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The relationship between use of sexually explicit media and sexual risk behavior in men who have sex with men: exploring the mediating effects of sexual self-esteem and condom use self-efficacy

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Abstract

This study tests the following three hypotheses: 1) there is a direct association between consumption of sexually explicit media (SEM) depicting non-condom use and STI-related sexual risk behavior among men who have sex with men (MSM), 2) The association between SEM consumption and STI-related sexual risk behavior is mediated by men's sexual self-esteem, and 3) the relationship between SEM consumption and sexual risk behavior is mediated by condom use self-efficacy. A cross-sectional, Internet-based survey on exposure to SEM and sexual behavior of 1,391 MSM in the USA was conducted in 2011. The results confirmed hypothesis 1 and 3 while hypothesis 2 was rejected. Accordingly, a significant association between the use of SEM picturing condom use and STI related sexual risk behavior among MSM was found. Likewise, we found that the association between the use of SEM and sexual risk behavior was mediated by condom use self-efficacy in an indirect path. However, SEM did not influence sexual risk behavior via sexual self-esteem. To promote STI prevention, the actors in SEM may be used as role models in managing condom use in sexual contexts.

Keywords

SEM; pornography; MSM; sexual risk behavior; condom self-efficacy; sexual self-esteem

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Introduction

A clear priority for U.S. health authorities is to prevent the spread of HIV and other sexually transmitted infections (STIs) both in general and in high risk populations (House, 2010). Men who have sex with men (MSM), a concept which covers men with and without gay or sexual minority identity, are a heterogeneous group and several studies including MSM indicate that sexual risk behavior is more characteristic of some MSM individuals than others (Berg, 2008). Identifying risk factors which may increase the likelihood of engaging in STI-related sexual risk behaviors holds the potential to advance the future design of successful sexual health campaigns and interventions, the promotion of STI prevention education, and the assessment by health providers of patients' risks of contracting STIs (Hald, Smolenski, & Rosser, 2013). One potential risk factor that remains underexplored among MSM is the consumption of sexually explicit media (SEM) (Hald et al., 2013; Rosser, Smolenski, Erickson, Iantaffi, et al., 2013; Stein, Silvera, Hagerty, & Marmor, 2012; Træen & Daneback, 2012). By *consumption*, we here refer to the frequency, duration, and content of the SEM use. Studies using heterosexual samples and a variety of designs, including longitudinal studies, have consistently shown that SEM consumption may increase the risk of STI-related sexual behaviors (Bleakley et al., 2011; Braun-Courville & Rojas, 2009; Brown & L'Engle, 2009; Carroll, Padilla-Walker, Nelson, Olson, et al., 2008; Gwinn, Lambert, Fincham, & Maner, 2013; Haavio-Mannila & Kontula, 2003; Hald, Kryper, Adams, & de Wit, 2013; Janghorbani & Lam, 2003; Lambert, Negash, Stillman, Olmstead, & Fincham, in press; Lewin, 2000; Morgan, 2011; Peter & Valkenburg, 2011; Sinkovic Stulhofer, & Bozic, 2012; Stulhofer, Busko, & Landripet, 2010; Svedin, Åkerman, & Priebe, 2011; Træen, Nilsen, & Stigum, 2006; Wingood, DiClemente, Harrington, Davies, et al., 2001; Wright, 2012). However, the relatively few studies available involving MSM and exploring associations between SEM and STI-related sexual risk behavior remain equivocal. Stein et al. (2012), using a large sample of American MSM and a cross-sectional design, found that participants with higher levels of SEM viewing of unprotected receptive and insertive anal intercourse had significantly elevated odds ratios for engaging in such STI related risk behaviors in real life. Further, viewing SEM depicting unprotected anal intercourse and engaging in unprotected anal intercourse were correlated. In contrast, Rosser et al. (2013), using a large sample of MSM in the USA and a cross-sectional design, found that SEM consumption was significantly associated with an increased interest in having protected anal intercourse but was not significantly associated with an interest in unprotected anal intercourse. Critically, whereas studies on SEM and STI-related sexual risk behavior using heterosexual samples have started to explore potential mediators of such relationships (Gwinn, et al., 2013; Hald, Malamuth, & Lange, in press; Lambert, et al., in press), to the best of our knowledge, this has not yet been done using samples of MSM. Consequently, we were interested in studying potentially mediating mechanisms of the relationship between SEM consumption and STI-related sexual risk behavior. The first potential mediator to be examined is condom use self-efficacy. Bandura's (1977) construct of self-efficacy has often been studied in relation to sexual risk behavior. To exercise control in a sexual context, a perception of efficacy is required (Bandura, 1995). Perceived self-efficacy may be defined as "beliefs in one's capabilities to organize and execute the courses of action required to produce given levels of attainments" (Bandura, 1998; p. 2). In the past

decades, perceived self-efficacy has been shown to predict intention to use condoms (Jemmott & Jemmott, 1992; Joffe & Radius, 1993; Kvaalem & Træen, 2000) and actual use of condoms in heterosexuals (Brafford & Beck, 1991; Bryan, Aiken, & West, 1997; Kasen, Vaughan, & Walter, 1992; Wulfert & Wan, 1993) and MSM (Franssens, Hospers, & Kok, 2009; Kasprzyk, Montaño, & Fishbein, 1998). These studies show that the probability of using condoms increases with increased previous experience of condom use and perception of oneself as a competent condom user. SEM depicting condom use when men have sex with men may guide the viewer in “how to do it”. Even so, one might question to which extent what is seen in SEM is reflected in real life behavior, as barebacking with partners of uncertain or serodiscordant HIV status remains a problem among MSM (Berg, 2008).

In the HIV era, MSM are encouraged to use condoms for protection, that is, to act rationally (Davis, 2002). However, rational behavior is always related to context and the perception of reality (Træen & Hovland, 1998; Træen & Gravningen, 2011). In some sexual contexts, other factors may take priority. For example, sexual self-esteem may influence MSM’s behavior. Sexual self-esteem is here defined as positive regard for and confidence in the capacity to experience one’s sexuality in a satisfying and enjoyable way (Snell, Fisher, & Walters, 1993). Most parents do not show their children how to have sex, let alone gay sex; accordingly, sexual conduct is not learned by direct observation. According to Bandura’s social cognitive theory, sex and sexual self-esteem is learned and internalized in cultural and group-specific socialization processes between the individual and his environment. For example, people may adopt elements from pornography in their own sex-life (Löfgren-Mårtenson & Månsson, 2009; Schick, Rima, & Calabrese, 2011). Additionally, pornography depicting homosexual activity may be an important source of learning for youth and MSM just coming out (Kubicek, Beyer, Weiss, Iverson, et al., 2010; Kubicek, Carpineto, McDavitt, Weiss, et al., 2011; Mustanski, Lyons, & Garcia, 2011). SEM offers insight into the most private arena for a sub group of the population surrounded by prejudices and secrecy, and by teaching them the skills and rules needed to be perceived as sexually competent individuals, it may also contribute young MSM’s sexual self-esteem.

High sexual self-esteem is closely related to the individual’s ability to appreciate himself (Lytkens, 1989). The ability to appreciate oneself can partly be regarded as the product of the positive self-attitudes the individual learns and internalizes from others starting in early childhood. In a society characterized by negative attitudes towards homosexuality, a child will most likely not learn and internalize positive attitudes towards homosexuality (Gonsiorek, 1988; Meyer, 1995). Overcoming such attitudes may be critical for the homosexual child’s general self-esteem and, later, for his or her sexual self-esteem.

Different aspects of emotional control, acceptance of one’s own sexuality, and sexual self-esteem are important predictors of condom use self-efficacy (Baele, Dusseldorp & Maes, 2001; Bryan, Aiken & West, 2004; Salazar, DiClemente, Wingood, Crosby et al., 2004). The mechanism underlying the relationship may be that a positive and confident sexual self-esteem is connected to lower need for social approval (Leary, Tchividjian, & Kraxberger, 1999). This notion is supported by findings of a relationship between negative self-conscious emotions (e.g. shame and guilt) and low self-esteem (Adler, 1984; Yelsma, Brown, & Elison, 2002). For MSM, high sexual self-esteem is likely to be associated with

less negative emotions and greater condom use self-efficacy, which may make it easier for the man to communicate with his partner about use of condoms and refuse unprotected sex.

Purpose

This study aims to explore the association between the use of SEM and sexual risk behavior in a cross-sectional sample of MSM. Although causality cannot be assumed in such a sample and design, three specific hypotheses are tested in the paper:

Hypothesis 1:

a. We hypothesize that there is a direct association between consumption of SEM depicting non-condom use and STI-related sexual risk behavior among MSM.

Hypothesis 2:

We hypothesize that the association between SEM consumption depicting non-condom use and STI-related sexual risk behavior is mediated by men's sexual self-esteem.

Hypothesis 3:

We hypothesize that the relationship between SEM consumption depicting non-condom use and sexual risk behavior is mediated by condom use self-efficacy.

Methods

Study design

The SEM study was a large, cross-sectional, Internet-based survey of MSM conducted between May and August, 2011. The survey was designed to collect data on exposure to SEM, sexual behavior, and psychosocial factors associated with HIV transmission risk behavior. Participants were recruited through banner advertisements placed on 148 gay-oriented websites through the *Gay Ad Network*. A total of 7,939,758 impressions were displayed during this period; banners yielded a click-through-rate of 0.16%. An eligibility screener restricted participation to those identifying themselves as male, at least 18 years of age, who reported at least one male sexual partner in the last five years, and who were living in the US or one of its territories. Participants were quota-sampled by race/ethnicity to increase diversity in the sample. A total of 5,201 MSM met the eligibility criteria (excluding racial caps). By design, to ensure a racially/ethnically diverse sample, 3,338 MSM were excluded because that racial/ethnic category had filled, leaving a total of 1,863 MSM who met all eligibility criteria. Of these, 1,479 (79.4%) consented to participate in the study and provided information on exposure to pornography. After excluding 88 participants for impossible or nonsensical data patterns on sexual behavior data, the final sample size for this study was 1,391. The average completion time for the survey was 42 minutes, and participants were compensated \$25. All study protocols and consent procedures were approved by the Institutional Review Board at the investigators' home institution.

The questionnaire contained questions about socio-demographic, questions about HIV status, being in a long-term relationship, number of partners, drug use, SEM consumption

and preferences in SEM, sexual behavior, and use of condoms. As a large study, multiple papers report key findings from various parts of the study (BLINDED).

Measures

Sexual risk behavior—Participants were asked to report the number of casual unprotected anal intercourse male partners (UAIMP) in the last 90 days. We asked participants to provide this count separately for partners with whom they engaged in insertive (UAIMP-I) and receptive (UAIMP-R) anal intercourse. In addition, participants reported the number of UAIMP that were HIV-negative, HIV-positive, or unknown. Using each participant's self-reported HIV-status, we developed a binary indicator of whether or not the participant had engaged in serodiscordant or potentially serodiscordant unprotected anal intercourse. HIV-negative participants who reported any HIV-positive or unknown UAIMP, and HIV-positive participants who reported any HIV-negative or unknown UAIMP were classified as engaging in serodiscordant or potentially serodiscordant unprotected anal intercourse (SDUAI).

SEM Consumption—Exposure to SEM was measured in terms of content preference for protected and unprotected anal intercourse, the frequency of exposure to protected and unprotected anal intercourse, and the typical frequency and duration of exposure to SEM of any kind. The preference for viewing condom use during anal intercourse in SEM was measured by a single item, "In general, do you prefer to watch actors perform anal sex with condoms or without?" with three nominal response options: (1) without condoms, (2) with condoms, and (3) I do not care either way. Participants also responded to two 5-point, Likert-type items on the frequency of viewing protected and unprotected anal intercourse when they watched SEM during the past 3 months. The response range was from 1 = "rarely or never" to 5 = "always or almost always". We created an index by subtracting the frequency of viewing protected anal intercourse from the frequency of viewing unprotected anal intercourse to provide an ordinal measure of the tendency to view unprotected anal intercourse versus protected anal intercourse. This index ranged from -4 to 4, with -4 indicating exclusive viewing of protected anal intercourse and 4 indicating exclusive viewing of unprotected anal intercourse. A score of zero indicated equivalent exposure to both forms of anal intercourse. Then, frequency and duration measures of SEM consumption of any kind in the last 3 months were combined to create an index of the hours per week dedicated to SEM consumption.

In addition, four items were used to assess the frequency of accessing SEM through the following four sources: (1) magazines, (2) video/DVD, (3) Internet on a computer, and (4) Internet through a phone or mobile device. Response options to each of these items ranged from 1 = not at all to 6 = more than once a day. One item asked participants to report the typical duration of use of SEM when it was used in the last 90 days, with response categories including: (1) 1–15 min, (2) 16–30 min, (3) 30–45 min, (4) 46–60 min, (5) between 1 and 1½ h, (6) between 1½ and 2½ h, and (7) >2 h. Finally, we multiplied exclusive viewing of protected anal intercourse and exclusive viewing of unprotected anal intercourse by hours of SEM consumption by week to create a composite measure of SEM consumption. We treated this index as ordinal and calculated the regression estimates (β) to

assess the effects of one unit dispersion from the absolute condom watching towards the absolute no-condom watching on the outcome variable.

Condom use self-efficacy—(Marin, Gomez, Tschann, & Gregorich, 1997). This was measured by thirteen items listed under the heading “Please read the following statements and indicate whether or not you would be able to use condoms in the following situations. Can you”. The items were: “Use a condom regularly even if a partner might think less of you?”, “Use a condom regularly when the time to have sex is limited?”, “Insist on condom use when the person you are with appears clean?”, “Use a condom even if you are with a person you’re in love with?”, “Start to use a condom with a long-term partner?”, “Use a condom regularly when your partner is under the influence of alcohol or drugs?”, “Stop and look for condoms when you are sexually aroused?”, “Put a condom on yourself whenever you have sex?”, “Use a condom regularly even when you’re under the influence of alcohol or drugs?”, “Put a condom on yourself without spoiling the mood?”, “Continue to insist on using a condom with a person who gets angry when you suggest it?”, “Use a condom if a partner do not want to use one?”, and “Continue to insist on using a condom with a person who threatens to leave if you use it?”. Each item was rated from 1 = definitely no, 2 = probably not, 3 = unsure, 4 = probably yes, 5 = definitely yes. The scale was created by calculating the arithmetic mean of the thirteen items and higher score indicating better condom use self-efficacy (Cronbach’s alpha =0.96).

Sexual self-esteem—The scale, developed by Snell, Fisher, & Walters (1993), was measured by ten different items listed under the heading “Please indicate how much the following items describe how you have felt about yourself in the three last months”. The items were: “I am better at sex than most other people”, “I am a pretty good sexual partner”, “I would rate myself pretty favorably as a sexual partner”, “I would be very confident in a sexual encounter”, “My sexual relationship(s) is very good compared to most”, “I am confident about myself as a sexual partner”, “I am very satisfied with my sexual relationship(s)”, “I am very satisfied with the way my sexual needs are currently being met”, “My sexual relationship(s) meets my original expectations”, and “I am very satisfied with the sexual aspects of my life”. Each item was rated from 1 = not at all like me, 2 = only a little like me, 3 = somewhat like me, 4 = a lot like me, and 5 = exactly like me. We used arithmetic mean of the ten items to create a composite measure of sexual self-esteem. Higher scores on the composite measure indicate greater sexual self-esteem and Cronbach’s alpha of this measure in the sample was 0.93.

Statistical analysis

The goal of this analysis was to estimate the direct association of SEM consumption (SEM) on sexual risk behavior (SUDAI) and the indirect associations of SEM consumption on SUDAI that are mediated by condom use self-efficacy (CONDOM_SE) and sexual self-esteem (SEXUAL_SE). We conducted this analysis in two steps.

In step one, we used summary statistics to describe the study sample. We also calculated the prevalence of serodiscordant unprotected anal intercourse among the participants, and means

and standard deviations of the other variables. Using simple logistic regression, we estimated the direct association (path c in Figure 1) of SEM on SDUAI.

In step two we conducted the mediation analysis. The multiple mediator model is presented in Figure 1. As seen in the Figure, the model specified direct associations from SEM to the mediating variables: SEXUAL_SE (a_1) and CONDOM_SE (a_2). The model also specified effects of mediating variables on SDUAI (b_1 and b_2). Each of these direct associations was estimated along with two mediated associations (a_1b_1 and a_2b_2). In Figure 1, the path c' represents the association of SEM on SDUAI after controlling for the mediated effects of the mediators. The difference between estimates for path c and path c' indicates the strength of the mediation. Full mediation is evident when c becomes zero after the inclusion of the mediators. We tested a multiple mediator model following the approach proposed by Precher and Hayes (2004; 2008). This approach is preferred for addressing the low power issue associated with Sobel test (MacKinnon, Lockwood, Hoffman, West, et al., 2002; Precher & Hayes, 2004). We used weighted least squares means and variance adjusted (WLSMV) estimation to estimate the model. To test the significance of the mediated efforts, we calculated confidence intervals of the estimates using bias corrected (BC) bootstrapping. Five thousand bootstrap draws with DELTA parameterization were used (Muthén & Muthén, 1998–2010). An indirect effect is considered to be statistically non-significant if the associated bias corrected 95% confidence interval contains the zero value. Furthermore, we conducted a contrast test comparing the two indirect effects (path a_1b_1 -path a_2b_2) using BC bootstrapping (Cheung, 2009). All statistical tests were two-tailed, data management and simple logistic regression models were conducted in Stata 11 software (StataCorp., 2010), and mediation analyses were conducted using Mplus 6.01 (Muthén & Muthén, 1998–2010).

Results

Table 1 shows the socio-demographic characteristics of the sample participants. Similar to previous work with Internet-based samples of MSM, participants were younger, well-educated, gay-identified, and mostly HIV-negative (Rosser, Oakes, Horvath, Konstan, et al., 2009). Unlike other studies, only a minority of participants were non-Hispanic White. That most participants (58.6%) were in other racial/ethnic designations is greater than what is usually observed in Internet-based convenience samples (Rosser, Wilkerson, Smolenski, Oakes, et al., 2011), and reflects the quota-sampling on race/ethnicity to over-recruit men of color into the study.

The means, standard deviations, and percentage of the variables of interest are shown in Table 2. Most participants reported viewing between 1.2 and 6.8 hours of SEM per week in last 90 days. In terms of content viewed, the typical respondent reported equivalent amounts of protected and bareback SEM consumption, although the small negative value of the mean suggest that more participants reported consumption of protected anal intercourse SEM over bareback SEM. Of the participants, 11.2% reported SDUAI in the last ninety days. Though a majority of the participants reported high scores on both the scales, condom use self-efficacy scores were higher than sexual self-esteem scores.

The estimates of associations of SEM consumption on sexual risk behaviors and the results of mediation analysis are reported in Table 3. The association (path c) of SEM consumption on sexual risk behavior was statistically significant ($\beta = 0.02$; 95% CI: 0.01, 0.03; $p < 0.001$) without any mediators in the model. Condom use self-efficacy was statistically significant with SEM consumption ($\beta = -0.01$; 95% CI: $-0.02, -0.01$; $p < 0.001$), indicating that with one unit increase in SEM consumption, condom self-efficacy was reduced by 0.01. Condom use self-efficacy was also statistically significantly associated with sexual risk behavior ($\beta = -0.62$; 95% CI: $-0.78, -0.45$; $p < 0.001$). However, sexual self-esteem was not statistically significant ($\beta = 0.05$; 95% CI: $-0.13, 0.24$; $p = 0.57$) with sexual risk behavior.

In the mediated model, the association (path c') of SEM consumption on sexual risk behavior was smaller and non-significant ($\beta = 0.006$; BC 95% CI: 0.00, 0.013; $p = 0.11$) indicating strong mediation. Condom use self-efficacy was inversely and significantly associated with SEM consumption and with sexual risk behavior. The association of SEM consumption through condom use self-efficacy on sexual risk behavior (path a2b2) was statistically significant ($\beta = 0.004$; 95% CI: 0.003, 0.006; $p < 0.001$) but not through sexual self-esteem (path a1b1). Contrast analysis (path a1b1 - path a2b2) indicated the path through condom use self-efficacy was higher and statistically significantly different from the path through sexual self-esteem ($\beta = -0.004$; 95% CI: $-0.006, -0.003$; $p < 0.001$).

Discussion

In this study, three hypotheses were put to test. The results showed that two were confirmed and one was rejected. First, an association between the use of SEM picturing non-condom use and STI related sexual risk behavior among MSM was hypothesized. This hypothesis was confirmed. The findings from this study support other findings from the same material that have established a relationship between viewing unprotected or protected SEM and engaging sexual risk behaviors in real life (Rosser et al., 2013). The second and third hypotheses were that the association between the use of SEM and sexual risk behavior was mediated by men's sexual self-esteem and by condom use self-efficacy in two different paths. Sexual self-esteem was statistically significantly and positively associated with SEM consumption depicting non-condom use, but not with sexual risk behavior. While SEM consumption depicting non-condom use may improve sexual self-esteem, it is not associated with sexual risk behavior through sexual self-esteem. The second hypothesis was therefore rejected. An association between SEM consumption and sexual self-esteem is also shown in studies of heterosexuals (Morrison, Bearden, Harriman, Morrison et al., 2004; Watson & Smith, 2012), and this is the first study to confirm it among MSM as well. These findings may be viewed as consistent with theories of vicarious learning. By watching SEM, MSM see scripts for homosexual conduct, preparing them for "in real life" meetings.

We found no support for a relationship between the confidence in oneself as a competent lover (or lack thereof) and sexual risk behavior. Sexual self-esteem and condom use self-efficacy were not significantly associated. Thus, perceiving oneself to be good at sex is not the same as self-perceived ability to use condoms.

Our third hypothesis was confirmed. Condom use self-efficacy was statistically significantly associated with SEM consumption depicting condoms as well as with sexual risk behavior. While the relationship between condom use self-efficacy and condom behavior is well established (Franssens et al., 2009; Kasprzyk et al., 1998), this study showed viewing condom use in SEM may in fact be associated with increased condom use self-efficacy. Alternatively, the association may be explained in other ways e.g. by third factor variable significantly associated with both variables (i.e., spurious effects). Men who consume SEM depicting condom use may learn or gain confidence in skills related to using condoms and negotiating condom use. In our opinion, viewing SEM with condoms may also contribute to a normalization of condom use and, thus, to a change in the perception of the social and sexual reality of MSM. Some limitations of this study should be addressed. First, this is a convenience sample of MSM in the US recruited online. Replication studies are needed to determine the reliability of findings and the generalizability of results. Second, due to cross-sectional nature of the study, causality cannot be assumed. For example, we cannot say whether SEM consumption depicting non-condom use builds sexual self-esteem, sexual self-esteem increases SEM consumption or whether some third variable(s) influence both. Longitudinal and life history studies may be needed to inform temporality.

Implication for STI prevention in MSM

The findings of this study have several implications for the prevention and spread of HIV and other STIs in MSM. The MSM with sexual risk behavior were reporting lower condom use self-efficacy and higher viewing of bareback pornography. Likewise, MSM who viewed SEM with condoms reported higher condom use self-efficacy and less sexual risk behavior. From an HIV/STI prevention perspective, perceived mastery of using condoms – and promoting condom self-efficacy as a skill appears more effective than, say, helping MSM to work on their sexual self-esteem. Future sexual health campaigns and HIV/STI prevention interventions may use the actors in SEM as role models in managing condom use in sexual contexts to the promotion of STI prevention and/or teach STI prevention techniques. This calls for a cooperation between health authorities and the pornography industry.

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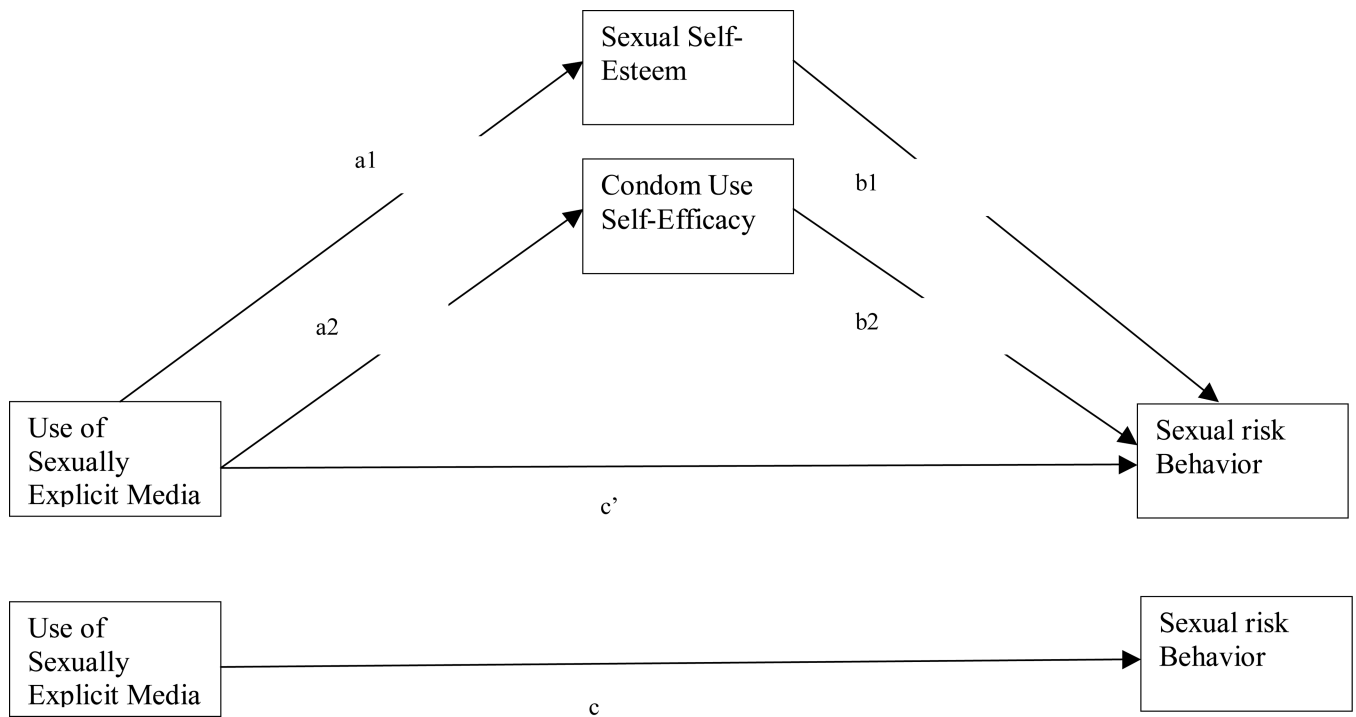


Figure 1. The hypothesized relationship between use of sexually explicit media and sexual risk behavior, and indirect effects of sexual self-esteem and condom use self-efficacy as mediators.

Note:

Sexual self-esteem: lowest value = less positive → highest value = very positive; Use of sexually explicit media: lowest value = less use → highest value = highest use; Condom use self-efficacy: lowest value = less SE → highest value = highest SE; Sexual risk behavior: 0=No; 1= Yes.

Table 1Socio-demographic characteristics of the sample ($N = 1,391$ Internet-using MSM)

	n	%
Age		
18–24	521	37.5
25–34	440	31.6
35–44	203	14.6
45	227	16.3
Race/ethnicity		
White [†]	576	41.4
Black [†]	161	11.6
Latino	421	30.3
Asian/Pacific Islander [†]	104	7.5
Native American [†]	24	1.7
Other [†] /Multi racial	105	7.6
Education		
Up to high school	157	11.3
Some college	561	40.3
College graduate	397	28.5
Postgraduate	275	19.8
Missing	1	0.1
HIV status [‡]		
Positive	121	8.7
Negative	1,269	91.2
Missing	1	0.1
Sexual Identity		
Gay	971	82.5
Bisexual	138	11.7
Straight	7	0.6
Same-gender loving	14	1.2
Queer	25	2.1
Other	22	1.9

Note:

[†] Non-Hispanic;

[‡] For this analysis, HIV status was collapsed to compare those who have tested HIV positive by self-report with all others, including HIV negative and unsure.

Use of sexually explicit media, condom use self-efficacy, sexual self-esteem, and sexual risk behaviour in a web sample of U.S. MSM

Table 2

Variable	n	%	Mean ± Std Deviation	Median (IQR)	Range	α
Dose of SEM hours/week	1379		6.07 ± 9.16	2.87 (1.2, 6.8) [/]	0.3, 84.4	
SEM content: absolute protected to absolute unprotected anal intercourse	1349		-0.36 ± 1.64 [/]	0 (-2, 0)	-4, +4	
SEM Consumption	1347		-0.36 ± 18.17	0 (-2.6, 0) [/]	-108.5, 238.5	
Condom use self-efficacy	1175		3.99 ± 1.01	4.23 (3.4, 4.8) [/]	1, 5	0.96
Sexual self-esteem	1181		3.15 ± 0.98 [/]	3.10 (2.4, 3.9)	1, 5	0.93
Sero-discordant unprotected anal intercourse in last 90 days (Yes)	134/1192	11.2			0, 1	

[/] Indicate more appropriate measure of central tendency

Note: IQR: Inter-quartile range, α: internal-consistency reliability

Table 3
 Direct and indirect (*Mediated*) effects of sexually explicit media consumption on sero-discordant unprotected anal intercourse

Variable	Outcome	Step 1		Step 2	
		β	95% CI	β	BC 95% CI
Direct Effect					
SEM Consumption	SDUAI	0.02	0.01, 0.03	0.006	0.000, 0.013
SEM Consumption	CONDOM_SE	-0.01	-0.02, -0.01	-0.014	-0.018, -0.011
SEM Consumption	SEXUAL_SE	0.003	0.001, 0.006	0.003	0.000, 0.006
Condom use self-efficacy	SDUAI	-0.62	-0.78, -0.45	-0.311	-0.391, -0.228
Sexual self-esteem	SDUAI	0.05	-0.13, 0.24	0.013	-0.082, 0.108
Indirect Effect					
SEM Consumption-Condom use self-efficacy	SDUAI			0.004	0.003, 0.006
SEM Consumption-Sexual self-esteem	SDUAI			0.000	0.00, 0.00
Sum of indirect effect	SDUAI			0.004	0.003, 0.006
Contrast					
Condom use self-efficacy vs. Sexual self-esteem				-0.004	-0.006, -0.003

Note: SE: Standard Error, BC: Bias Corrected, CI: Confidence Interval
 SDUAI: sero-discordant unprotected anal intercourse
 CONDOM_SE: Condom use self-efficacy
 SEXUAL_SE: Sexual self-esteem