



Published in final edited form as:

Health Psychol. 2015 August ; 34(8): 829–840. doi:10.1037/hea0000180.

A Minority Stress – Emotion Regulation Model of Sexual Compulsivity among Highly Sexually Active Gay and Bisexual Men

John E. Pachankis^{1,2}, H. Jonathon Rendina², Arjee Restar², Ana Ventuneac², Christian Grov^{2,3,4}, and Jeffrey T. Parsons^{2,4,5,6}

John E. Pachankis: john.pachankis@yale.edu

¹Department of Chronic Disease Epidemiology, Social and Behavioral Sciences Division, Yale School of Public Health, Yale University, New Haven, CT

²The Center for HIV/AIDS Educational Studies & Training (CHEST), New York, NY

³Department of Health and Nutrition Sciences, Brooklyn College of the City University of New York (CUNY), Brooklyn, NY

⁴City University of New York (CUNY) School of Public Health at Hunter College, New York, NY

⁵Department of Psychology, Hunter College of the City University of New York (CUNY)

⁶Health Psychology and Clinical Science Doctoral Program, The Graduate Center of the City University of New York (CUNY), New York, NY

Abstract

Objective—Sexual compulsivity represents a significant public health concern among gay and bisexual men given its co-occurrence with other mental health problems and HIV infection. The purpose of this study was to examine a model of sexual compulsivity based on minority stress theory and emotion regulation models of mental health among gay and bisexual men.

Method—Gay and bisexual men in New York City reporting at least nine past-90-day sexual partners ($n = 374$) completed measures of distal minority stressors (i.e., boyhood gender nonconformity and peer rejection, adulthood perceived discrimination), hypothesized proximal minority stress mediators (i.e., rejection sensitivity, internalized homonegativity), hypothesized universal mediators (i.e., emotion dysregulation, depression and anxiety), and sexual compulsivity.

Results—The hypothesized model fit the data well (RMSEA = 0.05, CFI = 0.98, TLI = 0.95, SRMR = 0.03). Distal minority stress processes (e.g., peer rejection) were generally found to confer risk for both proximal minority stressors (e.g., internalized homonegativity) and emotion dysregulation. Proximal minority stressors and emotion dysregulation, in turn, generally predicted sexual compulsivity both directly and indirectly through anxiety and depression.

Conclusions—The final model suggests that gay-specific (e.g., internalized homonegativity) and universal (e.g., emotion dysregulation) processes represent potential treatment targets to attenuate the impact of minority stress on gay and bisexual men's sexual health. Tests of interventions that address these targets to treat sexual compulsivity among gay and bisexual men represent a promising future research endeavor.

Keywords

gay and bisexual men; minority stress; emotion regulation; sexual compulsivity; stigma

Sexual compulsivity refers to frequent, hard to control sexual fantasies, urges, or behaviors that, unlike unproblematic high libido, cause distress or impairment in important life domains such as work and close relationships (Black, 2000). In addition to this distress and impairment, sexual compulsivity represents a public health concern for gay and bisexual men given its co-occurrence with other mental health problems and HIV infection (Dodge et al., 2008; Grov, Parsons, & Bimbi, 2010; Woolf-King et al., 2013). Some evidence suggests that gay and bisexual men are disproportionately affected by sexual compulsivity compared to heterosexual men (Baum & Fishman, 1994; Missildine, Feldstein, Punzalan, & Parsons, 2005), possibly because the problem is more likely to affect men compared to women (Black, 2000) and possibly given the ready availability of sexual outlets among gay and bisexual men (Parsons, Kelly, Bimbi, Muench, & Morgenstern, 2007). However, despite the public health necessity of developing effective treatment approaches for sexual compulsivity among gay and bisexual men, current etiologic and treatment models of sexual compulsivity do not specify psychosocial processes uniquely for this population (Kafka, 2010; Kingston & Firestone, 2008).

Minority stress theory provides one possible explanation for the origin and disproportionate experience of sexual compulsivity in gay and bisexual, compared to heterosexual, men that has been under-investigated in the literature (Muench & Parsons, 2004; Pincus, 1989; Quadland & Shattls, 1987). Minority stress refers to the stress to which lesbian, gay, and bisexual individuals are exposed because of social stigma (Meyer, 2003). Minority stress represents a plausible framework for understanding sexual compulsivity among gay and bisexual men because it plays a clear role in gay and bisexual men's experience of other mental health problems (e.g., Green & Feinstein, 2012; Hatzenbuehler, Nolen-Hoeksema, & Erickson, 2008; Pachankis & Bernstein, 2012) and can be incorporated into tailored interventions for these disorders among gay and bisexual men (e.g., Pachankis, 2014). However, the role of minority stress in sexual compulsivity remains unclear.

Minority stress begins early in gay and bisexual men's lives (Hatzenbuehler, McLaughlin, & Nolen-Hoeksema, 2008) and undermines mental health across development (Meyer, 2003). For example, gay and bisexual men are disproportionately exposed to peer rejection in childhood compared to heterosexual men, which poses risk for ongoing mental health problems (Balsam, Rothblum, & Beauchaine, 2005; Corliss, Cochran, & Mays, 2002; Ryan, Russell, Huebner, Diaz, & Sanchez, 2010), especially for gay and bisexual men who report gender nonconforming behaviors and interests as boys (Landolt, Bartholomew, Saffrey, Oram, & Perlman, 2004; Skidmore, Linsenmeier, & Bailey, 2006). Gay and bisexual adults are also significantly more likely than heterosexual adults to experience overt forms of discrimination, with the sexual orientation disparity in discrimination exposure accounting for much of the sexual orientation disparity in mental health problems (Mays & Cochran, 2001). Gender nonconformity, childhood peer rejection, and adulthood overt discrimination represent distal minority stressors in that they reside outside of sexual minority individuals.

Distal minority stressors been shown to powerfully shape gay and bisexual men's interpersonal and self-schemas in the form of chronic feelings of exclusion and expectations of rejection, known as rejection sensitivity (Pachankis, Goldfried, & Ramrattan, 2008), as well as directing homophobic attitudes toward oneself, or internalized homonegativity (Newcomb & Mustanski, 2010). Rejection sensitivity and internalized homonegativity represent proximal minority stressors in that they describe the psychological states of mind through which distal minority stressors exert adverse effects on mental health (Meyer, 2003). Both rejection sensitivity and internalized homonegativity have been shown to mediate the association between distal minority stressors, such as peer rejection and discrimination, and adulthood depression and anxiety (Feinstein, Goldfried, & Davila, 2012; Pachankis et al., 2008).

Exposure to distal and proximal minority stressors elevates mental health risk by elevating *universal* vulnerability processes, such as emotion regulation difficulties and depressed and anxious mood (Hatzenbuehler, 2009). Emotion regulation deficits, including difficulties experiencing, coping with, and expressing emotion, represent a core dysfunction in several mental health difficulties. These difficulties are implicated in internalizing problems, such as depression and anxiety (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Mennin & Farach, 2007), as well as disorders of behavioral excess, such as pathological gambling (Williams, Grisham, Erskine, & Cassedy, 2012) and substance abuse (Sher & Grekin, 2007). Across these disorders, individuals attempt to down-regulate their emotions through a conditioned behavioral escape. By virtue of its centrality across mental health disorders, emotion regulation represents a key treatment target for these disorders, with several evidence-based mental health treatments specifically enhancing emotion regulation skills (e.g., Greenberg, 2002; Linehan, 1993; Mennin & Fresco, 2009; Roemer, Orsillo, & Salters-Pedneault, 2008).

Emotion dysregulation might operate as a key mechanism in minority stress models of sexual compulsivity among gay and bisexual men for three reasons. First, difficulties of emotion regulation arise from early exposure to stressful, interpersonally rejecting environments (Shields, Cicchetti, & Ryan, 1994), which form a core part of minority stress for many gay and bisexual men. Second, in addition to conferring risk for several common mental health disorders, such as depression and anxiety, emotion dysregulation has also been proposed to predict sexual compulsivity in the general population (Bancroft & Vukadinovic, 2004; Kingston et al., 2008). Current conceptual models of sexual compulsivity, including compulsivity (Coleman, 1990), impulse control (Raymond, Coleman, & Miner, 2003), emotion regulation (Bancroft et al., 2004), and addiction (Goodman, 1997) models, describe sexual compulsivity as at least partially serving an emotion regulation function, whereby sexual fantasies and behaviors are enacted to alleviate negative moods such as depression and anxiety. Emotion regulation conceptualizations of sexual compulsivity might therefore explain the association between sexual compulsivity and mental health problems, such as depression (e.g., Parsons, Grov, & Golub, 2012). Third, emotion regulation difficulties among gay and bisexual men have been shown to mediate the association between minority stress and depression and anxiety (Hatzenbuehler, Nolen-Hoeksema, & Dovidio, 2009) and might serve a similar function in driving sexual compulsivity. Therefore, the minority stress model of sexual compulsivity examined here

includes emotion dysregulation and depression and anxiety as mediators through which distal and proximal minority stressors elevate risk for sexual compulsivity among gay and bisexual men.

In sum, we propose that gay and bisexual men exposed to distal and proximal minority stressors are more likely to experience universal psychological vulnerabilities for mental health problems. We hypothesize that these universal vulnerabilities—such as emotion dysregulation and depression and anxiety, in the case of the model under examination—act as mediators through which minority stress gives rise to sexually compulsive thoughts, urges, and behaviors. Additionally, distal minority stress confers risk for emotion regulation difficulties and depression and anxiety, and therefore sexual compulsivity, through proximal minority stress processes, such as rejection sensitivity and internalized homonegativity. By testing a model linking minority stress, emotion regulation, and depression and anxiety to sexual compulsivity, we aim to provide a model capable of guiding effective treatments for gay and bisexual men who experience sexual compulsivity.

Figure 1 displays the hypothesized associations in our minority stress model of sexual compulsivity. Consistent with previous research (e.g., Landolt et al., 2004; Pachankis et al., 2012), we propose that childhood gender nonconformity will be related to childhood peer rejection and adult experiences of overt discrimination (Paths A and B). Also consistent with extant work (Feinstein et al., 2012), we propose that childhood peer rejection and adulthood discrimination will be associated with gay-related rejection sensitivity (Paths C and D) and internalized homonegativity (Paths E and F). Extending prior research linking interpersonal rejection and emotion regulation difficulties (Hatzenbuehler, McLaughlin, & Nolen-Hoeksema, 2008; Hatzenbuehler et al., 2009), we propose direct paths from childhood peer rejection and adulthood discrimination to emotion dysregulation (Paths G and H). Given the role of proximal minority stress processes in gay and bisexual men's mental health (Hatzenbuehler, 2009; Pachankis et al., 2012), we propose direct paths from rejection sensitivity and internalized homonegativity to emotion regulation (Paths I and J) and depression and anxiety (Paths K and L). Given that depression and anxiety and sexual compulsivity are frequently conceptualized as disorders of emotion dysregulation (Aldao et al., 2010; Mennin et al., 2007), we hypothesize paths linking emotion regulation processes with these outcomes (Path M and N), and a direct path between depression and anxiety and sexual compulsivity (Path O) (Pachankis, Rendina, Ventuneac, & Parsons, 2014; Raymond et al., 2003). Finally, we propose that proximal minority stress processes are directly related to sexual compulsivity (Paths P and Q).

Hypothesized indirect paths unite distal minority stressors with sexual compulsivity through universal mediators, including emotion regulation difficulties (Paths G-N, H-N) and depression and anxiety (Paths G-M-O and H-M-O), as well as proximal minority stress processes, including rejection sensitivity (Paths C-P, D-P, C-K-O, and D-K-O) and internalized homonegativity (Paths E-Q, F-Q, E-L-O, and F-L-O). Additionally, proximal minority stress processes are proposed to predict mental health outcomes, including sexual compulsivity, through emotion regulation difficulties (Paths I-N, J-N) and depression and anxiety (I-M-O and J-M-O).

Method

Analyses for this paper were conducted using baseline data from an ongoing longitudinal study that is focused on issues related to sexual compulsivity among highly sexually active (i.e., 9 or more partners in the past 90 days) gay and bisexual men in New York City. The primary goal of the study was to enroll gay and bisexual men who were similar with regard to the amount of sexual behavior in which they were engaging but different in the extent to which these behaviors were causing distress or impairment consistent with sexual compulsivity. Although the follow-up portions of the study are ongoing (i.e., participants are still completing 12-month in-office assessments as well as 24-month online assessments), baseline enrollment has completed and data for these analyses were taken from the full sample of 377 men enrolled in the current project. Three individuals did not complete the baseline survey, and thus the present analyses focus on an analytic sample of 374 who provided responses to all study questions.

Participants and Procedures

Beginning in February of 2011, we began enrolling participants utilizing a combination of recruitment strategies: (1) respondent-driven sampling; (2) internet-based advertisements on social and sexual networking websites; (3) email blasts through New York City gay sex party listservs; and (4), active recruitment in New York City venues such as gay bars/clubs, concentrated gay neighborhoods, and ongoing gay community events. All participants completed a brief, phone-based screening interview to confirm eligibility, which was defined as: (1) at least 18 years of age as verified through a personal identification card containing a photograph; (2) biologically male and self-identified as male; (3) a minimum of 9 different male sexual partners in the prior 90 days, with at least 2 in the prior 30 days; (4) self-identification as gay, bisexual, or some other non-heterosexual identity (e.g., queer); (5) able to complete assessment in English, and (6) daily access to the internet in order to complete internet-based portions of the study. For the purposes of this project, we operationalized highly sexually active as having at least 9 sexual partners in the 90 days prior to enrollment based on prior research (Groves et al., 2010; Parsons et al., 2008), including a probability-based sample of urban men who have sex with men (Stall et al., 2003; Stall et al., 2002) that found that 9 partners was 2 to 3 times the average number of sexual partners among sexually active gay and bisexual men. Sexual partners were those with whom the participant engaged in any sexual contact that could lead to an orgasm. All eligibility criteria were confirmed at the baseline appointment, with sex criteria being confirmed using the timeline follow-back (TLFB) interview in which a calendar is used to recall one's daily sexual behavior (Sobell & Sobell, 1992).

Participants were excluded from the project if they demonstrated evidence of serious cognitive or psychiatric impairment that would interfere with their participation or limit their ability to provide informed consent, as indicated by a score of 23 or lower on the Mini-Mental Status Examination (MMSE; Folstein, Folstein, & McHugh, 1975) or evidence of active and unmanaged symptoms on the psychotic symptoms or suicidality sections of the Structured Clinical Interview for the DSM-IV-IR (SCID; First, Spitzer, Gibbon, & Williams, 2002).

Participation in the study involved both at-home (internet-based) and in-office assessments. After a member of the research staff confirmed participants' eligibility over the phone, participants were sent a link to complete an internet-based survey at home prior to their first in-office appointment that took approximately one hour to complete. Participants completed similar assessments during 6-month and 12-month follow-up visits and a similar at-home survey at 24 months post-baseline. Informed consent was obtained for both online and in-person portions of the study. All procedures were reviewed and approved by the Institutional Review Board of the City University of New York. This paper focuses exclusively on data collected during the baseline at-home survey.

Measures

All quantitative measures used for these analyses were completed as part of the at-home survey prior to the baseline appointment. After providing online consent, participants completed measures of sexual compulsivity and the demographic questionnaire. All other measures were grouped into thematic blocks (e.g., stigma, sexuality, mental health) and the order of blocks within the survey and measures within blocks were both randomized in order to evenly distribute the order effects that can result from serial positioning and priming.

Demographics—Participants were asked to report several demographic characteristics including age, race/ethnicity, sexual orientation, educational background, relationship status, and HIV status. With the exception of age, which was assessed using a free-response format, demographic characteristics were assessed using standard predefined response options and, when necessary, were condensed into meaningful categories which are displayed in Table 1. HIV status was verified through rapid testing for men who reported being HIV-negative and proof of HIV diagnosis (e.g., doctor's note, medication bottle) for men who reported being HIV-positive.

Problematic hypersexuality—Several theoretical constructs capture frequent, hard to control sexual fantasies, urges, or behaviors that cause distress or impairment in important life domains (Kafka, 2010). These constructs include, for example, sexual compulsivity, sexual addiction, sexual impulsivity, and hypersexuality. Although the field has not yet unified these highly related constructs through a consistent measurement approach, we operationalize our outcome using the Hypersexual Disorder Screening Inventory (HDSI), proposed by the American Psychiatric Association's DSM-5 workgroup on Sexual and Gender Identity Disorders (2010) in an attempt at theoretical unity. The scale consists of a total of seven items split into two sections (sections A and B) measuring criteria met within the prior six months. Section A consists of five items measuring recurrent and intense sexual fantasies, urges, and behaviors (e.g., “During the past 6 months, I have used sexual fantasies and sexual behavior to cope with difficult feelings, for example, worry, sadness, boredom, frustration, guilt, or shame”) and Section B contains two items measuring distress and impairment as a result of these fantasies, urges, and behaviors (e.g. “During the past 6 months, frequent and intense sexual fantasies, urges and behavior have caused significant problems for me in personal, social, work, or other important areas of my life”). Responses ranged from 0 (*Never true*) to 4 (*Almost always true*) and were summed to provide a total severity score ranging from 0 to 28. Previous research has found associations between the

HDSI and sexual impulsivity and maladaptive thoughts about sex (Pachankis et al., 2014). Prior research has also found the scale to have strong reliability (Parsons et al., 2013); internal consistency in this sample was strong ($\alpha = 0.90$).

Sexual compulsivity—Because the syndrome captured by the HDSI was ultimately not included in the *DSM-5*, we also include the most common measure of sexual compulsivity used in studies of gay and bisexual men (Hook, Hook, Davis, Worthington, & Penberthy, 2010)—the Sexual Compulsivity Scale (SCS; Kalichman & Rompa, 2001). We expect the HDSI and SCS to be highly related in the present study and to demonstrate similar associations with all study constructs. The SCS consists of ten items (e.g. “my desires to have sex have disrupted my daily life”), which were rated on a Likert-type scale from 1 (*not at all like me*) to 4 (*very much like me*). Responses to each item were summed to get an overall score (range 10-40). The SCS has been shown to have high reliability and validity across multiple studies (Hook, Hook, Davis, Worthington, & Penberthy, 2010) and had strong internal consistency in this sample ($\alpha = 0.91$).

Childhood gender nonconformity—We utilized the Childhood Gender Nonconformity Scale (Lippa, 2008) to assess men's perceptions of their conformity to gender roles as boys. This scale's validity is supported by its convergence with blind coders' ratings of gay and bisexual men's behavior in childhood home videos (Rieger, Linsenmeier, Gygax, & Bailey, 2008) and its associations with mental health and health-risk behaviors (Pachankis & Goldfried, 2006; Pachankis, Westmaas, & Dougherty, 2011). The scale consists of seven items (e.g., “I was a feminine boy,” “As a child, I disliked competitive sports such as football, baseball, and basketball”) that were rated on a Likert-type scale from 1 (*not true at all*) to 5 (*always true*). Responses to each item were averaged to get an overall score ranging from 1 to 5 ($\alpha = 0.84$).

Childhood peer rejection—We utilized the peer-related items of the Mother-Father-Peer Scale (Epstein, 1983) to capture the extent to which men experienced rejection by their peers during childhood. Participants used a Likert-type scale from 1 (*strongly disagree*) to 5 (*strongly agree*) to respond to questions regarding peer rejection (e.g., “other children often picked on me and teased me”) and acceptance (e.g., “other children would usually stick up for me”) when they were a child (aged 6-12 years). Items measuring peer acceptance were reverse-coded and the average response across the 10 items was calculated to form a scale score ranging from 1 to 5 with higher scores corresponding to greater peer rejection ($\alpha = 0.92$). A previous study with gay and bisexual men used this scale as part of a composite of peer relationship measures and found that it demonstrated positive associations with boyhood gender nonconformity and interpersonal attachment difficulties (Landolt et al., 2004).

Adulthood overt discrimination—We used an adapted version of the Everyday Discrimination Scale (Williams, Yan, Jackson, & Anderson, 1997), which asks participants to consider experiences in their day-to-day life that occurred as a result of their sexual orientation. The scale consists of nine items ranging from less severe (e.g., “you are treated with less courtesy than other people”) to more severe (e.g., “you are threatened or harassed”)

forms of discrimination that are rated on a frequency scale from 1 (*never*) to 6 (*almost every day*). Item responses were summed to form an overall frequency index ranging from 9 to 54, with higher scores indicating more frequent discrimination ($\alpha = 0.95$). This scale has been used in several studies of sexual minority adults and has demonstrated consistent associations with several mental health problems (Mays et al., 2001).

Gay-related rejection sensitivity—We used the Gay-Related Rejection Sensitivity Scale (Pachankis et al., 2008) to measure the extent to which men vigilantly and anxiously expected interpersonal rejection as a result of their sexual orientations. The scale consists of 14 vignettes (e.g., “You bring a male partner to a family reunion. Two of your old-fashioned aunts don't come talk to you even though they see you”) to which the participant responded regarding how *concerned/anxious* he would be that the situation occurred as a result of his sexual orientation from 1 (*very unconcerned*) to 6 (*very concerned*) and how *likely* it is that the situation occurred as a result of his sexual orientation from 1 (*very unlikely*) to 6 (*very likely*). As is typical in the rejection sensitivity paradigm (Downey & Feldman, 1996), anxiety and likelihood responses were multiplied for each vignette and then averaged across vignettes to form a total score ranging from 1 to 36 ($\alpha = 0.92$). Previous research documents associations between this scale and parental rejection, internalized homonegativity, and unassertiveness (Pachankis et al., 2008).

Internalized homonegativity—Participants completed the Internalized Homophobia Scale (Herek, Cogan, Gillis, & Glunt, 1997) which contains nine items (e.g., “I feel that being gay/bisexual is a personal shortcoming for me”) that are rated from 1 (*strongly disagree*) to 5 (*strongly agree*). Item responses are averaged to form an overall score ranging from 1 to 9 with good internal consistency ($\alpha = 0.89$). Previous research demonstrates relations between this scale and depression, demoralization, and low self-esteem (Herek et al., 1997).

Emotion dysregulation—Participants completed the 36-item Difficulties with Emotion Regulation Scale (DERS; Gratz & Roemer, 2004), which measures general problems regulating emotions as well as six specific domains of difficulty with emotion regulation—nonacceptance of emotional responses (e.g., “When I'm upset, I become embarrassed for feeling that way”), difficulties engaging in goal-directed behavior (e.g., “When I'm upset, I have difficulty focusing on other things”), impulse control difficulties (e.g., “I experience my emotions as overwhelming and out of control”), lack of emotion awareness (e.g., “I am attentive to my feelings”; reverse-coded), limited access to emotion regulation strategies (e.g., “When I'm upset, I believe that I will remain that way for a long time”), and lack of emotion clarity (e.g., “I have no idea how I am feeling”). Each subscale contains between four and six total items to which participants respond on a scale from 1 (*Almost never [0-10%]*) to 5 (*Almost always [91-100%]*). For the purposes of this paper, we utilized the full-scale score, calculated as the mean response across the 36 items ($\alpha = 0.95$), which has been shown to be associated with self-regulation of negative moods, experiential avoidance, self-injurious behaviors, and partner abuse (Gratz et al., 2004).

Depression and anxiety—Participants completed the 12 anxiety and depression items of the Brief Symptom Inventory (BSI; Derogatis, 1975). Each of the two subscales contains six items intended to measure the symptoms of depression (e.g., “Feeling hopeless about the future”) or anxiety (e.g., “Feeling so restless you couldn't sit well”) in the prior week. Responses options range from 0 (*Not at all*) to 4 (*Extremely*). Each subscale score is calculated by summing across the six items corresponding to depression ($\alpha = 0.89$) or anxiety ($\alpha = 0.88$). The BSI has been shown to correspond with an interviewer-administered rating scale (Morlan & Tan, 1998) and has been used to screen for anxiety within hospital settings (Abu Ruz et al., 2010).

Analysis Plan

We began by examining the demographic characteristics of the sample. Following this, we examined the bivariate associations among all of the scales and demographic covariates using Pearson's correlations. We next conducted a path analysis using *Mplus* version 7.2 (Muthén & Muthén, 2012). This approach allows for the simultaneous testing of multiple linear regressions as well as the computation of both direct and indirect effects and their corresponding standard errors. We utilized the default of maximum likelihood estimation and, for calculating the bootstrapped standard errors of the indirect effects, requested 10,000 bootstrap draws. We utilized standard indices of model fit (Hu & Bentler, 1999), which included a root mean square error of approximation (RMSEA) less than 0.06, a comparative fit index (CFI) greater than 0.95, a Tucker Lewis index (TLI) of greater than 0.95, and a standardized root mean square residual (SRMR) less than 0.08. We utilized the depression and anxiety subscales of the BSI as manifest indicators of a latent depression and anxiety factor and similarly utilized the SCS and HDSI as manifest indicators of a latent sexual compulsivity factor. Each endogenous variable (i.e., each regression) in the model was adjusted for the impact of age, sexual orientation (gay/queer/homosexual = 1, bisexual = 0) and HIV status (positive = 1, negative = 0) due to their potential impact on minority stress and mental health processes.

Results

Sample Description

As can be seen in Table 1, the sample was diverse with regard to race/ethnicity, with half being men of color. The sample was nearly split by HIV status, with slightly more than half being HIV-negative. A majority of the sample identified as gay and was single. Approximately one-third of the sample held full-time employment while approximately one-fifth was unemployed for reasons other than disability or being a student. The sample was primarily well-educated, with one-third having a 4-year college degree and an additional one-quarter possessing a graduate degree. The sample was nearly 37 years old (ranged = 18 to 73).

Preliminary Analyses

Table 2 presents the bivariate associations among the constructs of interest as well as basic descriptive statistics for each scale. As expected, a majority of the constructs had a significant, positive correlation with each other. However, both gender nonconformity and

peer rejection were unassociated with internalized homonegativity and sexual compulsivity, and peer rejection was unassociated with problematic hypersexuality. We tested for bivariate associations between the demographic covariates adjusted for within the path model and found that: (1) older age was significantly associated with higher levels of rejection sensitivity and lower levels of childhood gender nonconformity, emotion dysregulation, depression, and anxiety; (2) HIV-positive (versus negative) status was associated with higher levels of sexual compulsivity and problematic hypersexuality; and (3) identifying as gay, queer, or homosexual (versus bisexual) was associated with higher childhood gender nonconformity and lower internalized homonegativity.

Minority Stress Path Model

Figure 2 displays the results of the hypothesized path model examining the effects of distal and proximal minority stressors on the mental health outcomes of gay and bisexual men (without displaying the included effects of age, HIV status, and sexual orientation within the model). Overall, the model demonstrated good fit. The significant chi-square statistic was the only indication of model misfit and is known to be sensitive to large sample sizes. In contrast, the RMSEA of 0.05, CFI of 0.98, TLI of 0.95, and SRMR of 0.03 were all at or below the accepted level for evidence of good model fit. The latent factor measuring combined depression and anxiety had high standardized loadings for both anxiety ($\lambda = 0.82$) and depression ($\lambda = 0.90$). Similarly, the latent factor measuring sexual compulsivity had strong standardized loadings for both the SCS ($\lambda = 0.86$) and the HDSI ($\lambda = 0.96$).

As expected based on the bivariate associations, the model displayed in Figure 2 demonstrated that childhood gender nonconformity was significantly associated with greater levels of childhood peer rejection and adulthood experiences of over discrimination. Peer rejection, in turn, was significantly associated with increased levels of rejection sensitivity and emotion dysregulation but had no direct effect on internalized homonegativity. Overt discrimination was significantly associated with increased levels of rejection sensitivity, internalized homonegativity, and emotion dysregulation. Both rejection sensitivity and internalized homonegativity were positively associated with emotion dysregulation, with internalized homonegativity having a stronger impact than rejection sensitivity. Rejection sensitivity had no direct effect on latent depression/anxiety or sexual compulsivity variables. Internalized homonegativity, conversely, was significantly associated with greater levels of both depression/anxiety and sexual compulsivity. Similarly, emotion dysregulation was positively associated with depression/anxiety and sexual compulsivity, with the stronger effect being on depression/anxiety. Latent depression and anxiety was significantly associated with increased levels of sexual compulsivity.

Overall, the model explained 48% of the variance in the latent depression and anxiety factor and 39% of the variance in the sexual compulsivity factor. To test the extent to which minority stressors had a mediated (i.e., indirect) impact on the experience of sexual compulsivity, we utilized total indirect effects with bootstrapped standard errors (i.e., all possible indirect paths were utilized to form a total indirect effect). As can be seen in Figure 2, all of the minority stress variables had significant indirect effects on sexual compulsivity, and all were in the expected, positive direction.

Discussion

We tested a model of sexual compulsivity in a sample of highly sexually active gay and bisexual men. The results of our analyses support a model whereby (1) distal minority stress processes (e.g., peer rejection) were generally found to confer risk for both proximal minority stressors (e.g., internalized homonegativity) and emotion dysregulation and (2) proximal minority stressors and emotion dysregulation, in turn, generally predicted sexual compulsivity both directly and indirectly through anxiety and depression. We found support for most, although not all, of the model's hypothesized associations. Specifically, boyhood gender nonconformity predicted childhood peer rejection and adulthood overt discrimination; peer rejection and overt discrimination predicted rejection sensitivity and emotion dysregulation; and overt discrimination predicted rejection sensitivity, internalized homonegativity, and emotion dysregulation. Mediating processes, which showed significant direct effects with both distal minority stressors and sexual compulsivity, included internalized homonegativity and emotion regulation difficulties, representing preliminary treatment targets for sexual compulsivity among gay and bisexual men.

Minority stress interventions should ultimately begin at the structural level in order to avoid placing an unfair burden for change on sexual minority individuals themselves, given that the source of sexual orientation disparities in mental health problems largely resides in stigmatizing social structures (e.g., Hatzenbuehler, 2010). The results of the model examined here suggest that structural interventions that eliminate distal minority stressors, such as peer rejection and overt forms of discrimination, may attenuate the pathways through which proximal minority stressors and emotion dysregulation compromise sexual health. Such interventions could promote overt support for sexual minority family members and the presence of visible gay-affirmative resources in schools, both of which are consistently shown to be related to sexual minority mental health (e.g., Russell, Muraco, Subramaniam, & Laub, 2009; Ryan et al., 2010). The ability of such interventions to affect sexual health also seems promising, with some evidence suggesting that the presence of affirmative campus resources is associated with student condom use (e.g., Eisenberg, 2002). Thus, increasing the number and visibility of supportive resources across locales and venues might reduce the ultimate sources of mental and sexual health problems among gay and bisexual men.

Aside from changes in structural factors, the model tested here suggests two key psychological mediators that could serve as treatment targets for gay and bisexual men experiencing sexual compulsivity. These factors emerged as mediators in our model given that they demonstrated significant associations with both distal minority stressors (e.g., peer rejection) and sexual compulsivity outcomes. Significant indirect effects between distal minority stressors and sexual compulsivity outcomes through these variables lend further support for their mediating role. One of these mediators, emotion regulation difficulties, represents a universal process that confers vulnerability across common mental health problems, and now also shown to possibly confer risk for sexual compulsivity both directly and indirectly through depression and anxiety. The other process, internalized homonegativity, represents a process specific to minority stress.

Mental health treatments that address universal psychological vulnerabilities, such as emotion regulation difficulties, have the benefit of broad applicability across disorders (Barlow et al., 2011; Farchione et al., 2012), both internalizing and externalizing (Aldao et al., 2010; Mennin et al., 2007; Sher et al., 2007; Williams et al., 2012). The present study suggests that emotion regulation difficulties might mediate the association between minority stress and sexual compulsivity, both directly and indirectly through depression and anxiety. Although evidence-based approaches for emotion dysregulation have not been tested for efficacy for reducing sexual compulsivity among gay and bisexual men, they are grounded in learning theory and cognitive affective neuroscience models that suggest that improvements in emotion regulation abilities should yield improvement across all disorders in which such abilities are relevant (Moses & Barlow, 2006). Future research is needed to apply these transdiagnostic emotion regulation approaches to potentially reducing gay and bisexual men's sexual compulsivity both directly and indirectly through reducing comorbid depression and anxiety.

Previous research demonstrates associations between internalized homonegativity and depression and anxiety (Feinstein et al., 2012; Newcomb et al., 2010; Rosser, Bockting, Ross, Miner, & Coleman, 2008) and the current study extends this relation to sexual compulsivity. Overt discrimination has previously been shown to predict internalized homonegativity (Pachankis et al., 2008), and the present model specifically suggests that internalized homonegativity mediates the association between overt discrimination and sexual compulsivity. While cognitive-behavioral strategies have been beneficially applied to the unique mental health concerns of sexual minorities (Kaysen, Lostutter, & Goines, 2005; Walsh & Hope, 2010), only one efficacious intervention exists to our knowledge that specifically reduces internalized homonegativity among gay and bisexual men (Lin & Israel, 2012). In that intervention, participants complete a series of online modules that seek to correct stereotypes about gay and bisexual men, examine the source of internalized homonegativity, and affirm participants' sexual identities. However, no mental health outcomes have been examined in the context of this particular intervention and future work is needed to determine whether reductions in internalized homonegativity yield reductions in sexual compulsivity.

As noted above, cognitive-behavioral treatment packages have been beneficially applied to gay and bisexual men's mental health, both through addressing proximal minority stress processes, such as internalized homonegativity, in individual case studies (e.g., Kaysen, Lostutter, & Goines, 2005; Walsh & Hope, 2010), and by applying anxiety management techniques, such as cognitive appraisal and interpersonal effectiveness, to HIV-related stress among HIV-positive gay and bisexual men in randomized controlled trials (e.g., Antoni et al., 2000). Further, a recently proposed comprehensive treatment package for reducing the multiple mental health problems facing gay and bisexual men suggests principles and techniques for alleviating both the universal vulnerabilities that gay and bisexual men are particularly likely to experience (e.g., emotion regulation difficulties) and the gay-specific processes that confer risk (e.g., internalized homonegativity) (Pachankis, 2014). This treatment package includes principles such as empowering gay and bisexual men to communicate assertively and reworking cognitive biases stemming from minority stress using techniques such as assertiveness training and self-affirmation. Given that sexual

compulsivity joins depression and anxiety to form a syndemic of health threats facing gay and bisexual men (Parsons et al., 2012), addressing the shared pathways leading to these outcomes using the principles and techniques contained in this unified treatment approach might simultaneously attenuate multiple health risks. Given the stigma of same-sex sexuality that many gay and bisexual men have faced across development, any treatment approach for sexual compulsivity in this population should affirm sexuality as a healthy part of gay and bisexual men's lives while helping clients establish and attain healthy sexual priorities to replace unfulfilling, distressing, or impairing aspects of sexuality.

Despite the study's strengths, including its large sample of highly sexually active gay and bisexual men and reliable and valid measures of study constructs, the results should be considered in light of its limitations. Three notable limitations include the study sampling; its cross-sectional, self-report design; and its incomplete measures of minority stress processes. While the study sample was diverse in terms of age, race/ethnicity, socioeconomic status, and HIV status, all participants had to be residents of New York City. Compared to small urban or rural environments, large urban areas confer unique sources of both risk and support for gay and bisexual men in ways that are related to the present study, including hosting a large pool of potential sex partners and a large of community of relatively out and visible gay and bisexual peers (Parsons et al., 2007; Stall, Friedman, & Catania, 2008). Our use of an urban sample, containing men who reported being relatively comfortable with their sexual orientation overall, might explain why three of the model's hypothesized paths were not supported. Specifically, the model unexpectedly demonstrated that peer rejection was not associated with internalized homonegativity and that rejection sensitivity was not associated with either depression and anxiety or sexual compulsivity. Gay and bisexual men living in urban areas may be relatively insulated from the impact of early rejection on negative views of themselves and other sexual minority men by virtue of being surrounded by other visible sexual minority role models and peers. Further, while the men in our study might expect rejection in the particular vignettes assessed by the Gay-Related Rejection Sensitivity Scale, the impact of these expectations on mental and sexual health might be dampened by the fact that participants may not experience such potentially rejecting situations frequently in their relatively gay-affirming, urban home, and therefore be protected against any adverse mental health effects of chronic expectations of rejection. Testing this model in other locales would be essential to determining its geographic generalizability.

For the present study, participants completed all measures at one time point and with one assessment approach, limiting our ability to determine the temporal sequence of influences on our outcome and the impact of retrospective reporting biases on measures of distal processes. A longitudinal design covering the period before the emergence of sexually compulsive symptoms would be better able to examine the causal influences on this phenomenon. A longitudinal design capturing gay and bisexual men early in development would yield the most accurate reports of early minority stressors (e.g., boyhood nonconformity, parental and peer rejection). In addition to employing longitudinal designs, future research could also employ ecological momentary assessment approaches. Such an approach could capture the function of sexual compulsivity by assessing its immediate antecedents and consequences. For example, although our model shows associations among

static measures of emotion dysregulation, depression and anxiety, and sexual compulsivity, uncovering whether sexual compulsivity immediately follows depressed, anxious, or dysregulated affect and whether it is, in turn, followed by improvements in mood would provide evidence for the immediate causal influences on this behavior. Examining whether the present model's mediators explain improvement in a randomized controlled treatment study for sexual compulsivity would provide an experimental test of the pathways described here. Given that we recruited our participants at one point in time, it is impossible to determine the impact of societal change on our results. In fact, improved social attitudes toward sexual minority individuals in recent years might account for the null relationships found between rejection sensitivity and our mental and sexual health outcomes (e.g., Hatzenbuehler et al., 2012).

Given potential confounding of self-reported stress experiences by mental health status (e.g., Meyer, 2003), future studies ought to include more objective measurements of distal minority stressors, possibly by taking advantage of informant reports (e.g., Bailey, Nothnagel, & Wolfe, 1995), and interview-administered mental health assessments (e.g., Mays et al., 2001). Additionally, using subtler, perhaps implicit, measurements of internalized homophobia and gay-related rejection sensitivity might have captured wider variation in these constructs and yielded stronger associations between these constructs and other model variables. Finally, future studies ought to include a more complete assessment of minority stress processes. For example, we did not include measures of sexual orientation concealment, which is consistently related to depression, anxiety, and sexual health across studies (e.g., Schrimshaw, Siegel, Downing, & Parsons, 2013), or social support, which operates as a moderator of the minority stress-mental health association consistent with minority stress theory (Meyer, 2003). Further, using a measure of peer rejection specific to one's childhood gender nonconformity or perceived sexual orientation, rather than general peer rejection, might have produced a stronger relationship between peer rejection and internalized homophobia. Future studies on sexual compulsivity among gay and bisexual men also ought to measure stressors specific to HIV-positive gay and bisexual men, such as HIV status-disclosure concerns (Chaudoir, Fisher, & Simoni, 2011), especially given that approximately half of our sample was HIV positive and given the association between HIV-positive status and sexual compulsivity found in this study.

In conclusion, the model tested here suggests that minority stress potentially serves as a key vulnerability factor for sexual compulsivity among highly sexually active gay and bisexual men. Like several mental health problems, sexual compulsivity seems to disproportionately affect gay and bisexual men, compared to heterosexual men (Missildine, Feldstein, Punzalan, & Parsons, 2005), and is associated with increased risk for HIV infection (Gro, Parsons, & Bimbi, 2010). Therefore, identifying effective treatment targets for this problem in this population represents an important public health goal. The present model suggests that, in addition to interventions that reduce minority stress emerging from childhood and adulthood rejection and discrimination, reductions in emotion regulation difficulties and internalized homonegativity might at least partially reduce associations between distal minority stress experiences and sexual compulsivity among gay and bisexual men, although future research that uses longitudinal or experimental designs and more objective assessment approaches is needed to establish this possibility. Applying emotion regulation (e.g., Barlow

et al., 2011; Linehan, 1993; Mennin, Heimberg, Turk, & Fresco, 2002) and minority stress (Pachankis, 2014) treatments to reduce sexual compulsivity and addressing these two targets through existing sexual compulsivity treatments (e.g., Goodman, 1997; Muench et al., 2004; Shepherd, 2010; Weiss, 2004) represent promising future directions for intervention research.

Acknowledgments

This project was supported by a research grant from the National Institute of Mental Health (R01-MH087714; Jeffrey T. Parsons, Principal Investigator). H. Jonathon Rendina was supported in part by a National Institute of Mental Health Ruth L. Kirchstein Individual Predoctoral Fellowship (F31-MH095622). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

The authors would like to acknowledge the contributions of the Pillow Talk Research Team: Brian Mustanski, Ruben Jimenez, Demetria Cain, David Marshall, and Chris Cruz. We would also like to thank CHEST staff who played important roles in the implementation of the project: Chris Hietikko, Sitaji Gurung, Chloe Mirzayi, Anita Viswanath, as well as our team of research assistants, recruiters, and interns. Finally, we thank Chris Ryan, Daniel Nardicio, and the participants who volunteered their time for this study.

References

- Abu Ruz ME, Lennie TA, Riegel B, McKinley S, Doering LV, Moser DK. Evidence that the brief symptom inventory can be used to measure anxiety quickly and reliably in patients hospitalized for acute myocardial infarction. *Journal of Cardiovascular Nursing*. 2010; 25(2):117–123.10.1097/JCN.0b013e3181b56626 [PubMed: 20168191]
- Aldao A, Nolen-Hoeksema S, Schweizer S. Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review*. 2010; 30(2):217–237.10.1016/j.cpr.2009.11.004 [PubMed: 20015584]
- American Psychiatric Association's *DSM-5* Workgroup on Sexual and Gender Identity Disorders. Hypersexual disorder screening inventory. 2010. Retrieved July 26, 2011, from <http://www.dsm5.org/ProposedRevisions/Pages/proposedrevision.aspx?rid=415>
- Antoni MH, Cruess S, Cruess DG, Kumar M, Lutgendorf S, Ironson G, et al. Schneiderman N. Cognitive-behavioral stress management reduces distress and 24-hour urinary free cortisol output among symptomatic HIV-infected gay men. *Annals of Behavioral Medicine*. 2000; 22(1):29–37. [PubMed: 10892526]
- Bailey JM, Nothnagel J, Wolfe M. Retrospectively measured individual differences in childhood sex-typed behavior among gay men: Correspondence between self- and maternal reports. *Archives of Sexual Behavior*. 1995; 24(6):613–622. [PubMed: 8572910]
- Balsam KF, Rothblum ED, Beauchaine TP. Victimization over the life span: a comparison of lesbian, gay, bisexual, and heterosexual siblings. *Journal of Consulting and Clinical Psychology*. 2005; 73(3):477–487.10.1037/0022-006X.73.3.477 [PubMed: 15982145]
- Bancroft J, Vukadinovic Z. Sexual addiction, sexual compulsivity, sexual impulsivity, or what? Toward a theoretical model. *Journal of Sex Research*. 2004; 41(3):225–234.10.1080/00224490409552230 [PubMed: 15497051]
- Barlow, D.; Ellard, K.; Fairholme, C.; Farchione, T.; Boisseau, C.; Allen, L.; Ehrenreich-May, J. *The unified protocol for transdiagnostic treatment of emotional disorders: Client workbook*. New York, NY: Oxford University Press; 2011.
- Baum, M.; Fishman, J. *AIDS, sexual compulsivity, and gay men: A group treatment approach*. In: B, R.; Cadwell, SA., editors. *Therapists on the front line: Psychotherapy with gay men in the age of AIDS* (pp 255-274). Washington, DC: American Psychiatric Press, Inc; 1994.
- Black DW. The epidemiology and phenomenology of compulsive sexual behavior. *CNS Spectrums*. 2000; 5(1):26–72. [PubMed: 18311098]

- Chaudoir SR, Fisher JD, Simoni JM. Understanding HIV disclosure: A review and application of the disclosure processes model. [Review]. *Social Science and Medicine*. 2011; 72(10):1618–1629.10.1016/j.socscimed.2011.03.028 [PubMed: 21514708]
- Coleman E. The obsessive-compulsive model for describing compulsive sexual behavior. *American Journal of Preventive Psychiatry and Neurology*. 1990; 2(3):9–14.
- Corliss HL, Cochran SD, Mays VM. Reports of parental maltreatment during childhood in a United States population-based survey of homosexual, bisexual, and heterosexual adults. *Child Abuse & Neglect*. 2002; 26(11):1165–1178. [PubMed: 12398854]
- Derogatis, LR. *Brief Symptom Inventory*. Baltimore: Clinical Psychometric Research; 1975.
- Dodge B, Reece M, Herbenick D, Fisher C, Satinsky S, Stupiansky N. Relations between sexually transmitted infection diagnosis and sexual compulsivity in a community-based sample of men who have sex with men. *Sexually Transmitted Infections*. 2008; 84(4):324–327.10.1136/sti.2007.028696 [PubMed: 18096648]
- Downey G, Feldman SI. Implications of rejection sensitivity for intimate relationships. *Journal of Personality and Social Psychology*. 1996; 70(6):1327–1343. [PubMed: 8667172]
- Eisenberg ME. The association of campus resources for gay, lesbian, and bisexual students with college students' condom use. *The Journal of American College Health*. 2002; 51(3):109–116.10.1080/07448480209596338 [PubMed: 12638992]
- Epstein S. The mother, father, peer scale. 1983 Jul 2. 2010.
- Farchione TJ, Fairholme CP, Ellard KK, Boisseau CL, Thompson-Hollands J, Carl JR, et al. Barlow DH. Unified protocol for transdiagnostic treatment of emotional disorders: A randomized controlled trial. *Behavior Therapy*. 2012; 43(3):666–678.10.1016/j.beth.2012.01.001 [PubMed: 22697453]
- Feinstein BA, Goldfried MR, Davila J. The relationship between experiences of discrimination and mental health among lesbians and gay men: An examination of internalized homonegativity and rejection sensitivity as potential mechanisms. *Journal of Consulting and Clinical Psychology*. 2012; 80(5):917–927.10.1037/a0029425 [PubMed: 22823860]
- First, MB.; Spitzer, RL.; Gibbon, M.; Williams, JB. *Structured clinical interview for DSM-IV-TR axis I disorders, research version, patient edition with psychotic screen (SCID-I/P W/ PSY Screen)*. New York: Biometrics Research, New York State Psychiatric Institute; 2002.
- Folstein MF, Folstein SE, McHugh PR. Mini-mental state: A practical method for grading the cognitive state of patients for the clinician. *Journal of Psychiatric Research*. 1975; 12:189–198. [PubMed: 1202204]
- Goodman RE. Understanding human sexuality--specifically homosexuality and the paraphilias--in terms of chaos theory and fetal development. *Medical Hypotheses*. 1997; 48(3):237–243. [PubMed: 9140888]
- Gratz KL, Roemer L. Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. *Journal of Psychopathology and Behavioral Assessment*. 2004; 1(26):41–54.
- Green KE, Feinstein BA. Substance use in lesbian, gay, and bisexual populations: An update on empirical research and implications for treatment. *Psychology of Addictive Behaviors*. 2012; 26(2):265–278.10.1037/a0025424 [PubMed: 22061339]
- Greenberg, L. *Emotion-focused therapy: Coaching clients to work through their feelings*. American Psychological Association; Washington, DC, US: 2002.
- Grov C, Parsons JT, Bimbi DS. Sexual compulsivity and sexual risk in gay and bisexual men. *Archives of Sexual Behavior*. 2010; 39(4):940–949.10.1007/s10508-009-9483-9 [PubMed: 19308715]
- Hatzenbuehler ML. How does sexual minority stigma “get under the skin”? A psychological mediation framework. *Psychological Bulletin*. 2009; 135(5):707–730.10.1037/a0016441 [PubMed: 19702379]
- Hatzenbuehler ML. Social factors as determinants of mental health disparities in LGB populations: Implications for public policy. *Social Issues and Policy Review*. 2010; 4(1):31–62.
- Hatzenbuehler ML, McLaughlin KA, Nolen-Hoeksema S. Emotion regulation and internalizing symptoms in a longitudinal study of sexual minority and heterosexual adolescents. *Journal of*

- Child Psychology and Psychiatry. 2008; 49(12):1270–1278.10.1111/j.1469-7610.2008.01924.x [PubMed: 18564066]
- Hatzenbuehler ML, Nolen-Hoeksema S, Dovidio J. How does stigma “get under the skin”? The mediating role of emotion regulation. *Psychological Science*. 2009; 20(10):1282–1289.10.1111/j.1467-9280.2009.02441.x [PubMed: 19765237]
- Hatzenbuehler ML, Nolen-Hoeksema S, Erickson SJ. Minority stress predictors of HIV risk behavior, substance use, and depressive symptoms: Results from a prospective study of bereaved gay men. *Health Psychology*. 2008; 27(4):455–462.10.1037/0278-6133.27.4.455 [PubMed: 18643003]
- Hatzenbuehler ML, O’Cleirigh C, Grasso C, Mayer K, Safren S, Bradford J. Effect of same-sex marriage laws on health care use and expenditures in sexual minority men: A quasi-natural experiment. *American Journal of Public Health*. 2012; 102:285–291. doi:10.2105/AJPH.2011.300382. [PubMed: 22390442]
- Herek GM, Cogan JC, Gillis JR, Glunt EK. Correlates of internalized homophobia in a community sample of lesbians and gay men. *Journal of the Gay and Lesbian Medical Association*. 1997; (2): 17–25.
- Hook JN, Hook JP, Davis DE, Worthington EL Jr, Penberthy JK. Measuring sexual addiction and compulsivity: A critical review of instruments. *Journal of Sex and Marital Therapy*. 2010; 36(3): 227–260.10.1080/00926231003719673 [PubMed: 20432124]
- Hu L, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*. 1999; 6(1):1–55.10.1080/10705519909540118
- Kafka MP. Hypersexual disorder: A proposed diagnosis for DSM-V. *Archives of Sexual Behavior*. 2010; 39(2):377–400.10.1007/s10508-009-9574-7 [PubMed: 19937105]
- Kaysen D, Lostutter TW, Goines MA. Cognitive processing therapy for acute stress disorder resulting from an anti-gay assault. *Cognitive and Behavioral Practice*. 2005; 12(3):278–289.
- Kingston D, Firestone P. Problematic hypersexuality: A review of conceptualization and diagnosis. *Sexual Addiction & Compulsivity*. 2008; 15(4):284–310.
- Landolt MA, Bartholomew K, Saffrey C, Oram D, Perlman D. Gender nonconformity, childhood rejection, and adult attachment: A study of gay men. *Archives of Sexual Behavior*. 2004; 33(2): 117–128. [PubMed: 15146144]
- Lin YJ, Israel T. A computer-based intervention to reduce internalized heterosexism in men. *Journal of Counseling Psychology*. 2012; 59(3):458–464.10.1037/a0028282 [PubMed: 22545801]
- Linehan MM. Dialectical behavior therapy for treatment of borderline personality disorder: Implications for the treatment of substance abuse. *NIDA Research Monograph*. 1993; 137:201–216. [PubMed: 8289922]
- Lippa R. The relation between childhood gender nonconformity and adult masculinity–femininity and anxiety in heterosexual and homosexual men and women. *Sex Roles*. 2008; (59):684–693.
- Mays VM, Cochran SD. Mental health correlates of perceived discrimination among lesbian, gay, and bisexual adults in the United States. *American Journal of Public Health*. 2001; 91(11):1869–1876. [PubMed: 11684618]
- Mennin DS, Farach FJ. Emotion and evolving treatments for adult psychopathology. *Clinical Psychology: Science and Practice*. 2007; 14(4):329–352.10.1111/j.1468-2850.2007.00094.x
- Mennin, DS.; Fresco, DM. Emotion regulation as an integrative framework for understanding and treating psychopathology. New York: Guilford; 2009.
- Mennin DS, Heimberg RG, Turk CL, Fresco DM. Preliminary evidence for an emotion dysregulation model of generalized anxiety disorder. *Behaviour Research and Therapy*. 2002; 43(10):1281–1310. [PubMed: 16086981]
- Meyer IH. Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychology Bulletin*. 2003; 129(5):674–697.10.1037/0033-2909.129.5.674
- Missildine W, Feldstein G, Punzalan J, Parsons J. S/he loves me, s/he loves me not: Questioning heterosexist assumptions of gender differences and romantic attractions. *Sexual Addiction & Compulsivity*. 2005; 12(1):1–11.

- Morlan KK, Tan SY. Comparison of the brief psychiatric rating scale and the brief symptom inventory. *Journal of Clinical Psychology*. 1998; 54(7):885–894.
- Moses EB, Barlow DH. A new unified treatment approach for emotional disorders based on emotion science. *Current Directions in Psychological Science*. 2006; 15(3):146–150.
- Muench F, Parsons JT. Sexual compulsivity and HIV: Identification and treatment. *Focus*. 2004; 19(6):1–5. [PubMed: 15386850]
- Muthén, LK.; Muthén, BO. *Mplus user's guide*. Seventh. Los Angeles, CA: Muthén & Muthén; 2012.
- Newcomb ME, Mustanski B. Internalized homophobia and internalizing mental health problems: A meta-analytic review. *Clinical Psychology Review*. 2010; 30(8):1019–1029.10.1016/j.cpr.2010.07.003 [PubMed: 20708315]
- Pachankis JE. Uncovering clinical principles and techniques to address minority stress, mental health, and related health risks among gay and bisexual men. *Clinical Psychology: Science and Practice*. 2014; 21:313–330. [PubMed: 25554721]
- Pachankis JE, Bernstein L. An etiological model of anxiety in young gay men: From early stress to public self-consciousness. *Psychology of Men and Masculinity*. 2012; 13(2):107–122.
- Pachankis JE, Goldfried MR. Social anxiety in young gay men. *Journal of Anxiety Disorders*. 2006; 20(8):996–1015.10.1016/j.janxdis.2006.01.001 [PubMed: 16500074]
- Pachankis JE, Goldfried MR, Ramrattan ME. Extension of the rejection sensitivity construct to the interpersonal functioning of gay men. *Journal of Consulting and Clinical Psychology*. 2008; 76(2):306–317.10.1037/0022-006X.76.2.306 [PubMed: 18377126]
- Pachankis JE, Rendina HJ, Ventuneac A, Parsons J. The role of maladaptive cognitions in hypersexuality among gay and bisexual men. *Archives of Sexual Behavior*. 2014; 43(4):669–683.10.1007/s10508-014-0261-y [PubMed: 24558123]
- Pachankis JE, Westmaas JL, Dougherty LR. The influence of sexual orientation and masculinity on young men's tobacco smoking. *Journal of Consulting & Clinical Psychology*. 2011; 79(2):142–152.10.1037/a0022917 [PubMed: 21443320]
- Parsons JT, Grov C, Golub SA. Sexual compulsivity, co-occurring psychosocial health problems, and HIV risk among gay and bisexual men: Further evidence of a syndemic. *American Journal of Public Health*. 2012; 102(1):156–162.10.2105/AJPH.2011.300284 [PubMed: 22095358]
- Parsons JT, Kelly BC, Bimbi DS, DiMaria L, Wainberg ML, Morgenstern J. Explanations for the origins of sexual compulsivity among gay and bisexual men. *Archives of Sexual Behavior*. 2008; 37(5):817–826.10.1007/s10508-007-9218-8 [PubMed: 17882541]
- Parsons JT, Kelly BC, Bimbi DS, Muench F, Morgenstern J. Accounting for the social triggers of sexual compulsivity. *Journal of Addictive Diseases*. 2007; 26(3):5–16.10.1300/J069v26n03_02 [PubMed: 18018804]
- Parsons JT, Rendina HJ, Ventuneac A, Cook KF, Grov C, Mustanski B. A psychometric investigation of the hypersexual disorder screening inventory among highly sexually active gay and bisexual men: An item response theory analysis. *Journal of Sexual Medicine*. 2013; 10(12):3088–3101.10.1111/jsm.12117 [PubMed: 23534845]
- Pincu L. Sexual compulsivity in gay men: Controversy and treatment. *Journal of Counseling & Development*. 1989; 68(1):63–66.10.1002/j.1556-6676.1989.tb02495.x
- Quadland MC, Shattls WD. AIDS, sexuality, and sexual control. *Journal of Homosexuality*. 1987; 14(1-2):277–298.10.1300/J082v14n01_20 [PubMed: 3655348]
- Raymond NC, Coleman E, Miner MH. Psychiatric comorbidity and compulsive/impulsive traits in compulsive sexual behavior. *Comprehensive Psychiatry*. 2003; 44(5):370–380.10.1016/S0010-440X(03)00110-X [PubMed: 14505297]
- Rieger G, Linsenmeier JA, Gygax L, Bailey JM. Sexual orientation and childhood gender nonconformity: Evidence from home videos. *Developmental Psychology*. 2008; 44(1):46–58.10.1037/0012-1649.44.1.46 [PubMed: 18194004]
- Roemer L, Orsillo SM, Salters-Pedneault K. Efficacy of an acceptance-based behavior therapy for generalized anxiety disorder: Evaluation in a randomized controlled trial. *Journal of Consulting & Clinical Psychology*. 2008; 76(6):1083–1089.10.1037/a0012720 [PubMed: 19045976]
- Rosser BR, Bockting WO, Ross MW, Miner MH, Coleman E. The relationship between homosexuality, internalized homo-negativity, and mental health in men who have sex with men.

- Journal of Homosexuality. 2008; 55(2):185–203.10.1080/00918360802129394 [PubMed: 18982569]
- Russell ST, Muraco A, Subramaniam A, Laub C. Youth empowerment and high school gay-straight alliances. *Journal of Youth and Adolescence*. 2009; 38(7):891–903.10.1007/s10964-008-9382-8 [PubMed: 19636734]
- Ryan C, Russell ST, Huebner D, Diaz R, Sanchez J. Family acceptance in adolescence and the health of LGBT young adults. *Journal of Child and Adolescent Psychiatric Nursing*. 2010; 23(4):205–213.10.1111/j.1744-6171.2010.00246.x [PubMed: 21073595]
- Schrimshaw EW, Siegel K, Downing MJ, Parsons JT. Disclosure and concealment of sexual orientation and the mental health of non-gay-identified, behaviorally bisexual men. *Journal of Consulting and Clinical Psychology*. 2013; 81(1):141–153.10.1037/a0031272 [PubMed: 23276123]
- Shepherd L. Cognitive behavior therapy for sexually addictive behavior. *Clinical Case Studies*. 2010; 9(1):18–27.
- Sher, K.; Grekin, E. Alcohol and affect regulation. New York: Guilford Press; 2007.
- Shields AM, Cicchetti D, Ryan RM. The development of emotional and behavioral self-regulation and social competence among maltreated school-age children. *Development and Psychopathology*. 1994; 6(1):57–75.10.1017/S0954579400005885 [PubMed: 23305942]
- Skidmore WC, Linsenmeier JA, Bailey JM. Gender nonconformity and psychological distress in lesbians and gay men. *Archives of Sexual Behavior*. 2006; 35(6):685–697.10.1007/s10508-006-9108-5 [PubMed: 17109224]
- Sobell, MB.; Sobell, LC. Problem drinkers: Guided self-change treatment. New York: Guilford Press; 1992.
- Stall R, Friedman M, Catania JA. Interacting epidemics and gay men's health: A theory of syndemic production among urban gay men. *Unequal opportunity: Health disparities affecting gay and bisexual men in the United States*. 2008:251–274.
- Stall R, Mills TC, Williamson J, Hart T, Greenwood G, Paul J, et al. Catania JA. Association of co-occurring psychosocial health problems and increased vulnerability to HIV/AIDS among urban men who have sex with men. *American Journal of Public Health*. 2003; 93:939–942.10.2105/AJPH.93.6.939 [PubMed: 12773359]
- Stall R, Paul JP, Greenwood G, Pollack LM, Bein E, Crosby GM, et al. Catania JA. Alcohol use, drug use and alcohol-related problems among men who have sex with men: the Urban Men's Health Study. *Addiction*. 2002; 96(11):1589–1601.10.1046/j.1360-0443.2001.961115896.x [PubMed: 11784456]
- Walsh K, Hope DA. LGB-affirmative cognitive behavioral treatment for social anxiety: A case study applying evidence-based practice principles. *Cognitive and Behavioral Practice*. 2010; 17(1):56–65.
- Weiss D. Prevalence of depression in male sex addicts residing in the United States. *Sexual Addiction & Compulsivity*. 2004; 11(1-2):57–69.
- Williams AD, Grisham JR, Erskine A, Cassidy E. Deficits in emotion regulation associated with pathological gambling. *British Journal of Clinical Psychology*. 2012; 51(2):223–238.10.1111/j.2044-8260.2011.02022.x [PubMed: 22574806]
- Williams DR, Yan Y, Jackson JS, Anderson NB. Racial differences in physical and mental health: Socio-economic status, stress and discrimination. *Journal of Health Psychology*. 1997; 2(3):335–351.10.1177/135910539700200305
- Woolf-King SE, Rice TM, Truong HHM, Woods WJ, Jerome RC, Carrico AW. Substance use and HIV risk behavior among men who have sex with men: The role of sexual compulsivity. *Journal of Urban Health*. 2013; 90(5):948–952. [PubMed: 23974946]

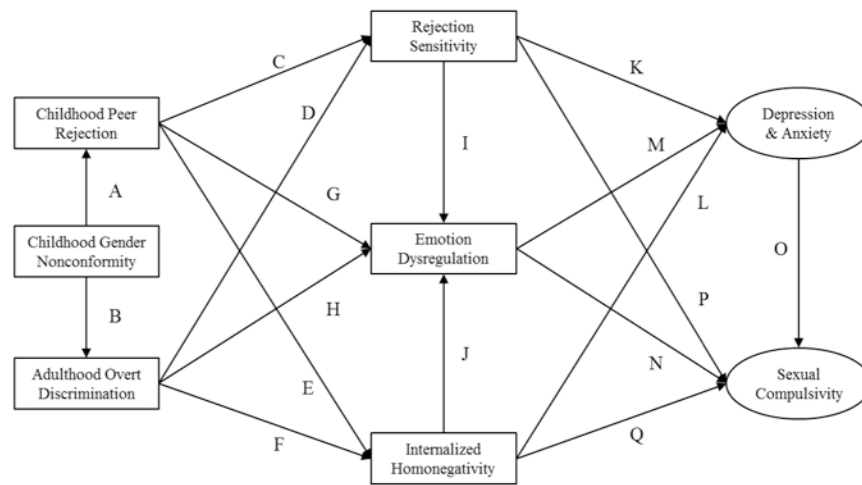
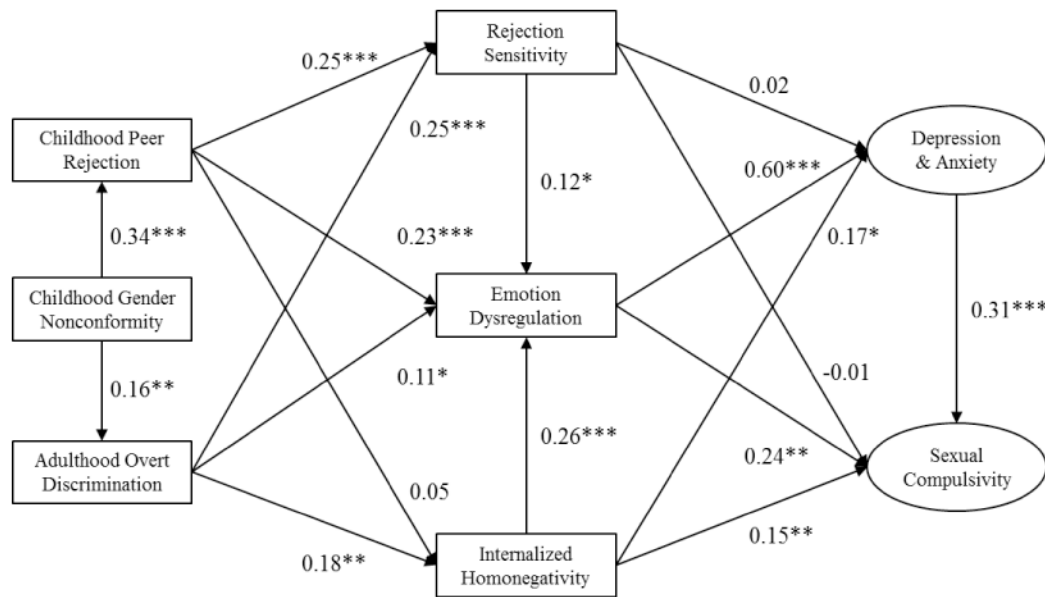


Figure 1.

The hypothesized path model suggests that higher levels of gender nonconformity in childhood would be associated with greater levels of childhood peer rejection and adult experiences of over discrimination, which would lead to subsequent increases in gay-related rejection sensitivity and internalized homonegativity (directly) and emotion dysregulation (directly and indirectly via rejection sensitivity and internalized homonegativity); we hypothesized that rejection sensitivity and internalized homonegativity would subsequently impact emotion dysregulation (directly) and depression and anxiety (both directly and indirectly via emotion regulation), all of which would ultimately increase perceptions of sexual compulsivity.



Model Fit Information

$\chi^2(14) = 58.17, p < 0.01$
 RMSEA = 0.050
 $p(\text{RMSEA} \leq 0.05) = 0.47$
 CFI = 0.980
 TLI = 0.951
 SRMR = 0.033

Indirect Effects on Sexual Compulsivity

Gender Nonconformity: 0.06, $p < 0.001$
 Childhood Peer Rejection: 0.13, $p < 0.001$
 Adulthood Discrimination: 0.12, $p = 0.001$
 Rejection Sensitivity: 0.06, $p = 0.028$
 Internalized Homonegativity: 0.16, $p < 0.001$
 Emotion Dysregulation: 0.19, $p < 0.001$

Figure 2.

The model above displays the results of the path analysis using standardized path coefficients. Depression & anxiety and sexual compulsivity are latent variables whose manifest indicators are described in text. Total indirect effects were calculated with bootstrapped standard errors using all possible indirect pathways. RMSEA = Root Mean Square Error of Approximation; CFI = Comparative Fit Index; TLI = Tucker Lewis Index; SRMR = Standardized Root Mean Square Residual. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 1
Demographic Characteristics of the Sample

	<i>n</i>	%
Race/Ethnicity		
Black	76	20.3
Latino	51	13.6
White	189	50.5
Asian/Native Haw./Pac. Islander	7	1.9
Other/Multiracial	51	13.6
HIV Status		
Negative	207	55.3
Positive	167	44.7
Sexual Orientation		
Gay, queer, or homosexual	328	87.7
Bisexual	46	12.3
Employment Status		
Full-time	118	31.6
Part-time	95	25.4
On disability	51	13.6
Student (unemployed)	32	8.6
Unemployed	78	20.9
Highest Educational Attainment		
High school diploma or GED	44	11.8
Some college or Associate's degree	115	30.7
Bachelor's or other 4-year degree	125	33.4
Graduate degree	90	24.1
Relationship Status		
Single	299	79.9
Partnered	75	20.1
	<i>M</i>	<i>SD</i>
Age (Range: 18 - 73; Median = 35.0)	36.9	11.4

Table 2
Correlations Among Minority Stress and Mental Health Variables and Demographic Covariates

	1	2	3	4	5	6	7	8	9	10
1. Childhood Gender Nonconformity	--									
2. Childhood Peer Rejection	0.34***	--								
3. Adulthood Overt Discrimination	0.17**	0.20***	--							
4. Rejection Sensitivity	0.14**	0.29***	0.29***	--						
5. Internalized Homonegativity	-0.03	0.07	0.17**	0.12*	--					
6. Emotion Dysregulation	0.21***	0.31***	0.26***	0.24***	0.32***	--				
7. Depression	0.20***	0.27***	0.25***	0.17**	0.27***	0.61***	--			
8. Anxiety	0.14**	0.20***	0.25***	0.14**	0.32***	0.55***	0.75***	--		
9. Sexual Compulsivity	0.08	0.07	0.16**	0.17**	0.33***	0.45***	0.36***	0.34***	--	
10. Problematic Hypersexuality	0.14**	0.06	0.15**	0.12*	0.33***	0.48***	0.45***	0.42***	0.82***	--
11. Age	-0.14**	-0.06	-0.08	0.12*	-0.10	-0.17**	-0.17**	-0.17**	-0.01	-0.02
12. HIV Status (1 = positive)	-0.01	0.00	0.05	0.07	0.04	0.09	0.05	0.06	0.20***	0.25***
13. Sexual Orientation (1 = gay)	0.24***	0.07	0.08	0.05	-0.31***	0.00	0.10	0.05	-0.09	-0.06
<i>M</i>	2.78	2.71	18.97	13.08	1.65	80.46	1.10	0.79	24.13	14.14
<i>SD</i>	0.93	0.95	9.16	7.85	0.79	24.08	0.95	0.84	7.48	6.54
Cronbach's α	0.84	0.92	0.95	0.92	0.89	0.95	0.89	0.88	0.91	0.90