Sexual Minority Behavioral Health Outcomes: The Role of Social Stressors and Self-Regulation

Zane B. Ballard
Marquette University

SEXUAL MINORITY BEHAVIORAL HEALTH OUTCOMES: THE ROLE OF SOCIAL STRESSORS AND SELF-REGULATION

by

Zane Ballard

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ABSTRACT
SEXUAL MINORITY BEHAVIORAL HEALTH OUTCOMES: THE ROLE OF SOCIAL STRESSORS AND SELF-REGULATION

Zane Ballard, B.A.

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Lesbian, gay, bisexual, and queer individuals have been shown to experience significantly more negative health outcomes than do heterosexuals. The current study examined the effects of identity authenticity on problematic alcohol and drug use and sexual compulsivity. The current study also tested whether this relationship between identity authenticity and negative behavioral health outcomes is mediated by self-regulation depletion, as well as internalized homonegativity and rejection sensitivity. Identity authenticity was associated with self-regulation depletion, internalized homonegativity, problematic alcohol use, and sexual compulsivity. Identity authenticity did not predict rejection sensitivity or problematic drug use. Evidence supports the role of self-regulation depletion in mediating the effects of identity authenticity on problematic alcohol use, and rejection sensitivity predicted variance in alcohol use contrary to the expected direction. Self-regulation depletion mediated the effects of identity authenticity on sexual compulsivity. Internalized homonegativity also accounted for significant variance in sexual compulsivity and mediated the effects of identity authenticity. These results suggest that self-regulation effectiveness may offer an additional account of negative behavioral outcomes among sexual minorities beyond sexual minority stress as presently conceptualized.

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Sexual minority behavioral health outcomes: The role of social stressors and self-regulation

Health disparities among heterosexual and sexual minority individuals are well documented (Cochran, Björkenstam, & Mays, 2016; King et al., 2008; Rodriguez-Seijas, Eaton, & Pachankis, 2019) and have often been attributed to sexual minority stress. Sexual minority stress is the cumulative stress experienced by individuals living with stigmatized sexual identities. For example, among sexual minorities, higher levels of sexual minority stress predict poorer physical health (Frost, Levahot, & Meyer, 2015) and poorer mental and behavioral health outcomes including increased likelihood of individuals developing depressive, anxious, and substance use disorders (Cox, Vanden Berghe, Dewaele, & Vincke, 2008). Higher reported levels of sexual minority stress among sexual minority men may also predict more compulsive and high-risk sexual behaviors (Pachankis, Rendina, Restar, Ventuneac, Grov, & Parsons, 2015), with potentially adverse consequences for physical health (Carey et al., 2009; Chen, Snowden, MacFarland, & Raymond, 2016; Dodge, Reece, Herbenick, Fisher, Satinsky, & Stupiansky, 2008). Increased sexual minority stress likely contributes to poorer health, including increased rates of problematic substance use and risky sexual behaviors (Frost & Svensson, 2018). Connections between sexual minority stress and behavioral health outcomes are therefore highly relevant to observed health disparities. Yet, despite the effects of stigma exposure on sexual minorities being mediated by sexual identity, researchers rarely examine the contribution of sexual minority identity processes to behavioral health outcomes.

The primary goal of the current study was to investigate how identity authenticity is related to self-regulation deficits and negative behavioral outcomes—namely, alcohol and other substance use, sexually-compulsive behavior—in a sexual minority sample. Identity authenticity here refers to concomitant positive regard for, openness regarding, and comfort with one's sexual identity. Furthermore, self-regulation effectiveness, or the degree to which one flexibly implements behaviors while modulating environmental input, is theorized to mediate the association between identity authenticity and behavioral health outcomes. This paper will begin by reviewing identity authenticity, with a focus on understanding how sexual minority individuals manage their sexual identities socially. Self-regulation is then considered as a potential explanation for why less authentic sexual identity management may contribute to negative behavioral health outcomes. The introduction closes with a description of the secondary goal of understanding the potential role of sexual minority stressors of internalized homonegativity and rejection sensitivity for producing further negative behavioral health outcomes.

Sexual Minority Identity-Management and Stress

In the psychological literature, lesbian, gay, bisexual, and queer individuals are often collectively referred to as sexual minorities. When navigating everyday life, sexual minority individuals often must be conscious of how they present themselves, to whom they disclose their sexual identities, and what relevant personal information to share (see Belmonte & Holmes, 2016; Crocker, Major, & Steele, 1998; Croteau, Anderson, & VanderWal, 2008; King, Mohr, Peddie, Jones, & Kendra, 2017). How open or 'out' a person is regarding their sexual identity may vary with context. Sexual minorities must

select among several identity management strategies when deciding whether and how to signal their sexual identity, contingent upon observed characteristics of the interaction partner(s), setting, situation, and past experiences (see King et al., 2017). Individuals' regard of their identity may also affect the likelihood of identity openness. The more positively the valence of one's regard of their sexual identity, the more likely one may be to disclose it, whereas one may be less likely the more negatively valanced one regards their identity (Legate, Ryan, & Weinstein, 2012; Mohr & Kendra, 2011).

Some researchers have conceptualized identity valence and outness jointly as identity authenticity (Riggle, Mohr, Rostosky, Fingerhut, & Balsalm, 2014), and identity authenticity likely indicates a positive sexual minority identity (Riggle, Rostosky, Black, & Rosenkrantz, 2017). More generally, the positive psychology literature notes authenticity as one strong indicator of satisfaction with life (Park, Peterson, & Seligman, 2004), and positive identity development among sexual minorities may also indicate a greater propensity for resiliency (Bruce, Harper, & Bauermeister, 2015). Therefore, a sexual minority person who endorses greater identity authenticity would likely experience less strain from navigating one's social world (Hill & Gunderson, 2015). Conversely, lower levels of identity authenticity likely predict more negative outcomes. Individuals who endorse lower levels of identity authenticity may experience greater strain managing an identity that they regard less positively and are less open about.

In this paper I propose that sexual identity management entails effortful self-regulation aimed at maximizing social acceptance and authenticity while minimizing rejection and stigma exposure (Hequembourg & Brallier, 2009; King et al., 2017; Madera, 2010). In this context, effortful self-regulation refers to the ability of human

beings to consider and intentionally alter their behavior, placing their response beyond the direct effects of the immediate situation in pursuit of goals (Heatherton & Baumeister, 1996). Specifically, this effortful process may contribute to deficits in later self-regulation effectiveness. Furthermore, I argue that these strains on self-regulation may contribute to behavioral dysregulation-related health risks experienced by sexual minority individuals.

The Strength Model of Self-Regulation Decrements

The burden of having to carefully manage one's identity authentically, especially while in situations perceived as potentially threatening, is likely to be psychologically difficult. In the proposed model, identity authenticity negatively correlates with adverse behavioral outcomes, and self-regulation deficits and sexual minority stress mediate this effect. Self-regulation involves establishing behavioral goals, monitoring progress towards those goals, and managing environmental input that may otherwise impact goal attainment. The ability to respond to more than the demands of the given moment, to select among possible actions, and carry them out intentionally is one key feature of human selfhood (Baumeister & Heatherton, 1996). The strength model of self-regulation has garnered substantial attention in the literature as a predominant account of this phenomenon, as well as of lapses in self-regulation effectiveness. Self-regulation in this model is conceptualized as a limited resource that is expended with use—ultimately resulting in a state of 'ego depletion'—and that must be replenished afterwards (Baumeister & Heatherton, 1996; Heatherton & Baumeister, 1996). Proponents of the strength model compare self-regulation to a muscle; less 'strong' or effective self-

regulation follows self-regulation exertion, leading to less effective performance (Baumeister, Vohs, & Tice, 2007; Muraven & Baumeister, 2000). Self-regulation efforts tend to anticipate performance deficits with repeated exertion (Baumeister & Heatherton, 1996; Hagger, Wood, Stiff, & Chatzisarantis, 2010). Self-regulation dysfunctions are implicated in such behavioral outcomes as substance use and excessive sexual behavior (Baumeister, 2002; Baumeister, Sparks, Stillman, & Vohs, 2008; DeHart, Longua Peterson, Richeson, & Hamilton, 2014).

Studies of ego depletion generally induce self-regulation decrements as the experimental manipulation to measure later self-regulation performance as the dependent variable. Researchers have conceptualized sources of self-regulation decrements as domain nonspecific and have identified several kinds of activities as impacting later self-regulation performance, including cognitive tasks requiring response inhibition or indefinite persistence (e.g., the Stroop color-word task, the “white bear” task, and unsolvable anagrams; Jia & Hirt, 2016; Schmeichel, 2007), tasks requiring participants to resist appetitive stimuli (e.g., choosing healthy instead of unhealthy foods; Baumeister, Bratslavsky, & Muraven, 1998; Vohs & Heatherton, 2000), or effortful social interactions (e.g., presenting oneself in a manner contrary to self-concept or habit; Vohs, Baumeister, & Ciarocco, 2005). Activities that produce self-regulation deficits have little in common beyond requiring effortful control, yet performance declines are still observed (Baumeister et al., 2007). Among sexual minority individuals, the greater the discrepancy between one’s authentic self and how one presents in a situation, the more self-regulation exertion would be anticipated to be required. Greater self-regulation exertion required by

this effortful self-presentation would in turn predict less effective self-regulation in subsequent situations, regardless of whether the latter involve self-presentation.

Studies have also measured ego depletion as a variable of interest, rather than an outcome. In correlational research, self-regulation depletion has been found to promote unethical decision-making (Welsh & Ordóñez, 2014; Welsh, Ordóñez, Snyder, & Christian, 2015) including dishonesty (Mead, Baumeister, Gino, Schweitzer, & Ariely, 2009), susceptibility to social influence (Janssen, Fennis, Pruyn, & Vohs, 2008; Welsh, Ellis, Christian, & Mai, 2014), deficient health behaviors among medical patients (Nes, Ehlers, Patten, & Gastineau, 2013; Nes, Ehlers, Whipple, & Vincent, 2013), and increased consumption of alcohol following stressful experiences among college students (DeHart et al., 2014). Studies in this vein support a general account of the instrumental role of self-regulation capacities in managing everyday behavior and preventing negative outcomes.

Researchers have only recently begun examining sexual minority behavioral health from this perspective (see Cortopassi, Starks, Parsons, and Wells, 2017; Giordano, 2016; McGarrity, 2016). Widely-cited research has supported the role of effortful self-presentation in predicting later self-regulation deficits (Vohs et al., 2005); as such, instances of sexual identity management could hypothetically foster a state of deficit self-regulation capacity. Yet, the implications of identity management exertion for self-regulation effectiveness and negative behavioral outcomes have not been examined in a sexual minority sample to date. Behavioral health outcomes, including substance use and sexual compulsivity, implicate behavioral self-regulation systems (Baler & Volknow, 2006; Bancroft & Vukadinovic, 2004), in that greater self-regulation capacity is

associated with higher likelihood of abstinence from use (Chavarria, Stevens, Jason, & Ferrari, 2012) and sexually compulsive behaviors (Adam, Teva, & De Wit, 2008). A more complete understanding of these health outcomes among sexual minorities requires considering how self-regulation deficits may contribute. Given the pervasive effects of self-regulation depletion and its connection to the stated problematic behaviors, one might anticipate that self-regulation depletion is more associated with negative behavioral outcomes than previously studied contributors, such as sexual minority stressors.

Sexual Minority Stressors and Behavioral Health Outcomes

Given the proposed importance of self-regulation for negative health outcomes, a secondary goal of the proposed study is to further explore how other sexual minority stressors might mediate the negative effects of sexual identity management strain. Meyer (2003) delineates two broad categories of sexual minority stressors: distal and proximal, corresponding to external and internal stressors, respectively. Distal stressors include experiences of prejudice, harassment, and discrimination and produce stress. Over time, these heterosexist stigma experiences are transduced into internal/proximal stressors, such as internalized identity negativity and rejection sensitivity.

Researchers in recent years have identified and studied several stressors linked to negative sexual minority health outcomes. Two well-studied stressors elaborated by the sexual minority stress model are internalized homonegativity and rejection sensitivity. Internalized homonegativity describes the degree to which a sexual minority individual has consciously or unconsciously taken on societal attitudes and beliefs contrary to the dignity of sexual minority persons and cultures (de St. Aubin & Skerven, 2008; Maylon,

1982). Outcomes associated with higher levels of internalized homonegativity include greater internalizing mental health concerns (Newcomb & Mustanski, 2010), greater difficulties with romantic relationships and intimacy (Frost & Meyer, 2009), increased substance use and sexual behavior (Hequembourg & Dearing, 2013; Kashubeck-West & Szymanski, 2008; Levahot & Simoni, 2011; Pachankis et al., 2015), and greater likelihood of endorsing suicidal ideation or behavior (Cramer, Burks, Stroud, Bryson, & Graham, 2015; Williamson, 2000). Rejection sensitivity refers to individual expectations of derision and/or exclusion in social situations, brought about by a history of perceived or actual threat of identity-based reprobation (Pachankis, Goldfried, & Ramrattan, 2008). Like internalized homonegativity, rejection sensitivity predicts negative outcomes, including social outcomes like decreased assertiveness, decreased self-esteem, and increased fears of negative social evaluation (Gao, Assink, Cipriani, & Lin, 2017; Pachankis et al., 2008), health outcomes like increased alcohol and tobacco use among sexual minority men (Pachankis, Hatzenbuehler, & Starks, 2014), and higher rates of internalizing symptoms, notably social anxiety (Cohen, Feinstein, Rodriguez-Seijas, Taylor, & Newman, 2016). Problematic rates of sexual compulsivity among sexual minority men have also been tied to high degrees of rejection sensitivity (Pachankis et al., 2015). As such, appropriate treatment of negative behavioral health outcomes among sexual minorities implicates the well-researched impacts of sexual minority stressors.

Psychosocial stressors posited by the sexual minority stress model require an individual to marshal what coping resources are at their disposal (Meyer, 2003) and thus might be exacerbated in individuals who must also engage in more effortful self-presentation when managing their sexual identity (Inzlicht, McKay, & Aronson, 2006).

Individuals reporting lower levels of identity authenticity may also experience greater internalized homonegativity and rejection sensitivity as compared to other sexual minorities whose self-presentation and identity management are less effortful. Therefore, in addition to self-regulation depletion, the relationship of internalized homonegativity and rejection sensitivity on behavioral outcomes may also partially account for the apparent association between identity authenticity and behaviors. The more direct association between self-regulation depletion and behavioral outcomes also suggests that self-regulation decrements may be more predictive of variance in behavioral outcomes than either internalized homonegativity or rejection sensitivity.

The Current Study

The current study examined self-reported sexual identity authenticity, self-regulatory decrements, sexual minority stress, and negative behavioral health outcomes (i.e., problematic alcohol and drug use, sexual compulsivity) in an online sample of sexual minorities. In this model, identity authenticity was expected to predict behavioral outcomes, such that lower authenticity would predict more negative behavioral outcomes, with self-regulation decrements mediating this relationship. Furthermore, higher levels of reported sexual minority stress—in this case, internalized homonegativity and rejection sensitivity—were expected to predict more problematic behaviors, consistent with the literature on sexual minority stress and behavioral health. Given the role that sexual identity management may play in determining what personal resources are available to cope with sexual minority stress, levels of internalized homonegativity and rejection

sensitivity were also expected to mediate the effects of identity authenticity. As such, the following hypotheses were proposed and tested (see Appendix A):

Hypothesis 1: Lower levels of sexual identity authenticity will predict greater indications of self-regulation decrements and more negative behavioral health outcomes.

Hypothesis 2: Self-regulation decrements, internalized homonegativity, and rejection sensitivity will mediate the relationship between authenticity and health outcomes.

Methods

Participants

Participants were screened for study inclusion based on their responses to a brief initial screening survey. To be included in the study, individuals had to endorse identification as a sexual minority, being at least 18 years old, and English language fluency. A total of 247 individuals provided complete survey responses. Participant age ranged from 18-73 years (M = 37.8, SD = 14.68), and 38.2% identified as male (n = 91), 57.6% as female (n = 137), and 2.5% as gender nonconforming (n = 6); 7.6% identified as transgender (n = 18). Over half of all participants identified as bisexual (or otherwise non-monosexual; 54.2%, n = 129), while 22.7% identified as gay (n = 54), 18.1% as lesbian (n = 43), and .9% as queer (n = 2). Ten participants did not provide information regarding their sexual orientation in demographics but were included in analyses. The majority of participants identified as White (71.8%, n = 171), and 13.4% identified as Black (n = 32), 1.7% as Asian (n = 4), 7.1% as Latinx (n = 17), 1.7% as Native American or Native Alaskan (n = 4), and 2.1% as multiracial (n = 5).

Procedure

Participants were recruited using TurkPrime Panel services and asked to complete a survey requiring approximately 30 minutes using the Amazon Mechanical Turk (MTurk) platform. MTurk is a marketplace wherein businesses and researchers (requesters) can post tasks and surveys for users to complete for modest compensation. The platform allows requesters to specify and screen for participant characteristics, and

participants can be prevented from submitting multiple responses from the same IP address. Participants were recruited by TurkPrime Panel services across several survey platforms; therefore, exact amount of compensation cannot be specified beyond the amount not exceeding $6 per participant. One participant completed the survey in less than 1/3 the median time of the group (Mdn = 1523 s; 1/3 Mdn = 507.67 s) and was discarded to screen out variable efforts in responding. Eight participants who identified their sexual orientation as completely heterosexual, asexual, or in an inappropriate manner (“female, “none active, “neutral, “male, “white”) on demographic items were also not included. The resulting sample included 238 sexual minority participants.

Measures

Demographics Participants were asked to provide their age, gender, geographic region of the United States (for US residents), income level, race and ethnicity, whether they are religiously affiliated, and level of education. No identifying information was collected. Demographic questions were included at the end of the survey.

Authenticity The Authenticity subscale of the Lesbian, Gay, Bisexual-Positive Identity Measure (LGB-PIM; Riggle et al., 2014) was administered as a measure of degree of positive valence and openness regarding sexual identity. The subscale consists of five items (“I feel I can be honest and share my LGBT identity with others.”), and participants are asked to rate each item from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*). In previous research, the LGB-PIM demonstrated adequate internal consistency ($\alpha = .89$) and validity, as evidenced by its significant relationships with measures of dispositional authenticity ($r = .46$), internalized negativity ($r = -.57$), and acceptance need ($r = -.54$;

Riggle et al., 2014). Its previously demonstrated significant relationships with outness (*r* = .58) and concealment (*r* = -.65; Riggle et al., 2017) also indicate the relevance of the subscale to current investigations of identity management and sexual minority stress. The LGB-PIM Authenticity subscale demonstrated excellent reliability in the current study (α = .91).

State Ego Depletion The State Ego Depletion Scale (SEDS) was developed by Twenge, Muraven, and Tice (2004) to assess the likelihood of current ego depletion based on the number of endorsed indications of mental fatigue, indecision, and other correlates of depletion. Participants are asked to rate items ("If I were given a difficult task right now, I would give up easily.") from 1 (*Not True*) to 7 (*Very True*). The original 25-item measure demonstrated good reliability (α = .90; Ciarocco, et al., 2009), although a briefer 3-item revision of the scale has also shown acceptable reliability (α = .80; DeHart et al., 2014). In a study of the role of ego depletion in social influence, Janssen and colleagues (2008) found a significant relationship between participating in a depletion task condition and the participants' score on an 11-item revision of the SEDS. The current study used the full 25 items to maximize reliability. The SEDS demonstrated excellent reliability in the current study (α = .96).

Internalized Homonegativity The 3-item Internalized Homonegativity subscale of the Lesbian, Gay, Bisexual Identity Scale (LGBIS; Mohr & Kendra, 2011) was used to estimate the degree to which participants hold unfavorable attitudes regarding their sexual orientation. The LGBIS is a 27-item measure assessing eight positive and negative characteristics of sexual minority identity (i.e., acceptance concerns, concealment motivation, identity uncertainty, internalized homonegativity, difficult process, identity

superiority, identity affirmation, and identity centrality) on which participants are asked to rate statements (“ If it were possible, I would choose to be straight.”) from 1 (*Disagree Strongly*) to 6 (*Agree Strongly*). Subscales were derived from an exploratory factor analysis demonstrating an 8-group solution and verified using confirmatory factor analysis (Cramer et al., 2017; Mohr & Kendra, 2011). Test-retest reliability checks were conducted six weeks after initial testing and yielded test-retest correlations of .70 to .92, while internal consistencies of .72 to .94 indicate good reliability. The internalized homonegativity subscale of the LGBIS demonstrated significant positive relationships with measures of internalized homophobia and symptoms of anxiety and depression, as well as significant negative relationships with life satisfaction and levels of lesbian, gay, or bisexual self-identification (Cramer et al., 2017). The LGBIS Internalized Homonegativity subscale demonstrated good reliability in the current study (α = .88).

Rejection Sensitivity The Gay-Related Rejection Sensitivity Scale (GRRSS; Pachankis et al., 2008) was used in the current study to measure the degree of vigilant anticipation of rejection by sexual minority participants. The measure consists of 14 vignettes featuring social situations in which rejection due to sexual orientation might occur and asks respondents to rate each scenario (“Only you and a group of macho men are on a subway train late at night. They look in your direction and laugh.”) from 1 to 6 on how concerned or anxious it would make them feel (1 = *Very Unconcerned*, 6 = *Very Concerned*) and how likely they believe rejection would be (1 = *Very Unlikely*, 6 = *Very Likely*). Scores on each vignette are multiplied together and averaged across the 14 scenarios to produce a mean score ranging from 1-36. Past studies indicate good reliability (α=.92; Pachankis et al., 2008). In the present study, wording of vignettes was

amended to remove pronouns assuming specific participant gender. The GRSSS demonstrated excellent reliability in the current study (α = .95).

Behavioral Health Outcomes The degree of problematic engagement in three domains of behavioral health were assessed using three self-report measures. Scores on alcohol and drug use measures reflect the extent to which thoughts and behaviors constitute problematic engagement in substance use, with higher scores indicating more problematic use. Scores on the Sexual Compulsivity Scale reflect the extent to which respondents' behaviors and thoughts about sexual activity are difficult to self-regulate, with higher scores indicating greater sexual compulsivity. Participants were not asked to report their frequency of engagement in substance use or in sexually compulsive thinking or behaviors.

The Brief Michigan Alcoholism Screening Test (BMAST) is a 10-item, yes-no response measure of indications of alcohol use disorders (Pokorny, Miller, & Kaplan, 1972). Items indicating problematic alcohol use behaviors contribute two points ("Have you ever gotten in trouble at work because of drinking?") or five points ("Have you ever gone to someone for help with your drinking?") to the BMAST total, with a maximum of 31 and higher scores indicating more problematic use. The measure has demonstrated acceptable reliability in a sexual minority sample (α = .72; Levahot & Simoni, 2011) and in the current study (α = .76).

The Drug Abuse Screening Test (DAST) is a 10-item self-report measure of problematic substance use behaviors over the past 12 months (Skinner, 1982). Items indicating problematic drug use ("Do you ever feel bad or guilty about your drug use?") contribute one point to the total DAST score, with a maximum score of 10 and higher

scores indicating more problematic use. The measure demonstrated high internal consistency in a clinical sample of patients with substance use disorders (α = .92) and good reliability in the current study (α = .80).

The Sexual Compulsivity Scale (SCS) is a 10-item measure of hypersexuality, cognitive preoccupation with sexuality, and negative life consequences, which demonstrates good reliability among men (α = .89) and women (α = .92; Kalichman & Rompa, 2001) and has demonstrated strong internal consistency in sexual minority samples (α = .91; Pachankis et al., 2015). All items are Likert-type, asking respondents to rate on a 1-4 scale how much they agree with 10 statements indicating sexually compulsive behaviors and sexual preoccupations and intrusive thoughts ("My sexual appetite has gotten in the way of my relationships"; "I sometimes fail to meet my commitments and responsibilities because of my sexual behavior."; Kalichman & Rompa, 2001). The SCS demonstrated good reliability in the current study (α = .87).

Data Analysis

Pearson's bivariate correlations were calculated to examine associations between model components. To test whether identity authenticity predicted self-regulation decrements and/or negative behavioral outcomes (Hypothesis 1), the investigator modelled the direct effects of identity authenticity on problematic alcohol and drug use, sexually compulsive behaviors, and state ego depletion using linear regression. Identity authenticity was also regressed on internalized homonegativity and rejection sensitivity as part of testing for mediation. To test whether effects of identity authenticity on behavioral outcomes were mediated other variables of interest, mediation analyses using

the PROCESS macro for SPSS were conducted, entering identity authenticity as the indirect predictor of each behavioral outcome of interest, with state ego depletion, internalized homonegativity, and rejection sensitivity tested for mediation (Hypothesis 2). Age was entered as covariates in all models.

Results

Preliminary Analyses

Only two participants did not provide information regarding LGBQ identity authenticity; no data was missing on any other constructs of interest. Across behavioral outcomes, moderate floor effects were observed, and some participants did not endorse any items on some scales. Distributions of outcome measures were highly skewed (see Appendix B for Table 1); however, regression is generally considered robust to violations of assumptions of normality (Ali & Sharma, 1996; Box & Watson, 1962). A smaller subset of participants endorsed a high degree of problematic substance and sexual behaviors.

Correlations

Associations among variables of interest were initially examined using Pearson's bivariate correlations. Correlations appear in Table 2. Identity authenticity was negatively correlated with state ego depletion (r = -.26, p < .001), internalized homonegativity (r = -.44, p < .001), alcohol use (r = -.16, p =.012), and sexual compulsivity (r = -.19, p = .003). Age demonstrated significant negative correlations with state ego depletion (r = -.24, p < .001) and drug use (r = -.16, p = .012). Positive correlations were found between state ego depletion and internalized homonegativity (r = .20, p = .002) and all behavioral variables (Alcohol use: r = .15, p = .025; Drug use: r = .27, p < .001; Sexual compulsivity: r = .23, p < .001). Internalized homonegativity was positively correlated with sexual compulsivity (r = .26, p < .001), and all behavioral variables were positively correlated.

Direct Effects of Identity Authenticity on Predictors

To examine the direct effects of identity authenticity, three hierarchical regression models were tested. Age was entered in the first step as a covariate, and identity authenticity was entered in the second step as a predictor of state ego depletion, internalized homonegativity, and rejection sensitivity. Full models including state ego depletion and internalized homonegativity as outcomes demonstrated significance (State ego depletion: $F(2, 231) = 17.65$, $R^2 = .13$, $p < .001$; Internalized homonegativity: $F(2, 231) = 27.69$, $R^2 = .19$, $p < .001$), while the model predicting rejection sensitivity did not ($F(2, 231) = 1.13$, $R^2 = .10$, $p = .325$). Age predicted significant variance in state ego depletion ($\beta = -.26$, $p < .001$), such that greater age was associated with lower levels of state ego depletion. Age did not account for significant variance in internalized homonegativity ($\beta = -.06$, $p = .297$) or rejection sensitivity ($\beta = .09$, $p = .178$). Identity authenticity was a significant predictor of state ego depletion ($\beta = -.28$, $p < .001$) and internalized homonegativity ($\beta = -.44$, $p < .001$), such that greater identity authenticity predicted lower levels of state ego depletion and internalized homonegativity. Results indicating that identity authenticity predicted state ego depletion support Hypothesis 1. Identity authenticity did not account for significant variance in rejection sensitivity ($\beta = -.04$, $p = .575$).

Direct Effects of Identity Authenticity on Behavioral Outcomes

To examine unmediated direct associations of LGBQ identity authenticity with each behavioral outcomes of interest (Hypothesis 1), three hierarchical linear regression

models were tested. Age was entered in the first step and served as a covariate. LGBQ identity authenticity was entered in the second step. All three full models demonstrated significance (Alcohol use: $F(2, 231) = 3.52$, $R^2 = .03$, $p = .03$; Drug use: $F(2, 231) = 4.44$, $R^2 = .04$, $p = .013$; Sexual compulsivity: $F(2, 231) = 4.48$, $R^2 = .04$, $p = .012$). Age predicted significant variance in drug use ($\beta = -.16$, $p = .012$) but not in alcohol use ($\beta = .06$, $p = .353$) or sexual compulsivity ($\beta = -.02$, $p = .743$). LGBQ identity authenticity predicted significant variance in alcohol use ($\beta = -.16$, $p = .016$) and sexual compulsivity ($\beta = -.20$, $p = .002$). Associations with drug use were not significant ($\beta = -.11$, $p = .085$; see Table 3).

Mediation Models

Mediation analyses were conducted using the PROCESS macro for SPSS (Hayes, 2013) to examine whether LGBQ identity authenticity was indirectly predictive of the behavioral outcomes of interest. State ego depletion, internalized homonegativity, and rejection sensitivity were tested as mediators. Age was included as a covariate. Models were tested separately for each outcome, resulting in three regression models. Because the PROCESS macro for SPSS does not accommodate testing multiple outcomes, three regression models corresponding to each of the behavioral outcomes of interest were tested.

Alcohol Use The full mediational model accounted for significant variance in alcohol use outcomes ($F(5, 228) = 3.32$, $R^2 = .07$, $p = .007$; see Table 4). Identity authenticity no longer predicted alcohol use in the mediational model ($\beta = -.54$, $p = .138$), whereas state ego depletion ($\beta = .82$, $p = .026$) and rejection sensitivity ($\beta = -.13$, $p =$

.018) accounted for significant variance in alcohol use. The opposite direction of effects of rejection sensitivity were found, such that greater rejection sensitivity was associated with less problematic alcohol use, and rejection sensitivity did not mediate effects of identity authenticity. Age (β = .05, *p* = .086) and internalized homonegativity (β = .04, *p* = .747) did not mediate effects of identity authenticity on alcohol use. Results support the expected role of state ego depletion in mediating the effects of identity authenticity on problematic alcohol use, consistent with Hypothesis 2.

Drug Use The full model predicted significant variance in drug use outcomes (*F*(5, 228) = 4.19, R^2 = .084, p = .001; see Table 4). Identity authenticity remained a nonsignificant contributor to variance in drug use (β = -.09, *p* = .487), and state ego depletion predicted significant variance in drug use (β = .42, *p* = .001). Age (β = -.02, *p* = .134). Internalized homonegativity (β = -.004, *p* = .93) and rejection sensitivity (β = -.01, *p* = .469) did not predict problematic drug use. Results support the role of state ego depletion in predicting levels of problematic drug use; however, evidence of state ego depletion mediating the effects of identity authenticity was not found.

Sexual Compulsivity The full model accounted for significant variance in sexual compulsivity (*F*(5, 228) = 5.49, R^2 = .108, p <.001; see Table 4). Identity authenticity no longer predicted sexual compulsivity in the full mediational model (β = -.13, *p* = .371), whereas state ego depletion (β = .34, *p* = .025) and internalized homonegativity (β = .14, *p* = .008) each accounted for significant variance in sexual compulsivity. Age (β = .004, *p* = .758) and rejection sensitivity (β = .04, *p* = .093) were not significant predictors. Results support the role of state ego depletion and internalized homonegativity in

mediating the effects of identity authenticity on sexual compulsivity, consistent with Hypothesis 2.

Discussion

The current study utilized a survey methodology to address the question of whether effortful self-presentation associated with identity management might relate to decrements in behavioral self-regulation. Sexual minority individuals presenting themselves less authentically would have to engage in more effortful behavioral self-regulation (Hill & Gunderson, 2015; King et al., 2017), and self-presentation contrary to habitual or authentic expression would anticipate poorer self-regulation (Hypothesis 1; Vohs et al., 2005). Given the role that self-regulation decrements could theoretically have in negative behavioral health outcomes, state ego depletion and sexual minority stress were expected to mediate the relationship between identity authenticity and behavioral outcomes (Hypothesis 2).

Results of hierarchical regression analyses supported Hypothesis 1. Evidence that levels of identity authenticity negatively predict levels of self-regulation decrements supports an account of sexual identity management as a dynamic component of sexual minority stress. In this study, the experimenter conceptualized identity authenticity as an indicator of positive sexual identity management, entailing greater openness and positivity regarding sexual minority identity. Existing literature supports the role of sexual identity management in producing self-regulation decrements, and the current study conceptually replicates those findings (King et al., 2017; Madera, 2010; Shih, Young, & Bucher, 2013). These results suggest that individuals with greater sexual identity authenticity may engage in less effortful self-regulation when managing their

social presentation, whereas lower levels of identity authenticity predict greater self-regulation decrements related to sexual identity management.

Existing research tends to emphasize negative experiential (e.g., stigma and discrimination) and cognitive affective contributions to sexual minority functioning (e.g., internalized homonegativity and rejection sensitivity; Levahot & Simoni, 2010; Meyer & Frost, 2013; Timmins, Rimes, & Rahman, 2019) but has largely ignored the application of self-regulation depletion frameworks. The current findings elaborate possible connections between the two bodies of literature, providing additional lines of inquiry beyond sexual minority stress as first elaborated by Meyer (2003). These results also support the role of state ego depletion in predicting negative behavioral outcomes and in mediating the effects of identity authenticity on problematic alcohol use and sexual compulsivity, supporting Hypothesis 2 (see Appendix A for Figure 2). Self-regulation depletion predicts problematic substance use and sexual behavior in the general population (see for review Maranges & Baumeister, 2016; see also Wiers, Ames, Hofmann, Krank, & Stacy, 2010), but previous research has not addressed the contribution of self-regulation depletion in sexual minorities. However, researchers have acknowledged that self-regulation depletion may partially explain sexual minority health outcomes (see Feinstein, McConnell, Dyar, Mustanski, & Newcomb, 2018; Pachankis, 2015). To the author's knowledge, no peer-reviewed research article to date has examined associations between a measure of self-regulation depletion (as opposed to a proxy variable; see Cortopassi et al., 2017; Hu, Wang, & Wu, 2013; Wang & Pachankis, 2016) and sexual minority behavioral outcomes. These findings therefore represent a

novel contribution to the sexual minority stress literature by supporting the role of self-regulation depletion in sexual minority behavioral health.

Results also suggest that older individuals tended to endorse lower levels of state ego depletion. The effects of age may be such that older sexual minority individuals have more practice managing their sexual identity or may be more likely to be out, rendering self-presentation less effortful. Substantive comment on this point is beyond the scope of the current investigation and should be further explored in studies of aging sexual minority populations. It is however interesting to note that increased age may modulate the experience of self-regulation decrements, and future research should examine whether aging or cohort-based factors account for this effect.

Identity authenticity predicted two of three negative behavioral outcomes, partially supporting Hypothesis 1. Identity authenticity predicted significant variance in problematic alcohol use and sexual compulsivity but not in drug use. The relationships between identity authenticity and alcohol use and sexual compulsivity provide further indications that more effortful self-presentation in sexual identity management may have consequences for self-regulation effectiveness, as lower levels of identity authenticity predicted more problematic alcohol use and sexual compulsivity. The current study supports the theoretical relationship between low levels of identity openness and identity negativity, e.g., lower levels of identity authenticity (Riggle et al., 2017; Riggle et al., 2014), and corroborates previously observed associations of negative identity with problematic behavioral outcomes (Amadio, 2006; Kashubeck-West & Szymanski, 2008; Quinn et al., 2015; White & Stephenson, 2014; Williamson, 2000). It is unclear what underlies discrepancies in significance across outcomes, as both alcohol and other

substance use have been found to be more prevalent among sexual minorities than heterosexuals (King et al., 2008; Rodriguez-Seijas et al., 2019). However, prevalence of use of different substances may vary demographically (Rodriguez-Seijas et al., 2019) and therefore not be captured by the current sample. Greater variance in a measure of problematic drug use compared to other behavioral outcome measures may also have attenuated its relationship with identity authenticity in the current study.

Rejection sensitivity negatively predicted problematic alcohol use in the current study, contrary to expectations given previous research findings. For instance, Pachankis and colleagues (2014) found that gay-related rejection sensitivity did predict frequency of smoking and alcohol use behaviors in US states with high levels of sexual minority stigma. The comparison is complicated by the difference in measurements; the current study made use of the BMAST to gauge degrees of problematic alcohol use versus frequency of use, the latter which being more common in substance use research, generally. Although researchers tend to assume the association between frequency of substance use and resultant impairment, there is some evidence to suggest that substance use norms among sexual minorities may be more permissive than among heterosexuals (Boyle, LaBrie, Costine, & Witkovic, 2017; Cochran, Grella, & Mays, 2012; Mereish, Goldbach, Burgess, & DiBello, 2017), which may impact the dynamics of and outcomes associated with use. Alternatively, participants higher in rejection sensitivity may self-select out of social environments where alcohol is consumed. Nevertheless, the nature of the observed relationship is unclear and should be interpreted with caution.

Limitations

The current study has several limitations. Firstly and chiefly, the current study was non-experimental, precluding considerations of directionality and causality among variables of interest. Additionally, the identity authenticity variable examined as the focal predictor in this study was selected for its hypothetical relationship with outness and identity positivity. In the initial validation study, the identity authenticity measure used demonstrated correlations consistent with the current conceptualization of identity authenticity as positively related to identity positivity and outness (Riggle et al., 2014) and thereby with smaller discrepancies between felt and presented identities; however, attempts to replicate these findings were not made part of the current study. The models tested also represent one interpretation of theoretical relationships between variables of interest, and the actual relationships between them may change with model conceptualization and measurement context.

Furthermore, the current study did not examine level of environmental support for sexual minority identity. The presumed connection between identity management 'strain' and self-regulation (via effortful self-presentation) rests on assumption that inauthentic more than authentic self-presentation was depleting. Individuals could also present themselves authentically in hostile environments or inauthentically despite being in an affirming environment, and each scenario could reduce or reverse the hypothesized relationship between identity authenticity and identity management strain. Results therefore may not necessarily demonstrate that inauthentic identity expression *per se*, rather than identity management generally, contributes to depletion.

Finally, the current sample may limit the generalizability of results. Nearly three-quarters of participants identified as White, with all other racial and ethnic groups underrepresented (excepting Native American/Alaskan individuals, whose participation as 1.7% of the sample were proportional to the national population). Findings may therefore be more applicable to White sexual minorities than to the lived experiences of sexual minority individuals of color and minority ethnicities.

Implications and Future Directions

Research Implications To the investigator's knowledge, only one published study to date has examined the relationship between self-regulation decrements and negative behavioral health outcomes among sexual minorities (Cortopassi et al., 2017). However, as that study measured cognitive reappraisal—a cognitive emotion regulation strategy—as a proxy for ego depletion rather than using any measure particular to the depletion construct, the current study may be one of the first to specifically examine the relationship between sexual identity, self-regulation effectiveness, and behavioral health outcomes. The results of the current study suggest that the ongoing, dynamic process of sexual identity management may constitute one pathway between stigmatized sexual identities and higher rates of substance use and greater sexual compulsivity, over and above the well-documented effects of sexual minority stress as such. Sexual identity management is by definition an ongoing process, a constant renegotiation with changes in one's environment in order to maximize identity authenticity while minimizing social rejection. The lived experience of sexual minority stress is necessarily temporal and momentary (Eldahan et al., 2016), despite usually being measured as a static, global

construct (Dyar, Feinstien, Eaton, & London, 2016; Frost & LeBlanc, 2014; Heron, Braitman, Lewis, Shappie, & Hitson, 2018). That self-regulation depletion likely relates to the effortful self-presentation entailed by sexual identity management suggests gaps in our current conceptualization of sexual minority stress.

Clinical Implications The impact of effortful self-presentation on self-regulation effectiveness has several implications for the behavioral health of sexual minorities. As noted above, the present findings suggest a need for greater exploration of the role self-regulation depletion may play in the development and maintenance of negative behavioral health outcomes. The extent to which effortful self-regulation involved in sexual minority self-presentation may contribute to impairment has been postulated (Madera, 2010) and likely merits further consideration. Various potential mitigators of self-regulation depletion have also been proposed, including affirmation of personal values (Schmeichel & Vohs, 2009; Tice, Baumeister, Shmueli, & Murave, 2007), effort conservation, and modification of rewards (Giacomantonio, Jordan, Fennis, & Panno, 2014), any of which may provide means of intervention on the deleterious effects of depletion on behavioral health. Additionally, researchers have previously observed a relationship between self-regulation depletion and emotion regulation difficulties (Schmeichel, 2007), the latter likely contributing to various sexual minority health concerns (Hatzenbuehler, Nolen-Hoeksema, & Dovidio, 2009; Pachankis, 2015; Pachankis et al., 2015). Given the likely complex interplay among these and other factors, it seems likely that these effects would be best studied together.

Future Directions To capture the complex relationship between sexual identity management processes and behavioral outcomes, future investigations should make use

of dynamic measures, including daily diary or ecological momentary assessment methods, to explore these relationships with greater precision. A larger sample could also be used to directly measure discrepancies between outness and self-presentation and their interaction with levels of environmental affirmativeness for sexual minority identities. Experimental methods for inducing self-regulation depletion could also be utilized to examine whether subsequent cognitive or behavioral outcomes are indirectly predicted by identity authenticity. Future studies might also experimentally induce sexual minority stress and measure outcomes in comparison to less stressful but still effortful self-presentation scenarios.

Conclusion

Substantial mental and behavioral health disparities persist between sexual minority and heterosexual individuals, with predominant accounts of these disparities functioning in a sexual minority stress framework. However, given that sexual minorities must navigate daily life while managing a concealable stigmatized identity, additional research literature pertaining to effortful self-presentation and self-regulation may offer another perspective from which to examine associations between sexual minority identity and behavioral outcomes. Models of behavioral self-regulation depletion may also be applicable to sexual minority health disparities, and the current study supports the relevance of these effects. In previous research, more effortful self-presentation has been shown to decrease self-regulation effectiveness. More effortful self-presentation associated with inauthentic identity presentation among sexual minorities also appeared linked to self-regulation decrements in the current study, supporting the role of self-regulation effectiveness in contributing to negative behavioral health outcomes in this population. Identity authenticity dominated two well-studied sexual minority stressors in predicting decreased self-regulation capacity, indicating that the self-regulation pathway between identity and behavior may better account for effects of sexual identity management on sexual minority behavioral regulation. Further research is necessary to support this connection and conceptualize how and in what ways sexual identity management is associated with self-regulation effectiveness and negative behavioral outcomes.

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Appendices

Appendix A - Figures

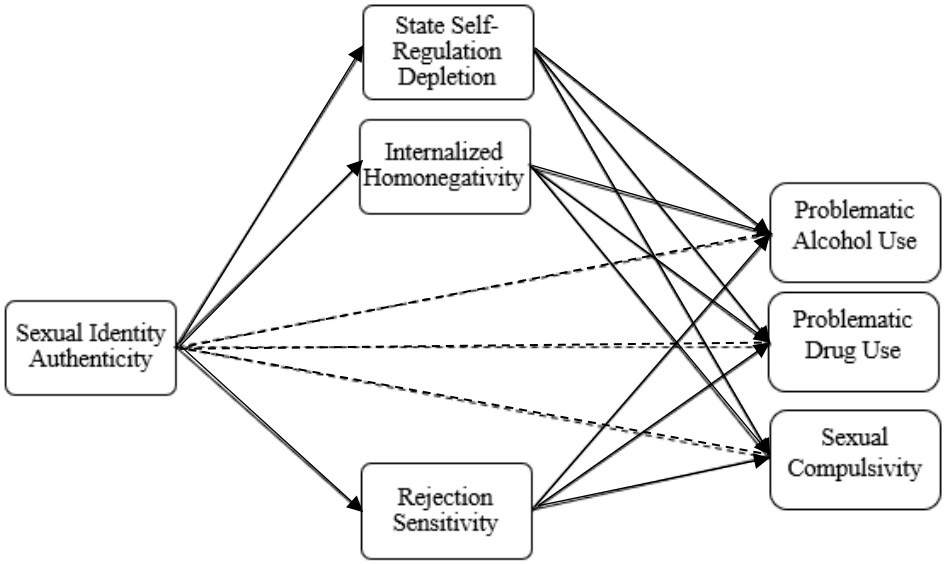

Figure 1. The proposed mediation model, with indirect effects indicated by dashed lines and direct effects by solid lines.

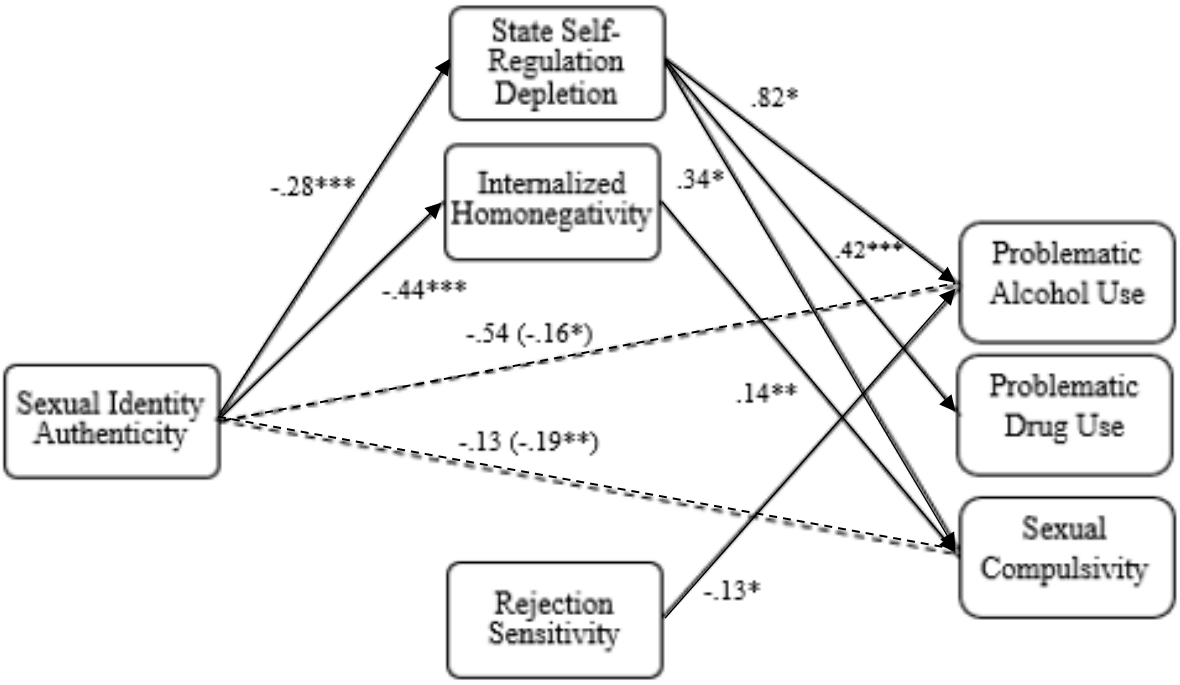

Figure 2. The observed mediation model; p<.05*, p<.01**, p<.001***.

Appendix B - Tables

Table 1.

Descriptive Statistics

	IA	Age	SED	IH	RS	AU	DU	SC
M	5.64	37.8	3.16	6.30	14.43	4.45	2.36	2.35
SD	1.34	14.68	1.27	3.78	8.25	6.61	2.25	2.78
Min	1.20	18	.88	3	1	0	0	0
Max	7	73	5.76	18	36	31	9	10
Skew	-1.01	.04	.35	.98	.48	2.13	1.50	1.29

Note: n=238; IA = identity authenticity (range:); SED = state ego depletion (range: ; IH = internalized homonegativity (range: 3-18); RS = rejection sensitivity (range: 1-36); AU = alcohol use (range: 0-31); DU = drug use (range: 0-10); SC = sexual compulsivity (range: 0-12).

Table 2.

Correlations Among Model Components

Measure	IA	AGE	SED	IH	RS	AU	DU
Identity authenticity	-	-					
Age	-.07	-					
State ego depletion	-.26***	-.24***	-				
Internalized homonegativity	-.44**	-.04	.20**	-			
Rejection sensitivity	-.04	.11	.12	.02	-		
Alcohol use	-.16*	.07	.15*	.10	-.13	-	
Drug use	-.10	-.16*	.27***	.07	-.03	.31***	-
Sexual compulsivity	-.19**	-.01	.23***	.26***	.13	.25***	.36***

Note: IA = identity authenticity, SED = state ego depletion, IH = internalized homonegativity, RS = rejection sensitivity, AU = alcohol use, DU = drug use; *p < .05, **p < .01, ***p < .001.

Table 3.
Results of Hierarchical Regression of Age and Identity Authenticity on Predictors

State ego depletion		β	*t*	*p*
Step 1 model				
	Age	-.24	-3.71	<.001
Step 2 model				
	Age	-.26	-4.16	<.001
	Identity authenticity	-.28	-4.52	<.001
Internalized homonegativity		β	*t*	*p*
Step 1 model				
	Age	-.03	-.48	
Step 2 model				
	Age	-.06	-1.05	
	Identity authenticity	-.44	-2.42	<.001
Rejection Sensitivity		β	*t*	*p*
Step 1 model				
	Age	.09	1.40	.164
Step 2 model				
	Age	.09	1.35	.178
	Identity authenticity	-.04	-.56	.575

Table 4.

Results of Hierarchical Regression of Age and Identity Authenticity on Alcohol Use, Drug Use, and Sexual Compulsivity

Alcohol use	β	*t*	*p*
Step 1 model			
Age	.07	1.09	.277
Step 2 model			
Age	.06	.93	.353
Identity authenticity	-.16	-2.42	.016
Drug use	**β**	***t***	***p***
Step 1 model			
Age	-.16	-2.42	.016
Step 2 model			
Age	-.16	-2.54	.012
Identity authenticity	-.11	-1.73	.085
Sexual Compulsivity	**β**	***t***	***p***
Step 1 model			
Age	-.01	-.12	.904
Step 2 model			
Age	-.02	1.05	.743
Identity authenticity	-.19	-2.99	.003

Table 5.

Results of Mediation Analysis Predicting Alcohol Use, Drug Use, and Sexual Compulsivity

Alcohol use	β	*t*	*p*	*F*	dF	R^2	*p*
Full model				3.32	5, 228	.07	.007
Age	.05	1.72	.086				
Identity authenticity	-.54	-1.49	.138				
State ego depletion	.82	2.24	.026				
Internalized homonegativity	.04	.32	.747				
Rejection sensitivity	-.13	-2.39	.018				
Drug use	β	*t*	*p*	*F*	dF	R^2	*p*
Full model				4.19	5, 228	.08	.001
Age	-.02	-1.50	.134				
Identity authenticity	-.09	-.70	.487				
State ego depletion	.42	3.42	<.001				
Internalized homonegativity	-.004	-.09	.930				
Rejection sensitivity	-.01	-.73	.469				
Sexual Compulsivity	β	*t*	*p*	*F*	dF	R^2	*p*
Full model				5.49	5, 228	.11	<.001
Age	.004	.31	.758				
Identity authenticity	-.13	-.90	.371				
State ego depletion	.34	2.26	.025				
Internalized homonegativity	.14	2.68	.008				
Rejection sensitivity	.04	1.69	.093				