presence of automated responses rather than genuine responses from human participants. Indeed, Moss and Litman (2020) found that the presence of bots and users employing a Virtual Private Network (VPN) are the origins of automated responding and may have impacted the present study's data

quality which in turn may have influenced the reliability and generalizability of the findings. Craft and colleagues (2022), as the present study, utilized Google's CAPTCHA, and also an attention check in aim to eliminate automated responses; however, they found these methods could not control these automatic responders as they are designed to control inattentive responding. Despite the fact that VPN users are actual participants, these users have been found to provide lower quality data (Dennis et al., 2019), which further highlights the need for more stringent control over independent variables and the use of procedures that involve genuine human participants. The anonymity provided by platforms such as MTurk increases response rates (O'Neil & Penrod, 2001), but this led to a decrease in data quality (Craft et al., 2022).

Crowdsourcing has the potential to obtain more representative samples (Buhrmester, Kwang, & Gosling, 2011; Roulin, 2015) and appears a promising recruitment avenue for LGBTQ+ participants (Herrmann, et al., 2015). Thus, crowdsourcing should be considered for platforms with stringent verification processes, especially as it serves to aid in accessing hard-to-reach populations (i.e., LGBT+ populations) but it is crucial to address the potential biases associated with online data collection. Importantly, in some cases, respondents may decide not to participate in studies knowingly focused on LGBTQ+ individuals due to triggering social desirability concerns and being a member of a stigmatized group and this can reduce the overall response rate and can result in the sample being less representative of the larger population (Lee, 1993; Tourangeau and Yan, 2007; Tourangeau et al., 2000). Therefore, targeting diverse online platforms and communities and establishing robust online security measures are necessary to minimize the influence of bots and ensure data integrity improve representativeness in future research.

Alternatively, in-person studies can provide more direct control over independent variables and enhance data quality. However, challenges such as recruiting a sufficiently large sample size, especially those who identify as lesbian, gay, or bisexual, at an institution such as Idaho State University, need to be acknowledged. Considering these recruitment options compared to what was utilized in the present study while also carefully addressing the limitations associated with each method, especially when recruiting those who identify within the LGBT+ community, is essential for the literature moving forward. Additionally, this present study and literature review did not include or examine gender minority individuals (e.g., those who identify as transgender, nonbinary, gender non-conforming) and their experiences; however, it is important to state that those identifying as trans or nonbinary, especially those holding multiple intersecting historically oppressed identities, experience even higher rates of discrimination and violence (Su et al., 2016).

An additional methodological consideration central to this study is the extent to which delay discounting—at least as measured here—is a suitable dependent variable for capturing the effects of the laboratory manipulation or experimental conditions under investigation. Delay discounting is a complex construct that can be influenced by both temporary situational factors and more stable individual characteristics, rendering it both a state and a trait variable (Odum, 2011b). In some cases, laboratory manipulations may not be able to produce substantial changes in delay discounting due to its trait-like nature. Odum (2011b) demonstrates that the sensitivity of delay discounting as a dependent variable may vary depending on the specific context and experimental conditions. In several studies in our lab, for example, established laboratory manipulations failed to effect impacts on delay discounting. Mahoney, et al. (2021) found that neither the experience of laboratory-induced negative affect or its suppression influence delay

discounting for money or sexual outcomes and Camp and Lawyer (2023) found that a previously-established method for influencing perception of personal financial insecurity also had no effect on delay discounting for money. However, Rung and Madden (2018) explored a large number of studies that explored environmental manipulations designed to reduce delay discounting. They found several brief experimental manipulations that produced across-laboratory reductions in delay discounting: cueing, engaging in episodic future thinking, adding delays, date framing, and explicit-zero framing interventions. These findings suggest that delay discounting may be a suitable dependent variable but more laboratory research with human subjects is needed to continue to explore and refine methods that change delay discounting. Future research might consider a focus on better understanding of the factors that influence DD and the types of DD measures that may be more or less sensitive to laboratory manipulations.

It might be important to consider also that recalling and writing about a past discrimination experience (at least in this context) may not have exerted a powerful enough influence on participants' rates of discounting for money or sexual activity. Although the significant interaction effect observed in the repeated measures ANOVA suggests the experimental manipulation had some impact on negative affect in the experimental group, there was not a significant main effect of group on average negative affect scores across time found. These findings suggest that the independent variable might not have been robust enough to reach conventional levels of statistical significance. Previous research with our lab has also explored positive and negative mood induction using previously validated film clips but found this did not influence delay discounting and therefore found that the experience of short-term emotion is not directly related to impulsive choice, at least within the experimental context using an established computerized delay discounting task created by Baker and colleagues in 2003 (Lawyer & Jenks,

2020). Given these observations, it is crucial to examine the power of the independent variable in subsequent studies to ensure its potential effects are adequately captured. This may involve refining the manipulation technique, adjusting the intensity or duration of the intervention, or exploring alternative methods to enhance its impact. Additionally, considering the nuanced nature of delay discounting as a dependent variable, future investigations should carefully select and evaluate alternative outcome measures that align more closely with the specific context and goals of the study. By addressing these methodological and conceptual considerations, future research can shed further light on the relationship between the experimental manipulation, delay discounting, and other relevant factors, advancing our understandings of the underlying mechanisms driving decision-making processes in the context of discrimination experiences.

One possible way to address the limitations within the present study might be to use an EMA approach as Livingston and colleagues (2017) where participants report their experiences and behaviors as they occur in their daily lives, which can help elucidate the complex reactions and impacts surrounding exposure to discrimination (Potter et al., 2019). Longitudinal designs also might better establish temporal relationships between discrimination experiences and risk-taking behaviors, including changes and trajectories, over time. Longitudinal studies involve collecting data from the same participants at multiple time points over an extended period but often involve follow-up assessments spaced out at predetermined intervals so researchers can more accurately examine the relationship between discrimination experiences and risk-taking behaviors, including understanding how they may vary across different periods. Such approaches might better capture the relationship between real-world events (e.g., discrimination experiences) and decisions in their natural environments and provide a more ecologically valid assessment of delay discounting and its association with discrimination experiences. For instance, a systematic

review of longitudinal studies exploring racial discrimination in adolescents (11-18 years old) reported statistically significant associations with racial discrimination and risk-taking behaviors, substance use behaviors, and mental health (Cave et al., 2020). Kwate and Goodman (2015) also investigated longitudinal effects of racism, finding it associated with distress and damaging to mental health, and that increasing frequencies of racism predicted worse mental health outcomes. In the context of weight discrimination, Sutin and Terracciano (2013) explored a longitudinal study comprising of 513 participants who reported past perceived weight discrimination and found that these individuals were three times more likely to remain obese at the four-year follow-up than those who had not experienced weight discrimination. Further, a study utilizing EMA methodology with LGB individuals found that LGB-specific discrimination was positively associated with alcohol use, drug use, and sexual risk-taking behavior and that the results also suggest a greater frequency of risk-taking behaviors among LGB individuals (Bonnette, 2019). These studies demonstrate that utilizing longitudinal or EMA, researchers can assess how discrimination experiences and risk-taking behaviors unfold in real-world situations, capturing the temporal dynamics and contextual influences. Overall, EMA and longitudinal studies may provide a more nuanced understanding of the dynamic nature of these relationships. EMA and longitudinal designs also reduce reliance on participants' retrospective recall and may provide the ability to more accurately evoke and reflect changes in affect.

By incorporating EMA or a longitudinal design, researchers can gain a deeper understanding of how discrimination experiences related to risk-taking behaviors among lesbian, gay, and bisexual individuals, enhance ecological validity, reduce recall biases, enable the examination of temporal relationships, and capture within-person variability. Additionally, it is important to note that the validation process for the Sexual Choice Questionnaire is still ongoing,

and future studies should continue to assess its psychometric properties and refine its measurement of sexual risk-taking.

The Sexual Choice Questionnaire's effectiveness in capturing decisions related to sexual activity remains uncertain. During the analysis phase of the present study, it was observed that a majority of participants chose 1 minute of sexual activity now over 20 minutes of sexual activity now. This pattern of responses raises questions about the measure's validity in assessing sexual activity delay discounting behavior as initially intended. Notably, the vast majority of participants identified as religious, which differs from the current literature on LGB religious identities, and these participants may engage in or view sexual behaviors differently, potentially not as rewarding, than the general LGB population in the United States. There are also significant differences the types of sexual behaviors the LGB population typically engages in compared to heterosexual individuals, and also vast differences within the LGB population, and so this also may have impacted the results of the Sexual Choice Questionnaire. Additionally however, given the ongoing validation process of the Sexual Choice Questionnaire and the ambiguity surrounding the observed choices, the measure's limitations may also impact the generalizability of our findings. Participants may have viewed the questions differently as some may have responded with desire for 1 minute over 20 minutes now as their preferred sexual activity may only require 1 minute while other sexual activities that some prefer may require more time and this could also impact the current findings. Consequently, broad conclusions about sexual activity delay discounting behaviors based on the Sexual Choice Questionnaire should be made with caution. Nevertheless, future research should consider additional validation studies or alternative measures to more accurately assess sexual activity delay discounting behavior.

In conclusion, although the present study did not find support for the hypothesized relationships between recalling discrimination experiences, delay discounting, and risk-taking behaviors, it contributes to the growing body of literature and serves as an important benchmark for reflection and improvement. By critically evaluating the lessons learned from this study, researchers can reconsider their methodological choices to enhance the rigor and validity of future investigations. Future research should continue to investigate the underlying mechanisms involved, considering methodological improvements and additional factors that may moderate the relationship between discrimination experiences and risk-taking behaviors. By advancing our understanding in this area, we can develop targeted interventions and support systems to address the impact of discrimination and promote well-being within the lesbian, gay, and bisexual community.

Figures

Figure 2

Manipulation Check: Effect of Recall and Writing Condition on Negative Affect (scale ranges from 5 to 25)

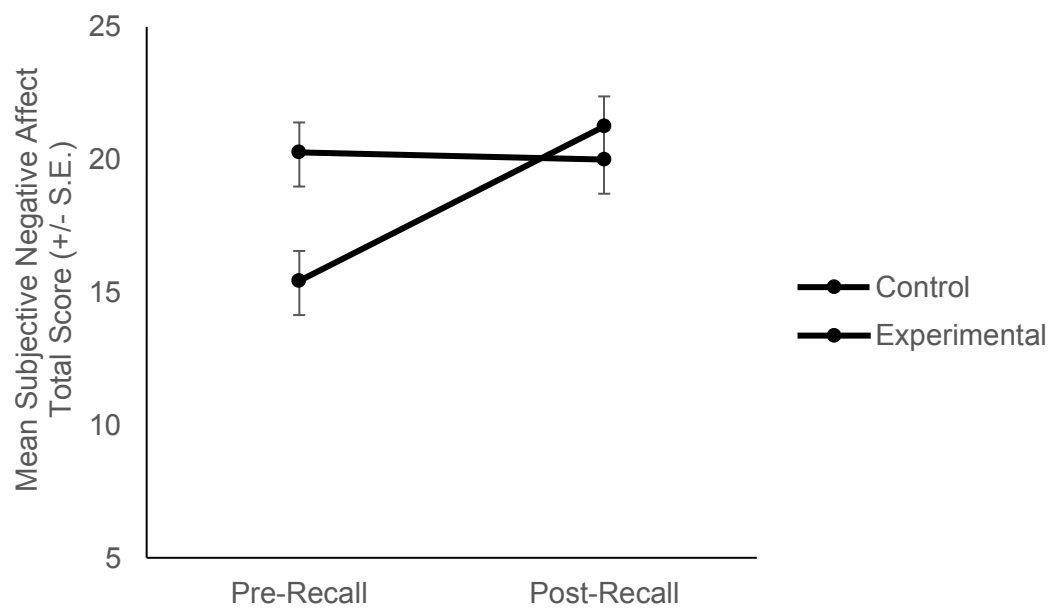


Figure 3

Manipulation Check: Effect of Recall and Writing Condition on Positive Affect (scale ranges from 5 to 25)

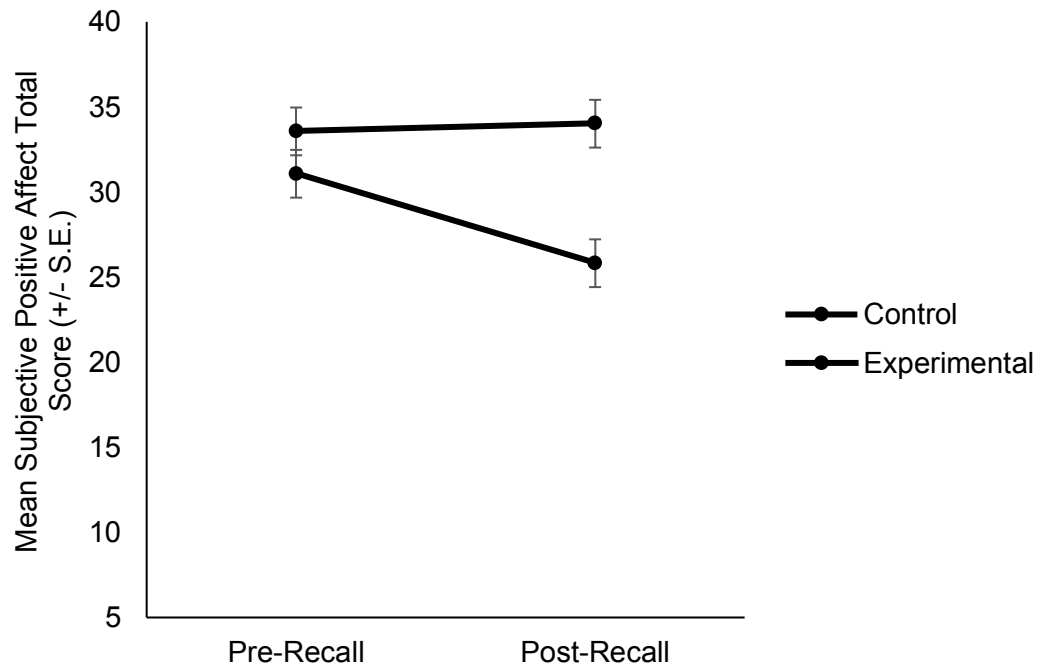


Figure 4

Experimental and Control Group MCQ Histograms

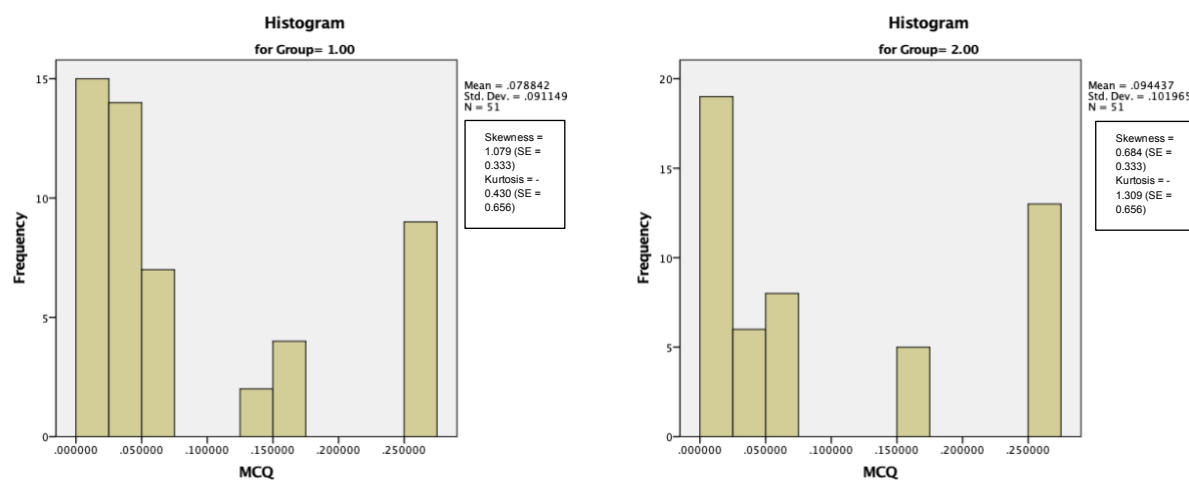


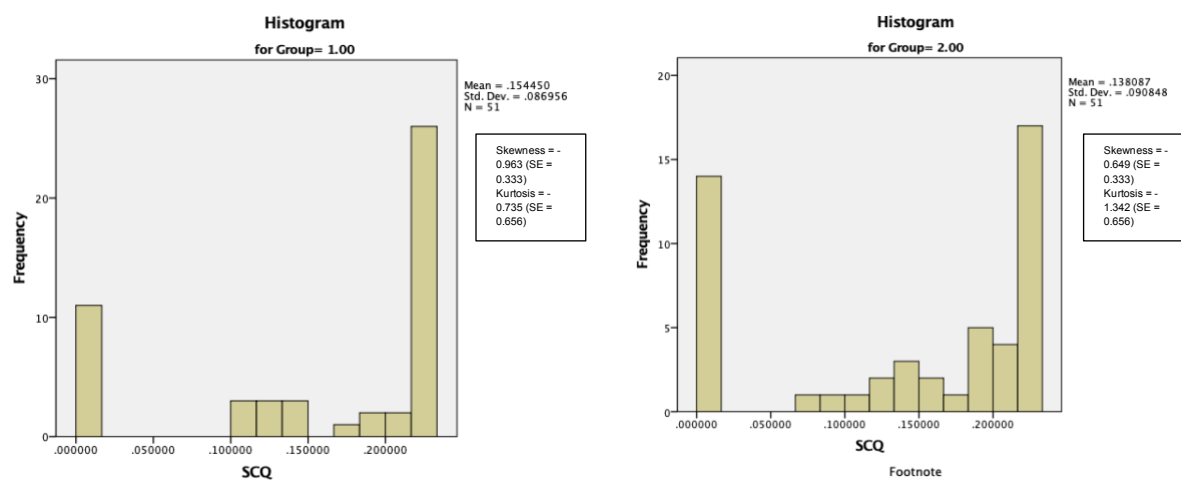
Figure 5*Experimental and Control Group SCQ Histograms*

Figure 6

Mean MCQ and SCQ k Values

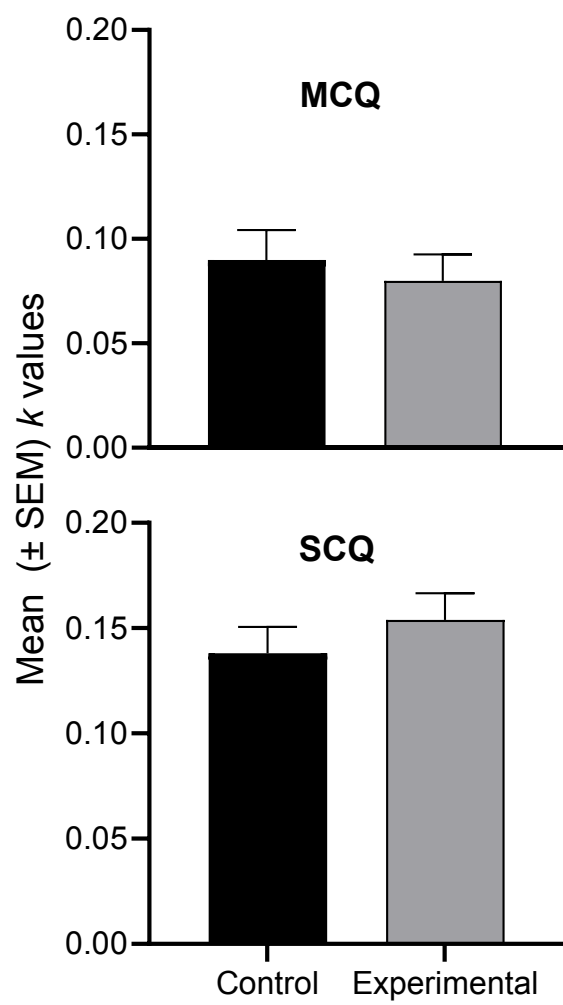


Figure 7

Simple Mediation Model of Writing Group (X), Negative Affect (M), and Sexual Activity k Scores (Y)

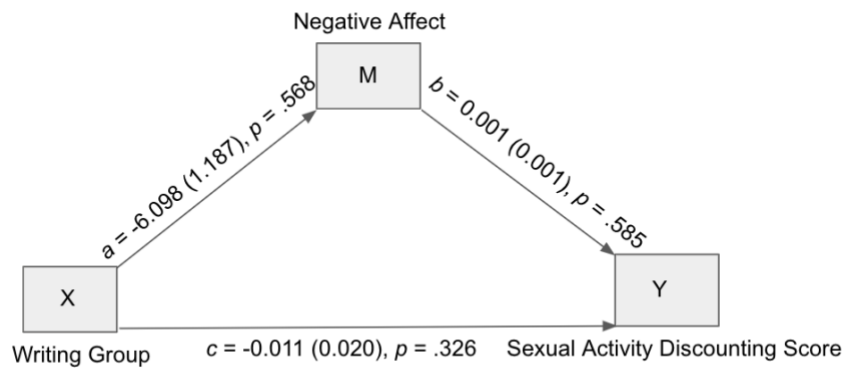
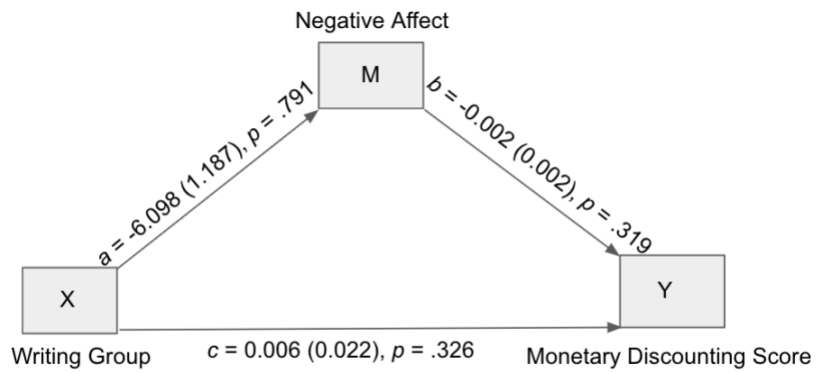


Figure 8

Simple Mediation Model of Writing Group (X), Negative Affect (M), and Monetary k Scores (Y)



Tables

Table 1

Screening Results Table

| Quality Assurance Measure | Total Participants Started | Passed | Failed |
|---------------------------|----------------------------|--------------|--------------|
| Screener | 9947 | 3490 (35.1%) | 6457 (64.9%) |
| Informed Consent | 9947 | 3473 (34.9%) | 6474 (65.1%) |
| ECM Attention Check | 3473 | 3182 (91.6%) | 291 (8.4%) |
| DAST Attention Check | 3473 | 3317 (95.5%) | 156 (4.5%) |
| DHEQ Attention Check | 3473 | 2455 (70.7%) | 1018 (29.3%) |
| SDI2 Attention Check | 3473 | 2818 (81.1%) | 655 (18.9%) |
| Zero Delay MCQ | 3473 | 2432 (70.1%) | 1041 (29.9%) |
| Choice | | | |
| CAPTCHA | 3473 | 2031 (58.5%) | 1442 (41.5%) |
| End of Study Submit | 3473 | 2432 (70.1%) | 1041 (29.9%) |
| Correct MTurk Code | 3473 | 3167 (91.2%) | 306 (8.8%) |
| | 3473 | 102 (2.9%) | 3371 (97.1%) |

Note. Abbreviations: Screener = Screening Questionnaire (Appendix A), ECMT = Extent of Concealment (short version; Appendix E), DAST-10 = Drug Abuse Screening Test (Appendix I), DHEQ = Daily Heterosexist Experiences Questionnaire (Appendix D), SDI-2 = Sexual Desire Inventory -2 (Appendix G), MCQ = Monetary Choice Questionnaire (Appendix J), CAPTCHA = Completely Automated Public Turing test to tell Computers and Humans Apart, MTurk = Amazon Mechanical Turk.

Table 2*Potential “Bot” Response Table*

| | |
|----------------|---|
| Discrimination | Sexual orientation is an enduring pattern of romantic or sexual attraction to persons |
| | I wal woke up early morning. Next fresh up and prepare the food. Next go for office. This is routine to continued |
| | The emotions he identified were happiness, sadness, disgust, fear. |
| | One part of an emotional reaction is that the brain changes what’s happening in the body. |
| | I was work in a company there theft was held last month. Thefted by some other person the management was caught me so, I was disappointed |
| | People may be discriminated against because of their age, disability, ethnicity, origin, political belief, race, religion, sex or gender, sexual orientation |
| Control | A good fragrance has the power to make you feel great. |
| | The emotions he identified were happiness, sadness, disgust, fear. |
| | Age Discrimination. Disability Discrimination. Sexual Orientation. Status as a Parent. Religious Discrimination. National Origin. Pregnancy. Sexual Harassment. |
| | Daily 8oclock Iam coming after system start after work going on the system evening 4oclock fish to the work this my requar work |
| | The person I came out to was my wife. I was drunk. I had the lift. I’m bi. I remembers all the times. |
| | First pubertal change: enlargement of the testicles. Penis enlargement: begins approximately 1 year after the testicles begin enlarging. |

Note. All scripts demonstrated were screened out due to missed attention check(s) and were randomly chosen as examples of scripts provided by potential “bots”.

Table 3*Demographics of Participants*

| Demographics | Experimental | Control | Participant Distribution | Statistical Test and Significance |
|---------------------------------------|--------------|---------|--------------------------|-----------------------------------|
| Gender Identity | | | | $\chi^2(1) = 0.17$; ns |
| Man/Male | 17 | 19 | 36, 35.3% | |
| Woman/Female | 34 | 32 | 66, 64.7% | |
| Sexual Orientation | | | | $\chi^2(2) = 3.47$; ns |
| Gay | 11 | 6 | 17, 16.7% | |
| Lesbian | 14 | 10 | 24, 23.5% | |
| Bisexual | 26 | 35 | 61, 59.8% | |
| Race | | | | $\chi^2(4) = 3.09$; ns |
| Black/African American | 6 | 2 | 8, 7.8% | |
| Latino/a/x/Hispanic | 3 | 5 | 8, 7.8% | |
| White/European American | 38 | 40 | 78, 76.5% | |
| Asian/Asian American/Pacific Islander | 3 | 2 | 5, 4.9% | |
| Multiracial | 1 | 2 | 3, 2.9% | |
| Relationship Status | | | | $\chi^2(4) = 11.26$; $p = .047$ |
| Single | 7 | 13 | 8, 7.8% | |
| Dating but not living with partner | 10 | 2 | 8, 7.8% | |
| Dating and living with partner | 14 | 10 | 78, 76.5% | |
| Divorced | 18 | 26 | 5, 4.9% | |
| Widowed | 2 | 0 | 3, 2.9% | |
| Education | | | | $\chi^2(5) = 6.14$; ns |
| High School Diploma/GED | 4 | 1 | 5, 4.9% | |
| Some college | 9 | 9 | 18, 17.6% | |
| Bachelor's degree | 24 | 32 | 56, 54.9% | |
| Master's Degree | 11 | 9 | 20, 19.6% | |
| Doctorate/Professional Degree | 3 | 0 | 3, 3% | |
| Socioeconomic Status | | | | $\chi^2(3) = 9.74$; $p = .021$ |
| Upper Class | 3 | 1 | 4, 3.9% | |
| Upper-middle class | 4 | 16 | 20, 19.6% | |
| Middle class | 22 | 19 | 41, 40.2% | |
| Lower/Working class | 22 | 15 | 37, 36.3% | |

| | Religion | | $\chi^2(5) = 9.54; ns$ |
|-------------|----------|----|------------------------|
| Christian | 26 | 34 | 60, 58.8% |
| Buddhist | 0 | 1 | 1, 1.0% |
| Jewish | 0 | 2 | 2, 2.0% |
| Sikh | 18 | 13 | 31, 30.4% |
| No religion | 7 | 1 | 8, 7.9% |

* Not significant (ns).

Table 4*Descriptive Data Table*

| Measure | Experimental Group (<i>M, SD</i>) | Control Group (<i>M, SD</i>) | <i>U</i> | sig |
|-----------------|---|--------------------------------------|------------------|-----------|
| SBQ | 12.43, 1.07 | 14.71, 1.09 | $U = 1065.00$ | $p = .11$ |
| Additional item | 1.82, 0.84 | 2.09, 0.91 | $U = 1099.00$ | $p = .15$ |
| SDI-2 | 65.24, 21.25 | 67.78, 17.89 | $U = 1276.5$ | $p = .87$ |
| SDI-2 Solitary | 13, 5.27 | 14.22, 4.57 | $t(100) = 1.94$ | $p = .16$ |
| SDI-2 Dyadic | 40.29, 13.49 | 39.37, 9.69 | $U = 1134.50$ | $p = .26$ |
| SMAST | 1.96, 2.46 | 3.55, 2.74 | $U = 803.5$ | $p = .15$ |
| Nicotine item | 0.33, 0.48 | 0.47, 0.50 | $U = 1122.00$ | $p = .16$ |
| DAST-10 | 2.49, 2.28 | 3.33, 2.61 | $U = 1058.5$ | $p = .09$ |
| DHEQ | 41.09, 10.06 | 43.24, 8.73 | $U = 1134.5$ | $p = .26$ |
| Occurrence | | | | |
| DHEQ Distress | 2.08, 1.03 | 2.08, 0.89 | $t(100) = 1.43$ | $p = .23$ |
| ECMT | 3.11, 0.94 | 3.05, 0.82 | $t(100) = 0.097$ | $p = .76$ |

Note. Abbreviations: SBQ = Sexual Behaviors Questionnaire, Additional item = Additional item within the Sexual Behaviors Questionnaire, SDI-2 = Sexual Desire Inventory -2, SMAST = Short Michigan Alcohol Screening Test, Nicotine item = Nicotine item added to the Short Michigan Alcohol Screening Test, DAST-10 = Drug Abuse Screening Test, DHEQ = Daily Heterosexual Experiences Questionnaire, ECMT = Extent of Concealment (short version), *M* = Mean, *SD* = Standard Deviation, *U* = nonparametric Mann-Whitney U tests, sig = statistical significance.

Table 5*Bivariate Correlations Among Study Measures*

| Measure | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|--------------|-------|-------|-------|-------|-------|-------|-----|---|---|----|----|----|----|
| 1.MCQ | - | | | | | | | | | | | | |
| 2.SCQ | .30** | - | | | | | | | | | | | |
| 3.SBQ | .32** | .25* | - | | | | | | | | | | |
| 4.Other Risk | .20* | -.01 | .23 | - | | | | | | | | | |
| 5.SDI-2 | .15 | .26** | .46** | .11 | - | | | | | | | | |
| 6.SDI-2-S | .14 | .13 | .40** | .17 | .88** | - | | | | | | | |
| 7.SDI-2-D | .16 | .33** | .41** | .05 | .91** | .68** | - | | | | | | |
| 8.SMAST | .28* | .07 | .36** | .31** | .16 | .17 | .01 | - | | | | | |

| | | | | | | | | | | | | | |
|-------------|-------|------|-------|-------|-------|------|-------|-------|-------|------|-------|-------|---|
| 9. Nicotine | .17 | .11 | .26** | .26** | .14 | .13 | .12 | .35** | - | | | | |
| 10. DAST-10 | .35** | .14 | .25* | .33** | .27** | .24* | .21* | .47** | .40** | - | | | |
| 11. DHEQ-O | .19 | .04 | .50** | .14 | .33** | .24* | .26** | .24* | .00 | .11 | - | | |
| 12. DHEQ-D | .21* | -.05 | .48** | .024* | .30** | .24* | .24* | .33** | .05 | .24* | .71** | - | |
| 13. ECMT | -.11 | -.02 | .14 | .11 | .16 | .10 | .12 | .21* | -.06 | .15 | .14 | .42** | - |

Note. Abbreviations: MCQ = Monetary Choice Questionnaire, SCQ = Sexual Choice Questionnaire, SBQ = Sexual Behaviors Questionnaire, Other Risk = Additional item within the Sexual Behaviors Questionnaire, SDI-2 = Sexual Desire Inventory -2, SDI-2-S = Sexual Desire Inventory -2 Solitary Sexual Desire Dimension, SDI-2-D = Sexual Desire Inventory -2 Dyadic Sexual Desire Dimension, SMAST = Short Michigan Alcohol Screening Test, Nicotine = Nicotine item added to the Short Michigan Alcohol Screening Test, DAST-10 = Drug Abuse Screening Test, DHEQ-O = Daily Heterosexual Experiences Questionnaire Total Occurrence, DHEQ-D = Daily Heterosexual Experiences Questionnaire Total Distress, ECMT = Extent of Concealment (short version).

* $p < .05$. ** $p < .01$.

Table 6*Independent Variable Manipulation Check ANOVA*

| | Negative Affect | | | | Positive Affect | | | |
|--------------------------|-----------------|----------|----------|------------|-----------------|----------|----------|------------|
| | <i>df</i> | <i>F</i> | <i>p</i> | η_p^2 | <i>df</i> | <i>F</i> | <i>p</i> | η_p^2 |
| Between-Subjects Effects | | | | | | | | |
| Group | 1 | 1.25 | .266 | .01 | 1 | 8.39 | .005* | .08 |
| Error (Group) | 100 | | | | 100 | | | |
| Within-Subjects Effects | | | | | | | | |
| Time | 1 | 21.85 | < .001* | .18 | 1 | 10.76 | .001* | .10 |
| Time x Group | 1 | 26.39 | < .001* | .21 | 1 | 15.18 | < .001* | .13 |
| Error (Time) | 100 | | | | 100 | | | |

* $p < .05$

References

- Ahler, D. J., Roush, C. E., & Sood, G. (2021). The micro-task market for lemons: Data quality on Amazon's Mechanical Turk. *Political Science Research and Methods*, 1–20.
<https://doi.org/10.1017/psrm.2021.57>
- Ainslie, G. (1975). Specious reward: A behavioral theory of impulsiveness and impulse control. *Psychological Bulletin*, 82(4), 463–496.
- Andersen, J. P., Zou, C., & Blosnigh, J. (2015). Multiple early victimization experiences as a pathway to explain physical health disparities among sexual minority and heterosexual individuals. *Social Science & Medicine*, 13, 111–119.
<https://doi.org/10.1016/j.socscimed.2015.03.043>
- Anestis, M. D., Holm-Denoma, J. M., Gordon, K. H., Schmidt, N. B. & Joiner, T. E. (2008). The role of anxiety sensitivity in eating pathology. *Cognitive Therapy and Research*, 32, 370–385.
- Augustine, A. A., & Larsen, R. J. (2011). Affect regulation and temporal discounting: Interactions between primed, state, and trait affect. *Emotion*, 11, 403–412.
- Baker, F., Johnson, M. W., & Bickel, W. K. (2003). Delay discounting in current and never-before cigarette smokers: Similarities and differences across commodity, sign, and magnitude. *Journal of Abnormal Psychology*, 112(3), 382–392.
<https://doi.org/10.1037/0021-843X.112.3.382>
- Balsam, K. F., Beadnell, B., & Molina, Y. (2013). The Daily Heterosexist Experiences Questionnaire: Measuring minority stress among lesbian, gay, bisexual, and transgender adults. *Measurement and Evaluation in Counseling and Development*, 46(1), 3–25.
<https://doi.org/10.1177/0748175612449743>

- Balsam, K. F., Rothblum, E. D., & Beauchaine, T. P. (2005). Victimization over the life span: A comparison of lesbian, gay, bisexual, and heterosexual siblings. *Journal of Consulting and Clinical Psychology, 73*(3), 477–487. <https://doi.org/10.1037/0022-006X.73.3.477>
- Baumeister, R. F., & Scher, S. J. (1988). Self-defeating behavior patterns among normal individuals: Review and analysis of common self-destructive tendencies. *Psychological Bulletin, 104*, 3–22.
- Beadnell, B., Morrison, D. M., Wilsdon, A., Wells, E. A., Murowchick, E., Hoppe, M., Gillmore, M. R., & Nahom, D. (2005). Condom use, frequency of sex, and number of partners: Multidimensional characterization of adolescent sexual risk-taking. *The Journal of Sex Research, 42*, 192–202.
- Bechara, A. (2004). The role of emotion in decision-making: Evidence from neurological patients with orbitofrontal damage. *Brain and Cognition, 55*, 30–40.
- Bechara, A. (2005). Decision making, impulse control and loss of willpower to resist drugs: A neurocognitive perspective. *Nature Neuroscience, 8*, 1458–1463.
- Beech, B. M., Ford, C., Thorpe, R. J., Bruce, M. A., & Norris, K. C. (2021). Poverty, racism, and the public health crisis in America. *Frontiers in Public Health, 9*, 699049. <https://doi.org/10.3389/fpubh.2021.699049>
- Billieux, J., Van der Linden, M., & Rochat, L. (2008). The role of impulsivity in actual and problematic use of the mobile phone. *Applied Cognitive Psychology, 22*, 1195–1210. <https://doi.org/10.1002/acp.1429>
- Bonnette, A. T. (2019). Psychological distress, substance use, and sexual risk-taking among lesbian, gay, and bisexual college students (unpublished thesis). *Texas State University, San Marcos, Texas*. <https://digital.library.txstate.edu/handle/10877/12274>

- Brennan, J. M. (2021). Hiding the authentic self: Concealment of gender and sexual identity and its consequences for authenticity and psychological well-being. *Graduate Student Theses, Dissertations, & Professional Papers*, 11789. <https://scholarworks.umt.edu/etd/11789>
- Bryan, A. D., Schmiede, S. J., & Magnan, R. E. (2012). Marijuana use and risky sexual behavior among high-risk adolescents: Trajectories, risk factors, and event-level relationships. *Developmental Psychology*, 48, 1429–1442.
- Buhrmester, M., Kwang, T., & Gosling, S. D., (2011). Amazon’s Mechanical Turk: A new source of inexpensive, yet high-quality, data?. *Perspectives on Psychological Science: A Journal of the Association for Psychological Science*, 6(1), 3–5.
<https://doi.org/10.1177/1745691610393980>
- Camp, L. and Lawyer, S. R. (2023). Does perceived financial insecurity affect delay discounting and probability discounting?. *Idaho State University Electronic Dissertations and Theses*.
<https://etd.iri.isu.edu/ViewSpecimen.aspx?ID=2122>
- Casey, L. S., Reisner, S. L., Findling, M. G., Blendon, R. J., Benson, J. M., Sayde, J. M. & Miller, C. (2019). Discrimination in the United States: Experiences of lesbian, gay, bisexual, transgender, and queer Americans. *Health Services Research*, 54(S2), 1454–1466. <https://doi.org/10.1111/1475-6773.13229>
- Cave, L., Cooper, M. N., Zubrick, S. R., & Shepherd, C. C. (2020). Racial discrimination and child and adolescent health in longitudinal studies: A systematic review. *Social Science & Medicine*, 250, 112864. <https://doi.org/10.1016/j.socscimed.2020.112864>
- CDC. (2021). *Diagnosis of HIV infection in the United States and dependent areas, 2021*.
<https://www.cdc.gov/hiv/basics/statistics.html>

- Chawla, N., & Sarkar, S. (2019). Defining “high-risk sexual behavior” in the context of substance use. *Journal of Psychosexual Health, 1*(1), 26–31.
<https://doi.org/10.1177/2631831818822015>
- Chesson, H. W., Leichliter, J. S., Zimet, G. D., Rosenthal, S. L., Bernstein, D. I., & Fife, K. H. (2006). Discount rates and risky sexual behaviors among teenagers and young adults. *Journal of Risk and Uncertainty, 32*(3), 217–230. <https://doi.org/10.1007/S11166-006-9520-1>
- Chmielewski, M., & Kucker, S., C. (2020). An MTurk crisis? Shifts in data quality and the impact on study results. *Social Psychological and Personality Science, 11*(4), 464–473.
- Clements-Nolle, K., Marx, R., Guzman, R., & Katz, M. (2001). HIV prevalence, risk behaviors, health care use, and mental health status of transgender persons: Implications for public health intervention. *American Journal of Public Health, 91*, 915–921.
- Cochran, S. D., & Mays, V. M. (2000). Relation between psychiatric syndromes and behaviorally defined sexual orientation in a sample of the US population. *American Journal of Epidemiology, 151*, 516–523.
- Cochran, S. D., & Mays, V. M. (2009). Burden of psychiatric morbidity among lesbian, gay, and bisexual individuals in the California quality of life survey. *Journal of Abnormal Psychology, 118*(3), 647–658. <https://doi.org/10.1037/a0016501>
- Cochran, S. D., Sullivan, J. G., & Mays, V. M. (2003). Prevalence of mental disorders, psychological distress, and mental health services use among lesbian, gay, and bisexual adults in the United States. *Journal of Consulting and Clinical Psychology, 71*, 53–61.
<https://doi.org/10.1037/0022-006X.71.1.53>

- Cochran, S. D., Ackerman, D., Mays, V. M., & Ross, M. W. (2004). Prevalence of non-medical drug use and dependence among homosexually active men and women in the US population. *Addiction*, *99*(8), 989–998.
- Coffey, S. F., Gudleski, G. D., Saladin, M. E., & Brady, K. T. (2003). Impulsivity and rapid discounting of delayed hypothetical rewards in cocaine-dependent individuals. *Experimental and Clinical Psychopharmacology*, *11*(1), 18–25.
<https://doi.org/10.1037/1064-1297.11.1.18>
- Costa, P. T., & McCrae, R. R. (1992). Normal personality assessment in clinical practice: The NEO Personality Inventory. *Psychological Assessment*, *4*(1), 5–13.
<https://doi.org/10.1037/1040-3590.4.1.5>
- Craft, W. H., Tegge, A. N., Freitas-Lemois, R., Tomlinson, D. C., & Bickel, W. K. (2022). Are poor quality data just random responses?: A crowdsourced study of delay discounting in alcohol use. *Experimental and Clinical Psychopharmacology*, *30*(4), 409–414.
<https://doi.org/10.1037/pha0000549>
- Cyders, M. A., & Smith, G. T. (2007). Mood-based rash action and its components: Positive and negative urgency and their relations with other impulsivity-like constructs. *Personality and Individual Differences*, *43*, 839–850.
- Cyders, M. A., & Smith, G. T. (2008). Emotion-based disposition to rash action: Positive and negative urgency. *Psychological Bulletin*, *134*, 807–828.
- Daugherty, J. R., & Brase, G. L. (2010). Taking time to be healthy: Predicting health behaviors with delay discounting and time perspective. *Personality and Individual Differences*, *48*, 202–207.

- de Wit, H. (2008). Impulsivity as a determinant and consequence of drug use: A review of underlying processes. *Addiction Biology*, 14(1), 22–31. <https://doi.org/10.1111/j.1369-1600.2008.00129.x>
- Demant, D., Hides, L., Kavanagh, D. J., White, K. M., Winstock, A. R., & Ferris, J. (2015). Differences in substance use between sexual orientations in a multi-country sample: Findings from the Global Drug Survey 2015. *Journal of Public Health*, 39(3), 532–541. <https://doi.org/10.1093/pubmed/fdw069>
- Dennis, S. A., Goodson, B. M., & Pearson, C. A. (2019). Online worker fraud and evolving threats to the integrity of MTurk Data: A discussion of virtual private servers and the limitations of IP-based screening procedures. *Behavioral Research in Accounting*, 32(1), 119–134. <https://doi.org/10.2308/bria-18-044>
- Dolan, R. J. (2007). The human amygdala and orbital prefrontal cortex in behavioural regulation. *Philosophical Transactions of the Royal Society B-Biological Sciences*, 362, 787–799.
- Driesbach, G. (2006). How positive affect modulates cognitive control: The costs and benefits of reduced maintenance capability. *Brain and Cognition*, 60, 11–19.
- Durso, L. E., & Meyer, I. H. (2013). Patterns and predictors of disclosure of sexual orientation to healthcare providers among lesbians, gay men, and bisexuals. *Sexuality Research and Social Policy*, 10, 35–42. <https://doi.org/10.1007/s13178-012-0105-2>
- Dwyer, M. (2017, November 21). *Poll finds a majority of LGBTQ Americans report violence, threats, or sexual harassment related to sexual orientation or gender identity; one-third report bathroom harassment*. <https://www.hsph.harvard.edu/news/press-releases/poll-lgbtq-americans-discrimination/>

- Factor, R. J., & Rothblum, E. D. (2007). A study of transgender adults and their non-transgender siblings on demographic characteristics, social support, and experiences of violence. *Journal of LGBT Health Research*, 3, 11–30.
- Feinstein, B. A., Davila, J., & Yoneda, A. (2012). Self-concept and self-stigma in lesbians and gay men. *Psychology and Sexuality*, 3(2), 161–177.
<https://doi.org/10.1080/19419899.2011.592543>
- Figueroa, W. S., & Zoccola, P. M. (2016). Sources of discrimination and their associations with health in sexual minority adults. *Journal of Homosexuality*, 63(6), 743–763.
<https://doi.org/10.1080/00918369.2015.1112193>
- García Coll, C., Lamberty, G., Jenkins, R., McAdoo, H. P., Crnic, K., Wasik, B. H., & Vázquez García, H. (1996). An integrative model for the study of developmental competencies in minority children. *Child Development*, 67(5), 1891–1914.
- Gray, J. C., Amlung, M. T., Palmer, A. A., & McKillop, J. (2016). Syntax for calculation of discounting indices from the monetary choice questionnaire and probability discounting questionnaire. *Journal of the Experimental Analysis of Behavior*, 106(2), 156–163.
<https://doi.org/10.1002/jeab.221>
- Gray, J. R. (1999). A bias toward short-term thinking in threat-related negative emotional state. *Personality and Social Psychology Bulletin*, 25, 65–75.
- Green, L., & Myerson, J. (2004). A discounting framework for choice with delayed and probabilistic rewards. *Psychological Bulletin*, 130(5), 769–792.
- Greene, M. L., Way, N., & Pahl, K. (2006). Trajectories of perceived adult and peer discrimination among Black, Latino, and Asian American adolescents: Patterns and

- psychological correlates. *Developmental Psychology*, 42(2), 218–236.
<https://doi.org/10.1037/0012-1649.42.2.218>
- Haas, A. P., Eliason, M., Mays, V. M., Mathy, R. M., Cochran, S. D., D'Augelli, A. R., Silverman, M. M., Fisher, P. W., Hughes, T., Rosario, M., Russell, S. T., Malley, E., Reed, J., Litts, D. A., Haller, E., Sell, R. L., Remafedi, G., Bradford, J., Beautrais, A. L., ... Clayton, P. J. (2011). Suicide and suicide risk in lesbian, gay, bisexual, and transgender populations: Review and recommendations. *Journal of Homosexuality*, 58(1), 10–51. <https://doi.org/10.1080/00918369.2011.534038>
- Hatzenbuehler, M. L. (2009). How does sexual minority stigma “get under the skin”? A psychological mediation framework. *Psychological Bulletin*, 135(5), 707–730.
<https://doi.org/10.1037/a0016441>
- Hatzenbuehler, M. L., Nolen-Hoeksema, S., & Erickson, S. J. (2008). Minority stress predictors of HIV risk behavior, substance use, and depressive symptoms: Results from a prospective study of bereaved gay men. *Health Psychology: Official Journal of the Division of Health Psychology, American Psychological Association*, 27(4), 455–462.
<https://doi.org/10.1037/0278-6133.27.4.455>
- Haushofer, J., & Fehr, E. (2014). On the psychology of poverty. *Science*, 344(6186), 862–867.
<https://doi.org/10.1126/science.1232491>
- Herek, G. M., Gillis, J. R., & Cogan, J. C. (1999). Psychological sequelae of hate-crime victimization among lesbian, gay, and bisexual adults. *Journal of Consulting and Clinical Psychology*, 67, 945–951. <https://doi.org/10.1037/0022-006X.67.6.945>

- Herek, G. M., Gillis, J. R., & Cogan, J. C. (2009). Internalized stigma among sexual minority adults: Insights from a social psychological perspective. *Journal of Counseling Psychology, 56*(1), 32.
- Herrmann, E. S., Johnson, P. S., & Johnson, M. W. (2015). Examining delay discounting of condom-protected sex among men who have sex with men using crowdsourcing technology. *AIDS and Behavior, 19*(9). <https://doi.org/10.1007/s10461-015-1107-x>
- Heyman, J., & Ariely, D. (2004). Effort for payment: A tale of two markets. *Psychological Science, 15*(11), 787–793. <https://doi.org/10.1111/j.0956-7976.2004.00757.x>
- Hicken, M. T., Lee, H., Ailshire, J., Burgard, S. A., & Williams, D. R. (2013). “Every shut eye, ain’t sleep”: The role of racism-related vigilance in racial/ethnic disparities in sleep difficulty. *Race and Social Problems, 5*(2), 100–112.
- Hinvest, N. S., & Anderson, I. M. (2010). The effects of real versus hypothetical reward on delay and probability discounting. *The Quarterly Journal of Experimental Psychology, 63*(6), 1072–1084. <https://doi.org/10.1080/17470210903276350>
- Hirsh, J. B., Guindon, A., Morisano, D., & Peterson, J. B. (2010). Positive mood effects on delay discounting. *Emotion, 10*(5), 717–721. <https://doi.org/10.1037/a0019466>
- Homan, P. (2019). Structural sexism and health in the United States: A new perspective on health inequality and the gender system. *American Sociological Review, 84*(3), 486–516. <https://doi.org/10.1177/0003122419848723>
- Irwin, J. (2002). Discrimination against gay men, lesbians, and transgender people working in education. *Journal of Gay and Lesbian Social Services, 14*, 65–77. https://doi.org/10.1300/J041v14n02_06

- Jaffe, A. E., Duckworth, J., Blayney, J. A., Lewis, M. A., & Kaysen, D. (2021). A prospective study of predictors and consequences of hooking up for sexual minority women. *Archives of Sexual Behavior*, 50(40), 1599–1612.
- Jardin, C., Sharp, C., Garey, L., & Zvolensky, M. J. (2017). The role of impulsivity in the relation between negative affect and risky sexual behaviors. *Journal of Sex & Marital Therapy*, 43(3), 250–263. <https://doi.org/10.1080/0092623X.2016.1141821>
- Jarmolowicz, D. P., Bickel, W. K., & Gatchalian, K. M. (2013). Alcohol-dependent individuals discount sex at higher rates than controls. *Drug & Alcohol Dependence*, 131(3), 320–323.
- Johnson, M. W., & Bickel, W. K. (2002). Within-subject comparison of real and hypothetical money rewards in delay discounting. *Journal of The Experimental Analysis of Behavior*, 77(2), 129–146. <https://doi.org/10.1901/jeab.2002.77-129>
- Johnson, M. W., & Bruner, N. R. (2012). The sexual discounting task: HIV risk behavior and the discounting of delayed sexual rewards in cocaine dependence. *Drug and Alcohol Dependence*, 123, 15–21.
- Johnson, E. J., & Tversky, A. (1983). Affect, generalization, and the perception of risk. *Journal of Personality and Social Psychology*, 45(1), 20–31. <https://doi.org/10.1037/0022-3514.45.1.20>
- Kann, L., McManus, T., Harris, W. A., Shanklin, S. L., Flint, K. H., Queen, b., Lowry, R., Chyen, D., Whittle, L., Thornton, J., Lim, C., Bradford, D., Yamakawa, Y., Leo, M., Brener, N. & Ethier, K. A. (2018). Youth risk behavior surveillance – United States, 2017. *Morbidity and Mortality Weekly Report. Surveillance Summaries*, 67(8), 1–114. <https://doi.org/10.15585/mmwr.ss6708a1>

- Kaplan, B. A., Amlung, M., Reed, D. D., Jarmolowicz, D. P., McKerchar, T. L., & Lemley, S. M. (2016). Automating scoring of delay discounting for the 21-and 21-item monetary choice questionnaires. *The Behavior Analyst*, 39, 293–304.
- Kidd, S. A., Howison, M., Pilling, M., Ross, L. E., & McKenzie, K. (2016). Severe mental illness in LGBT populations: A scoping review. *Psychiatric Services*, 67(7), 779–783. <https://doi.org/10.1176/appi.ps.201500209>
- King, M., Semlyen, J., Tai, S. S., Killaspy, H., Osborn, D., Popelyuk, D., & Nazareth, I. (2008). A systematic review of mental disorder, suicide, and deliberate self harm in lesbian, gay and bisexual people. *BMC Psychiatry*, 8(70). <https://doi.org/10.1186/1471-244X-8-70>
- Kirby, K. N. (2009). One-year temporal stability of delay-discount rates. *Psychonomic Bulletin & Review*, 16, 457–462. <https://doi.org/10.3758/PBR.16.3.457>
- Kirby, K.N., & Petry, N.M. (2004). Heroin and cocaine abusers have higher discount rates for delayed rewards than alcoholics or non-drug-using controls. *Addiction*, 99, 461–471.
- Kirby, K. N., Petry, N. M., & Bickel, W. K. (1999). Heroin addicts have higher discount rates for delayed rewards than non-drug-using controls. *Journal of Experimental Psychology: General*, 128(1), 78-87. <https://doi.org/10.1037/0096-3445.128.1.78>
- Krieger, N., Waterman, P. D., Hartman, C., Bates, L. M., Stoddard, A. M., Quinn, M. M., Sorensen, G. & Barbeau, E. M. (2006). Social hazards on the job: Workplace abuse, sexual harassment, and racial discrimination: A study of Black, Latino, and white low-income women and men workers in the United States. *International Journal of Health Services*, 36(1), 51–85. <https://doi.org/10.2190/3EMB-YKRH-EDJ2-0H19>
- Krieger, N. (2012). Methods for the scientific study of discrimination and health: An ecosocial approach. *American Journal of Public Health*, 102(5), 936–944.

- Kwate, N. O. A., & Goodman, M. S. (2015). Cross-sectional and longitudinal effects of racism on mental health among residents of Black neighborhoods in New York City. *American Journal of Public Health, 105*(4), 711–718. <https://doi.org/10.2105/AJPH.2014.302243>
- Lagorio, C. H., & Madden, G. J. (2005). Delay discounting of real and hypothetical rewards III: Steady-state assessments, forced-choice trials, and all real rewards. *Behavioural Processes, 69*(2), 173–187. <https://doi.org/10.1016/j.beproc.2005.02.003>
- Lattal, K. A. (2010). Delayed reinforcement of operant behavior. *Journal of the Experimental Analysis of Behavior, 93*(1), 129–139.
- Lawyer, S. R. (2008). Probability and delay discounting of erotic stimuli. *Behavioural Processes, 79*(1), 36–42. <https://doi.org/10.1016/j.beproc.2008.04.009>
- Lawyer, S. R., & Jenks, C. W. (2020). Emotion suppression decreases delay discounting for monetary outcomes. *The Psychological Record, 70*, 1–10. <https://doi.org/10.1007/s40732-019-00361-6>
- Lawyer, S. R., & Mahoney, C. T. (2017). Delay discounting and probability discounting, but not response inhibition, are associated with sexual risk-taking in young adults. *Journal of Sex Research, 55*(7), 863–870. <https://doi.org/10.1080/00224499.2017.1350627>
- Lawyer, S. R., & Schoepflin, F. J. (2013). Predicting domain-specific outcomes using delay and probability discounting for sexual versus monetary outcomes. *Behavioural Processes, 96*, 71–78. <https://doi.org/10.1016/j.beproc.2013.03.001>
- Lawyer, S. R., Schoepflin, F. J., Green, R., & Jenks, C. (2011). Discounting of hypothetical and potentially real outcomes in nicotine-dependent and nondependent samples. *Experimental and Clinical Psychopharmacology, 19*(4), 263–274. <https://doi.org/10.1037/a0024141>

- Lawyer, S. R., Williams, S. A., Prihodova, T., Rollins, J. D., & Lester, A. C. (2010). Probability and delay discounting of hypothetical sexual outcomes. *Behavioural Processes*, 84(3), 687–692. <https://doi.org/10.1016/j.beproc.2010.04.002>
- Lee, R. M. (1993). Doing research on sensitive topics. *Sage*.
- Lee, R. T., Perez, A. D., Boykin, C. M., Medoza-Denton, R. (2019). On the prevalence of racial discrimination in the United States. *PloS ONE*, 14(1), e0110698. <https://doi.org/10.1371/journal.pone.0210698>
- Lehavot, K., & Simoni, J. M. (2011). The impact of minority stress on mental health and substance use among sexual minority women. *Journal of Consulting and Clinical Psychology*, 79(2), 159–170. <https://doi.org/10.1037/a0022839>
- Leith, K. P., & Baumeister, R. F. (1996). Why do bad moods increase self-defeating behavior? Emotion, risk taking, and self-regulation. *Journal of Personality and Social Psychology*, 71(6), 1250–1267.
- Lemley, S. M., Kaplan, B. A., Reed, D. D., Darden, A. C., & Jarmolowicz, D. P. (2016). Reinforcer pathologies: Predicting alcohol related problems in college drinking men and women. *Drug and Alcohol Dependence*, 16, 757–766. <https://doi.org/10.1016/j.drugalcdep.2016.07.025>
- Levay, K. E., Freese, J., & Druckman, J. N. (2016). The demographic and political composition of Mechanical Turk samples. *SAGE Open*, 6(1). <https://doi.org/10.1177/2158244016636433>
- Levy, S., Sherritt, L., Gabrielli, J., Shrier, L. A., & Knight, J. R. (2009). Screening adolescents for substance use-related high-risk sexual behaviors. *Journal of Adolescent Health*, 45, 473–477.

- Lewis, T. T., Cogburn, C. D., & Williams, D. R. (2015). Self-report experiences of discrimination and health: Scientific advances, ongoing controversies, and emerging issues. *Annual Review of Clinical Psychology, 11*, 407–440.
<https://doi.org/10.1146/annurev-clinpsy-032814-112728>
- Lighthall, N. R., Mather, M., & Gorlick, M. A. (2009). Acute stress increases sex differences in risk seeking in the balloon analogue risk task. *PloS One, 4*(7), e6002.
<https://doi.org/10.1371/journal.pone.0006002>
- Lindley, L. L., Kerby, M. B., Nicholson, T. J., & Lu, N. (2007). Sexual behaviors and sexually transmitted infections among self-identified lesbian and bisexual college women. *Journal of LGBT Health Research, 3*(3), 41–54. <https://doi.org/10.1080/15574090802093323>
- Livingston, N. A., Flentje, A., Brennan, J. M., Mereish, E. H., Reed, O., & Cochran, B. N. (2020). Real-time associations between discrimination and anxious and depressed mood among sexual and gender minorities: The moderating effects of lifetime victimization and identity concealment. *Psychology of Sexual Orientation and Gender Diversity, 7*(2), 132–141. <https://doi.org/10.1037/sgd0000371>
- Livingston, N. A., Flentje, A., Heck, N. C., Szalda-Petree, A., & Cochran, B. N. (2017). Ecological momentary assessment of daily discrimination experiences and nicotine, alcohol, and drug use among sexual and gender minority individuals. *Journal of Consulting and Clinical Psychology, 85*(12), 1131–1143.
<https://doi.org/10.1037/ccp0000252>
- Lombardi, E. L., Wilchins, R. A., Priesing, D., & Malouf, D. (2002). Gender violence: Transgender experiences with violence and discrimination. *Journal of Homosexuality, 42*, 89–101. https://doi.org/10.1300/J082v42n01_05

- Lunn, M. R., Lubensky, M., Hunt, C., Flentje, A., Capriotti, M. R., Sooksaman, C., Harnett, T., Currie, D., Neal, C., & Obedin-Malivere, J. (2019). A digital health research platform for community engagement, recruitment, and retention of sexual and gender minority adults in a national longitudinal cohort study. *Journal of the American Medical Informatics Association*, 26, (8-9), 737–748.
- MacKillop, J., Amlung, M. T., Few, L. R., Ray, L. A., Sweet, L. H., & Munafò, M. R. (2011). Delayed reward discounting and addictive behavior: A meta-analysis. *Psychopharmacology (Berlin)*, 216(3), 305–321. <https://doi.org/10.1007/s00213-011-2229-0>
- MacKillop, J., Weafer, J., Gray, J. C., Oshri, A., Palmer, A., & de Wit, H. (2016). The latent structure of impulsivity: impulsive choice, impulsive action, and impulsive personality traits. *Psychopharmacology*, 233(18), 3361–3370. <https://doi.org/10.1007/s00213-016-4372-0>
- Madden, G. J., Petry, N. M., Badger, G. J., & Bickel, W. K. (1997). Impulsive and self-control choices in opioid-dependent patients and non-drug-using control patients: Drug and monetary rewards. *Experimental and Clinical Psychopharmacology*, 5(3), 256–262. <https://doi.org/10.1037/1064-1297.5.3.256>
- Mahoney, C. T., Lawyer, S. R., Pemberton, S. E., & Marchant, K. M. (2022). A laboratory examination of risky sexual behavior among female sexual trauma survivors. *Journal of Traumatic Stress*, 1–9. <https://doi.org/10.1002/jts.22866>
- Malvini, W., & Lawyer, S. R. (*in progress*). Decision-making and perceptions of death and dying.

- Marrazzo, J. M., Coffey, P., & Bingham, A. (2005). Sexual practices, risk perception and knowledge of sexually transmitted disease risk among lesbian and bisexual women. *Perspectives on Sexual and Reproductive Health*, 37(1), 6–12.
- Maxwell, S. E., & Delaney, H. D. (2017). Designing experiments and analyzing data: A model comparison perspective. *Routledge*.
- Mayer, J. D., Gaschke, Y. N., Braverman, D. L., & Evans, T. W. (1992). Mood-congruent judgment is a general effect. *Journal of Personality and Social Psychology*, 63(1), 119–132. <https://doi.org/10.1037/0022-3514.63.1.119>
- Mays, V. M., & Cochran, S. D. (2001). Mental health correlates of perceived discrimination among lesbian, gay, and bisexual adults in the United States. *American Journal of Public Health*, 91, 1869–1876. <https://doi.org/10.2105/AJPH.91.11.1869>
- Mazur, J. E. (1987). An adjusting procedure for studying delayed reinforcement. In: M. L. Commons, J. E. Mazur, J. A. Nevin, & H. Rachlin (Eds.), *Quantitative Analyses of Behavior, Vol. 5. The effect of delay and of intervening events of reinforcement value* (pp. 55–73). Lawrence Erlbaum Associates, Inc. <https://doi.org/10.1177/1524838015584367>
- McCabe, S. E., Hughes, T. L., Bostwick, W. B., West, B. T., & Boyd, C. J. (2009). Sexual orientation, substance use behaviors and substance dependence in the United States. *Addiction*, 104, 1333–1345. <https://doi.org/10.1111/j.1360-0443.2009.02596.x>
- Meyer, I. H. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychological Bulletin*, 129(5), 674–697. <https://doi.org/10.1037/0033-2909.129.5.674>

- Mirzaei, M., Ahmadi, K., Saadat, S. H., & Ramezani, M. A. (2016). Instruments of high risk sexual behavior assessment: A systematic review. *Materia Socio Medica*, 28(1), 46–50. <https://doi.org/10.5455/msm.2016.28.46-50>
- Mitchell, J. M., Fields, H. L., D'Esposito, M., & Boettiger, C. A. (2005). Impulsive responding in alcoholics. *Alcoholism: Clinical and Experimental Research*, 29(12), 2158–2169. <https://doi.org/10.1097/01.alc.0000191755.63639.4a>
- Moriya, J. & Tanno, Y. (2008). Relationships between negative emotionality and attentional control in effortful control. *Personality and Individual Differences*, 44, 1348–1355.
- Moss, A., & Litman, L. (2020). Demographics of people on Amazon Mechanical Turk. *CloudResearch*, formerly Turk Prime. Retrieved on June 13, 2023 from <https://couldresearch.com/resources/blog/who-uses-amazon-MTurk-2020-demographics/s/>
- Myers, H. F. (2009). Ethnicity- and socio-economic status-related stresses in context: An integrative review and conceptual model. *Journal of Behavioral Medicine*, 32(9), 9–19. <https://doi.org/10.1007/s10865-008-9181-4>
- Mohammed, M. A., Deeks, J. J., Girling, A., Rudge, G., & Carmalt, M. (2009). Evidence of methodological bias in hospital standardised mortality ratios: retrospective database study of English hospitals. *BMJ*, 338. <https://doi.org/10.1136/bmj.b780>
- Odum, A. L. (2011a). Delay discounting: I'm a K, you're a K. *Journal of the Experimental Analysis of Behavior*, 96(3), 427–439. <https://doi.org/10.1901/jeab.2011.96-423>
- Odum, A. L. (2011b). Delay discounting: Trait variable?. *Behavioural Processes*, 87(1), 1–9. <https://doi.org/10.1016/j.beproc.2011.02.007>

- Odum, A. L., Baumann, A. L., & Rimington, D. D. (2006). Discounting of delayed hypothetical money and food: Effects of amount. *Behavioural Processes*, 73(3), 278–284.
<https://doi.org/10.1016/j.beproc.2006.06.008>
- O’Neil, K. M., & Penrod, S. D. (2001). Methodological variables in Web-based research that may affect results: Sample type, monetary incentives, and personal information. *Behavior Research Methods, Instruments, & Computers*, 33, 226–233.
- Oreg, S., & Bayazit, M. (2009). Prone to bias: Development of a bias taxonomy from an individual differences perspective. *Review of General Psychology*, 13, 175–193.
- Pager, D., & Shepherd, H. (2008). The sociology of discrimination: Racial discrimination in employment, housing, credit, and consumer markets. *Annual Review of Sociology*, 34, 181–209.
- Paolani, S., Harwood, J., & Rubin, M. (2010). Negative intergroup contact makes group memberships salient: Explaining why intergroup conflict endures. *Personality and Social Psychology Bulletin*, 36(12), 1723–1738.
- Paradies, Y. (2006). A systematic review of empirical research on self-reported racism and health. *International Journal of Epidemiology*, 35(4), 888–901.
- Pascoe, E. A., & Smart Richman, L. (2009). Perceived discrimination and health: A meta-analytic review. *Psychological Bulletin*, 135(4), 531–554.
- Pascoe, E. A., & Smart Richman, L. (2011). Effect of discrimination on food decisions. *Self and Identity*, 10(3), 396–406. <https://doi.org/10.1080/15298868.2010.526384>
- Patterson, T. L., Semple, S. J., Zians, J. K., & Strathdee, S. A. (2005). Methamphetamine-using HIV-positive men who have sex with men: Correlates of polydrug use. *Journal of Urban*

Health: Bulletin of the New York Academy of Medicine, 82(1), i120–i126.

<https://doi.org/10.1093/jurban/jti031>

Pavalko, E. K., Mossakowski, K. N., & Hamilton, V. J. (2003). Does perceived discrimination affect health? Longitudinal relationships between work discrimination and women's physical and emotional health. *Journal of Health and Social Behavior*, 44(1), 18–33.

<https://doi.org/10.2307/1519813>

Petry, N. M. (2001). Delay discounting of money and alcohol in actively using alcoholics, currently abstinent alcoholics, and controls. *Psychopharmacology*, 154(3), 243–250.

<https://doi.org/10.1007/s002130000638>

Petry, N. M. (2002). Discounting of delayed rewards in substance abusers: Relationship to antisocial personality disorder. *Psychopharmacology*, 162, 425–432.

Pérez-Stable, E. J., Jean-Francois, B., & Aklin, C. F. (2019). Leveraging advances in technology to promote health equity. *Medical Care*, 57, S101–S103.

Pinto, V. M., Tancredi, M. V., Neto, A. T., & Buchalla, C. M. (2005). Sexually transmitted disease/HIV risk behavior among women who have sex with women. *AIDS*, 19, S64–S69.

Pituch, K. A., & Stevens, J. P. (2009). Binary logistic regression. *Applied Multivariate Statistics for the Social Sciences: Analyses with SAS and IBM's SPSS*, 434–470.

Pizer, J. C., Sears, B., Mallory, C., & Hunter, N. D. (2011). Evidence of persistent and pervasive workplace discrimination against LGBT people: The need for federal legislation prohibiting discrimination and providing for equal employment benefits. *Loyola of Los Angeles Law Review*, 45, 715–778.

- Plous, S. (2003). The psychology of prejudice, stereotyping, and discrimination: An overview. In S. Plous (Ed.), *Understanding prejudice and discrimination* (p. 3–48). McGraw-Hill.
- Polusny, M. A., & Follette, V. M. (1995). Long-term correlates of child sexual abuse: Theory and review of the empirical literature. *Applied & Preventive Psychology*, 4, 143–166.
- Potard, C., Lancelot, C., & Courtois, R. (2019). Examining relationships between sexual risky-safety behaviors and physical self-concept by gender: A cluster analytical approach. *Emerging Adulthood*, 7(1), 31–44.
- Potter, L., Meadows, A., Smyth, J. (2021). Experiences of weight stigma in everyday life: An ecological momentary assessment study. *Journal of Health Psychology*, 26(14), 2781–2793. <https://doi.org/10.1177/1359105320934179>
- Pozzar, R., Hammer, M. J., Underhill-Blazey, M., Wright, A. A., Tulskey, J. A., Hong, F., ... & Berry, D. L. (2020). Threats of bots and other bad actors to data quality following research participant recruitment through social media: Cross-sectional questionnaire. *Journal of Medical Internet Research*, 22(10), e23021.
- Rachlin, H., Raineri, A., & Cross, D. (1991). Subjective probability and delay. *Journal of the Experimental Analysis of Behavior*, 55, 233–244.
- Rasmussen, E., Lawyer, S. R., & Reilly, W. (2010). Percent body fat is related to delay and probability discounting for food in humans. *Behavioural Processes*, 83, 23–30.
- Reisner, S. L., Conron, K. J., Scout, N., Baker, K., Herman, J. L., Lombardi, E., Greytak, E. A., Gill, A. M., & Matthews, A. K. (2015). “Counting” transgender and gender-nonconforming adults in health research recommendations from the gender identity in US surveillance group. *Transgender Studies Quarterly*, 2(1), 34–57. <https://doi.org/10.1215/23289252-2848877>

- Richman, L. S., Pascoe, E., & Lattanner, M. (2017). Interpersonal discrimination and physical health. *The Oxford Handbook of Stigma, Discrimination, and Health*, 203.
- Riggs, D. W., & Treharne, G. J. (2016). Decompensation: A novel approach to accounting for stress arising from the effects of ideology and social norms. *Journal of Homosexuality*, 5(64), 592–605. <https://doi.org/10.1080/00918369.2016.1194116>
- Roberts, M. E., Gibbons, F. X., Gerrard, M., Weng, C., Murry, V. M., Simons, L. G., Simons, R. L., & Lorenz, F. O. (2012). From racial discrimination to risky sex: Prospective relations involving peers and parents. *Developmental Psychology*, 48(1), 89–102. <https://doi.org/10.1037/a0025430>
- Rosario, M., Corliss, H. L., Everett, B. G., Russell, S. T., Buchting, F. O., & Birkett, M. A. (2014). Mediation by peer violence victimization of sexual orientation disparities in cancer-related tobacco, alcohol, and sexual risk behaviors: Pooled youth risk behavior surveys. *American Journal of Public Health*, 104, 1113–1123. <https://doi.org/10.2105/AJPH.2013.301764>
- Rosario, M., Meyer-Bahlburg, H. F. L., Hunter, J., & Gwadz, M. (1999). Sexual risk behaviors of gay, lesbian, and bisexual youths in New York City: Prevalence and correlates. *AIDS Education and Prevention*, 11(6), 476–496.
- Roulin, N. (2015). Don't throw the baby out with the bathwater: Comparing data quality of crowdsourcing, online panels, and student samples. *Industrial and Organizational Psychology*, 8(2), 190–196.
- Rumpf, H., Hapke, U., Hill, A., & John, U. (1997). Development of a screening questionnaire for the general hospital and general practices. *Alcoholism Clinical & Experimental Research*, 21(5), 894–898. <https://doi.org/10.1111/j.1530-0277.1997.tb03854.x>

- Rung, J. M., & Madden, G. J. (2018). Experimental reductions of delay discounting and impulsive choice: A systematic review and meta-analysis. *Journal of Experimental Psychology: General*, 147(9), 1349–1381. <https://doi.org/10.1037/xge0000462>
- Schuler, M. S., Rice, C. E., Evans-Polce, R. J., & Collins, R. L. (2018). Disparities in substance use behaviors and disorders among adult sexual minorities by age, gender, and sexual identity. *Drug and Alcohol Dependence*, 189, 139–146.
- Sellers, R. M., Caldwell, C. H., Schmeelk-Cone, K. H., & Zimmerman, M. A. (2003). Racial identity, racial discrimination, perceived stress, and psychological distress among African American young adults. *Journal of Health and Social Behavior*, 44, 302–317.
- Sellers, R. M., Copeland-Linder, N., Martin, P. P., & Lewis, R. L. (2006). Racial identity matters: The relationship between racial discrimination and psychological functioning in African American adolescents. *Journal of Research on Adolescence*, 16, 187–216. <https://doi.org/10.1111/j.1532-7795.2006.00128.x>
- Selzer, M. L., Vinokur, A., & van Rooijen. (1975). A self-administered short Michigan alcoholism screening test (SMAST). *Journal of Studies on Alcohol and Drugs*, 36(1), 117–126. <https://doi.org/10.15288/jsa.1975.36.117>
- Semple, S. J., Zians, J., Grant, I., & Patterson, T. L. (2006). Methamphetamine use, impulsivity, and sexual risk behavior among HIV-positive men who have sex with men. *Journal of Addictive Diseases*, 25(4), 105–114. https://doi.org/10.1300/J069v25n04_10
- Shah, J. Y., Friedman, R., & Kruglanski, A. W. (2002). Forgetting all else: On the antecedents and consequences of goal shielding. *Journal of Personality and Social Psychology*, 83, 1261–1280.

- Shelton, K., & Delgado-Romero, E. A. (2013). Sexual orientation microaggressions: The experience of lesbian, gay, bisexual, and queer clients in psychotherapy. *Psychology of Sexual Orientation and Gender Diversity, 1*(S), 59–70. <https://doi.org/10.1037/2329-0382.1.S.59>
- Shields, A. L., Howell, R., Potter, J., & Weiss, R. D. (2007). The Michigan alcoholism screening test and its shortened form: A meta-analytic inquiry into score reliability. *Substance Use & Misuse, 42*(11), 1783–1800. <https://doi.org/10.1080/10826080701212295>
- Singh, D., McMain, S., & Zucker, K. J. (2011). Gender identity and sexual orientation in women with borderline personality disorder. *Journal of Sexual Medicine, 8*, 447–454. <https://doi.org/10.1111/j.1743-6109.2010.02086.x>
- Smith, K. R., Lawyer, S. R., & Swift, J. K. (2018). A meta-analysis of nonsystematic responding in delay and probability reward discounting. *Experimental and Clinical Psychopharmacology, 26*, 94–107.
- Spector, I. P., Carey, M. P., & Steinberg, L. (1996). The sexual desire inventory: Development, factor, structure, and evidence of reliability. *Journal of Sex & Marital Therapy, 22*, 175–190.
- Spencer, M. B., Dupree, D., & Hartman, T. (1997). A phenomenological variant of ecological systems theory (PVEST): A self-organization perspective in context. *Development and Psychopathology, 9*, 817–833. <https://doi.org/10.1017/S0954579497001454>
- Steele, J. L., Slater, R. O., Zamarro, G., Miller, T., Li, J., Burkhauser, S., & Bacon, M. (2017). Effects of dual-language immersion programs on student achievement: Evidence from lottery data. *American Educational Research Journal, 54*, 282S–306S.

- Strickland, J. C., & Johnson, M. W. (2021). Rejecting impulsivity as a psychological construct: A theoretical, empirical, and sociocultural argument. *Psychological Review*, 128(2), 336.
- Su, J., Seaton, E. K., Williams, C. D., Dick, D. M., & Spit. (2021). Racial discrimination, depressive symptoms, ethnic-racial identity, and alcohol use among Black-American college students. *Psychology of Addictive Behaviors*, 35(5), 523.
- Sue, D. W. (2010). *Microaggressions in everyday life: Race, gender, and sexual orientation*. John Wiley & Sons Inc.
- Sue, D. W., Capodilupo, C. M., Torino, G. C., Bucceri, J. M., Holder, A. M. B., Nadal, K. L., & Esquilin, M. (2007). Racial microaggressions in everyday life: Implications for clinical practice. *American Psychologist*, 62, 271–286. <https://doi.org/10.1037/0003-066X.62.4.271>
- Sutin, A. R., & Terracciano, A. (2013). Perceived weight discrimination and obesity. *PloS ONE*, 8(7), e70048. <https://doi.org/10.1371/journal.pone.0070048>
- Swank, E., Fahs, B., & Frost, D. M. (2013). Region, social identities, and disclosure practices as predictors of heterosexist discrimination against sexual minorities in the United States. *Sociological Inquiry*, 83, 238–258. <https://doi.org/10.1111/soin.12004>
- Tabachnick, B. .G., & Fidell, L. S. (2019). Using multivariate statistics (7th ed.). New York, NY: Pearson.
- Tornello, S. L., Riskind, R. G., & Patterson, C. J. (2014). Sexual orientation and sexual and reproductive health among adolescent young women in the United States. *Journal of Adolescent Health*, 54(2), 160–168. <https://doi.org/10.1016/j.jadohealth.2013.08.018>
- Tourangeau, R., & Yan, T. (2007). Sensitive questions in surveys. *Psychological Bulletin*, 13(5), 859.

- Tourangeau, R., Rips, L. J., & Rasinski, K. (2000). The psychology of survey response.
- Tsukayama, E., & Duckworth, A. L. (2010). Domain-specific temporal discounting and temptation. *Judgment and Decision Making*, 5(2), 72–82.
- Turchik, J. A., & Garske, J. P. (2009). Measurement of sexual risk taking among college students. *Archives of Sexual Behavior*, 38(6), 936–948. <https://doi.org/10.1007/s10508-0089388z>
- van den Bos, W., Van Dijk, E., Westenberg, M., Rombouts, S. A., & Crone, E. A. (2009). What motivates repayment? Neural correlates of reciprocity in the Trust Game. *Social Cognitive and Affective Neuroscience*, 4(3), 294–304.
- Vasilenko, S. A., Kugler, K. C., Butera, N. M., & Lanza, S. T. (2015). Patterns of adolescent sexual behavior predicting young adult sexually transmitted infections: A latent class analysis approach. *Archives of Sexual Behavior*, 44(3), 705–715.
- Villalobos-Gallegos, L., Pérez-López, A., Mendoza-Hassey, R., Graue-Moreno, J., & Marín-Navarrete, R. (2015). Psychometric and diagnostic properties of the Drug Abuse Screening Test (DAST): Comparing the DAST-20 vs. the DAST-10. *Salud Mental*, 38(2), 89–94. <https://doi.org/10.17711/SM.0185-3325.2015.012>
- Vuchinich, R. E., & Simpson, C. A. (1998). Hyperbolic temporal discounting in social drinkers and problem drinkers. *Experimental and Clinical Psychopharmacology*, 6(3), 292–305. <https://doi.org/10.1037/1064-1297.6.3.292>
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS Scales. *Journal of Personality and Social Psychology*, 54, 1063–1070.

- Weafer, J., Baggott, M. J., & de Wit, H. (2013). Test–retest reliability of behavioral measures of impulsive choice, impulsive action, and inattention. *Experimental and Clinical Psychopharmacology*, 21(6), 475–481. <https://doi.org/10.1037/a0033659>
- Whiteside, S. P., & Lynam, D. R. (2001). The Five Factor Model and impulsivity: Using a structural model of personality to understand impulsivity. *Personality and Individual Differences*, 30(4), 669–689. [https://doi.org/10.1016/S0191-8869\(00\)00064-7](https://doi.org/10.1016/S0191-8869(00)00064-7)
- Williams, D. R., & Mohammed, S. A. (2009). Discrimination and racial disparities in health: Evidence and needed research. *Journal of Behavioral Medicine*, 32(1), 20–47. <https://doi.org/10.1007/s10865-008-9185-0>
- Williams, D. R., Neighbors, H. W., & Jackson, J. S. (2003). Racial/ethnic discrimination and health: Findings from community studies. *American Journal of Public Health*, 93(2), 200–208.
- Yang, Z., Zhang, S., Dong, Z., Jin, M., & Han, J. (2014). Prevalence of unprotected anal intercourse in men who have sex with men recruited online versus offline: A meta-analysis. *BMC Public Health*, 14(508). <https://doi.org/10.1186/1471-2458-14-508>
- Yarns, B. C., Abrams, J. M., Meeks, T. W., & Seweell, D. D. (2016). The mental health of older LGBT adults. *Current Psychiatry Reports*, 18, 1–11.
- Ybarra, M. L., Rosario, M., Saewyc, E., & Goodenow, C. (2016). Sexual behaviors and partner characteristics by sexual identity among adolescent girls. *Journal of Adolescent Health*, 58(3), 310–316. <https://doi.org/10.1016/j.jadohealth.2015.11.001>

Chapter II: Appendices

Appendix A: Screening Questions

1. What is your gender identity? Select the answer that fits best.
 - a. Man/Male
 - b. Woman/Female
 - c. Trans male/Trans man
 - d. Trans female/ Trans woman
 - e. Genderqueer or gender fluid
 - f. Nonbinary
 - g. Agender
 - h. Questioning or unsure
 - i. Prefer not to disclose
 - j. Additional gender category/identity (please specify): _____

2. What is your sexual orientation? Select the answer that fits best.
 - a. Gay
 - b. Lesbian
 - c. Straight/Heterosexual
 - d. Bisexual
 - e. Questioning or unsure
 - f. Asexual
 - g. Prefer not to disclose
 - h. Additional category/identity (please specify): _____

3. Are you willing to answer questions about sensitive personal information?
 - a. Yes
 - b. No

4. Have you experienced discrimination or been treated unfairly due to your sexual orientation?
 - a. Yes
 - b. No

Appendix B: Demographics Questionnaire

1. How old are you in years? _____
2. What is your gender identity? Select the answer that fits best.
 - a. Man/Male
 - b. Woman/Female
 - c. Trans male/Trans man
 - d. Trans female/ Trans woman
 - e. Genderqueer or gender fluid
 - f. Nonbinary
 - g. Agender
 - h. Questioning or unsure
 - i. Prefer not to disclose
 - j. Additional gender category/identity (please specify): _____
3. What is your sexual orientation? Select the answer that fits best.
 - a. Gay
 - b. Lesbian
 - c. Straight/Heterosexual
 - d. Bisexual
 - e. Questioning or unsure
 - f. Asexual
 - g. Prefer not to disclose
 - h. Additional category/identity (please specify): _____
4. What best describes your race? Select all that apply.
 - a. Black/African American
 - b. Latino/a/x/Hispanic
 - c. White/European American
 - d. American Indian
 - e. Asian/Asian American/Pacific Islander
 - f. Multiracial
 - g. Additional racial/ethnic identity (please specify): _____
5. Which best describes your relationship status?
 - a. Single
 - b. Dating but not living with partner
 - c. Dating and living with partner
 - d. Married
 - e. Divorced

- f. Widower
- g. Additional relationship status (please specify): _____

6. What is your highest level of education?

- a. High School Diploma/GED
- b. Some college
- c. Bachelor's degree
- d. Master's degree
- e. Doctorate/Professional degree
- f. Other level of education (please specify): _____

7. Which best describes your socioeconomic status?

- a. Upper class
- b. Upper-middle class
- c. Middle class
- d. Lower/Working class

8. What religion do you identify with?

- a. Christian (Catholic protestant or any other Christian denominations)
- b. Buddhist
- c. Hindu
- d. Muslim
- e. Jewish
- f. Sikh
- g. No religion
- h. Additional religious identity (please specify): _____

Appendix C: Positive and Negative Affect Schedule – Short Form

Indicate the extent you currently feel this way.

| | Very slightly or Not at all | A little | Moderately | Quite a bit | Extremely |
|--------------|--------------------------------|----------|------------|-------------|-----------|
| | 1 | 2 | 3 | 4 | 5 |
| Interested | 1 | 2 | 3 | 4 | 5 |
| Distressed | 1 | 2 | 3 | 4 | 5 |
| Excited | 1 | 2 | 3 | 4 | 5 |
| Upset | 1 | 2 | 3 | 4 | 5 |
| Strong | 1 | 2 | 3 | 4 | 5 |
| Guilty | 1 | 2 | 3 | 4 | 5 |
| Scared | 1 | 2 | 3 | 4 | 5 |
| Hostile | 1 | 2 | 3 | 4 | 5 |
| Enthusiastic | 1 | 2 | 3 | 4 | 5 |
| Proud | 1 | 2 | 3 | 4 | 5 |
| Irritable | 1 | 2 | 3 | 4 | 5 |
| Alert | 1 | 2 | 3 | 4 | 5 |
| Ashamed | 1 | 2 | 3 | 4 | 5 |
| Inspired | 1 | 2 | 3 | 4 | 5 |
| Nervous | 1 | 2 | 3 | 4 | 5 |
| Determined | 1 | 2 | 3 | 4 | 5 |
| Attentive | 1 | 2 | 3 | 4 | 5 |
| Jittery | 1 | 2 | 3 | 4 | 5 |
| Active | 1 | 2 | 3 | 4 | 5 |
| Afraid | 1 | 2 | 3 | 4 | 5 |

Appendix D: Daily Heterosexist Experiences Questionnaire (DHEQ)

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 12 months?

1. 0= Did not happen/not applicable to me
2. 1= It happened, and it bothered me NOT AT ALL
3. 2= It happened, and it bothered me A LITTLE BIT
4. 3= It happened, and it bothered me MODERATELY
5. 4= It happened, and it bothered me QUITE A BIT
6. 5= It happened, and it bothered me EXTREMELY

1. Difficulty finding a partner because you are LGBT
2. Difficulty finding LGBT friends
3. Having very few people you can talk to about being LGBT
4. Watching what you say and do around heterosexual people
5. Hearing about LGBT people you know being treated unfairly
6. Hearing about LGBT people you don't know being treated unfairly
7. Hearing about hate crimes (e.g., vandalism, physical or sexual assault) that happened to LGBT people you don't know
8. Being called names such as "fag" or "dyke"
9. Hearing other people being called names such as "fag" or "dyke"
10. Hearing someone make jokes about LGBT people
11. Family members not accepting your partner as a part of the family
12. Your family avoiding talking about your LGBT identity
13. Your children being rejected by other children because you are LGBT
14. Your children being verbally harassed because you are LGBT
15. Feeling like you don't fit in with other LGBT people
16. Pretending that you have an opposite-sex partner
17. Pretending that you are heterosexual
18. Hiding your relationship from other people
19. People staring at you when you are out in public because you are LGBT
20. Worry about getting HIV/AIDS
21. Constantly having to think about "safe sex"
22. Feeling invisible in the LGBT community because of your gender expression
23. Being harassed in public because of your gender expression
24. Being harassed in bathrooms because of your gender expression
25. Being rejected by your mother for being LGBT
26. Being rejected by your father for being LGBT
27. Being rejected by a sibling or siblings because you are LGBT
28. Being rejected by other relatives because you are LGBT
29. Being verbally harassed by strangers because you are LGBT
30. Being verbally harassed by people you know because you are LGBT

31. Being treated unfairly in stores or restaurants because you are LGBT
32. People laughing at you or making jokes at your expense because you are LGBT
33. Hearing politicians say negative things about LGBT people
34. Avoiding talking about your current or past relationships when you are at work
35. Hiding part of your life from other people
36. Feeling like you don't fit into the LGBT community because of your gender expression
37. Difficulty finding clothes that you are comfortable wearing because of your gender expression
38. Being misunderstood by people because of your gender expression
39. Being treated unfairly by teachers or administrators at your children's school because you are LGBT
40. People assuming you are heterosexual because you have children
41. Being treated unfairly by parents of other children because you are LGBT
42. Difficulty finding other LGBT families for you and your children to socialize with
43. Being punched, hit, kicked, or beaten because you are LGBT
44. Being assaulted with a weapon because you are LGBT
45. Being raped or sexually assaulted because you are LGBT
46. Having objects thrown at you because you are LGBT
47. Worrying about infecting others with HIV
48. Other people assuming that you are HIV positive because you are LGBT
49. Discussing HIV status with potential partners
50. Worrying about your friends who have HIV

Appendix E: Extent of Concealment Measure (Short Version)

Think back to when you hid your gender identity and/or sexual orientation. Rate how often you had the following experiences. If you are unsure about how to answer a question, please give the best answer you can.

- 1 = Never
- 2 = Rarely
- 3 = Occasionally
- 4 = Frequently
- 5 = Very frequently

1. I worried that I would say or do something that would expose my identity.
2. I paid close attention in social interactions, monitoring the actions of others and trying to detect whether they thought I was LGBTQIA+.
3. I was afraid that I would reveal something about my identity I didn't want to.
4. When I talked to someone, I worried about what they may be thinking about me, particularly in regard to my concealed identity.
5. I worried that everyone already knew about my identity.
6. When I went to social events, I was careful not to let my guard down so I didn't give away my identity.
7. In conversations, I was sensitive to even the slightest change in the facial expression of the person I was conversing with, particularly if I sensed they were suspicious about my identity.
8. It was hard to stop thinking about my identity and the need to keep it hidden.
9. I worried that others would find out about my identity.
10. I felt so lonely when I was hiding my identity, and was afraid I would always be lonely.
11. I felt isolated because of my concealed identity.
12. I felt hopeless for the future because I never thought I would be able to be open about my identity.
13. I isolated myself in order to conceal my identity.
14. I felt drained by the end of the day after having to conceal my identity all day.
15. I felt insecure during social interactions when I was hiding my identity.
16. While I was concealing my identity, I tried to look happy enough on the outside, but inwardly I felt angry and rebellious.
17. I felt like I was "living a lie" or "having to maintain two identities."
18. Keeping my identity secret really tormented me.
19. I avoided going to work, school, or places that made it too hard to conceal my identity.
20. I said I was feeling sick to get out of social obligations where my identity might come up.
21. I lied (or would say "No," or "why do you think so?") when somebody asked if I was LGBTQIA+.
22. I denied that I was LGBTQIA+ when asked.

Appendix F: Sexual Behaviors Questionnaire

Please answer the following questions about your sexual behavior over the **last month**:

1. During the **last month**, approximately how often did you engage in sexual activity with a partner (for example, touching each other's genitals, giving or receiving oral stimulation, intercourse, etc.)?

☐ Not at all / 0 times ☐ 1 time ☐ 2 times ☐ 3-4 times
☐ 5-8 times ☐ 9-15 times ☐ 16-30 times ☐ 31+ times

2. How many different people did you engage in sexual activity within the **last month**?

☐ None ☐ One ☐ Two ☐ 3-5 people
☐ 6-10 people ☐ More than 10 people

3. How often did you use protection (e.g., condom, dental dam) when you engaged in sexual activity in the **last month**?

☐ I did not engage in sexual activity in the last month
☐ Every time ☐ Often ☐ Sometimes ☐ Rarely ☐ Never

4. How many times did you have vaginal sex in the **last month**?

☐ No times ☐ One time ☐ Two times ☐ 3-5 times
☐ 6-10 times ☐ More than 10 times

5. How many times did you have anal sex in the **last month**?

☐ No times ☐ One time ☐ Two times ☐ 3-5 times
☐ 6-10 times ☐ More than 10 times

6. How many times have you left a social event with someone you just met in the **last month**?

☐ No times ☐ One time ☐ Two times ☐ 3-5 times
☐ 6-10 times ☐ More than 10 times

7. How many times did you go out to bars/parties/social events with the intent of "hooking up" and having sex with someone in the **last month**?

☐ No times ☐ One time ☐ Two times ☐ 3-5 times
☐ 6-10 times ☐ More than 10 times

8. In the **last month**, how many people did you have sex with that you know but are not involved in any sort of a relationship with (i.e., "friends with benefits", "fuck buddies")?

☐ No times ☐ One time ☐ Two times ☐ 3-5 times
☐ 6-10 times ☐ More than 10 times

9. How many times did you have sex with someone you didn't know well or just met in the **last month**?

___ No times ___ One time ___ Two times ___ 3-5 times
___ 6-10 times ___ More than 10 times

10. How many times did you or your partner use alcohol or drugs before or during sex in the **last month**?

___ No times ___ One time ___ Two times ___ 3-5 times
___ 6-10 times ___ More than 10 times

Please answer the following questions about sexual behavior **over the course of your life**:

11. How old were you when you had penetrative sexual intercourse for the first time?

12. How many times have you been pregnant (or gotten someone pregnant) **unintentionally**?

___ No times ___ One time ___ Two times ___ 3-5 times
___ 6-10 times ___ More than 10 times

13. How many times have you been tested for a sexually transmitted infection or HIV/AIDS?

___ No times ___ One time ___ Two times ___ 3-5 times
___ 6-10 times ___ More than 10 times

14. Please indicate any sexually transmitted infections you have had at some time in your life, including those you currently have (check all that apply):

___ Chlamydia ___ Gonorrhea ___ Hepatitis B ___ Herpes
___ HIV/AIDS ___ HPV/warts ___ Syphilis ___ Trichomoniasis
___ Other (please specify): _____

15. When was the last time you reached orgasm when engaging in sexual activity with a partner?

_____. (Example: 3 weeks ago)

16. When was the last time you reached orgasm when self-stimulating (i.e., masturbation)?

_____. (Example: 3 hours ago)

Additional Item: Unwanted sexual consequences include behavioral, health, interpersonal, emotional, financial, and/or legal consequences that were unwanted. How often have you

engaged in sexual behaviors that led to unwanted consequences?”. (1 = *never*, 2 = *rarely*, 3 = *occasionally*, 4 = *frequently*, or 5 = *very frequently*)

Appendix G: Sexual Desire Inventory – 2

This questionnaire asks about your level of sexual desire. By desire, we mean INTEREST IN or WISH FOR SEXUAL ACTIVITY. For each item, please circle the number that best shows your thoughts and feelings. Your answers will be private and anonymous.

1. During the last month, how often would you have liked to engage in sexual activity with a partner (for example, touching each other's genitals, giving or receiving oral stimulation, intercourse, etc.)?

- 0) Not at all
- 1) Once a month
- 2) Once every two weeks
- 3) Once a week
- 4) Twice a week
- 5) 3 to 4 times a week
- 6) Once a day
- 7) More than once a day

2. During the last month, how often have you had sexual thoughts involving a partner?

- 0) Not at all
- 1) Once or twice a month
- 2) Once a week
- 3) Twice a week
- 4) 3 to 4 times a week
- 5) Once a day
- 6) A couple times a day
- 7) Many times a day

3. When you have sexual thoughts, how strong is your desire to engage in sexual behavior with a partner?

- | | | | | | | | | |
|-----------|---|---|---|---|---|---------------|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| No Desire | | | | | | Strong Desire | | |

4. When you first seen an attractive person, how strong is your sexual desire?

- | | | | | | | | | |
|-----------|---|---|---|---|---|---------------|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| No Desire | | | | | | Strong Desire | | |

5. When you spend time with an attractive person (for example, at work or school), how strong is your sexual desire?

- | | | | | | | | | |
|-----------|---|---|---|---|---|---------------|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| No Desire | | | | | | Strong Desire | | |

6. When you are in romantic situations (such as a candle lit dinner, a walk on the beach, etc.), how strong is your sexual desire?

| | | | | | | | | |
|-----------|---|---|---|---|---|---|---------------|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| No Desire | | | | | | | Strong Desire | |

7. How strong is your desire to engage in sexual activity with a partner?

| | | | | | | | | |
|-----------|---|---|---|---|---|---|---------------|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| No Desire | | | | | | | Strong Desire | |

8. How important is it for you to fulfill your sexual desire through activity with a partner?

| | | | | | | | | |
|-----------|---|---|---|---|---|---|---------------|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| No Desire | | | | | | | Strong Desire | |

9. Compared to other people of your age and sex, how would you rate your desire to behave sexually with a partner?

| | | | | | | | | |
|-----------|---|---|---|---|---|---|---------------|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| No Desire | | | | | | | Strong Desire | |

10. During the last month, how often would you have liked to behave sexually by yourself (for example, masturbating, touching your genitals, etc.)?

- 0) Not at all
- 1) Once a month
- 2) Once every two weeks
- 3) Once a week
- 4) Twice a week
- 5) 3 to 4 times a week
- 6) Once a day
- 7) More than once a day

11. How strong is your desire to engage in sexual behavior by yourself?

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|-----------|---|---|---|---|---|---|---------------|---|
| No Desire | | | | | | | Strong Desire | |

12. How important is it for you to fulfill your desires to behave sexually by yourself?

0 1 2 3 4 5 6 7 8
Not at all important Extremely Important

13. Compared to other people of your age and sex, how would you rate your desire to behave sexually by yourself?

0 1 2 3 4 5 6 7 8

Much Less Desire

Much More Desire

14. How long could you go comfortably without having sexual activity of some kind?

- 0) Forever
- 1) A year or two
- 2) Several months
- 3) A month
- 4) A few weeks
- 5) A week
- 6) A few days
- 7) One day
- 8) Less than one day

Appendix H: Short Michigan Alcohol Screening Test

The following questions concern information about your involvement with alcohol during the past 12 months. Carefully read each question and decide if your answer is “YES” or “NO”.

Then, check the appropriate box beside the question.

Please answer every question. If you have difficulty with a, then choose the response that is mostly right.

These questions refer to the past 12 months only.

1. Do you feel that you are a normal drinker? (by normal we mean do you drink less than or as much as most other people).

YES NO

2. Does your wife, husband, a parent, or other near relative ever worry or complain about your drinking?

YES NO

3. Do you ever feel guilty about your drinking?

YES NO

4. Do friends or relatives think you are a normal drinker?

YES NO

5. Are you able to stop drinking when you want to?

YES NO

6. Have you ever attended a meeting of Alcoholics Anonymous (AA)?

YES NO

7. Has your drinking ever created problems between you and your wife, husband, a parent or other near relative?

YES NO

8. Have you ever gotten into trouble at work because of your drinking?

YES NO

9. Have you ever neglected your obligations, your family, or your work for two or more days in a row because you were drinking?

YES NO

10. Have you ever gone to anyone for help about your drinking?

YES NO

11. Have you ever been in a hospital because of drinking?

YES NO

12. Have you ever been arrested for drunken driving, driving while intoxicated, or driving under the influence of alcoholic beverages?

YES NO

13. Have you ever been arrested, even for a few hours, because of other drunken behaviors?

YES NO

Appendix I: Drug Abuse Screening Test–10

The following questions concern information about your possible involvement with drugs not including alcoholic beverages during the past 12 months.

"Drug abuse" refers to (1) the use of prescribed or over-the-counter drugs in excess of the directions, and (2) any nonmedical use of drugs.

The various classes of drugs may include cannabis (marijuana, hashish), solvents (e.g., paint thinner), tranquilizers (e.g., Valium), barbiturates, cocaine, stimulants (e.g., speed), hallucinogens (e.g., LSD) or narcotics (e.g., heroin). Remember that the questions do not include alcoholic beverages.

Please answer every question. If you have difficulty with a statement, then choose the response that is mostly right. In the past 12 months...

1. Have you used drugs other than those required for medical reasons?

YES NO

2. Do you abuse more than one drug at a time?

YES NO

3. Are you unable to stop abusing drugs when you want to?

YES NO

4. Have you ever had blackouts or flashbacks as a result of drug use?

YES NO

5. Do you ever feel bad or guilty about your drug use?

YES NO

6. Does your spouse (or parents) ever complain about your involvement with drugs?

YES NO

7. Have you neglected your family because of your use of drugs?

YES NO

8. Have you engaged in illegal activities in order to obtain drugs?

YES NO

9. Have you ever experienced withdrawal symptoms (felt sick) when you stopped taking drugs?
YES NO

10. Have you had medical problems as a result of your drug use (e.g., memory loss, hepatitis, convulsions, bleeding)?
YES NO

Appendix J: Monetary Choice Questionnaire

1. Would you prefer **\$54 now** or **\$55 in 117 days**?
2. Would you prefer **\$47 now** or **\$50 in 160 days**?
3. Would you prefer **\$25 now** or **\$60 in 14 days**?
4. Would you prefer **\$40 now** or **\$55 in 62 days**?
5. Would you prefer **\$27 now** or **\$50 in 21 days**?
6. Would you prefer **\$49 now** or **\$60 in 89 days**?
7. Would you prefer **\$34 now** or **\$50 in 30 days**?
8. Would you prefer **\$54 now** or **\$60 in 111 days**?
9. Would you prefer **\$20 now** or **\$55 in 7 days**?

Appendix K: Sexual Choice Questionnaire

Please answer the following questions about which of two amounts of sexual activity you would prefer by circling which option you prefer. “Sexual activity” means different things for different people, but you should answer each question in terms of whatever kind of sexual activity you personally find very appealing.

One of the rewards will be available right now (or for sure), and the other will only be available after you have waited for some period of time (or with some probability). The choices you make are completely up to you. You will not receive any of the rewards that you choose, but please make your decisions as though the outcomes were real. The choices you make are completely up to you. You will not receive any of the rewards that you choose, but we want you to make your decisions as though you were really going to get the rewards you choose.

- | | | | |
|---------------------|----------------|----|-------------------------|
| 1. Would you prefer | 21 minutes NOW | or | 30 minutes in 12 hours? |
| 2. Would you prefer | 16 minutes NOW | or | 35 minutes in 12 hours? |
| 3. Would you prefer | 8 minutes NOW | or | 25 minutes in 2 months? |
| 4. Would you prefer | 18 minutes NOW | or | 25 minutes in 1 day? |
| 5. Would you prefer | 10 minutes NOW | or | 30 minutes in 1 month? |
| 6. Would you prefer | 23 minutes NOW | or | 35 minutes in 4 months? |
| 7. Would you prefer | 24 minutes NOW | or | 35 minutes in 2 days? |
| 8. Would you prefer | 11 minutes NOW | or | 36 minutes in 3 months? |
| 9. Would you prefer | 12 minutes NOW | or | 25 minutes in 1 week? |

Appendix L: Debriefing and End of Study Resources

In this study, we asked you questions related to sensitive topics, including questions about previous discrimination experiences. Because this research is conducted in an online format and we do not receive information that can identify individual participants, the researchers cannot provide mental health or crisis services. If you are experiencing discomfort for any reason and would like to discuss these feelings with a professional, we encourage you to contact a counselor in your area. If you are in crisis or thinking about harming yourself, please, reach out to a friend or family member for support and consider calling one of the hotlines listed below. We recommend the following resources (both LGBTQ+ specific resources and general resources):

LGBTQ+ Resources

- Crisis Text Line
 - Text ‘LGBTQ’ to 741 741 (standard messaging rates apply)
 - Hours: Available 24/7
 - Learn more at www.crisistextline.org
- The Trevor Project for people under 25 years old
 - Phone: 1-866-488-7386 (Free)
 - Hours: Available 24/7
 - TrevorText: Text the word “Trevor” to 1-202-304-1200 (standard messaging rates apply)
 - Hours: Monday through Friday between 3pm to 10pm ET/12pm to 7pm PT
 - TrevorChat: Online instant messaging with a TrevorChat counselor (Free)
 - Enter the online portal on thetrevorproject.org
 - Hours: 7 days a week, 3pm to 10pm ET/12pm to 7pm PT
- The Gay, Lesbian, Bisexual and Transgender National Hotline
 - (888) 843-4564
- Human Rights Campaign Healthcare Equality Index (Free)
 - <https://www.hrc.org/resources/healthcare-equality-index>
- GLMA Health Professional Advancing LGBT Equality (Free)
 - www.glma.org
 - Hours: 24/7

- It Gets Better Project (Free)
 - www.itgetsbetter.org
 - Hours: 24/7
- Pride Institute
 - Chemical dependency/mental health referral and information hotline for the LGBTQ community
 - (800) 547-7433
 - Hours: 24/7

General Resources

- Emergency services
 - Call 911 (in the United States).
 - Go to the nearest hospital emergency room.
- National Suicide Prevention Lifeline: 24-hour toll-free hotline
 - Call 1-800-273-8255 for free and confidential emotional support for people in suicidal crisis or emotional distress.
 - Visit their online chat platform at <https://suicidepreventionlifeline.org/talk-to-someone-now/>
 - Call 1-800-SUICIDA (2432) for Spanish speakers.
- National Hopeline Network: 24-hour hotline
 - Call 1-800-784-2433 to speak with a trained counselor at a suicide crisis center near you.
- Alternate Hopeline:
 - Call 1-800-442-HOPE (4673).
- American Foundation for Suicide Prevention
 - Call 1-800-273-TALK (8255)
 - Visit their website at <http://www.afsp.org/> for written information on suicide prevention and links to a variety of resources including telephone suicide prevention, telephone crisis support, and text crisis support services.
- National Crisis Text Line: Text Support
 - Text the word "Hello" to 741741.

- Veterans Peer Support Line
 - Call 1-877-Vet2Vet (838-2838)
- Post-Partum Depression Hotline:
 - Call 1-800-PPD-MOMS (773-6667)
- Graduate Student Hotline:
 - Call 1-800-GRADHLP (472-3457)
- American Psychological Website: Local Resources Locator
 - <http://www.locator.apa.org>

Please click the arrow to finish the survey and submit your responses.

End of Study Compensation Statement

Please note: You will receive compensation within 8 days of completing all portions and correctly submitting the unique codes.

Appendix M: Informed Consent

CONSENT TO PARTICIPATE IN RESEARCH

Life Experiences and Decision Making

We are inviting you to volunteer for a research study conducted by Shelby E. Pemberton, M.A. (shelbypemberton@isu.edu) and Steven R. Lawyer, Ph.D., (stevenlawyer@isu.edu), from the Department of Psychology at Idaho State University. You have been invited to participate in this research because you are 18 years-of-age or older, current residing in the United States, an individual who identifies as lesbian, gay, or bisexual, willing to answer questions about providing sensitive personal information, and have experienced discrimination due to your sexual orientation. Your participation in this research is completely voluntary.

You should read the information below, and email questions about anything you may not understand, to shelbypemberton@isu.edu before deciding whether or not to participate. If you wish to withdraw from the study, please select the “Withdraw from Study” button below. Click the “Continue” button if you wish to proceed. You are free to withdraw at any point in the study and for any reason.

Withdraw from Study

Continue

**Redirects to “Thank you...” screen for “Terminated by Participant” (See Appendix ___)*

Continues to next page.

Once you have read this informed consent, you will be required to answer three questions regarding its content before continuing to the study. You may take as many attempts as you may need. If you choose to exit the study and not retake the quiz, you will not receive compensation.

Withdraw from Study

Continue

**Redirects to “Thank you...” screen for “Terminated by Participant” (See Appendix ___)*

Continues to next page.

1. PURPOSE

The purpose of this research study is to understand the relationship between discrimination experiences and decision making.

2. PROCEDURES

If you agree to take part in this study, you will be asked to complete several psychological measures presented in survey/questionnaire form. The survey/questionnaires, writing task, and decision-making tasks in the study include:

I. Questionnaires: You will be asked to sign this consent form and complete several brief self-report measures about demographics, substance use, mental health, patterns of choice, and your thoughts and behaviors.

II. Decision-making tasks: You will be asked to complete two decision-making tasks on the computer in which you will answer questions about your preference for different hypothetical monetary and sexual outcomes.

III. Writing Task: You will also be asked to complete a writing task where you will be asked to reflect on an experience for three minutes and write about the experience for 10 minutes.

IV. Duration: Participation in this study will involve 45-60 minutes of your time.

At the end of the survey, you will receive a randomly generated, unique code with instructions for how to use the code in your Amazon Mechanical Turk account to receive payment for your participation.

This study should take approximately 45-60 minutes to complete all portions, but actual amounts will vary across individuals. It is our hope that information from this survey will contribute to a better understanding of decision making and the immediate impacts related to discrimination. There is a chance you might be upset by some of the personal questions. You may **QUIT** the study at any time.

Withdraw from Study

Continue

**Redirects to "Thank you..." screen for "Terminated by Participant" (See Appendix ___)*

Continues to next page.

3. **POTENTIAL RISKS AND DISCOMFORTS**

There are risks involved in all research studies and the research procedures may involve risks that are currently unforeseeable. We believe there are only minimal risks associated with this research study. All of your responses will remain anonymous; there will be no connection between your personal identity and responses to study questions.

Additionally, you may become uncomfortable thinking about previous stressful experiences and substance use. However, you understand that your participation is completely voluntary. You have been advised that you are free to withdraw from participation at any time or to choose not to participate at all and that by doing so you will not be penalized in any way.

There are no physical risks expected from participation. Some individuals may experience some minor emotional discomfort or distress from the thoughts or memories these questions may elicit. In the event you experience discomfort and would like to discuss these feelings with a professional, you are encouraged to contact a counselor in your area, contact the national Crisis Text Line by texting "Hello" to

741741 or the LGBTQ+ Crisis Text Line by texting “LGBTQ” to 741741 or visit their website at www.crisistextline.org.

Local resources can be found at the American Psychological Association’s Psychologist Locator: locator.apa.org.

Withdraw from Study

Continue

**Redirects to “Thank you...” screen for “Terminated by Participant” (See Appendix ___)*

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4. ANTICIPATED BENEFITS TO SUBJECT

There are no direct benefits to you for your participation.

5. ANTICIPATED BENEFITS TO SOCIETY

Results of this research may help us better measure and understand decision making and the immediate impacts related to discrimination.

Withdraw from Study

Continue

**Redirects to “Thank you...” screen for “Terminated by Participant” (See Appendix ___)*

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6. ALTERNATIVES TO PARTICIPATION

An alternative is to not participate in the study.

7. PAYMENT FOR YOUR PARTICIPATION

To thank you for helping with our study, you will receive \$0.50 for successful completion of all survey questions, decision-making and writing tasks, and attention check questions that are randomly placed throughout the study. You will receive payment for your participation within eight days of completing the survey and verification that the survey and attention checks were complete.

If you chose to withdraw your participation for any reason during administration, you will not be compensated for time you spent on the study. You may choose to decline to answer demographic questions if you so choose.

Withdraw from Study

**Redirects to "Thank you..." screen for "Terminated by Participant" (See Appendix ____)*

Continue

Continues to next page.

8. FINANCIAL OBLIGATIONS

There are no financial obligations to you in the study.

9. PRIVACY AND CONFIDENTIALITY

The anonymous responses that you provide in this study will remain with the researchers indefinitely. Please do not provide any identifying information in response to any item on this survey. All demographic information you provide will remain anonymous and unidentified. To protect your privacy, the information you provide to us will never be connected with your name. All research-related information will be identified with only a subject number. No information about you, or provided by you during the research, can be disclosed since only subject numbers are used.

The following measures will be taken to ensure confidentiality:

- You will receive a randomly generated and unique completion code at the end of the study. This completion code will be used for distinguishing between the completed studies for compensation purposes only. You will use this code as instructed at the end of the study in your Amazon account for receiving your payment.
- Please retain your completion code until your compensation officially posts to your account. Neither the researchers nor Amazon are able to duplicate or regenerate this code.
- None of the names/numbers or Amazon MTurk account data will be revealed to the researcher or its affiliates.
- Your responses to the survey will remain anonymous. Your name will not be collected or appear anywhere on the survey and responses will be de-identified and encrypted.

Amazon will not be able to trace your account or payment information back to your responses and the researchers will not be able to trace your responses back to your Amazon account or payment.

Withdraw from Study

**Redirects to "Thank you..." screen for "Terminated by Participant" (See Appendix ____)*

Continue

Continues to next page.

10. VOLUNTARY PARTICIPATION AND WITHDRAWAL

Participation is completely voluntary – it is up to you if you want to proceed with answering the questions and completing the decision-making and writing tasks. If you decide to participate, you are free to withdraw your consent and discontinue participation at any time. You should contact the investigator in charge of this study, Shelby E. Pemberton (shelbypemberton@isu.edu), if you decide to do this.

Withdraw from Study

**Redirects to "Thank you..." screen for "Terminated by Participant" (See Appendix ____)*

Continue

Continues to next page.

11. RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have any questions regarding your rights as a research subject, you may contact the Idaho State University Human Subjects Committee at (208) 282-2179.

Withdraw from Study

**Redirects to "Thank you..." screen for "Terminated by Participant" (See Appendix ____)*

Continue

Continues to next page.

12. INVESTIGATOR INFORMATION

If you have any questions at any time about this study, your participation in this study, or if you experience adverse effects as the result of participating in this study, you may contact the researchers:

Shelby E. Pemberton, M.A. (shelbypemberton@isu.edu) and Steven R. Lawyer, Ph.D. (stevenlawyer@isu.edu), Garrison Hall, 921 S. 8th Ave., Stop 8112, Idaho State University, Pocatello, ID 83209-8112.

Withdraw from Study

**Redirects to "Thank you..." screen for "Terminated by Participant" (See Appendix ____)*

Continue

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13. FURTHER INSTRUCTIONS

Please note, you are required to respond to the following questions before you are able to agree to participate in this study. After indicating that you agree to participate you will be provided with the opportunity to print the completed informed consent, which is recommended for keeping in your personal records. When the study begins you will be brought away from Amazon Mechanical Turk to Qualtrics survey software where the study questions and tasks are hosted. After completing the study, Qualtrics will issue a randomly generated, unique participant code with instructions about how to use it in your Amazon account for receiving compensation. **Do not lose your code.** We are unable to identify participants or generate duplicate codes.

If you are unable to complete the quiz questions with 100% accuracy, you will be redirected to the start of the informed consent for review.

Withdraw from Study

**Redirects to "Thank you..." screen for "Terminated by Participant" (See Appendix ___)*

Continue to Verification Code

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VERIFICATION QUIZ

Question 1

True or False? There are no tangible benefits of your participation aside from financial compensation of \$0.50.

☒ **True**

☐ **False**

[NOTE: "True" is the correct response]

Question 2

True or False? My participation in this study is voluntary and I can choose to stop participating at any time.

☒ **True**

☐ **False**

[NOTE: "True" is the correct response]

Question 3

True or False? The anticipated time to complete this study is 15-30 minutes.

☒ **True**

☐ **False**

[NOTE: "False" is the correct response]

INDICATION OF CONSENT BY RESEARCH SUBJECT

By clicking "I agree" below, you are indicating that you:

1. are at least 18 years of age or older,

2. currently reside in the United States
 3. have fully read this consent form,
 4. understand this consent form,
 5. were provided the opportunity and means to contact the researchers with any questions or concerns,
 6. had your questions or concerns, if present, were answered or addressed to your satisfaction,
 7. are aware that this study is voluntary, and you may withdraw at any time,
 8. are freely choosing to participate in this research study.
- Please print a copy of this page for your records.

I Agree

**I Do Not
Agree**

Chapter III: Original Literature Review

Does Recall of Lesbian and Gay Discrimination Experiences Increase Delay Discounting for Sexual and Non-Sexual Outcomes?

Discrimination

Discrimination involves putting group members at a disadvantage or treating them unfairly due to their group membership (Plous, 2003) and typically is perpetrated against individuals based on their sex, race, age, disability, ethnicity, gender identity, sexual orientation, immigrant status, and religion, among others. Traditional or typical practices of discrimination are often overt, conscious and deliberate acts delivered to intentionally cause harm or oppress a specific target and look like the use of epithets, hate crimes, sexual harassment, and derogatory messages (Sue, 2010). Personal discrimination refers to acts of discrimination committed by individuals while institutional or systematic discrimination refers to policies or practices that are discriminatory and are carried out by organizations and other institutions (Plous, 2003). Outright or overt discrimination has been greatly reduced in the past few decades, yet more subtle and chronic forms of discrimination are still occurring and are daily experiences for certain groups in our society (Pascoe & Richman, 2009).

Subtle discrimination can appear as microaggressions, which are communications of prejudice and discrimination expressed through seemingly meaningless and unarmful tactics (Shelton & Delgado-Romero, 2013). Subtle discrimination can also appear as snubs, dismissive looks, gestures, and using specific tones (Constantine, 2007; Constantine & Sue, 2007; Sue et al., 2007). Discrimination across both institutional and interpersonal levels remains widespread in contemporary societies (Pager & Shepherd, 2008).

Discrimination and Health Outcomes

Self-reported experiences of discrimination have been associated with a broad range of disease outcomes, preclinical indicators of disease, and health-risk behaviors (Lewis et al., 2015). Two comprehensive literature reviews from both laboratory (Paradies, 2006) and community (Williams et al., 2003) studies report substantial evidence that discrimination experiences have harmful health effects across a range of mental health outcomes. Specifically, both reviews indicate that perceived discrimination is positively associated with major depressive disorder, generalized anxiety disorder, early initiation of substance use, and overall psychological distress. Discrimination experiences are also associated with an increased risk of depression, anxiety, hypertension, breast cancer, substance use, risky sexual behavior, and more (Pascoe & Richman, 2009; Williams & Mohammed, 2009).

LGBT+ Discrimination

Progress has been made with respect to equal rights and civil liberties for lesbian, gay, bisexual, and transgender (LGBT) individuals, yet inequalities still exist and negatively impact mental health. Discrimination experiences against lesbian women and gay men due to their sexual orientation and their exposure to discrimination is surprisingly common. Fifty-seven percent of individuals who identify as lesbian and gay have experienced some form of discrimination related to their sexual orientation (Dwyer, 2017). Discrimination experiences for LGBT individuals include victimization that ranges from verbal harassment to physical violence and sexual assault (Balsam et al., 2005; Factor & Rothblum, 2007; Herek, 2009; Lombardi et al., 2002) but also includes unfair or poor treatment by law enforcement officers, service workers, and healthcare workers, as well as unfair treatment in the workplace (Irwin, 2002; Mays & Cochran, 2001; Pizer et al., 2011). One study found that roughly half of LGBT adults commonly experience interpersonal discrimination in the form of slurs (57%), microaggressions (53%),

sexual harassment (51%), and violence (51%) (Casey et al., 2019). Casey and colleagues also found that more than 1 in 6 LGBT adults (18%) reported avoiding health care due to possible discrimination. Further, sixteen percent of LGBT adults reported experiencing discrimination while receiving health care.

Herek (2009) surveyed over 600 LGB adults and found that over a lifetime, 20% of participants were the victim of assault or property crime. Mays and Cochran (2001) examined workplace discrimination for sexual minority adults and found that between 16.9 and 38.8% of participants reported not being hired for a job, being denied a promotion, or were fired from a job because of discrimination. Between 31% and 89% of LGB adult participants receiving primary care treatment reported experiencing negative reactions from healthcare workers (Harrison & Silenzio, 1996). In a study of 396 LGB adults in New York City, 10% of gay men and 12.9% of lesbian women reported that they had not disclosed their sexual orientation in healthcare setting due to actual or anticipated reactions to their disclosure of sexual orientation (Durso & Meyer, 2013).

LGBT+ Discrimination and Health Outcomes

Much of the research literature focuses on how racism (Williams & Mohammed, 2009; Paradies, 2006; Krieger et al., 2006) and sexism affect health (Krieger et al., 2006; Pavalko et al., 2003), yet many of these same effects have also been observed in the context of discrimination against LGBT individuals (Factor & Rothblum, 2007; Lombardi et al., 2002; Balsam et al., 2005; Herek, 2009).

A large body of research documents that discrimination experiences are associated with elevated mental health issues among LGBT adults (Cochran et al., 2003; Clements-Nolle et al., 2001; Reisner et al., 2015; Swank et al., 2013). Research with LGB individuals has found that

discrimination experiences are associated with both higher levels of anxiety and depressive symptoms, as well as increased odds of meeting diagnostic criteria for an anxiety or depressive disorder (Feinstein et al., 2012; Herek et al., 1999; Mays & Cochran, 2001). Further, Livingston and colleagues (2020) found higher ratings for anxious and depressed mood for sexual and gender minority individuals with daily discrimination experiences and with victimization experiences throughout their lifetimes.

LGB individuals who had been the victim of a hate crime within the past 5 years reported higher levels of depression symptoms, anxiety symptoms, and post-traumatic symptoms compared to LGB individuals who reported not experiencing discrimination in the past 5 years (Herek et al., 1999). Further, 42.9% of sexual minority women reported having a discrimination experience and these women reported higher odds of any lifetime mood disorder and any lifetime anxiety disorder compared to those sexual minority women who never experienced discrimination. Lesbian, gay, and bisexual adults who reported day-to-day discrimination experiences (being called anti-LGB epithets or insulted, threatened, or harassed) are 2.13 times more likely to suffer from an affective disorder than LGB adults who reported not experiencing any day-to-day experiences with discrimination (Mays & Cochran, 2001). Additionally, Andersen and colleagues (2015) found that sexual minority individuals experience higher prevalence of childhood victimization and even lifetime physical health problems than heterosexual individuals and discrimination from family and friends, compared to non-family and friends, is strongly associated with poorer health (Figuerola & Zoccola, 2016).

Research also links discrimination experiences and suicidality in LGBT individuals; sexual minorities are at a greater risk for suicidality than heterosexuals (Cochran & Mays, 2000, 2009; Haas et al., 2011). King and colleagues (2008) found that sexual minorities are twice as

likely to report suicidal ideations as heterosexual individuals. In addition, they reported that gay and bisexual men are four times as likely to attempt suicide over their lifetimes as heterosexual men and lesbian women are twice as likely as heterosexual women to attempt suicide.

Further, one study found that sexual minority adults that experience sexual orientation-based discrimination more frequently may be associated with increased odds of excessive alcohol use and substance use disorders (Casey et al., 2019). Lehavot and Simoni (2011) examined relationships between victimization and illicit substance use with over one thousand sexual minority women and found that victimization occurring in the past year predicted past year problematic alcohol use, drug use, and current cigarette smoking. Lee and colleagues (2016) found that 57.4% of the sexual minority men in their sample reported experiencing some form of discrimination and those individuals reported higher odds of any lifetime drug use disorder and cannabis use disorder compared to sexual minority men who reported that they had never experienced discrimination. McCabe and colleagues (2009) found that individuals who experienced LGB discrimination in the past year were 1.72 times more likely to meet DSM criteria for a substance use disorder, and those that endorsed lifetime discrimination were 1.3 times more likely to meet criteria for a substance use disorder.

These studies suggest a relationship between discrimination experiences and substance use and abuse, but cannot speak to the extent to causality for either variable or to the possibility of a range of other confounds. However, Livingston and colleagues (2017) used ecological momentary assessment methods and reported several findings suggesting a causal relationship between discrimination experiences and substance use. They found that discrimination experiences among sexual and gender minority individuals were followed by increased use of nicotine and other substances throughout the day and evening. Overall, discrimination

experiences are associated with varying mental health outcomes (e.g., affective disorders, suicidality, substance use and abuse) for LGBT individuals. These findings suggest that discrimination is differentially associated with internalizing and externalizing disorders for sexual minority adults and indicate a need to consider how discrimination experiences in sexual minority individuals contribute to distinct health outcomes. Additionally, it is important to state, that pathology does not rest upon lesbian women and gay men, or other individuals who do not identify as heterosexual in general, but the overall system that was created on heteronormative social pressures and that continues to maintain them which disproportionately impact individuals who identify as sexual minorities (Riggs & Treharne, 2016; Meyer, 2003; Livingston et al., 2017).

LGBT+ Discrimination and Identity Concealment

Some LGB individuals attempt to conceal their sexual minority identity, or “stay in the closet,” due to not wanting to experience or to avoid potential discrimination or rejection. Concealment behaviors, which refers to the active, conscious, and purposeful withholding of information about their sexual identity (Diamond & Savin-Willings, 2009; Meyer, 1995, 2003), are a means of preventing experiencing stigma and discrimination from society due to not identifying as heterosexual (Brennan & Cochran, *in progress*). However, research has shown that concealing one’s sexual orientation to avoid overt victimization and discrimination may have negative health impacts. In fact, concealment of sexual orientation has been proposed as a proximal stressor in the minority stress model and is therefore an important contributor to health (Meyer, 2003). Brennan and Cochran (*in progress*) found that concealment of an identity is positively associated with increased psychological distress, feeling distant and alienated from others, and/or developing a negative self-view.

Further, evidence suggests that individuals who conceal their identity compared to the general population experience increased impacts on their well-being, psychological consequences, and negative physical health effects (Pachankis, 2007). Pachankis (2007) discussed a study by Beals (2004) that examined well-being in lesbian women and gay men over a 14-day period. Beals found these individuals experienced greater well-being when they were able to disclose their sexual orientation, yet active suppression of thoughts around their lesbian or gay identity predicted lower psychological well-being both at the end of each day in addition to at a 2-month follow-up. So, actively suppressing thoughts around one's sexual identity, in order to conceal, reported decreased well-being, which could be due to experiencing cognitive difficulties, such as persistent preoccupation around whether one is providing clues about their identity (Pachankis, 2007). Additionally, Pachankis (2007) discussed how HIV-positive men and women who did not disclose their HIV status compared to those who had reported more anxiety, hostility, and psychoticism, which indicates that those concealing their sexual orientation would experience similar effects. In regards to physical health, gay men who concealed their sexual identity were significantly more susceptible to an impaired immunological functioning and infectious diseases compared to gay men who did not conceal their sexual orientation (Cole et al., 1996; Ullrich et al., 2003). Individuals concealing their sexual identity are also seen to have increased substance use and faster progression to AIDS (Brennan, 2019; Cole et al., 1996). Therefore, in an attempt to avoid discrimination experiences by concealment, these individuals may still be experiencing negative mental and physical health effects and consequences to their decision making. Consequently, unanticipated decision making could occur in lesbian women and gay men due to whether they engage in concealment, hence concealment should be examined when using these populations in studies exploring decision making.

Discrimination and Risky Sexual Behavior

Risky sexual behavior (RSB) is defined as sexual activity that increases the chance of exposure to a negative outcome (Chawla & Sarka, 2019). There is no ‘gold standard’ measure for RSB; operational definitions of RSB vary across studies and include number of sexual partners, sexual intercourse without using a condom, early sexual activity, history of STI tests and positive tests for STIs, HIV/AIDS, and unexpected and/or unwanted pregnancy (e.g., Beadnell et al., 2005; Levy et al., 2009; Bryan et al., 2012; Mirzaei et al., 2016). Mirzaei and colleagues (2016) also discuss how negative consequences may not only be health related but can include family conflict, relationship harm, financial difficulties, and even legal concerns. Risky sexual behavior is also frequently associated with engaging in other risky behaviors such as substance use and other problematic behaviors (Feldstein & Miller, 2006; Shrier et al., 1997; Roberts et al., 2012).

A growing research literature points to a connection between racial discrimination experiences and sexual risk behaviors. For example, although African Americans represent 13% of the total United States population, they disproportionately account for 51% of all new HIV/AIDS diagnoses (CDC, 2009a; CDC, 2009b; Roberts et al., 2012). Socioeconomic status (SES) does not explain these differences (Dressler and colleagues, 2005; Myers, 2009), which suggests other psychosocial factors—such as discrimination—are involved in promoting risky sexual behavior. In fact, Roberts and colleagues (2012) completed a longitudinal study investigating whether risky sexual behavior in adolescence was related to experiences with racial discrimination in African American youth in late childhood. They found that 89% of children reported at least some perceived race-based discriminatory experience by age 10. In addition to confirming previous research connecting racial discrimination and conduct problems, early drug

use, substance use, lower likelihood of college enrollment, and affiliation with deviant peers (Cooper et al., 2008; Gibbons et al., 2007; O'Hara et al., 2011), Roberts, et. al. found that more early experiences of racial discrimination around ages 10 or 11 was positively related to engaging in more sex-risk behaviors at age 18 or 19.

LGBT+ Risky Sexual Behaviors

The extant research on how discrimination experiences are associated with increased risky sexual behaviors is primarily focused on racial minorities, but are relevant to our understanding of risky sex in the LGBT+ population as well. Men who have sex with men are disproportionately affected by HIV/AIDS, with approximately 63% of new HIV infections being attributable to male-to-male sexual contact, even though they only comprise roughly 2% of the United States population (CDC, 2012; Herrmann et al., 2015). Unprotected anal intercourse is the primary cause of HIV transmission and using condoms lowers the risk of HIV transmission by about 70% (Baggaley et al., 2010; Smith et al., 2013; Herrmann et al., 2015). Unfortunately, rates of unprotected anal intercourse continue to remain high in some groups of men who have sex with men (Yang et al., 2014). Some researchers also conclude the majority of lesbian women engage in high-risk sexual behaviors; however, these claims are not supported empirically (Koh et al., 2005). Yet, STIs are a significant health issue for lesbians (Lindley et al., 2007) and Rosario and colleagues (1999) found that in general lesbians have a high number of sexual encounters. Herrmann and colleagues (2015) stated that data suggests relations between risky sexual intercourse, such as unprotected anal intercourse, and other risk behaviors may be mediated by decision-making processes or underlying impulsive traits, which provides rationale to further examine these relations (Patterson et al., 2005; Semple et al., 2006).

Sexual minority females (e.g., bisexual women and lesbian women) engage in sexual risk behaviors at higher rates—they are four times more likely to report multiple sexual partners in the past 3 months, are nearly twice as likely to use drugs or alcohol during last intercourse, and have higher rates of STIs compared to heterosexual females (Rosario et al., 2014; Rosario et al., 1999; Singh et al., 2011; Tornello et al., 2014; Ybarra et al., 2016). Problematically, though, researchers sometimes use condom use in their measures of RSBs among lesbian women (e.g., Beadnell et al., 2005; Levy et al., 2009), which might misrepresent the frequency of behaviors that place them at risk for negative health outcomes. Marrazzo and colleagues (2005) found within their group of women who had sex with another woman in the past year reported that common sexual activities included nonpenetrative sex and penetrative sex with body parts, including fingers and hands. For example, several studies indicate that lesbian women are significantly less likely to use condoms during sex (Pinto, et al., 2005; Rosario, et al., 2014; Ybarra et al., 2016), but condom use may not represent a meaningful protection against negative health outcomes when the sexual act includes neither a penis nor a risk for pregnancy. Consistent with this, Pinto and colleagues (2005) reported that the most common explanation for lesbian women not utilizing condoms was that there was not a need. This suggests that traditional measures for RSB may not adequately capture risks associated with sexual behavior among lesbian women. However, Marrazzo and colleagues (2005) found that roughly one-third of their participants reported using penetrative sex toys, so condom use could potentially be relevant for sexual risk behavior research with lesbians in this context.

Discrimination Autobiographical Recall

Autobiographical recall procedures can help examine discrimination related experiences and their effects since biases in recall may prevent self-report measures alone from capturing

individual's emotional reactions to discrimination. Typical laboratory experiments allow for exposure of a discrimination experience, including writing about past perceived discrimination experiences (Pascoe & Richman, 2009), and they can examine the immediate impact on physiological, emotional, cognitive, and even behavioral responses. Due to the control within experimental frameworks, strong causal inferences can be made when using a laboratory autobiographical recall procedure of discrimination experiences as an independent variable (Richman et al., 2017). This provides clarification among perceived discrimination experiences and their impacts.

Pascoe and Richman's (2011) results suggest that individuals who experience discrimination and recall their experiences have an increase in their tendency to choose unhealthy food choices compared to those who did not recall discrimination experiences. They asked half of their African American participants to recall a time when they experienced racial discrimination and reflect and write about their experiences while the other group recalled and wrote about a neutral event, their daily routine. The participants then made hypothetical food-related decisions where they chose between a healthy and unhealthy option. Those participants who recalled and wrote about racial discrimination experiences were more likely to choose the unhealthy food option than the participants in the control condition. This study revealed a potential real-world effect on decision making when recalling individual discrimination experiences.

Krieger (2012) found that self-report measures on discrimination experiences likely underestimate the effects of discrimination on the individual due to these measures not accounting for unwillingness or inability to discuss the events and the nuance of each experience. Krieger reported that individuals engage in a coping response, by denying the true frequency and

severity of their experiences, when their experiences do not fit within the provided criteria on self-reports. Lewis and colleagues (2015) also report concerns about the general ability of provided questions to capture racial discrimination accurately. Therefore, when individuals do not identify with the subtleties and sometimes ambiguous nature of their perceived discrimination experiences described in the questions, they may underreport the frequency and severity of the events. If individuals do not identify with the questions provided then the emotional aspects related to their individual experiences would not be fully induced, which is important to understanding the connection between environmental factors, emotional responses, and individual decision-making. Therefore, self-report measures may not evoke the emotional reactions as a recall and writing procedure.

Augustine and Larsen (2011) support the efficacy of autobiographical recall as a form of mood induction. They found experimentally inducing negative emotions was then related to higher discounting rates, suggesting one's decision making and judgments are related to negative affect. Unfortunately, experimental studies around discrimination experiences and the effects on decision making within the LGBT+ community are lacking within the research literature. More generally, experimental studies around the broad effects of discrimination within the LGBT+ community are needed within the research literature. Autobiographical recall procedures appear to be one promising avenue to continue utilizing.

Discrimination and Negative Affect

One potential mechanism that may underlie the relationship between sexual orientation discrimination and risky sexual behavior is negative affect. Pascoe and Richman (2011) examined the effects of racial discrimination on food decisions and found that experiencing discrimination may increase the tendency to make healthier food choices. However, they

reported that more research needed to be conducted on the causal pathway between discrimination and health decision making and that negative affect may be a potential avenue. Previous research consistently links the experience of negative emotion with engaging in self-defeating behaviors (e.g., Baumeister & Scher, 1988; Leith & Baumeister, 1996) and since discrimination experiences may be accompanied by increased negative affect, it is possible that negative affect mediates the link between discrimination and health decisions (Pascoe & Richman, 2011).

Livingston and colleagues (2017) suggest that negative affect is one possible link between discrimination experiences and increased nicotine and substance use. Discrimination experiences create unique stressors that contribute to negative affect (Hatzenbuehler et al., 2009), which can lead to a variety of coping responses (Polusney & Follette, 1995). Indeed, Hatzenbuehler and colleagues (2009) found that the lesbian, gay, and bisexual individuals also experienced alcohol-related problems which were developed due to coping motives, which they reported may be related to beliefs that alcohol can reduce the negative affect experienced from discrimination experiences.

Minority Stress Model

The minority stress model (Meyer, 2003) is a framework to explain the lived experiences of sexual minority individuals, including their experienced stress and coping mechanisms and how they affect their mental health outcomes. The model begins with general environmental circumstances, including one's sexual minority identity but also factors such as socioeconomic status. An individual's minority status leads to a development of a sexual minority identity or a type of personal identification with one's minority status. Environmental circumstances lead to exposure of stressors (e.g., job loss, death of a family member), but for sexual minorities they

also experience stressors unique to their sexual identity. These include environmental discrimination and anti-gay violence but also stressors related to one's personal identity, such as concealment and expectations of rejection. An individual's personal identification with being a sexual minority could either weaken or strengthen these stressors' influences and related mental health outcomes. One's sexual identity could also provide social supports from within the community or individual coping mechanisms that can help manage the impact of those environmental and personal identity stressors on one's mental health.

Hatzenbuehler (2009) recommends incorporating a layer to the minority stress model, becoming the mediational model of health disparity. Hatzenbuehler's additional layer incorporates emotion regulation, coping styles, and interpersonal interactions, as mediators among environmental sexual identity related stressors and mental health outcomes (See Figure 1). Hatzenbuehler (2009) hypothesizes that cognitive and affective responses mediate the relationship between discrimination and mental health outcomes, including externalizing psychopathology.

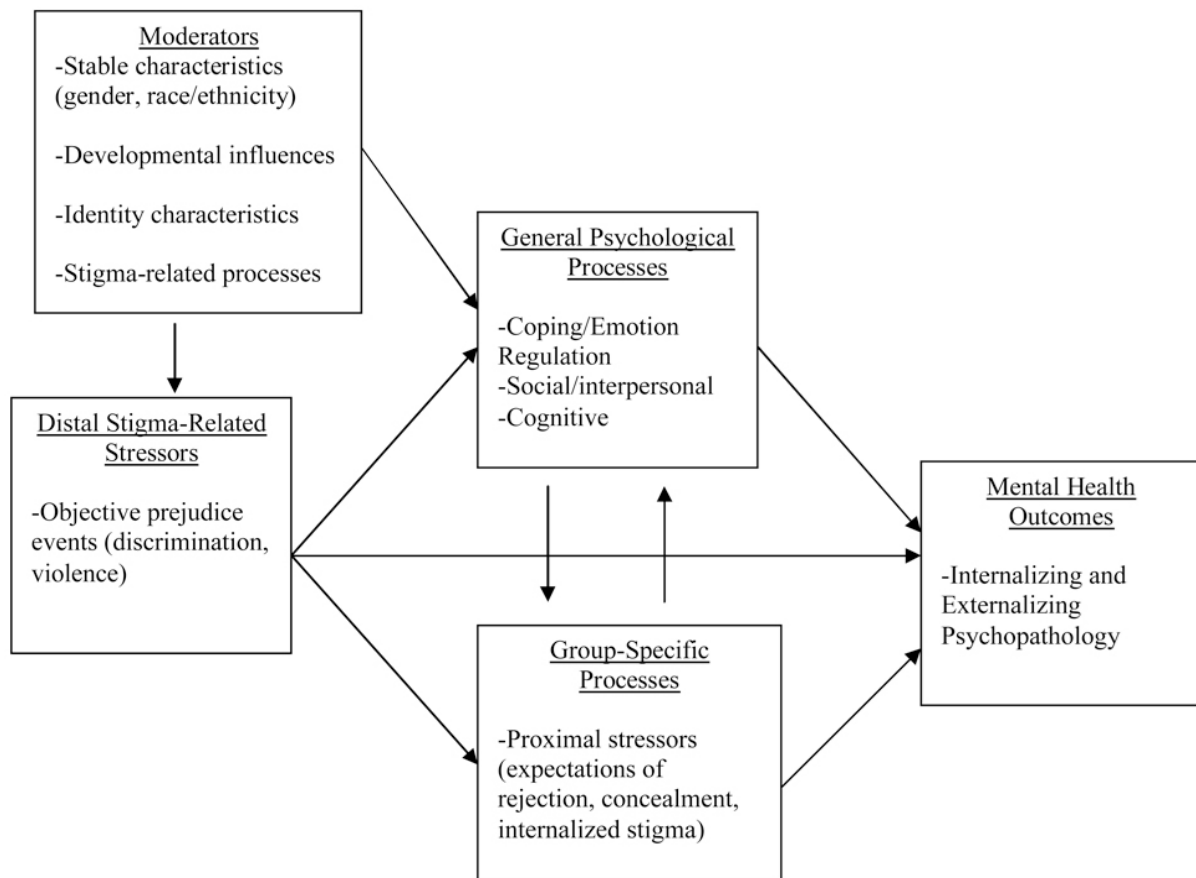


Figure 1. Integrative mediation framework of group-specific and general psychological processes (Hatzenbuehler, 2009).

Discrimination and Coping with Negative Affect

The damaging effects of discrimination on negative affect are well-established (e.g., García Coll et al., 1996; Greene et al., 2006; Sellers et al., 2003; Roberts et al., 2012). Roberts and colleagues (2012) found that adolescents who experienced discrimination also experienced negative affect that was associated with seeking out deviant peers and, eventually, with more engagement in risky sexual behavior. Mediation by negative affect would also be consistent with recent developmental theories, which posit that the specific effects of discrimination depend on

how adolescents respond both cognitively and emotionally to discriminatory experiences (Myers, 2009; Sellers et al., 2006; Spencer et al., 1997).

Discrimination does not reach the threshold for a DSM5 Criterion A event within Post-Traumatic Stress Disorder (PTSD), but can still produce traumatic distress symptoms (Kirkinis et al., 2018). Risky sexual behavior is theorized to be a type of avoidant coping following trauma experiences in which individuals engage in behavioral strategies to avoid and/or reduce negative internal emotional experiences, such as negative affect (Polusny & Follette, 1995). Intensive longitudinal designs show that experiencing negative affect is reduced following sexual intercourse (Fortenberry et al., 2005; Shrier et al., 2010). Coping with discrimination-related negative affect with sexual activity, or substance use, is consistent with the potential pathway proposed by Hatzenbuehler's (2009) mediation model. Therefore, coping with negative affect due to experiences of discrimination due to being lesbian or gay may be linked to various forms of psychopathology and engagement in negative health-related behaviors. Additionally, this is bolstered by sexual minorities being disproportionately affected by substance use, obesity, and tobacco use (Dean et al., 2000). However, Hatzenbuehler (2009) reports that more research addressing the mediation framework is needed and more information related to the effects of discrimination on lesbian, gay, and bisexual individuals in the general research literature is also needed.

Negative Affect and Decision-Making

Emotional experiences have the ability to undermine rational decision making (Bechara, 2004; Bechara, 2005; Dolan, 2007; Dreisbach, 2006). Patterns of risky decision making while experiencing intense emotions are associated with alcohol consumption, tobacco cravings, compulsive shopping, drug use during the first year of college, and risky sexual behaviors

(Anestis et al., 2008; Billieux et al., 2008; Cyders & Smith, 2007). Negative affect is one risk candidate for engaging in risky sexual behavior (Jardin et al., 2017). Among males, laboratory-induced negative affect is related to riskier decision making on a laboratory task (Lighthall et al., 2009; van den Bos et al., 2009).

Cyders and Smith (2008) theorize that experiencing intense positive or negative emotions result in a shift to focus on the immediate context, which results in making decisions for short-term reward instead of decisions for future goals or benefits. Individuals also tend to make judgements that are consistent with their affective states; when individuals experience negative affect their judgements about what would occur in the future were more negative compared to those that were not experiencing negative emotion (Johnson & Tversky, 1983) but those experiencing pleasure make decisions in order to optimize their pleasure moving forward (Mayer et al., 1992). Therefore, our judgements typically change with our affective states. Affect can also directly bias individual choices (Gray, 1999; Shah et al., 2002). Gray (1999) demonstrated that intense unpleasant feelings often lead individuals to make decisions that will enhance their affect in the short-term, focusing on what would be best in the moment, regardless of the possibility of long-term negative consequences. These consequences can vary drastically in severity, extent, and valence to the extent that they could be negative, disadvantageous, or even harmful. However, negative consequences may not stop an individual from making similar decisions that lead to similar consequences again in the future. Humans tend to be more sensitive to immediate than to delayed consequences of their behavior (Lattal, 2010). Oreg and Bayazit (2009) report that individuals experiencing negative affect attempt to minimize or reduce their emotional or psychological discomfort or pain. Further, decisions made while experiencing negative affect appear to be an attempt to return to their baseline emotional experience or neutral

affect. Individuals with increased depressive symptoms demonstrate less inhibitory control than baseline, which is associated with impulsive decisions (Moriya & Tanno, 2008).

Some of these behaviors described (i.e., alcohol use, drug use, compulsive shopping, risky sexual behaviors) could be described as impulsive. Impulsivity is a multifaceted construct that refers to traits or behaviors, such as an inability to delay gratification, engaging in behaviors without thought of consequences, or sensation seeking (de Wit, 2008; MacKillop et al., 2016; Costa & McCrae, 1992; Weafer et al., 2013; Odum, 2011b; Whiteside & Lynam, 2001). Various types of impulsivity, such as behavioral impulsivity and non-planning, were positively correlated with problem sexual behaviors in a young adult community sample, including being sexually active, inability to control sexual urges, and out of control repetitive sexual behavior (Leppink et al., 2016). Measures of impulsive choice may be a potential avenue of exploration to determine how discrimination and potentially negative affect induced from exposure to discrimination, influences risky sexual behavior in lesbian women and gay men. Numerous studies indicate a significant relationship among different aspects of impulsivity and sexual risk taking, such as unsafe sexual activity, sexual infidelity, and also infrequent condom use for men (Chesson et al., 2006; Daugherty & Brase, 2010; Johnson & Bruner, 2012; Lawyer & Mahoney, 2017; Lawyer & Schoepflin, 2013). Therefore, laboratory measures that assess impulsive choice may be essential in clarifying this relationship.

Delay Discounting

Delay (or temporal) discounting is the most common laboratory-behavioral discounting measure and refers to the devaluing of a reward or outcome based upon delay in its receipt (Ainsley, 1975; Rachlin et al., 1991; Green & Myerson, 2004). In general, the subjective value of the reward diminishes the longer one must wait to receive that reward. Individuals vary in their

rates of delay discounting, meaning that some individuals are more sensitive to delayed reward where they will opt for more immediate rewards even if that means those rewards are less valuable (e.g., quantity, quality).

Delay discounting was first studied in non-human animal laboratories using operant conditioning principles (Logan, 1965). Rats and pigeons were often used as subjects in these studies and were trained using food or water that was available immediately or after a delay using adjusting delay and amount procedures (Mazur, 1997; Richards et al., 1997). These studies found that these non-human animals discount delayed rewards in a hyperbolic function (Mazur, 1987), which was later found to be the same pattern of discounting in humans (Rachlin et al., 1991).

In delay discounting tasks using human subjects, individuals make a series of choices between a smaller reward available immediately and a larger reward with a delayed availability (e.g. \$3.50 now or \$10 in one week, with \$10 representing the highest possible reward) to obtain an individual's subjective value of the reward at that delay. Individuals generally select the larger-later reward when the immediate reward is very small, but as the immediate reward increases in value across the series of choices individuals will eventually choose the smaller-sooner reward. The point when individuals switch their choice from the larger-later reward to the smaller-sooner reward is called the indifference point, which establishes the subjective value of the larger-later reward at that delay. For example, if an individual chooses a \$10 reward that is available after one week instead of the immediate reward of \$5, \$6, or \$7, but finally selected the \$8 available immediately instead of the \$10 available after a week delay, then the individual's indifference point would equal \$7.50, which means that the individual subjectively values \$10 in one week as the same as \$7.50 now.

This process is repeated across multiple delays, typically yielding indifference points that typically diminish as the delay to the larger reward increase. Graphically plotting individual indifference points models patterns of behavioral choices. These patterns can be described using a hyperbolic function, where the delay or time, is plotted along the x-axis and along the y-axis is the subjective value of the reward. A hyperbolic function mathematically describes this pattern (Mazur, 1987; Eq. 1):

$$V = \frac{A}{1+kD}$$

where V represents the individual's subjective value of A , which is the reward, at the specified delay (D) while k acts as a free parameter devised to capture the rate that an individual discounts rewards over multiple delays. In delay discounting, higher k values indicate a preference for smaller-sooner (or more impulsive) outcomes. Therefore, the steeper the rate of discounting, the more impulsive the individual's behavioral choices.

Delay Discounting Procedures

A range of tasks allow researchers to characterize patterns of delay discounting. These procedures vary in mathematical procedures, length, number of required indifference points, and time delays. For example, titration procedures incrementally adjust the smaller, immediately available reward up or down depending on participant responses to dozens of previous questions in the task in order to find the indifference points. Some procedures can be very time consuming, yet some newer discounting computerized tasks use mathematical algorithms that achieve fast and more accurate indifference points.

A discounting program developed by Baker and colleagues (2003; adapted from the Richards and colleagues, 1999), uses a double limit procedure (i.e., having a lower and upper limit on the range of the smaller, more immediate choices that narrows based on the participant's

choices). This program obtains a faster, more accurate estimate of discounting rates since the limits reset if a participant makes a choice counter to a previous choice (e.g., choosing \$100 in one month over \$50 now, even though one had previously chosen \$30 now over \$100 in one month). There are also delay discounting measures that are questionnaire based and provide dichotomous responses and are fast to administer and have consistent task completion times due to not needing to adjust the reward or narrow provided questions (e.g., monetary choice questionnaire, Kirby et al., 1999).

Both titration procedures and fixed choice procedures allow the participant to make a series of choices between a smaller more immediate reward and a larger more delayed reward at a number of different delays. The monetary choice questionnaire (MCQ; Kirby et al., 1999) contains a series of 27 dichotomous choices between smaller-immediate and larger-delayed monetary rewards that are preconfigured to provide estimates of an individual's delay discounting rate. Three magnitudes are assessed (small, medium, and large), providing separate discounting rates. The MCQ does not determine indifference points, but provides predetermined k values associated with each choice. The individual's series of choices determine their estimated k value, as well as the degree of fitness of that k value to the individual's choices. The MCQ procedure is significantly less time consuming than titration procedures.

Discounting Task Considerations

In human laboratory research, money serves as a common reward or outcome since it has an objective, quantifiable, dollar-amount value. Money usually holds the same current value for all individuals, meaning the vast majority of individuals would choose \$10 now over \$10 tomorrow and \$10 now versus \$5 now (Johnson & Bruner, 2012). Potentially real reward procedures provide a chance that the participant will actually receive one or more of their

outcome choices. One procedure randomly selects several choice trials within a participant's discounting task and the participant will receive the money chosen based on those selections of their choices (Johnson & Bickel, 2002). Real monetary reward procedures have several limitations and are therefore less common (e.g., costly, logistically difficult to deliver a delayed reward, at times ethically questionable to provide cigarettes or alcohol if those are the commodity being discounted, legally impossible to provide illicit substances), as participants are provided the money or other discounted commodity they choose for each choice trial at the corresponding time delay. Therefore, discounting procedures commonly use hypothetical—rather than real—rewards. Evidence suggests that discounting procedures that use hypothetical rewards (i.e., discounting patterns) yield data consistent with those using potentially real (Johnson & Bickel, 2002; Lawyer et al., 2011; cf, Hinvest and Anderson, 2010) and real (Lagorio & Madden, 2005) rewards.

When using a range of different reward amounts, it is important to consider the differences between the reward amounts (e.g., \$10, \$100, \$1000) and the delays in reward delivery (e.g., one day, one week, one year). Altering the time when hypothetical rewards are received and altering their reward amounts each changed discounting patterns (i.e., the shape of the discounting rate curve; Stewart et al., 2015). Stewart and colleagues also found steeper discounting patterns when there was less time provided between delays (i.e., such as one day to one week versus one day to one year) and when using smaller reward amounts, as found in the magnitude effect. The authors also found flatter slopes for discounting patterns when larger amounts were used across wider delays, which would increase the difficulty in making comparisons across participants. The concerns around choosing the differences in reward

amounts and delays in receiving rewards can be avoided by using one reward amount across a previously established and validated set of delays.

Domain-specific Discounting

Although monetary outcomes are most frequently used in DD tasks, researcher also have characterized DD in relation to tobacco (Baker et al., 2003), alcohol (Petry, 2001; Vuchinich & Simpson, 1998), illicit drugs (Kirby & Petry, 2004), food (Rasmsusen et al., 2010), and erotica (Lawyer, 2008), among other outcomes. These different types of rewards, or domains, differentially correlate to certain discounting patterns, therefore selecting an appropriate domain is important. Depending on the domain, individuals may discount some more steeply than others, especially when individuals are more tempted by the rewards within that domain. Specifically, when the reward being discounted is chocolate, some individuals may find it enjoyable and tempting and would therefore demonstrate a steeper delay discounting pattern than those who do not enjoy or are not tempted by chocolate. When provided a tempting reward, these individuals devalue the reward when delayed more than rewards that they do not find as tempting, meaning individuals exhibit domain specific discounting patterns (Tsukayama & Duckworth, 2010).

Discounting of other domains, compared to discounting of money, usually presents more impulsive, or steeper, delay discounting rates. Alcohol (Lemley et al., 2016), cigarettes (for smokers only; Baker et al., 2003; Odum, 2011a), and food (Odum et al., 2006) are discounted at steeper rates than money in healthy populations. These comparisons are confounded by differences in unit price (i.e., the price one is willing to pay/spend in terms of money, time, and effort to obtain the good) between money and the commodity being compared (even when attempting to equate monetary value of both commodities). In substance abusing populations, the individuals' substance of choice is sometimes more steeply discounted than money, such as

heroin (which was standardized to be equal in unit price with money; Kirby et al., 1999; Madden et al., 1997) and cocaine (Coffey et al., 2003). It is illogical to directly compare discounting rates for money and a different commodity such as sexual activity. Even when the outcome values are standardized, delayed monetary rewards were discounted less steeply than the other rewards (beer, candy, and soda), which were discounted at equivalent rates (Estle et al., 2007; Holt et al., 2016). However, we are able to examine the relative change across the unequal commodities by comparing the ratio of change between two or more groups.

As mentioned above, it is important to thoughtfully choose the domain to be discounted. For example, Rasmussen and colleagues (2010) demonstrated that obesity outcomes were associated with delay discounting of food, yet were not for discounting of money. Further, Lawyer and Schoepflin (2013) showed that patterns of delay discounting for sexual activity are differentially associated with sexual outcomes compared to non-sexual outcomes. They found that sexual outcomes, like sexual excitability (i.e., how one reacts to sexual stimuli), were associated with sexual activity delay discounting rates. However, monetary discounting and sexual outcome measures were unrelated. Therefore, when examining impulsivity related to specific outcomes, it is beneficial to use a decision-making paradigm that involves factors associated with that outcome.

Delay Discounting for Sexual Activity

Behavioral measures of impulsive choice can measure sexual decision-making and risk-taking (e.g., Lawyer, 2008; Lawyer et al., 2010). Lawyer et al. (2010) found that the discounting paradigm could be used to characterize impulsive choices for sexual outcomes (e.g., 5 minutes of sexual activity now vs. 10 minutes of sexual activity in 1 day). Individuals that demonstrate steep rates of discounting for sexual activity indicate that they prefer shorter periods of sexual activity

over longer periods of sexual activity at a later time. There is evidence for domain specificity such that individuals display higher rates of discounting for sexual activity than money (Jarmolowicz et al., 2013; Johnson & Bruner, 2012). Additionally, unlike discounting for money, higher rates of discounting for sexual activity are associated with HIV sexual risk behavior (Johnson & Bruner, 2012). Other research has found varying effects of domain specificity, where discounting for sexual activity predicts sexual excitability but not non-sexual outcomes or sexual inhibition (Lawyer & Schoepflin, 2013). Therefore, in order to accurately examine one's impulsive behavior around their sexual actions it is important to examine an individual's choice patterns related to the sexual activity. Further, Lawyer and colleagues (2010) found discounting for sexual activity provides an opportunity to better understand real-world sexual behaviors.

Present Study

This study seeks to address gaps within behavioral choice impulsivity literature by examining effects of discrimination experiences on decision making in lesbian women and gay men. Specifically, this study will address whether recall of discrimination experiences among lesbian women and gay men differentially impact impulsivity-related decisions for monetary and sexual outcomes. Hatzenbuehler's (2009) mediation framework addition to the minority stress model (Meyer, 2003) provides a basis for how lesbian and gay discrimination is related to coping behaviors, such as risky sexual activity, and how negative affect could be mediating this relationship. However, sexual activity related choices in lesbian women and gay men in relation to discrimination experiences remains unclear and more research is needed. Therefore, since autobiographical recall affects decision making (Pascoe & Richman, 2011) and also induces emotions (Augustine & Larsen, 2011), incorporating behavioral measures will allow for an experimental examination of the immediate impacts related to discrimination that helps examine

and fill the gaps that are present within the literature. Further, experimental studies examining decision making in general related to lesbian and gay individuals, especially related to discrimination experiences, are lacking within the research literature. Therefore, for this novel study, delay discounting is used to investigate whether recall of perceived discrimination experiences affect impulsive behavioral choice across two domains (i.e., money and sexual activity) in lesbian women and gay men.

The following hypotheses were formulated based upon the aforementioned literature:

Hypotheses

Hypothesis 1: There will be a main effect of recalling and writing about a discrimination experience on discounting task outcomes, such that the group recalling and writing about past discrimination experiences will have a significantly higher k on both the monetary and sexual activity discounting scores than those in the neutral recall and writing group.

Hypothesis 2: There will be a domain-specific effect of recalling and writing about a discrimination experience on discounting task outcomes, such that the group recalling and writing about past discrimination experiences will have significantly higher k sexual activity discounting scores compared to monetary discounting scores.

Hypothesis 3: The experience of negative affect related to recalling and writing about a discrimination experience will mediate the relationship between the discrimination manipulation and delay discounting k scores for sexual activity, such that the experience of negative affect is associated with steeper delay discounting for sexual activity as indicated by larger k scores.

Hypothesis 4: The experience of negative affect related to recalling and writing about a discrimination experience will mediate the relationship between the discrimination manipulation and delay discounting k scores for money, such that the experience of negative affect is associated with steeper delay discounting for money as indicated by larger k scores.

References

- Ainslie, G. (1975). Specious reward: A behavioral theory of impulsiveness and impulse control. *Psychological Bulletin*, 82(4), 463–496.
- Andersen, J. P., Zou, C., & Blosnigh, J. (2015). Multiple early victimization experiences as a pathway to explain physical health disparities among sexual minority and heterosexual individuals. *Social Science & Medicine*, 13, 111–119.
<https://doi.org/10.1016/j.socscimed.2015.03.043>
- Anestis, M. D., Holm-Denoma, J. M., Gordon, K. H., Schmidt, N. B. & Joiner, T. E. (2008). The role of anxiety sensitivity in eating pathology. *Cognitive Therapy and Research*, 32, 370–385.
- Augustine, A. A., & Larsen, R. J. (2011). Affect regulation and temporal discounting: Interactions between primed, state, and trait affect. *Emotion*, 11, 403–412.
- Baggaley, R. F., White, R. G., & Boily, M. C. (2010). HIV transmission risk through anal intercourse: Systematic review, meta-analysis and implications for HIV prevention. *International Journal of Epidemiology*, 39(4), 1048–1063.
- Baker, F., Johnson, M. W., & Bickel, W. K. (2003). Delay discounting in current and never-before cigarette smokers: Similarities and differences across commodity, sign, and magnitude. *Journal of Abnormal Psychology*, 112(3), 382–392.
<https://doi.org/10.1037/0021-843X.112.3.382>
- Balsam, K. F., Beadnell, B., & Molina, Y. (2013). The Daily Heterosexist Experiences Questionnaire: Measuring minority stress among lesbian, gay, bisexual, and transgender adults. *Measurement and Evaluation in Counseling and Development*, 46(1), 3–25.
<https://doi.org/10.1177/0748175612449743>

- Balsam, K. F., Rothblum, E. D., & Beauchaine, T. P. (2005). Victimization over the life span: A comparison of lesbian, gay, bisexual, and heterosexual siblings. *Journal of Consulting and Clinical Psychology, 73*(3), 477–487. <https://doi.org/10.1037/0022-006X.73.3.477>
- Baumeister, R. F., & Scher, S. J. (1988). Self-defeating behavior patterns among normal individuals: Review and analysis of common self-destructive tendencies. *Psychological Bulletin, 104*, 3–22.
- Beadnell, B., Morrison, D. M., Wilsdon, A., Wells, E. A., Murowchick, E., Hoppe, M., Gillmore, M. R., & Nahom, D. (2005). Condom use, frequency of sex, and number of partners: Multidimensional characterization of adolescent sexual risk-taking. *The Journal of Sex Research, 42*, 192–202.
- Beals, K. P. (2004). Stigma management and well-being: The role of social support, cognitive processing, and suppression. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 65*(2-B), 1070.
- Bechara, A. (2004). The role of emotion in decision-making: Evidence from neurological patients with orbitofrontal damage. *Brain and Cognition, 55*, 30–40.
- Bechara, A. (2005). Decision making, impulse control and loss of willpower to resist drugs: A neurocognitive perspective. *Nature Neuroscience, 8*, 1458–1463.
- Billieux, J., Van der Linden, M., & Rochat, L. (2008). The role of impulsivity in actual and problematic use of the mobile phone. *Applied Cognitive Psychology, 22*, 1195–1210. <https://doi.org/10.1002/acp.1429>
- Bostwick, W. B., Boyd, C. J., Hughes, T. L., West, B. T., & McCabe, S. E. (2014). Discrimination and mental health among lesbian, gay, and bisexual adults in the United States. *American Journal of Orthopsychiatry, 84*, 35–45.

- Bradley, K. A., DeBenedetti, A. F., Volk, R. J., Williams, E. C., Frank, D., & Kivlahan, D. R. (2007). AUDIT-C as a brief screen for alcohol misuse in primary care. *Alcoholism: Clinical and Experimental Research*, 31(7), 1208–1217. <https://doi.org/10.1111/j.1530-0277.2007.00403.x>
- Brennan, J. M. (2019). *Navigating the closet: A mixed methods approach to assessing the impact of concealment on psychological outcomes for sexual and gender minorities* [Master's Thesis, University of Montana]. Scholar Works. <https://scholarworks.umt.edu/etd/11359/>
- Brennan, J. M., Cochran, B. N., Jang, Y., Machek, G., Severson, R., & Murray, K. (2019). Hiding the authentic self: Concealment of gender and sexual identity and its consequences for authenticity and psychological well-being [Unpublished doctoral dissertation]. The University of Montana.
- Bryan, A. D., Schmiede, S. J., & Magnan, R. E. (2012). Marijuana use and risky sexual behavior among high-risk adolescents: Trajectories, risk factors, and event-level relationships. *Developmental Psychology*, 48, 1429–1442.
- Bush, K., Kivlahan, D. R., McDonell, M. B., Fihn, S. D., & Bradley, K. A. (1998). The AUDIT alcohol consumption questions (AUDIT-C): An effective brief screening test for problem drinking. *Archives of Internal Medicine*, 158(16), 1789–1795. <https://doi.org/10.1001/archinte.158.16.1789>
- Casey, L. S., Reisner, S. L., Findling, M. G., Blendon, R. J., Benson, J. M., Sayde, J. M. & Miller, C. (2019). Discrimination in the United States: Experiences of lesbian, gay, bisexual, transgender, and queer Americans. *Health Services Research*, 54(S2), 1454–1466. <https://doi.org/10.1111/1475-6773.13229>

- Centers for Disease Control and Prevention. (2012, December). *CDC fact sheet: New HIV infections in the United States*. <http://www.cdc.gov/nchhstp/newsroom/docs/2012/HIV-Infections-2007-2010.pdf>
- Centers for Disease Control and Prevention. (2009). *HIV/AIDS Surveillance Report, 2007: Vol 19*. <https://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-report-2007-vol-19.pdf>
- Centers for Disease Control and Prevention. (2009). *Trends in reportable sexually transmitted diseases in the United States, 2007*. <http://www.cdc.gov/std/stats07/trends.htm>
- Chawla, N., & Sarkar, S. (2019). Defining “high-risk sexual behavior” in the context of substance use. *Journal of Psychosexual Health, 1*(1), 26–31.
<https://doi.org/10.1177/2631831818822015>
- Chesson, H. W., Leichliter, J. S., Zimet, G. D., Rosenthal, S. L., Bernstein, D. I., & Fife, K. H. (2006). Discount rates and risky sexual behaviors among teenagers and young adults. *Journal of Risk and Uncertainty, 32*(3), 217–230. <https://doi.org/10.1007/S11166-006-9520-1>
- Clements-Nolle, K., Marx, R., Guzman, R., & Katz, M. (2001). HIV prevalence, risk behaviors, health care use, and mental health status of transgender persons: Implications for public health intervention. *American Journal of Public Health, 91*, 915–921.
- Cochran, S. D., & Mays, V. M. (2000). Relation between psychiatric syndromes and behaviorally defined sexual orientation in a sample of the US population. *American Journal of Epidemiology, 151*, 516–523.

- Cochran, S. D., & Mays, V. M. (2009). Burden of psychiatric morbidity among lesbian, gay, and bisexual individuals in the California quality of life survey. *Journal of Abnormal Psychology, 118*(3), 647–658. <https://doi.org/10.1037/a0016501>
- Cochran, S. D., Sullivan, J. G., & Mays, V. M. (2003). Prevalence of mental disorders, psychological distress, and mental health services use among lesbian, gay, and bisexual adults in the United States. *Journal of Consulting and Clinical Psychology, 71*, 53–61. <https://doi.org/10.1037/0022-006X.71.1.53>
- Coffey, S. F., Gudleski, G. D., Saladin, M. E., & Brady, K. T. (2003). Impulsivity and rapid discounting of delayed hypothetical rewards in cocaine-dependent individuals. *Experimental and Clinical Psychopharmacology, 11*(1), 18–25. <https://doi.org/10.1037/1064-1297.11.1.18>
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Earlbaum Associates.
- Cole, S. W., Kemeny, M. E., Taylor, S. E., & Visscher, B. R. (1996). Elevated physical health risk among gay men who conceal their homosexual identity. *Health Psychology, 15*(4), 243.
- Constantine, M. (2007). Microaggressions against African American clients in cross-racial counseling relationships. *Journal of Counseling Psychology, 54*, 1–16. <https://doi.org/10.1037/0022-0167.54.1.1>
- Constantine, M., & Sue, D. W. (2007). Perception of racial microaggressions among Black supervisees in cross-racial dyads. *Journal of Counseling Psychology, 54*, 142–153. <https://doi.org/10.1037/0022-0167.54.2.142>

- Cooper, S. M., McLoyd, V. C., Wood, D., & Hardaway, C. R. (2008). Racial discrimination and the mental health of African American adolescents. In S. Quintana & C. McKown (Eds.), *Handbook of race, racism and the developing child* (pp. 278–312). Wiley.
- Costa, P. T., & McCrae, R. R. (1992). Normal personality assessment in clinical practice: The NEO Personality Inventory. *Psychological Assessment*, 4(1), 5–13.
<https://doi.org/10.1037/1040-3590.4.1.5>
- Cyders, M. A., & Smith, G. T. (2007). Mood-based rash action and its components: Positive and negative urgency and their relations with other impulsivity-like constructs. *Personality and Individual Differences*, 43, 839–850.
- Cyders, M. A., & Smith, G. T. (2008). Emotion-based disposition to rash action: Positive and negative urgency. *Psychological Bulletin*, 134, 807–828.
- Daugherty, J. R., & Brase, G. L. (2010). Taking time to be healthy: Predicting health behaviors with delay discounting and time perspective. *Personality and Individual Differences*, 48, 202–207.
- de Wit, H. (2008). Impulsivity as a determinant and consequence of drug use: A review of underlying processes. *Addiction Biology*, 14(1), 22–31.
<https://doi.org/10.1111/j.1369-1600.2008.00129.x>
- Dean, L., Meyer, I. H., Robinson, K., Sell, R. L., Sember, R., Silenzio, V. M. B., Bowen, D. J., Bradford, J., Rothblum, E., White, J., Dunn, P., Lawrence, A., Wolfe, D., & Xavier, J. (2000). Lesbian, gay, bisexual, and transgender health: findings and concerns. *Journal of the Gay and Lesbian Medical Association*, 4(3), 102–151.

- Diamond, L. M., & Savin-Williams, R. C. (2009). Adolescent sexuality. In R. M. Lerner & L. Steinberg (Eds.), *Handbook of Adolescent Psychology*. John Wiley & Sons, Inc.
<https://doi.org/10.1002/9780470479193.adlpsy001015>
- Dolan, R. J. (2007). The human amygdala and orbital prefrontal cortex in behavioural regulation. *Philosophical Transactions of the Royal Society B-Biological Sciences*, 362, 787–799.
- Dressler, W. W., Oths, K. S., & Gravlee, C. C. (2005). Race and ethnicity in public health research: Models to explain health disparities. *Annual Review of Anthropology*, 34, 231–252. <https://doi.org/10.1146/annurev.anthro.34.081804.120505>
- Driesbach, G. (2006). How positive affect modulates cognitive control: The costs and benefits of reduced maintenance capability. *Brain and Cognition*, 60, 11–19.
- Du, W., Green, L., & Myerson, J. (2002). Cross-cultural comparisons of discounting delayed and probabilistic rewards. *Psychological Record*, 54, 479–492.
- Durso, L. E., & Meyer, I. H. (2013). Patterns and predictors of disclosure of sexual orientation to healthcare providers among lesbians, gay men, and bisexuals. *Sexuality Research and Social Policy*, 10, 35–42. <https://doi.org/10.1007/s13178-012-0105-2>
- Dwyer, M. (2017, November 21). *Poll finds a majority of LGBTQ Americans report violence, threats, or sexual harassment related to sexual orientation or gender identity; one-third report bathroom harassment*. <https://www.hsph.harvard.edu/news/press-releases/poll-lgbtq-americans-discrimination/>
- Estle, S. J., Green, L., Myerson, J., & Holt, D. D. (2017). Discounting of monetary and directly consumable rewards. *Psychological Science*, 18(1). <https://doi.org/10.1111/j.1467-9280.2007.01849.x>

- Factor, R. J., & Rothblum, E. D. (2007). A study of transgender adults and their non-transgender siblings on demographic characteristics, social support, and experiences of violence. *Journal of LGBT Health Research*, 3, 11–30.
- Feinstein, B. A., Davila, J., & Yoneda, A. (2012). Self-concept and self-stigma in lesbians and gay men. *Psychology and Sexuality*, 3(2), 161–177.
<https://doi.org/10.1080/19419899.2011.592543>
- Feldstein, S. W., & Miller, W. R. (2006). Substance use and risk-taking among adolescents. *Journal of Mental Health*, 15(6), 633–643. <https://doi.org/10.1080/09638230600998896>
- Figueroa, W. S., & Zoccola, P. M. (2016). Sources of discrimination and their associations with health in sexual minority adults. *Journal of Homosexuality*, 63(6), 743–763.
<https://doi.org/10.1080/00918369.2015.1112193>
- Fortenberry, J. D., Temkit, M., Tu, W., Katz, B. P., Graham, C. A., & Orr, D. P. (2005). Daily mood, partner support, sexual interest and sexual activity among adolescent women. *Health Psychology*, 24, 252–257.
- García Coll, C., Lamberty, G., Jenkins, R., McAdoo, H. P., Crnic, K., Wasik, B. H., & Vázquez García, H. (1996). An integrative model for the study of developmental competencies in minority children. *Child Development*, 67(5), 1891–1914.
- Gibbons, F. X., Yen, H. C., Gerrard, M., Cleveland, M. J., Cutrona, C., Simons, R. L., & Brody, G. H. (2007). Early experiences with racial discrimination and conduct disorder as predictors of subsequent drug use: A critical period hypothesis. *Drug and Alcohol Dependence*, 88, S27–S37. <https://doi.org/10.1016/j.drugalcdep.2006.12.015>
- Gray, J. C., Amlung, M. T., Palmer, A. A., & McKillop, J. (2016). Syntax for calculation of discounting indices from the monetary choice questionnaire and probability discounting

- questionnaire. *Journal of the Experimental Analysis of Behavior*, 106(2), 156–163.
<https://doi.org/10.1002/jeab.221>
- Gray, J. R. (1999). A bias toward short-term thinking in threat-related negative emotional state. *Personality and Social Psychology Bulletin*, 25, 65–75.
- Green, L., & Myerson, J. (2004). A discounting framework for choice with delayed and probabilistic rewards. *Psychological Bulletin*, 130(5), 769–792.
- Green, L., Myerson, J., & McFadden, E. (1997). Rate of temporal discounting decreases with amount of reward. *Money & Cognition*, 25, 715–723.
- Greenhow, A. K., Hunt, M. J., Macaskill, A. C., & Harper, D. N. (2015). The effect of reinforcer magnitude on probability and delay discounting of experienced outcomes in a computer game task in humans. *Journal of the Experimental Analysis of Behavior*, 104(2), 186–197. <https://doi.org/10.1002/jeab.166>
- Greene, M. L., Way, N., & Pahl, K. (2006). Trajectories of perceived adult and peer discrimination among Black, Latino, and Asian American adolescents: Patterns and psychological correlates. *Developmental Psychology*, 42, 218–236.
<https://doi.org/10.1037/0012-1649.42.2.218>
- Harrison, A. E., & Silenzio, V. M. (1996). Comprehensive care of lesbian and gay patients and families. *Primary Care: Clinics in Office Practice*, 23, 31–46.
[https://doi.org/10.1016/S0095-4543\(05\)70259-1](https://doi.org/10.1016/S0095-4543(05)70259-1)
- Haas, A. P., Eliason, M., Mays, V. M., Mathy, R. M., Cochran, S. D., D'Augelli, A. R., Silverman, M. M., Fisher, P. W., Hughes, T., Rosario, M., Russell, S. T., Malley, E., Reed, J., Litts, D. A., Haller, E., Sell, R. L., Remafedi, G., Bradford, J., Beautrais, A. L., ... Clayton, P. J. (2011). Suicide and suicide risk in lesbian, gay, bisexual, and

- transgender populations: Review and recommendations. *Journal of Homosexuality*, 58(1), 10–51. <https://doi.org/10.1080/00918369.2011.534038>
- Hatzenbuehler, M. L. (2009). How does sexual minority stigma “get under the skin”? A psychological mediation framework. *Psychological Bulletin*, 135(5), 707–730. <https://doi.org/10.1037/a0016441>
- Herek, G. M., Gillis, J. R., & Cogan, J. C. (1999). Psychological sequelae of hate-crime victimization among lesbian, gay, and bisexual adults. *Journal of Consulting and Clinical Psychology*, 67, 945–951. <https://doi.org/10.1037/0022-006X.67.6.945>
- Herek, G. M., Gillis, J. R., & Cogan, J. C. (2009). Internalized stigma among sexual minority adults: Insights from a social psychological perspective. *Journal of Counseling Psychology*, 56(1), 32.
- Herrmann, E. S., Johnson, P. S., & Johnson, M. W. (2015). Examining delay discounting of condom-protected sex among men who have sex with men using crowdsourcing technology. *AIDS and Behavior*, 19(9). <https://doi.org/10.1007/s10461-015-1107-x>
- Hinvest, N. S., & Anderson, I. M. (2010). The effects of real versus hypothetical reward on delay and probability discounting. *The Quarterly Journal of Experimental Psychology*, 63(6), 1072–1084. <https://doi.org/10.1080/17470210903276350>
- Holt, D. D., Glodowski, K., Smits-Seemann, R. R., & Tiry, A. M. (2016). The domain effect in delay discounting: The roles of fungibility and perishability. *Behavioural Processes*, 131, 47–52. <https://doi.org/10.1016/j.beproc.2016.08.006>
- Irwin, J. (2002). Discrimination against gay men, lesbians, and transgender people working in education. *Journal of Gay and Lesbian Social Services*, 14, 65–77. https://doi.org/10.1300/J041v14n02_06

- Jardin, C., Sharp, C., Garey, L., & Zvolensky, M. J. (2017). The role of impulsivity in the relation between negative affect and risky sexual behaviors. *Journal of Sex & Marital Therapy*, 43(3), 250–263. <https://doi.org/10.1080/0092623X.2016.1141821>
- Jarmolowicz, D. P., Bickel, W. K., & Gatchalian, K. M. (2013). Alcohol-dependent individuals discount sex at higher rates than controls. *Drug & Alcohol Dependence*, 131(3), 320–323.
- Johnson, M. W., & Bickel, W. K. (2002). Within-subject comparison of real and hypothetical money rewards in delay discounting. *Journal of The Experimental Analysis of Behavior*, 77(2), 129–146. <https://doi.org/10.1901/jeab.2002.77-129>
- Johnson, M. W., & Bickel, W. K. (2008a). An algorithm for identifying nonsystematic delay-discounting data. *Experimental and Clinical Psychopharmacology*, 16(3), 264–274. <https://doi.org/10.1037/1064-1297.16.3.264>
- Johnson, M. W., & Bickel, W. K. (2008b). An algorithm for identifying nonsystematic delay-discounting data: Correction to Johnson and Bickel (2008). *Experimental and Clinical Psychopharmacology*, 16(4), 321. <https://doi.org/10.1037/1064-1297.16.4.321>
- Johnson, M. W., & Bruner, N. R. (2012). The sexual discounting task: HIV risk behavior and the discounting of delayed sexual rewards in cocaine dependence. *Drug and Alcohol Dependence*, 123, 15–21.
- Johnson, E. J., & Tversky, A. (1983). Affect, generalization, and the perception of risk. *Journal of Personality and Social Psychology*, 45(1), 20–31. <https://doi.org/10.1037/0022-3514.45.1.20>
- King, M., Semlyen, J., Tai, S. S., Killaspy, H., Osborn, D., Popelyuk, D., & Nazareth, I. (2008). A systematic review of mental disorder, suicide, and deliberate self harm in lesbian, gay and bisexual people. *BMC Psychiatry*, 8(70). <https://doi.org/10.1186/1471-244X-8-70>

- Kirby, K. N. (2009). One-year temporal stability of delay-discount rates. *Psychonomic Bulletin & Review*, 16, 457–462. <https://doi.org/10.3758/PBR.16.3.457>
- Kirby, K.N., & Petry, N.M. (2004). Heroin and cocaine abusers have higher discount rates for delayed rewards than alcoholics or non-drug-using controls. *Addiction*, 99, 461–471.
- Kirby, K. N., Petry, N. M., & Bickel, W. K. (1999). Heroin addicts have higher discount rates for delayed rewards than non-drug-using controls. *Journal of Experimental Psychology: General*, 128(1), 78-87. <https://doi.org/10.1037/0096-3445.128.1.78>
- Kirkinis, K., Pieterse, A. L., Martin, C., Agiliga, A., & Brownell, A. (2018). Racism, racial discrimination, and trauma: A systematic review of the social science literature. *Ethnicity & Health*, 1–21. <https://doi.org/10.1080/13557858.2018.1514453>
- Koh, A. S., Gómez, C. A., Starley, S., & Rowley, E. (2005). Sexual risk factors among self-identified lesbians, bisexual women, and heterosexual women accessing primary care settings. *Sexually Transmitted Diseases*, 32(9), 563–569. <https://doi.org/10.1097/01.olq.0000175417.17078.21>
- Krieger, N., Waterman, P. D., Hartman, C., Bates, L. M., Stoddard, A. M., Quinn, M. M., Sorensen, G. & Barbeau, E. M. (2006). Social hazards on the job: Workplace abuse, sexual harassment, and racial discrimination: A study of Black, Latino, and white low-income women and men workers in the United States. *International Journal of Health Services*, 36(1), 51–85. <https://doi.org/10.2190/3EMB-YKRH-EDJ2-0H19>
- Krieger, N. (2012). Methods for the scientific study of discrimination and health: An ecosocial approach. *American Journal of Public Health*, 102(5), 936–944.

- Lagorio, C. H., & Madden, G. J. (2005). Delay discounting of real and hypothetical rewards III: Steady-state assessments, forced-choice trials, and all real rewards. *Behavioural Processes*, 69(2), 173–187. <https://doi.org/10.1016/j.beproc.2005.02.003>
- Lattal, K. A. (2010). Delayed reinforcement of operant behavior. *Journal of the Experimental Analysis of Behavior*, 93(1), 129–139.
- Lawyer, S. R. (2008). Probability and delay discounting of erotic stimuli. *Behavioural Processes*, 79(1), 36–42. <https://doi.org/10.1016/j.beproc.2008.04.009>
- Lawyer, S. R. and Mahoney, C. T. (2017). Delay discounting and probability discounting, but not response inhibition, are associated with sexual risk-taking in young adults. *Journal of Sex Research*, 55(7), 863–870. <https://doi.org/10.1080/00224499.2017.1350627>
- Lawyer, S. R., & Schoepflin, F. J. (2013). Predicting domain-specific outcomes using delay and probability discounting for sexual versus monetary outcomes. *Behavioural Processes*, 96, 71–78. <https://doi.org/10.1016/j.beproc.2013.03.001>
- Lawyer, S. R., Schoepflin, F. J., Green, R., & Jenks, C. (2011). Discounting of hypothetical and potentially real outcomes in nicotine-dependent and nondependent samples. *Experimental and Clinical Psychopharmacology*, 19(4), 263–274. <https://doi.org/10.1037/a0024141>
- Lawyer, S. R., Williams, S. A., Prihodova, T., Rollins, J. D., & Lester, A. C. (2010). Probability and delay discounting of hypothetical sexual outcomes. *Behavioural Processes*, 84(3), 687–692. <https://doi.org/10.1016/j.beproc.2010.04.002>
- Lee, J. H., Gamarel, K. E., Bryant, K. J., Zaller, N. D., & Operario, D. (2016). Discrimination, mental health, and substance use disorders among sexual minority populations. *LGBT Health*, 3(4), 258–265. <https://doi.org/10.1089/lgbt.2015.0135>

- Lehavot, K., & Simoni, J. M. (2011). The impact of minority stress on mental health and substance use among sexual minority women. *Journal of Consulting and Clinical Psychology, 79*(2), 159–170. <https://doi.org/10.1037/a0022839>
- Leith, K. P., & Baumeister, R. F. (1996). Why do bad moods increase self-defeating behavior? Emotion, risk taking, and self-regulation. *Journal of Personality and Social Psychology, 71*(6), 1250–1267.
- Lemley, S. M., Kaplan, B. A., Reed, D. D., Darden, A. C., & Jarmolowicz, D. P. (2016). Reinforcer pathologies: Predicting alcohol related problems in college drinking men and women. *Drug and Alcohol Dependence, 16*, 757–766. <https://doi.org/10.1016/j.drugalcdep.2016.07.025>
- Leppink, E. W., Chamberlain, S. R., Redden, S. A., & Grant, J. E. (2016). Problematic sexual behavior in young adults: Associations across clinical, behavioral, and neurocognitive variables. *Psychiatry Research, 24*, 6230–6235. <https://doi.org/10.1016/j.psychres.2016.09.044>
- Levy, S., Sherritt, L., Gabrielli, J., Shrier, L. A., & Knight, J. R. (2009). Screening adolescents for substance use-related high-risk sexual behaviors. *Journal of Adolescent Health, 45*, 473–477.
- Lewis, T. T., Cogburn, C. D., & Williams, D. R. (2015). Self-report experiences of discrimination and health: Scientific advances, ongoing controversies, and emerging issues. *Annual Review of Clinical Psychology, 11*, 407–440. <https://doi.org/10.1146/annurev-clinpsy-032814-112728>

- Lighthall, N. R., Mather, M., & Gorlick, M. A. (2009). Acute stress increases sex differences in risk seeking in the balloon analogue risk task. *PloS One*, 4(7), e6002.
<https://doi.org/10.1371/journal.pone.0006002>
- Lindley, L. L., Kerby, M. B., Nicholson, T. J., & Lu, N. (2007). Sexual behaviors and sexually transmitted infections among self-identified lesbian and bisexual college women. *Journal of LGBT Health Research*, 3(3), 41–54. <https://doi.org/10.1080/15574090802093323>
- Livingston, N. A., Flentje, A., Brennan, J. M., Mereish, E. H., Reed, O., & Cochran, B. N. (2020). Real-time associations between discrimination and anxious and depressed mood among sexual and gender minorities: The moderating effects of lifetime victimization and identity concealment. *Psychology of Sexual Orientation and Gender Diversity*, 7(2), 132–141. <https://doi.org/10.1037/sgd0000371>
- Livingston, N. A., Flentje, A., Heck, N. C., Szalda-Petree, A., & Cochran, B. N. (2017). Ecological momentary assessment of daily discrimination experiences and nicotine, alcohol, and drug use among sexual and gender minority individuals. *Journal of Consulting and Clinical Psychology*, 85(12), 1131–1143.
<https://doi.org/10.1037/ccp0000252>
- Loewenstein, G., & Prelec, D. (1992). Anomalies in intertemporal choice: Evidence and an interpretation. *The Quarterly Journal of Economics*, 107(2), 573–597.
<https://doi.org/10.2307/2118482>
- Logan, F. A. (1965). Decision making by rats: Delay versus amount of reward. *Journal of Comparative and Physiological Psychology*, 59, 1–12.

- Lombardi, E. L., Wilchins, R. A., Priesing, D., & Malouf, D. (2002). Gender violence: Transgender experiences with violence and discrimination. *Journal of Homosexuality*, 42, 89–101. https://doi.org/10.1300/J082v42n01_05
- MacKillop, J., Weafer, J., Gray, J. C., Oshri, A., Palmer, A., & de Wit, H. (2016). The latent structure of impulsivity: impulsive choice, impulsive action, and impulsive personality traits. *Psychopharmacology*, 233(18), 3361–3370. <https://doi.org/10.1007/s00213-016-4372-0>
- Madden, G. J., Petry, N. M., Badger, G. J., & Bickel, W. K. (1997). Impulsive and self-control choices in opioid-dependent patients and non-drug-using control patients: Drug and monetary rewards. *Experimental and Clinical Psychopharmacology*, 5(3), 256–262. <https://doi.org/10.1037/1064-1297.5.3.256>
- Marrazzo, J. M., Coffey, P., & Bingham, A. (2005). Sexual practices, risk perception and knowledge of sexually transmitted disease risk among lesbian and bisexual women. *Perspectives on Sexual and Reproductive Health*, 37(1), 6–12.
- Maxwell, A., Pakianathan, M., Henderson-Cleland, C., Avery, J., & Hegazi, A. (2018). Auditing AUDIT: Service evaluation of alcohol use disorders identification test to screen gay, bisexual and other MSM attending a sexual health service. *Conference: Special Issue: Abstracts of the 4th Joint Conference of the British HIV Association (BHIVA) with the British Association for Sexual Health and HIV (BASHH)*, 19(S2), s21–s152. <https://doi.org/10.1111/hiv.12614>
- Mayer, J. D., Gaschke, Y. N., Braverman, D. L., & Evans, T. W. (1992). Mood-congruent judgment is a general effect. *Journal of Personality and Social Psychology*, 63(1), 119–132. <https://doi.org/10.1037/0022-3514.63.1.119>

- Mays, V. M., & Cochran, S. D. (2001). Mental health correlates of perceived discrimination among lesbian, gay, and bisexual adults in the United States. *American Journal of Public Health, 91*, 1869–1876. <https://doi.org/10.2105/AJPH.91.11.1869>
- Mazur, J. E. (1987). An adjusting procedure for studying delayed reinforcement. In: M. L. Commons, J. E. Mazur, J. A. Nevin, & H. Rachlin (Eds.), *Quantitative Analyses of Behavior, Vol. 5. The effect of delay and of intervening events of reinforcement value* (pp. 55–73). Lawrence Erlbaum Associates, Inc. <https://doi.org/10.1177/1524838015584367>
- Mazur, J. E. (1997). Choice, delay, probability, and conditioned reinforcement. *Animal Learning & Behavior, 25*, 131–147.
- McCabe, S. E., Hughes, T. L., Bostwick, W. B., West, B. T., & Boyd, C. J. (2009). Sexual orientation, substance use behaviors and substance dependence in the United States. *Addiction, 104*, 1333–1345. <https://doi.org/10.1111/j.1360-0443.2009.02596.x>
- McDonald, S. D., & Calhoun, P. S. (2010). The diagnostic accuracy of the PTSD checklist: A critical review. *Clinical Psychology Review, 30*(8), 976–987. <https://doi.org/10.1016/j.cpr.2010.06.012>
- Meyer, I. H. (1995). Minority stress and mental health in gay men. *Journal of Health and Social Behavior, 36*(1), 38–56. <https://doi.org/10.2307/2137286>
- Meyer, I. H. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychological Bulletin, 129*(5), 674–697. <https://doi.org/10.1037/0033-2909.129.5.674>
- Mirzaei, M., Ahmadi, K., Saadat, S. H., & Ramezani, M. A. (2016). Instruments of high risk sexual behavior assessment: A systematic review. *Materia Socio Medica, 28*(1), 46–50. <https://doi.org/10.5455/msm.2016.28.46-50>

- Moriya, J. & Tanno, Y. (2008). Relationships between negative emotionality and attentional control in effortful control. *Personality and Individual Differences*, 44, 1348–1355.
- Myers, H. F. (2009). Ethnicity- and socio-economic status-related stresses in context: An integrative review and conceptual model. *Journal of Behavioral Medicine*, 32(9), 9–19.
<https://doi.org/10.1007/s10865-008-9181-4>
- Myerson, J., Green, L., & Warusawitharana, M. (2001). Area under the curve as a measure of discounting. *Journal of the Experimental Analysis of Behavior*, 76, 235–243.
- Oatley, K., & Johnson-Laird, P. N. (1996). The communicative theory of emotions: Empirical tests, mental models, and implications for social interaction. In L. L. Martin & A. Tesser (Eds.), *Striving and feeling: Interactions among goals, affect, and self-regulation* (pp. 363–393). Lawrence Erlbaum Associates, Inc.
- Odum, A. L. (2011a). Delay discounting: I'm a K, you're a K. *Journal of the Experimental Analysis of Behavior*, 96(3), 427–439. <https://doi.org/10.1901/jeab.2011.96-423>
- Odum, A. L. (2011b). Delay discounting: Trait variable?. *Behavioural Processes*, 87(1), 1–9.
<https://doi.org/10.1016/j.beproc.2011.02.007>
- Odum, A. L., Baumann, A. L., & Rimington, D. D. (2006). Discounting of delayed hypothetical money and food: Effects of amount. *Behavioural Processes*, 73(3), 278–284.
<https://doi.org/10.1016/j.beproc.2006.06.008>
- O'Hara, R. E., Gibbons, F. X., Weng, C., Gerrard, M., & Simons, R. L. (2011). Perceived racial discrimination as a barrier to college attendance for African Americans: Mediation by academic orientation and expectations. *Personality and Social Psychology Bulletin*, 38(1), 77–89. <https://doi.org/10.1177/0146167211420732>

- Oreg, S., & Bayazit, M. (2009). Prone to bias: Development of a bias taxonomy from an individual differences perspective. *Review of General Psychology*, *13*, 175–193.
- Pachankis, J. E. (2007). The psychological implications of concealing a stigma: A cognitive-affective-behavioral model. *Psychological Bulletin*, *133*(2), 328–345.
<https://doi.org/10.1037/0033-2909.133.2.328>
- Pager, D., & Shepherd, H. (2008). The sociology of discrimination: Racial discrimination in employment, housing, credit, and consumer markets. *Annual Review of Sociology*, *34*, 181–209.
- Paradies, Y. (2006). A systematic review of empirical research on self-reported racism and health. *International Journal of Epidemiology*, *35*(4), 888–901.
- Pascoe, E. A., & Smart Richman, L. (2009). Perceived discrimination and health: A meta-analytic review. *Psychological Bulletin*, *135*(4), 531–554.
- Pascoe, E. A., & Smart Richman, L. (2011). Effect of discrimination on food decisions. *Self and Identity*, *10*(3), 396–406. <https://doi.org/10.1080/15298868.2010.526384>
- Patterson, T. L., Semple, S. J., Zians, J. K., & Strathdee, S. A. (2005). Methamphetamine-using HIV-positive men who have sex with men: Correlates of polydrug use. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, *82*(1), i120–i126.
<https://doi.org/10.1093/jurban/jti031>
- Pavalko, E. K., Mossakowski, K. N., & Hamilton, V. J. (2003). Does perceived discrimination affect health? Longitudinal relationships between work discrimination and women's physical and emotional health. *Journal of Health and Social Behavior*, *44*(1), 18–33.
<https://doi.org/10.2307/1519813>

- Petry, N. M. (2001). Delay discounting of money and alcohol in actively using alcoholics, currently abstinent alcoholics, and controls. *Psychopharmacology*, *154*(3), 243–250.
<https://doi.org/10.1007/s002130000638>
- Pinto, V. M., Tancredi, M. V., Neto, A. T., & Buchalla, C. M. (2005). Sexually transmitted disease/HIV risk behavior among women who have sex with women. *AIDS*, *19*, S64–S69.
- Pizer, J. C., Sears, B., Mallory, C., & Hunter, N. D. (2011). Evidence of persistent and pervasive workplace discrimination against LGBT people: The need for federal legislation 131 prohibiting discrimination and providing for equal employment benefits. *Loyola of Los Angeles Law Review*, *45*, 715–778.
- Plous, S. (2003). The psychology of prejudice, stereotyping, and discrimination: An overview. In S. Plous (Ed.), *Understanding prejudice and discrimination* (p. 3–48). McGraw-Hill.
- Polusny, M. A., & Follette, V. M. (1995). Long-term correlates of child sexual abuse: Theory and review of the empirical literature. *Applied & Preventive Psychology*, *4*, 143–166.
- Pratto, F., & John, O. P. (1991). Automatic vigilance: The attention-grabbing power of negative social information. *Journal of Personality and Social Psychology*, *61*(3), 380–391.
<https://doi.org/10.1037/0022-3514.61.3.380>
- Rachlin, H., Raineri, A., & Cross, D. (1991). Subjective probability and delay. *Journal of the Experimental Analysis of Behavior*, *55*, 233–244.
- Rasmussen, E., Lawyer, S. R., & Reilly, W. (2010). Percent body fat is related to delay and probability discounting for food in humans. *Behavioural Processes*, *83*, 23–30.
- Reisner, S. L., Conron, K. J., Scout, N., Baker, K., Herman, J. L., Lombardi, E., Greytak, E. A., Gill, A. M., & Matthews, A. K. (2015). “Counting” transgender and gender-

nonconforming adults in health research recommendations from the gender identity in US surveillance group. *Transgender Studies Quarterly*, 2(1), 34–57.

<https://doi.org/10.1215/23289252-2848877>

Richards, J. B., Mitchell, S. H., de Wit, H., & Seiden, L. S. (1997). Determination of discount functions in rats with an adjusting-amount procedure. *Journal of the Experimental Analysis of Behavior*, 67, 353–366.

Richards, J. B., Zhang, L., Mitchell, S. H., & de Wit, H. (1999). Delay or probability discounting in a model of impulsive behavior: Effect of alcohol. *Journal of the Experimental Analysis of Behavior*, 71, 121–143.

Riggs, D. W., & Treharne, G. J. (2016). Decompensation: A novel approach to accounting for stress arising from the effects of ideology and social norms. *Journal of Homosexuality*, 5(64), 592–605. <https://doi.org/10.1080/00918369.2016.1194116>

Roberts, M. E., Gibbons, F. X., Gerrard, M., Weng, C., Murry, V. M., Simons, L. G., Simons, R. L., & Lorenz, F. O. (2012). From racial discrimination to risky sex: Prospective relations involving peers and parents. *Developmental Psychology*, 48(1), 89–102.
<https://doi.org/10.1037/a0025430>

Rosario, M., Corliss, H. L., Everett, B. G., Russell, S. T., Buchting, F. O., & Birkett, M. A. (2014). Mediation by peer violence victimization of sexual orientation disparities in cancer-related tobacco, alcohol, and sexual risk behaviors: Pooled youth risk behavior surveys. *American Journal of Public Health*, 104, 1113–1123.
<https://doi.org/10.2105/AJPH.2013.301764>

- Rosario, M., Meyer-Bahlburg, H. F. L., Hunter, J., & Gwadz, M. (1999). Sexual risk behaviors of gay, lesbian, and bisexual youths in New York City: Prevalence and correlates. *AIDS Education and Prevention, 11*(6), 476–496.
- Ruggiero, K. J., Del Ben, K., Scotti, J. R., & Rabalais, A. E. (2003). Psychometric properties of the PTSD Checklist- Civilian Version. *Journal of Traumatic Stress, 16*(5), 495–502.
<https://doi.org/10.1023/A:1025714729117>
- Rumpf, H., Hapke, U., Hill, A., & John, U. (1997). Development of a screening questionnaire for the general hospital and general practices. *Alcoholism Clinical & Experimental Research, 21*(5), 894–898. <https://doi.org/10.1111/j.1530-0277.1997.tb03854.x>
- Samuelson, P. A. (1937). A note on measurement of utility. *The Review of Economic Studies, 4*(2), 155–161. <https://doi.org/10.2307/2967612>
- Saunders, J. B., Aasland, O. G., Babor, T. F., de la Fuente, J. R., & Grant, M. (1993). Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption--II. *Addiction, 88*(6), 791–804. <https://doi.org/10.1111/j.1360-0443.1993.tb02093.x>
- Sellers, R. M., Caldwell, C. H., Schmeelk-Cone, K. H., & Zimmerman, M. A. (2003). Racial identity, racial discrimination, perceived stress, and psychological distress among African American young adults. *Journal of Health and Social Behavior, 44*, 302–317.
- Sellers, R. M., Copeland-Linder, N., Martin, P. P., & Lewis, R. L. (2006). Racial identity matters: The relationship between racial discrimination and psychological functioning in African American adolescents. *Journal of Research on Adolescence, 16*, 187–216.
<https://doi.org/10.1111/j.1532-7795.2006.00128.x>

- Selzer, M. L., Vinokur, A., & van Rooijen. (1975). A self-administered short Michigan alcoholism screening test (SMAST). *Journal of Studies on Alcohol and Drugs*, 36(1), 117–126. <https://doi.org/10.15288/jsa.1975.36.117>
- Semple, S. J., Zians, J., Grant, I., & Patterson, T. L. (2006). Methamphetamine use, impulsivity, and sexual risk behavior among HIV-positive men who have sex with men. *Journal of Addictive Diseases*, 25(4), 105–114. https://doi.org/10.1300/J069v25n04_10
- Shah, J. Y., Friedman, R., & Kruglanski, A. W. (2002). Forgetting all else: On the antecedents and consequences of goal shielding. *Journal of Personality and Social Psychology*, 83, 1261–1280.
- Shelton, K., & Delgado-Romero, E. A. (2013). Sexual orientation microaggressions: The experience of lesbian, gay, bisexual, and queer clients in psychotherapy. *Psychology of Sexual Orientation and Gender Diversity*, 1(S), 59–70. <https://doi.org/10.1037/2329-0382.1.S.59>
- Shields, A. L., Howell, R., Potter, J., & Weiss, R. D. (2007). The Michigan alcoholism screening test and its shortened form: A meta-analytic inquiry into score reliability. *Substance Use & Misuse*, 42(11), 1783–1800. <https://doi.org/10.1080/10826080701212295>
- Shrier, L. A., Koren, S., Aneja, P., & de Moor, C. (2010). Affect regulation, social context, and sexual intercourse in adolescents. *Archives of Sexual Behavior*, 39, 695–705.
- Shrier, L. A., Pierce, J. D., Emans, S. J., DuRant, R. H. (1998). Gender differences in risk behaviors associated with forced or pressured sex. *Archives of Pediatrics and Adolescent Medicine*, 152(1), 57–63. <https://doi.org/10.1001/archpedi.152.1.57>

- Singh, D., McMain, S., & Zucker, K. J. (2011). Gender identity and sexual orientation in women with borderline personality disorder. *Journal of Sexual Medicine*, 8, 447–454.
<https://doi.org/10.1111/j.1743-6109.2010.02086.x>
- Skakoon-Sparling, S., Cramer, K. M., & Shuper, P. A. (2016). The impact of sexual arousal on sexual risk-taking and decision-making in men and women. *Archives of Sexual Behavior*, 45(1), 33–42. <https://doi.org/10.1007/s10508-015-0589-y>
- Skinner, H. A. (1982). The Drug Abuse Screening Test. *Addictive Behaviors*, 7(4), 363–371. [https://doi.org/10.1016/0306-4603\(82\)90005-3](https://doi.org/10.1016/0306-4603(82)90005-3)
- Smith, D. K., Herbst, J. H., Zhang, X., & Rose, C. E. (2015). Condom effectiveness for HIV prevention by consistency of use among men who have sex with men in the United States. *Journal of Acquired Immune Deficiency Syndromes*, 68(3), 337–344.
<https://doi.org/10.1097/QAI.0000000000000461>
- Smith, K. R., Lawyer, S. R., & Swift, J. K. (2018). A meta-analysis of nonsystematic responding in delay and probability reward discounting. *Experimental and Clinical Psychopharmacology*, 26, 94–107.
- Spector, I. P., Carey, M. P., & Steinberg, L. (1996). The sexual desire inventory: Development, factor, structure, and evidence of reliability. *Journal of Sex & Marital Therapy*, 22, 175–190.
- Spencer, M. B., Dupree, D., & Hartman, T. (1997). A phenomenological variant of ecological systems theory (PVEST): A self-organization perspective in context. *Development and Psychopathology*, 9, 817–833. <https://doi.org/10.1017/S0954579497001454>

- Stewart, N., Reimers, S., & Harris, A. L. (2015). On the origin of utility, weighting, and discounting functions: How they get their shapes and how to change their shapes. *Management Science*, 61(3), 687–705. <https://doi.org/10.1287/mnsc.2013.1853>
- Sue, D. W. (2010). *Microaggressions in everyday life: Race, gender, and sexual orientation*. John Wiley & Sons Inc.
- Sue, D. W., Capodilupo, C. M., Torino, G. C., Bucceri, J. M., Holder, A. M. B., Nadal, K. L., & Esquilin, M. (2007). Racial microaggressions in everyday life: Implications for clinical practice. *American Psychologist*, 62, 271–286. <https://doi.org/10.1037/0003-066X.62.4.271>
- Swank, E., Fahs, B., & Frost, D. M. (2013). Region, social identities, and disclosure practices as predictors of heterosexist discrimination against sexual minorities in the United States. *Sociological Inquiry*, 83, 238–258. <https://doi.org/10.1111/soin.12004>
- Tornello, S. L., Riskind, R. G., & Patterson, C. J. (2014). Sexual orientation and sexual and reproductive health among adolescent young women in the United States. *Journal of Adolescent Health*, 54(2), 160–168. <https://doi.org/10.1016/j.jadohealth.2013.08.018>
- Tsukayama, E., & Duckworth, A. L. (2010). Domain-specific temporal discounting and temptation. *Judgment and Decision Making*, 5(2), 72–82.
- Turchik, J. A., & Garske, J. P. (2009). Measurement of sexual risk taking among college students. *Archives of Sexual Behavior*, 38(6), 936–948. <https://doi.org/10.1007/s10508-0089388z>
- Ullrich, P. M., Lutgendort, S. K., & Stapleton, J. T. (2003). Concealment of homosexual identity, social support and CD4 cell count among HIV-seropositive gay men. *Journal of Psychosomatic Research*, 54(3), 205–212.

[https://doi.org/10.1016/S0022-3999\(02\)00481-6](https://doi.org/10.1016/S0022-3999(02)00481-6)

van den Bos, R., Harteveld, M., & Stoop, H. (2009). Stress and decision-making in humans:

Performance is related to cortisol reactivity, albeit differently in men and women.

Psychoneuroendocrinology, 34(10), 1449–1458.

<https://doi.org/10.1016/j.psyneuen.2009.04.016>

Villalobos-Gallegos, L., Pérez-López, A., Mendoza-Hassey, R., Graue-Moreno, J., & Marín-

Navarrete, R. (2015). Psychometric and diagnostic properties of the Drug Abuse

Screening Test (DAST): Comparing the DAST-20 vs. the DAST-10. *Salud Mental*,

38(2), 89–94. <https://doi.org/10.17711/SM.0185-3325.2015.012>

Vuchinich, R. E., & Simpson, C. A. (1998). Hyperbolic temporal discounting in social drinkers

and problem drinkers. *Experimental and Clinical Psychopharmacology*, 6(3), 292–305.

<https://doi.org/10.1037/1064-1297.6.3.292>

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures

of positive and negative affect: The PANAS Scales. *Journal of Personality and Social*

Psychology, 54, 1063–1070.

Weafer, J., Baggott, M. J., & de Wit, H. (2013). Test–retest reliability of behavioral measures of

impulsive choice, impulsive action, and inattention. *Experimental and Clinical*

Psychopharmacology, 21(6), 475–481. <https://doi.org/10.1037/a0033659>

Whiteside, S. P., & Lynam, D. R. (2001). The Five Factor Model and impulsivity: Using a

structural model of personality to understand impulsivity. *Personality and Individual*

Differences, 30(4), 669–689. [https://doi.org/10.1016/S0191-8869\(00\)00064-7](https://doi.org/10.1016/S0191-8869(00)00064-7)

- Williams, D. R., & Mohammed, S. A. (2009). Discrimination and racial disparities in health: Evidence and needed research. *Journal of Behavioral Medicine*, 32(1), 20–47.
<https://doi.org/10.1007/s10865-008-9185-0>
- Williams, D. R., Neighbors, H. W., & Jackson, J. S. (2003). Racial/ethnic discrimination and health: Findings from community studies. *American Journal of Public Health*, 93(2), 200–208.
- Yang, Z., Zhang, S., Dong, Z., Jin, M., & Han, J. (2014). Prevalence of unprotected anal intercourse in men who have sex with men recruited online versus offline: A meta-analysis. *BMC Public Health*, 14(508). <https://doi.org/10.1186/1471-2458-14-508>
- Ybarra, M. L., Rosario, M., Saewyc, E., & Goodenow, C. (2016). Sexual behaviors and partner characteristics by sexual identity among adolescent girls. *Journal of Adolescent Health*, 58(3), 310–316. <https://doi.org/10.1016/j.jadohealth.2015.11.001>