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ORIGINAL PAPER

Heterosexual Self-Presentation, Identity Management, and Sexual Functioning Among Men Who Have Sex with Men

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Abstract

Research and clinical work on sexual functioning in men has traditionally focused on the presence or absence of erectile dysfunction (ED) or the inability to maintain an erection sufficient for satisfactory sexual performance. However, for men who have sex with men (MSM), receptive anal intercourse is a common form of sexual expression. Existing work on men's sexual dysfunction does not effectively address receptive anal sex functioning, and there is a need to understand how stressors can impact this common sexual behavior. The goal of the present study was to understand how stressors can impact erective and receptive anal sex functioning among MSM. In the present study, we hypothesized that minority stress (as operationalized by integrating identity management and heterosexual self-presentation) would have an impact on MSM's sexual functioning overall and adapted a previous measure of sexual dysfunction (International Index of Erectile Functioning) to better assess this relationship. Data were collected from 228 men (M_{age} = 31.74, SD = 9.41); exploratory factor analysis was used to create a new measure of sexual functioning, and regression analyses were used to examine the relationships between heterosexual self-presentation and identity management and sexual functioning. Results demonstrated that higher heterosexual self-presentation was associated with more functional impairment in erectile function and receptive anal sex functioning as well as use of functional enhancement medications or substances. The results of the present study extend extant work on minority stress to sexual functioning of MSM and are relevant to the sexual health concerns of MSM.

Keywords Men who have sex with men (MSM) · Sexual functioning · Sexual dysfunction · Receptive anal sex

Introduction

Research and clinical work on sexual functioning for men has traditionally focused on erectile dysfunction (ED) or "the inability to maintain an erection sufficient for satisfactory sexual performance" (Rew & Heidelbaugh, 2016, p. 820). However, for men who have sex with men (MSM), receptive anal intercourse, or "bottoming," is a common form of sexual expression, and one form that sexual dysfunction may take on in the receptive partner during anal intercourse between MSM is difficulty relaxing the anal sphincter sufficiently to allow for penetration (Hollows, 2007). Such inability to relax the anal sphincter may have sexual health consequences. Involuntary muscular contraction of the anus during penetration may contribute to damage to the thin lining of the rectum, in the form of micro-tears (Agnew, 1985; Rosser et al., 1998). Aside from causing pain, breaks in the tissue barrier of the rectum can result in anal fissures and can facilitate transmission of sexually transmitted infections including HIV (Felt-Bersma & Bartelsman, 2009). Limited work on men's sexual dysfunction addresses receptive anal sex functioning, and there is a need to understand how stressors can impact sexual functioning for MSM engaging in receptive anal sex. To this end, the goal of the present study was to understand how psychological stressors can impact erectile functioning and receptive anal sex functioning among MSM.

In a review of population-based data, researchers found that most gay men report having had anal sex, compared to a small minority of heterosexual men (Heywood & Smith, 2012). Penetrative anal sex using a penis requires the same level of erectile functioning in the individual whose penis is penetrating an anus as penile–vaginal intercourse (the individual who is performing the penetration is typically referred to as the "top"). Erectile functioning issues can result in difficulties such as inability to penetrate the anal

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sphincter (Filiault et al., 2008). In penetrative anal sex, for the individual being penetrated (typically referred to as the "bottom"), sexual functioning issues may include muscular contraction of the anus resulting in pain or tears in the rectum during penetration as the muscular contraction means that the penetrating partner must apply more force to penetrate the anal sphincter. Many men engage in both penetrative and receptive anal sex (typically referred to as "versatile" or "vers"; Moskowitz & Garcia, 2019; Moskowitz & Roloff, 2017; Wei & Raymond, 2011).

As well, just as substances exist to facilitate erectile functioning (e.g., erection-stimulating drugs such as Viagra; Halkitis & Green, 2007), substances may be used to facilitate anal intercourse. Amyl nitrate, a common and readily available drug in a class commonly called poppers, produces a short euphoric high but also relaxes smooth muscles including the anal sphincter and is used to make receptive anal sex easier for the bottom (Romanelli, Smith, Thornton, & Pomeroy, 2004). A focus on erectile functioning alone is not sufficient to understand sexual functioning among MSM; understanding receptive anal sex functioning is also crucial. Further, research has indicated that topping and bottoming behaviors are often laden with socially constructed meaning, such as degradation among gay and bisexual men of individuals for engaging in receptive anal sex, perception of receptive anal sex to mean effeminacy or social inferiority, or perception of topping to equate to masculinity or heterosexuality (Brooks et al., 2017; de Visser & Ravenhill, 2017; Ibrahim, 2017; Kutner et al., 2020; Reilly, 2016; Reisen et al., 2010). To this end, we sought to investigate factors that impair the sexual functioning of MSM beyond erectile functioning and including receptive anal sexual functioning and use of drug-related sexual functional assistance.

The minority stress theory offers a framework by which to understand how unique, chronic, and socially based stressors impact the sexual functioning of MSM. Sexual functioning is known to be impacted by a variety of psychological factors (Moskowitz & Roloff, 2017; Rew & Heidelbaugh, 2016). The minority stress model suggests that stress related to marginalization of non-heterosexual identities leads to deleterious health effects over time (Meyer, 2003).

Internalized homonegativity is one such stressor that could negatively impact the sexual functioning of MSM. Internalized homonegativity is the acceptance of societal anti-gay attitudes, which lead to the devaluation of the self and negative self-concept (Quinn et al., 2015). Internalized homonegativity has been consistently linked to anxiety, depression, and risky sexual behavior (Feinstein et al., 2012; Morandini et al., 2015; Ross et al., 2008). Internalized homonegativity may contribute to the observed greater prevalence of difficulties with erectile functioning in gay men when compared to heterosexual men (Bancroft et al., 2005). In one study on minority stress and erectile dysfunction among Polish gay and bisexual men, internalized homophobia was strongly associated with lower quality of sexual life (Grabski et al., 2019). However, receptive anal sex functioning was not included in that study, and the association between internalized homophobia and receptive anal sex functioning has not been the subject of much study. Internalized homophobia may negatively impact sexual functioning due to its associations with shame and interpersonal trauma related to sexuality (Allen & Oleson, 1999; Brown & Trevethan, 2010; Meyer & Dean, 1998; Pachankis et al., 2008).

Conversely, being "out" about one's identity and incorporation of that identity into everyday life, or identity integration (Button, 2004), may positively influence sexual functioning to the degree that identity integration reflects internalized acceptance of one's sexuality (as opposed to internalized rejection as in internalized homonegativity). Several studies have shown that an individual's "outness" or openness about their sexual identity is cross-sectionally related to better mental health (e.g., Velez et al., 2013; White & Stephenson, 2014; Wilkerson et al., 2016) and not being out has been associated with greater experience of pain during anal sex (Rosser et al., 1998), though other research has not found this relationship (Damon & Rosser, 2005). Outness may positively benefit mental health because it reduces the stress of identity concealment and helps to facilitate social connections through friendships and community support.

Based on this body of past work, we had the following hypotheses for this study of proximal minority stressors and sexual functioning. We anticipated first that receptive anal sex sexual functioning (hypothesis 1a) and use of drugs to facilitate erections or relax the anal sphincter (i.e., functional assistance) in sexual functioning (hypothesis 1b), along with erectile functioning, would emerge as separate factors in a factor analysis of items pertaining to sexual functioning for MSM. We further hypothesized that heterosexual self-presentation would be associated negatively with erectile and receptive anal sexual functioning (hypotheses 2a and 3a), and outness (in the form of integrating identity management) would be associated positively with erectile and receptive anal sexual functioning (hypotheses 2b and 3b). Further, we anticipated that heterosexual self-presentation would be associated positively, and integrating identity management associated negatively, with use of medications or substances to enhance erectile or receptive anal sex functioning (e.g., erection medications or amyl nitrate, respectively; hypotheses 4a and 4b).

Method

Participants

The final analytic sample contained 228 men collected from Mechanical Turk. Participants ranged in age from 18 to 65 ($M = 31.74$, $SD = 9.41$). Regarding sexual orientation, 65%

of participants identified as gay, 33% identified as bisexual, and 2% identified as another identity (e.g., "homoflexible"). Regarding race/ethnicity, participants identified as White/Caucasian (69%), Black/African American (10%), Hispanic/Latino (9%), Asian/Asian American (7%), multiracial (4%), Native American (1%), or did not indicate a response (1%). Most participants reported living in an urban or metropolitan area (53%), with others reported living in a suburb (37%) or in a rural area (10%). Participants were asked if they use descriptors for the sexual position preference: 31% of the sample identified as tops, 19% reported not using listed descriptors, 14% identified as vers, 13% identified as top/vers, 13% identified as bottoms, and 10% identified as bottom/vers. All participants reported having had anal sex in their lifetime.

Measures

Heterosexual Self-Presentation

The Heterosexual Self-presentation (HSP) subscale of the Conformity to Masculine Norms Inventory-46 (Parent & Moradi, 2009) was used to assess desire to be perceived by others to be heterosexual. The HSP contains six items (sample item: "It would be awful if someone thought I was gay") on a four-point response scale (1 = strongly disagree, 4 = strongly agree). Responses are averaged such that higher scores indicate greater heterosexual self-presentation. Validity of the HSP has been supported through links via a correlation of r = 0.82 with the homophobia scale of the Male Role Norms Inventory among college men (Parent & Moradi, 2011) and via association with reluctance to be tested for HIV among MSM (Parent et al., 2012). In the present study, AIA Cronbach's alpha for responses to items on the HPS was 0.84. Means ranged from 1 to 4, with the mean response below the scale midpoint ($d = 0.86$), suggesting that the sample overall had low endorsement of heterosexual self-presentation that was slightly higher ($d = 0.31$) than scores obtained in another sample of gay and bisexual men (Parent et al., 2012).

Identity Management

The Integrating (INT) subscale of the identity management scale developed by Button (2004) was used to assess the degree to which one is open about one's sexual orientation in everyday life. The INT contains 12 items (sample item: "Whenever I'm asked about being gay/bi, I always answer in an honest and matter-of-fact way") on a seven-point response scale (1 = Strongly disagree, 7 = Strongly agree). Validity of the INT has been supported via links with psychological distress among a broad sample of sexual minority individuals (Velez et al., 2013). In the present study, AIA Cronbach's alpha for responses to items on the INT was 0.93. Means ranged from 1 to 7, with the mean response being slightly above the scale midpoint ($d = 0.14$), suggesting that the sample overall had average endorsement of outness, though it was lower than the mean obtained in a sample of sexual minority persons recruited from social groups aimed toward sexual minorities (Velez & Moradi, 2012).

Sexual Functioning

Sexual functioning was assessed using a modification of the International Index of Erectile Functioning (IIEF; Rosen et al., 1997). The original IIEF contains 15 items assessing erectile function, orgasm function, sexual desire, intercourse satisfaction, and overall satisfaction. We modified the original IIEF by rewording items to apply to both insertive and receptive anal sex and to include items on use of both erectile functioning medications and substances used to facilitate receptive anal sex (i.e., poppers). We included only items pertaining to difficulties in the mechanics of sexual activity and not items pertaining to satisfaction, as satisfaction may be influenced by many factors other than genital functioning (Dosch et al., 2016). The development and factor analysis of the revised Sexual Functioning Index for MSM (SFI-MSM) is described in the results section.

Procedure

Participants were collected online via Mechanical Turk. Consistent with recommendations for obtaining quality data from Mturk (Abbey & Meloy, 2017; Peer et al., 2014), the Mturk task was restricted to men in the US with 95% or better approval ratings on prior Mturk tasks (trans men were not excluded from the study but none of the participants selected the option to identify as transgender or as a trans man). The study survey included two validity check items (e.g., "Check 'strongly agree'"). Participants who responded incorrectly to either validity check item were exited from the study and are not reported in any of the present results; twenty-eight participants were removed for answering one of these items incorrectly and are not reported anywhere in the present report. Compensation for participation was $1.00 credited toward users' Mturk accounts.

Statistical Analysis

Exploratory factor analysis was used to examine the factor structure of the revised SFI-MSM and explore hypothesis 1. Simultaneous linear regressions were used to evaluate hypotheses 2–4.

Results

First, we assessed the SFI-MSM using principle axis factoring. We ran the analysis direct oblimin rotation as factors were expected to correlate. We constrained the factor rotation to three factors due to our a priori definition of the items (insertive, receptive, and assistance). Missing data were processed in the factor analysis using available item analysis.

The Kaiser–Meyer–Olkin measure of sampling adequacy was 0.767, indicating an acceptable sample size. Bartlett's test of sphericity was significant, χ^2 (28) = 493.73, $p < 0.001$, indicating that the data were suitable for factor analysis. All extraction communalities were greater than 0.39, indicating that the items bore reasonable correlations among themselves, suitable for factor analysis. The three-factor solution explained 58% of the variance in responses. The pattern loading matrix is presented in Table 1. As expected, three factors emerged; one related to erectile functioning for the purpose of penetration (which we called the Topping Functioning factor), one related to receptive anal intercourse (which we called the Bottoming Functioning factor), and one related to use of substances to enhance sexual functioning (which we called the Functional Assistance factor). Thus, our hypotheses (1a and 1b) that receptive anal sex functioning and substance-related enhancement would form a unique aspect of sexual functioning for MSM were supported.

The Topping Functioning factor was positively correlated with the Bottom Functioning factor ($r = 0.38$) and the Functional Assistance factor ($r = 0.41$). Bottoming Functioning and Functional Assistance were also positively correlated ($r = 0.28$). Regarding internal reliability, for the Topping Functioning factor AIA Cronbach's alpha was 0.77. For the Bottoming Functioning factor, AIA alpha was 0.82. For the Functional Assistance factor, AIA alpha was 0.70. Thus, the three facets were related but unique, and this short assessment demonstrated adequate internal reliability.

To investigate the relationships among sexual functioning, identity management, and heterosexual self-presentation, we analyzed the data in three simultaneous regressions. Age, a potential covariate, was also included in the models. Descriptive statistics for the variables in the study, including the functioning factors, are presented in Table 2. First, we assessed the Topping Functioning factor and its associations with heterosexual self-presentation and integrating identity management. The overall regression was significant, F (3, 201) = 17.841, $p < 0.001$, $R^2 = 0.21$, representing a medium-sized effect for the entire model. The individual variables in the regression are presented in Table 3. Heterosexual self-presentation was associated negatively with sexual functioning as a top, supporting hypothesis 2a but not 2b.

Second, we assessed the Bottoming Functioning factor and its associations with integrating identity management and heterosexual self-presentation. The overall regression was significant, F (3, 187 = 4.844, $p < 0.01$, $R^2 = 0.07$, representing a small-sized effect. Individual variables in the regression are presented in Table 3. Heterosexual self-presentation was associated negatively with sexual functioning as a bottom, supporting hypothesis 3a but not 3b.

Finally, we assessed the Functional Assistance factor and its association with identity management and heterosexual self-presentation. The overall regression was significant, F (3, 221) = 22.257, $p < 0.001$, $R^2 = 0.23$, representing a medium-sized effect. Individual variables in the regression

Table 1 Structure matrix for exploratory factor analysis

	Factor		
	1	2	3
1. When you wanted to top, how often were your erections hard enough for penetration as you started to have sex, without use of Viagra or any other drugs that give people erections?	**.627**	−.276	.320
2. When you wanted to bottom, how often were you able to relax your anus enough that the top could penetrate you as you started to have sex, without the use of poppers or other relaxants?	.390	**−.861**	.225
3. When you wanted to top, how often were you able to maintain your erection after you started to have sex (again, without Viagra, etc.)?	**.851**	−.357	.353
4. When you wanted to bottom, how often were you able to keep your anus relaxed after you had started to have sex (again, without using poppers, etc.)?	.282	**−.778**	.284
5. When you wanted to top, how difficult was it to maintain your erection until you were done having sex (again, without using Viagra, etc.)?	**.730**	−.361	.530
6. When you wanted to bottom, how difficult was it to keep your anus relaxed until you were done having sex (again, without poppers, etc.)?	.364	**−.716**	.341
7. Do you use poppers or other relaxants to make bottoming easier?	.364	−.277	**.735**
8. Do you use Viagra or other drugs to get and maintain an erection to top?	.392	−.271	**.730**

Bolded values represent items assigned to specific factors. Factor 1: Topping Functioning factor. Factor 2: Bottoming Functioning factor. Factor 3: Functional Assistance factor

Table 2 Descriptive statistics and intercorrelations

	2	3	4	5	*M*	*SD*	*α*
1. HSP	.17*	−.46**	−.25**	−.44**	1.88	.72	.84
2. INT		−.06	.03	.10	3.69	1.35	.93
3. Topping functioning factor			.38**	.41**	4.01	.97	.77
4. Bottoming functioning factor				.28**	3.77	.95	.82
5. Functional assistance factor					2.58	.53	.70

HSP Heterosexual self-presentation. *INT* Integrating identity management
*$p < 01$, ** $p < 001$

Table 3 Regression analysis for sexual functioning

DV	IV	*B* (95% CI)	*SE*	β	*p*
Topping functioning factor	Constant	5.140 (4.537, 5.743)	.306		< .001
	Age	.001 (−.015, .013)	.007	−.009	.887
	INT	.017 (−.073, .108)	.046	.024	.704
	HSP	−.621 (−.790, −.452)	.086	−.463	< .001
Bottoming functioning factor	Constant	4.043 (3.375, 4.712)	.339		< .001
	Age	.007 (−.009, .022)	.008	.061	.392
	INT	.045 (−.056, .145)	.051	.063	.382
	HSP	−.342 (−.529, −.155)	.095	−.259	< .001
Functional assistance factor	Constant	3.102 (2.789, 3.414)	.159		< .001
	Age	−.004 (−.011, .003)	.004	−.068	.256
	INT	.075 (.028, .122)	.024	.189	.002
	HSP	−.354 (−.442, −.267)	.044	−.480	< .001

DV Dependent variable. *IV* Independent variable. *CI* Confidence interval. *INT* Integrating identity management. *HSP* heterosexual self-presentation. R^2 for Topping Functioning was .21; R^2 for Bottoming Functioning was .07. R^2 for Functional Assistance was .23

are presented in Table 3. Heterosexual self-presentation was associated negatively, and integrating identity management was associated positively, with Functional Assistance, supporting hypotheses 4a and 4b).

Discussion

The goal of the present study was to understand how two proximal facets of the minority stress model (Meyer, 2003) may impact sexual functioning among MSM. We expanded the focus of sexual functioning beyond erectile functioning to include functional difficulties in having receptive anal sex and use of functional enhancement (e.g., medications or drugs to enhance erections and facilitate relaxation of the anal sphincter). Our results supported that heterosexual self-presentation was positively associated with functional impairment in erectile function, receptive anal sex functioning, and use of functional enhancement medications or substances. The R^2 values for the regression results suggested that the independent variables used predicted more variance in topping and use of functional assistance than bottoming, suggesting that the variables used are more relevant to erectile dysfunction than receptive anal functioning. The results of the present study extend extant work on minority stress to sexual functioning of MSM and are relevant to public health insomuch as functional difficulties in receptive anal sex may contribute to risks for sexually transmitted infection (Ahmad & Shukla, 2017; Goldstone & Welton, 2004) and may also be relevant to clinical work with men.

The results of the present study also have clinical implications for working with men. Estimates place the prevalence of regular use of poppers by men who have sex with men at about 25%–33% (Barrett et al., 2019; Pepper et al., 2019; Vaccher et al., 2020) and the prevalence of erection-enhancing drugs at about 15%–20% (Hammoud et al., 2017; Kelly & Parsons, 2010) with rates being even higher among individuals who participate in events such as circuit parties (Schmidt et al., 2016; Troiano et al., 2018). The combination of poppers and erectile dysfunction drugs, in particular, may cause hypotension, myocardial infarction, and death when used together (Demant & Oviedo-Trespalacios, 2019; Romanelli & Smith, 2004). Because poppers would always, and erectile dysfunction medications may be, obtained without a prescription, there is no opportunity for patient

education at the point of sale to warn people about the dangers of combining these substances. These drugs may also not be among those typically assessed for in intake paperwork or interviews. Sexual functioning problems, as well as use of sexual functioning-related substances, could be assessed within the context of affirming medical or counseling interviews along with the role that anxieties related to sexuality may play in experiences of sexual functioning problems (Heredia & Rider, 2020; Rutter, 2012).

Further research is also needed to explore the impact of additional minority stressors on sexual functioning. We focused on two proximal stressors, but other stressors, such as interpersonal trauma related to bullying or family rejection have also demonstrated persisting effects on mental health for sexual minority persons (Ryan et al. 2010; Toomey et al. 2010; Zou et al., 2013) and these variables may also have impacts on sexual functioning. Methodologies such as weekly diary-based work may be especially useful to understand the impact of minority stress on sexual functioning.

The present study must be interpreted in light of its limitations. First, our study was cross-sectional, and causality cannot be inferred from the results. Second, we used a convenience sample of MSM collected from Mturk. Despite our efforts to ensure data quality consistent with research using Mturk samples it is possible that some participants were responding invalidly. Third, our data were based on self-report and are subject to the potential for errors in recall by participants. Fourth, research is needed to determine additional factors that may contribute to sexual functioning difficulties in receptive anal sex. We did not explore relationship contexts, and there may be differences in sexual functioning with long-term partners, casual partners, or others. Finally, in this preliminary investigation we focused on a narrow range of aspects of the minority stress model. Now that we have demonstrated the potential for this model to be applied to specific sexual functioning behaviors, further work may further explore the nature of relations between other minority stress variables and sexual functioning.

To conclude, the findings of our study extend research on minority stress factors and the sexual functioning of MSM beyond erectile functioning to include difficulties in having receptive anal sex, and the use of functional enhancement substances such as Viagra and poppers. Our study suggests that the minority stress theory is a useful framework to understand how stress is associated with sexual functioning among MSM.

Author Contributions MCP developed the study, led the analyses, and provided guidance on the manuscript development. LW assisted with analysis and manuscript development.

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Compliance with Ethical Standards

Conflict of interest The authors report no conflicts of interest.

Ethical Approval This study was approved by the University of Texas at Austin institutional review board.

Informed Consent All participants provided informed consent prior to beginning the survey.

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