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Viewing Sexually Explicit Media and Its Association with Mental Health among Gay and Bisexual Men across the U.S

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Abstract

BACKGROUND—Gay and bisexual men (GBM) have reported viewing significantly more sexually explicit media (SEM) than heterosexual men. There is evidence that viewing greater amounts of SEM may result in more negative body attitude and negative affect. However, no studies have examined these variables within the same model.

METHODS—A national sample of 1,071 HIV-negative GBM in the U.S. participating in a larger study completed an online survey, which included measures of SEM consumption, male body attitudes, anxiety, and depression.

RESULTS—Participants reported viewing three hours of SEM per week, on average, and 96% of participants reported recently viewing at least some SEM. Greater consumption of SEM was directly related to more negative body attitude and both depressive and anxious symptomology. There was also a significant indirect effect of SEM consumption on depressive and anxious symptomology through body attitude.

DISCUSSION—These findings highlight the relevance of both SEM on body image and negative affect along with the role body image plays in anxiety and depression outcomes for GBM. They also indicate a potential role for body image in explaining the co-occurrence of SEM consumption and negative affect. For interventions looking to alleviate negative affect for GBM, it may be

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important to address SEM consumption and body image as they are shown to be associated with both anxious and depressive symptomology.

Keywords

sexually explicit media; gay and bisexual men; body attitude; negative affect

Introduction

Sexually explicit media (SEM) has proliferated rapidly since the advent of the internet, with the adult entertainment industry increasing in value by more than 1300% from 1970 to 2006 (Carroll et al., 2008; Egan, 2000; Rosser et al., 2012). With more than 4.2 million SEM websites (12% of total internet websites) and over 28,000 people viewing SEM on the internet every second (Ropelato, 2006), consumption of SEM has become pervasive. Research on SEM consumption has suggested mixed effects, including some positive outcomes, but also negative outcomes such as unrealistic sexual expectations and negative affect (i.e. anxiety and depression) (Levin, Lillis, & Hayes, 2012; Morgan, 2011; Ybarra & Mitchell, 2005; Zillmann & Bryant, 1988).

The association between SEM and negative affect has received some attention in literature, but is often overshadowed by research examining behavioral outcomes such as sexual violence and sexual risk behaviors (Hald, Malamuth, & Yuen, 2010; Nelson et al., 2014; Rosser, et al., 2012; Rosser et al., 2013). Levin, Lillis, and Hayes (2012) utilized a sample of 157 undergraduate college males and investigated the association between SEM consumption, anxiety, and using experiential avoidance as a moderator. Results showed that viewing SEM resulted in higher levels of anxious symptomology for those that were also experiencing clinical levels of experiential avoidance, but not for those whose levels of experiential avoidance had not reached clinical levels. Similarly, other studies have linked SEM consumption to negative life outcomes (e.g. creating harm in work, school, or personal relationships) via loneliness (Kim, LaRose, & Peng, 2009; Yoder, Virden III, & Amin, 2005). Schneider (2000) conducted qualitative interviews with 45 men and 10 women, many of whom were current or former sex addicts, and found associations between viewing SEM and “depression and other emotional problems”.

One of the mechanisms through which SEM consumption may be associated with negative mental health outcomes is through the development of body dissatisfaction. Numerous studies have found that the media is one of the largest factors influencing body dissatisfaction (Cafri, Yamamiya, Brannick, & Thompson, 2005; De Jesus et al., 2015; Jones & Crawford, 2005; Ricciardelli & McCabe, 2001; Ricciardelli, McCabe, & Banfield, 2000; Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). A meta-analysis by Fiske, Fallon, Blissmer, and Redding (2014) reported that as few as 8% and as high as 61% of men in the United States have body dissatisfaction, which is thought to be in response to media representations of men presenting the ideal male figure meeting masculine norms as “strong with broad shoulders and muscular” (Mishkind, Rodin, Silberstein, & Striegel-Moore, 2001; Raudenbush & Zellner, 1997). However, measuring body dissatisfaction among men varies as there is no gold standard definition, scale, or operationalization that has been used across

a multitude of studies. For example Duggan and McCreary (2004) reported a significant positive association between SEM and social physique anxiety for gay and bisexual men (GBM). However, social physique anxiety is restricted to examining the extent people feel anxious while showing their body in public and not how they feel about it when they are alone or in other situations. Furthermore, others like Morrison and colleagues (2007) have used scales examining only muscularity, which focuses on how important muscularity is to individuals in terms of gaining muscle or wanting particular parts of one's body to be more muscular. These scales make the assumption that if an individual does not want to be more muscular, they must be more accepting of their body.

Body dissatisfaction may be more salient for GBM versus heterosexual men. A review by Frederick and Essayli (2016) reported GBM to be less satisfied with their physical appearance than heterosexual men. Specifically, this review highlighted that GBM compared to heterosexual men are more likely to report dissatisfaction with their physical appearance including both muscle size and tone. GBM compared to heterosexuals also reported experiencing more objectification, surveillance, appearance-based social comparison, and pressure from media based on attractiveness. GBM also reported going to more extremes to alter or change their body than heterosexual men, including cosmetic surgery and diet pills. Literature has also stated that GBM who have higher levels of body dissatisfaction also have heightened levels of negative affect (Blashill, 2010; Carper, Negy, & Tantleff-Dunn, 2010; Kimmel & Mahalik, 2005; Levesque & Vichesky, 2006; Tiggemann, Martins, & Kirkbride, 2007). Carper and colleagues (2010) reported that when comparing GBM men to heterosexual men, GBM men perceived media to have a higher influence on their body image, and thus reported more body image related anxiety. Similarly, Kimmel and Mahalik (2005) theorized that the increase in body image dissatisfaction for GBM may be due to stress associated with conforming to culturally masculine norms, which are often projected by media.

Although researchers estimate that GBM consume 33–50% of SEM in the United States (Morrison, et al., 2007; Rosser, et al., 2012), the majority of research on SEM and mental health has been limited to samples of heterosexuals or has included too few GBM to examine separately (Gwinn, Lambert, Fincham, & Maner, 2013; Hald & Malamuth, 2008; Kim, et al., 2009; Levin, et al., 2012; Schneider, 2000; Yoder, et al., 2005). The percentage of GBM (98–99%) that report having recently viewed SEM is higher than heterosexual men (72–96%) and women (54%–85%) (Duggan & McCreary, 2004; Rosser, et al., 2012; Rosser, et al., 2013; Stein, Silvera, Hagerty, & Marmor, 2012). Comparing studies, heterosexual men who watch SEM have reported on average one hour per week (Brand et al., 2011), whereas reports on GBM viewing frequencies vary greatly across studies. Rosser and colleagues (2013) reported that the median consumption of pornography by GBM was approximately three hours per week, whereas Stein and colleagues (2012) reported a median of one hour per week. GBM report greater body-related stress and anxiety, body dissatisfaction, eating disorders, and overall poorer body image than heterosexual men, and one of the drivers of these disparities may be SEM consumption (Beren, Hayden, Wilfley, & Grilo, 1996; French, Story, Remafedi, Resnick, & Blum, 1996; Kimmel & Mahalik, 2005; Siever, 1994). Cook (2005) suggested that heightened levels of anxiety in men who consume large amounts of

SEM was explained by Western constructions of masculinity norms and viewing oneself as not meeting these norms.

Since 2004, there have only been three published studies, all with different findings, which sought to examine the association between SEM consumption and body dissatisfaction. Duggan and McCreary (2004) used both SEM and health/fitness magazines to assess body dissatisfaction in both gay and heterosexual men. A significant positive correlation was reported between social physique anxiety and SEM consumption in gay men ($r=0.27$, $p < 0.05$), but not heterosexual men ($r=-0.16$). They also found that gay men consumed 2–3 times more SEM. These findings indicate a possible association between SEM consumption and social physique anxiety that exists for GBM but not heterosexual men. Oppositely, Morrison et al., (2007) collected internet survey data from 66 gay men and reported no significant association between exposure to pornography and drive for muscularity ($r=0.19$). Most recently, Kvalem and colleagues (2015) examined pornography viewing, and attractiveness self-evaluation among 477 Norwegian GBM. In this study participants reported their attractiveness as very plain, plain, average, handsome, very handsome, or unable to describe and body type as either thin, athletic/muscular, beefy, a bear, young and fit, other, or unsure. SEM consumption data was collected as count variables for both frequency and duration of viewing. Kvalem and colleagues (2015) reported a non-significant association between SEM consumption and self-attractiveness evaluation ($r=-0.03$).

Given the limited research on this topic, the goal of this study was to assess for the impact of SEM consumption and negative body image on symptoms of depression and anxiety among GBM. For this study, we examined the hypothesis that there would be an indirect effect of negative body image on the association between SEM consumption and both anxiety and depression using a large national sample of GBM in the United States.

Method

Participants and Procedures

One Thousand Strong is a longitudinal study prospectively following a panel of 1,071 GBM for a period of three years (2014–2017). The goal was to recruit a sample which approximates the population in the United States by using data on the state-by-state dispersion of same-sex households across the U.S. Census. Specifically, the aim was to obtain a sample similar to census data for racial and ethnicity composition, and geographic location. Potential participants were identified through a Community Marketing and Insights Inc. (CMI) panel of over 22,000 GBM in the United States. Panelists were drawn from over 200 sources (e.g., lesbian, gay, bisexual, and transgender (LGBT) events, social media and e-mail broadcasts distributed by LGBT organizations, as well as from mainstream social media), and an initial sample of 9,011 men were identified as potentially eligible if they were 18 or older, identified as a gay or bisexual male, and had regular internet access. Of the 9,011 men who were emailed an invitation to complete the screening survey, 6,371 did not open the email and another 90 emails were unable to be delivered. Of the 2,550 who opened the email, 2,393 (93.8%) completed the screening survey. Of these, 1,375 (57.5%) were deemed eligible, with the most common reasons for ineligibility being an HIV-positive status or not being sexually active with a man. Of the 1,375 eligible men, 1,071 (77.9%)

completed all requirements of the assessment and were enrolled into the *One Thousand Strong* cohort. Further specifics about both recruitment and enrollment have been published in detail elsewhere (Grov, Cain, Rendina, Ventuneac, & Parsons, 2016; Grov et al., 2015; Parsons, Rendina, Whitfield, & Grov, 2016).

To be eligible, participants had to be at least 18 years of age, cisgender male, self-identified as gay or bisexual, and reported having sex with a man in the past year. Enrolled participants completed self-administered rapid HIV antibody testing as well as urethral and rectal chlamydia/gonorrhea testing. To be eligible participants had to be HIV-negative (verified via a digital photograph of the test paddle). Procedures were reviewed and approved by the Institutional Review Board of the City University of New York's Human Research Protections Program.

In total, 1,071 participants enrolled in the study in 2014. Data for these analyses were taken from the online survey conducted as part of the 12-month follow-up assessment. Of the original 1,071 men enrolled at baseline, 1,017 (94.9%) completed the 12-month follow-up survey, and 4 (0.004%) of the participants had been diagnosed with HIV in the prior 12 months (none were diagnosed as part of the HIV testing involved in the study). One additional participant did not complete the question on average SEM consumption, resulting in a final analytic sample of 1,012 HIV-negative GBM.

Measures

Demographic and background characteristics—Participants provided data on their demographic characteristics, including race/ethnicity, education, income, age, relationship status, sexual orientation, and U.S. zip code.

Sexually explicit media (SEM) consumption—Participants responded to the question “On average, how many hours per week do you watch porn (sexually explicit videos, Internet streaming, downloaded, DVD, etc.)?” Data were collected as a count of the number of average hours per week, which is consistent with other studies examining SEM consumption (Hald & Malamuth, 2008; Hald, Smolenski, & Rosser, 2013; Kvaem, et al., 2015; Nelson, et al., 2014; Rosser, et al., 2013). The hours per week were then transformed by SPSS Rankits in order to normalize the distribution of the variable for use within the path model. The original variable was used within non-parametric bivariate tests and the normalized variable was used within path analyses.

Male body attitude—Participants responded to the Revised Male Body Attitudes Scale (MBAS-R) (Ryan, Morrison, Roddy, & McCutcheon, 2011) which measures self-perceptions of muscularity, height, and body fat. This scale contains fifteen items on a six-point Likert-type scale from 1 (*never*) to 6 (*always*). Examples of items are, “I think I have too little muscle on my body”, “I think I have too much fat on my body”, and “I wish I were taller”. Scale scores, which could range from 15 to 90, were then summed with higher scores representing a more negative attitude about one's body. With this sample, the internal consistency of the scale was good (Cronbach's $\alpha = .88$).

Anxious Symptomology—The Brief Symptoms Inventory - Anxiety (BSI-A) (Derogatis & Melisaratos, 1983) is a subscale consisting of six questions that ask participants how much they have been feeling a particular way over the last week. These questions include “nervousness or shakiness inside”, “feeling fearful”, “feeling so restless you couldn’t sit still”, etc. Questions are rated on a five-point Likert-type scale 0 (*not at all*) to 4 (*extremely*). Raw scores were averaged to create an anxiety dimension score range of 0–4. With this sample, the internal consistency of the scale was good (Cronbach’s $\alpha = .87$).

Depressive Symptomology—The Center for Epidemiological Studies – Depression (CES-D) (Radloff, 1977) is a scale measuring depression by asking participants how often they have felt a particular way over the last week. Examples include “I was bothered by things that usually don’t bother me”, “I felt that I could not shake off the blues even with help from my family or friends”, “I felt depressed”, “I felt sad”, and “I had crying spells”. The scale also contains four reverse coded questions. All 20 items are scored on a four-point scale, 0 (*rarely or none of the time*) to 3 (*most or all of the time*). Scores were summed (range 0–60). With this sample, the internal consistency of the scale was good (Cronbach’s $\alpha = .93$).

Statistical Analyses

First, we examined descriptive statistics for variables of interest, including demographic (e.g. age, race/ethnicity, education, income), behavioral (i.e. SEM consumption), and psychological (i.e., body attitude, depressive symptoms, anxious symptoms) characteristics. There were no missing data, as the Qualtrics program prompted for responses to each question asked. We utilized the Kruskal-Wallis test to examine demographic differences in number of hours of weekly SEM consumption, the pairwise multiple comparisons post-hoc tests were performed for all variables showing a significant difference. For demographic difference in body attitude and depressive and anxious symptomology, we preformed ANOVAs followed by Tukey HSD for post-hoc comparisons. Finally, we utilized *Mplus* version 7.4 to conduct a path analysis simultaneously predicting depressive and anxious symptoms. We examined the direct effects of normalized weekly SEM consumption and body attitudes on the two outcomes as well as the indirect effect of normalized weekly SEM consumption through body attitudes. We utilized the default maximum likelihood estimation with bootstrapped standard errors estimated from 10,000 draws.

Results

Sample and Bivariate Relationships

The final sample for analysis contained 1,012 GBM. Table 1 presents the demographic characteristics of the sample along with the demographic comparisons on the primary variables of interest. Ages ranged from 19–80 ($M = 41.14$, $SD = 12.82$). Demographic differences were found for hours of SEM consumption per week by race/ethnicity and relationship status—Black men reported higher weekly consumption than White men and single men reported higher weekly consumption than partnered men. Negative body attitude differed significantly by race/ethnicity and income—Black men reported lower levels than men of all other races whereas those making \$20k–\$40k per year experienced higher levels

than all others. Depressive symptomology differed significantly by education, income, employment status, and relationship status—overall, men with a college education, men with higher incomes, men with full-time jobs, and partnered men experienced lower levels. Anxious symptomology differed significantly by education, income, and relationship status—similar to depression, men with a college degree, men with higher incomes, and partnered men experienced lower levels.

Table 2 presents the correlations for age and our variables of interest. Age was negatively correlated with negative body attitude and both anxious and depressive symptomology. Hours of SEM consumption were positively correlated with negative body attitude and both anxious and depressive symptomology. Having a negative body attitude was also positively correlated with both anxious and depressive symptomology. Finally, anxious and depressive symptomology were strongly correlated with one another.

Path Analysis

Figure 1 displays the results of the path analysis examining the direct and indirect effects of SEM consumption and male body attitude on depressive and anxious symptomology, adjusting for demographic covariates (i.e. including age, income, education, race, relationships status, and sexual orientation). SEM consumption was directly related to greater levels of negative body attitude ($p = 0.002$), depressive symptomology ($p = 0.002$), and anxious symptomology ($p = 0.004$). Body attitude was directly related to more depressive and anxious symptomology (both $p < 0.001$). There were significant indirect effects of SEM consumption on depressive ($p = 0.003$) and anxious symptomology ($p = 0.004$) through male body attitude. In all, the model explained 3% of the variability in male body attitudes, 16% in anxious symptoms, and 25% in depressive symptoms.

Discussion

We found that body image was significantly associated with negative mental health outcomes (depression and anxiety) among GBM, and body image may play a role in the co-occurrence of SEM consumption and negative affect. These findings support the idea that GBM may use SEM as a source for within group comparison, thus setting unobtainable standards for physical expectations. Because of this, it is imperative when researching SEM to compare outcomes within GBM samples instead of between GBM and heterosexual men. Continuing to examine the associations between SEM and negative affect and behavior within GBM samples may lead to discovering important factors that mediate the associations of negative mental health outcomes.

The finding that the vast majority (96%) of GBM were actively viewing SEM is consistent with other's findings (Rosser, et al., 2013; Stein, et al., 2012). However, there have been discrepancies on the average amount reporting with ranges from under one hour to three plus hours per week. Some of these discrepancies may be explained by locations of the samples. For example Stein and colleagues (2012) examined a sample of GBM who lived in a large urban city, whereas Rosser and colleagues (2013) examined a sample that included both rural and urban areas. GBM who live in urban settings may have more opportunities for sexual partners, thus less need for viewing SEM. Aside from the overall amount consumed,

it is possible that one reason GBM consume more SEM on average (both frequency and duration) is because of the high acceptability of SEM within the gay community (Martin, 2006; Morrison, et al., 2007). Because of the high acceptance and viewing rate, it is important to understand all the positive and negative psychological and behavioral effects of this media on GBM. This research focused on possible negative outcomes, but future studies should also further examine the positive.

This study also supports findings from one existing studies related to the use of SEM among GBM (Duggan & McCreary, 2004) in that we also reported a positive association between SEM consumption and anxiety symptomology. However, it does not match the findings from Morrison and colleagues (2007) who did not report a significant correlation between drive from muscularity and exposure to pornography. This divergent finding is likely due to how the variables were collected. When collecting information on SEM use, Morrison and colleagues (2007) assessed exposure to pornography by the number of times a particular medium of SEM (e.g. DVD/video, television, magazines) had been viewed in the last six months across a nine point scale allowing for a ranged score of 0–64 whereas we assessed for SEM consumption by the amount of time spent viewing and did not distinguish between the mediums used for viewing. Furthermore the scale to measure body dissatisfaction for Morrison and colleagues focused only on muscularity whereas our focused on overall feelings about the participants bodies. Our findings also did not support the findings of Kvaem and colleagues (2015), again likely due to how body dissatisfaction was measured. In our study, GBM who viewed large amounts of SEM also reported more negative body attitudes. Notably, the measure of body attitude in the current study assessed attitudes towards the body generally than previous research. The scale used in the present study focuses not only on muscularity and leanness, but also specific body parts and height, giving a better overall indication of total body attitude without the assumption that being one way or another (larger vs. smaller) leads to more body satisfaction. It is important when addressing body image that attention is given to the entire body and asking about overall satisfaction with the body as opposed to making an assumption that muscularity or leanness is the ideal of the individual. It is important to understand the broader context of body image as it may be the key in understanding these associations as those that do not perceive themselves to be physically inadequate will likely not be affected in the same ways by SEM. Body image among GBM may be important for a variety of factors aside from anxious and depressive symptomology. For Example, Blashill and colleagues (2014) assessed body image disturbance among HIV-positive GBM and found that poorer body image was associated with poorer HIV medication adherence, an increase in HIV transmission risk sexual behaviors, and poor condom use self-efficacy. This study suggests that having a better understanding of the unique role body image plays in the role of GBM may also help to inform interventions looking to increase medication adherence and safer sex practices.

For this sample, there was a direct effect of amount of SEM consumption on body attitude whereas Kvaem and colleagues (2015) reported the amount of SEM may not be as important. One reason this difference may exist is the location of the samples. Kvaem and colleagues (2015) reported on a sample of Norwegian GBM whereas this study examined GBM living in the US. Differing cultural expectations of the ideal male body may account for the differences in outcomes between these studies.

To the best of our knowledge, this is the first study to examine the indirect effects of negative body image on the association between SEM and anxiety and depression for GBM. However, multiple studies have reported an association between body image and negative affect for GBM such that those who have more negative body attitudes are more likely to rate higher on scales measuring negative affect (Blashill, 2010; Olivardia, Pope Jr, Borowiecki III, & Cohane, 2004). These findings are consistent with this U.S. national sample of GBM.

Implications

According to social comparison theory, if men feel they do not fit into their desired comparison group, they may feel worse about their perceived deficits and go to extremes to avoid isolation. This may uniquely impact GBM as the options for comparison are far more limited, unlike heterosexual men. GBM may be comparing themselves to the actors in SEM because of a lack of options for other gay male figures, viewing themselves as not fitting in, and this resulting in negative body attitude, anxiety, and depression. Mental health for GBM is of high concern as this minority group has a higher chance of having major depression, generalized anxiety disorder, and bipolar disorder compared to heterosexuals (CDC, 2016; Cochran, Mays, Wolitski, Stall, & Valdiserri, 2008). This study highlights that a lack of physical comparisons may lead GBM to view SEM as a standard for physical comparison and play a significant role in the development of anxiety and depression. Along with anxiety and depression being linked to suicide; GBM youth are two times more likely to commit suicide than heterosexuals (CDC, 2014). Anxiety and depression have also been associated with condomless anal sex (O'Leirigh, Traeger, Mayer, Magidson, & Safren, 2013; Parsons, Grov, & Golub, 2012; Wilson, Stadler, Boone, & Bolger, 2014). Similarly, evidence suggests GBM who perceive themselves as less physically desirable are more likely to engage in sexual risk behavior (Allensworth-Davies, Welles, Hellerstedt, & Ross, 2008; Kraft, Nordstrom, Bockting, & Rosser, 2006).

Prior research has focused on condomless anal sex becoming normalized among GBM through watching bareback SEM, but data from this study suggests that GBM may also be learning about broader topics - like what someone is supposed to look like if they are gay and want to be sexually desired or satisfied. If GBM look to SEM as a means for learning about what sexual relationships are supposed to be, they may feel the need to physically replicate SEM actors in order to be sexually desirable to their partners. This does not however mean that viewing SEM is inherently negative. Multiple studies utilizing GBM have suggested that it is not the amount of SEM consumed that is associated with negative health behavior, but rather the type consumed (Nelson, et al., 2014; Rosser, et al., 2013). Thus, it is possible that GBM who are both actively watching SEM and experiencing higher levels of negative body attitude may be also experiencing anxiety and depression based on the type of SEM they are viewing and not the amount. For example, GBM who view large proportions of SEM that depicts a body ideal may be more highly affected by the content than those who are not focused on specific body types.

For interventions looking to reduce anxiety and depression in GBM it may be important to incorporate a focus on body image. For example, interventions utilizing cognitive behavioral

therapy for GBM aiming to overcome anxiety and depression may find it useful to explore thoughts around body image, particularly when negative thoughts increase/decrease in duration and intensity. It may also be useful to explore where clients receive messages about body expectations, any internalization of these messages, and how these messages impact their sexual behavior and self-care routine. Another area where this research can be utilized is by helping to inform new sexual education materials for GBM. To begin with, providing GBM with other forms of sexual education (i.e. comprehensive sex education that does not only focus on heterosexuals and procreation) may be beneficial in promoting a positive self-identity and sexual expectations. Additionally, including a sexual education component that addresses body image may also help to alleviate body expectations for sexual encounters and give alternative views from those acquired via SEM. Our findings suggest that by alleviating body image discomfort there may be a positive effect for alleviating anxious and depressive symptomology. More work in targeting body image among young GBM with the goal of increasing a positive bodily self-image should be conducted.

Limitations

The strengths of our study should be understood in light of its limitations. The sample was diverse in terms of age, income, and geographical location; however it was comprised of mainly well-educated White men who are HIV-negative and thus not generalizable to all GBM. This sample was also entirely comprised of men who live in the U.S. and may not be generalizable to other cultures with different body image ideals and expectations. Data for these analyses come from cross-sectional data—because of the limited literature on this topic to date, we felt it was critical to test the proposed model despite not having longitudinal data. We nonetheless acknowledge the limitations of assessing mediation with cross-sectional data (Maxwell & Cole, 2007; Maxwell, Cole, & Mitchell, 2011), and look forward to future longitudinal studies in which these models can be more reliably tested. To bolster the results of the present analyses, we conducted an analysis of the model backwards (anxiety and depression predicting SEM consumption through body image; results not shown) and found that our proposed model was the better fit to the data. There may also be a variety of factors that may play significant roles in GBM viewing of SEM, anxiety, depression, and negative body attitude that were not assessed for in this research. For example, the type of pornography viewed (i.e. physically oriented, muscle, jock, daddy, etc.) and how the viewer associates themselves with the SEM actors. These data were self-reported and therefore subject to social desirability bias, such that some GBM may under or over report mental health symptomology, SEM consumption, and body attitude.

Future Direction

Given the high rates of SEM utilization among GBM observed in the current study and previous (Hald & Malamuth, 2008; Hooper, Rosser, Horvath, Oakes, & Danilenko, 2008; Træen, Nilsen, & Stigum, 2006) it is important to identify ways to minimize the negative effects of SEM while retaining the previously identified benefits (i.e. understanding their sexual orientation, enjoyment and interest in sex, and sexual knowledge) (Hald, et al., 2013). With an increase in SEM viewing across the U.S. and the availability, particularly online, as well as its high social acceptability, it is unlikely that GBM will discontinue viewing SEM. Multiple studies have shown that the amount viewed is not as important as the content

viewed (Nelson, et al., 2014; Rosser, et al., 2013). Understanding what types of SEM GBM are viewing and how SEM impacts negative body attitude and mental health may be key in defining interventions that target negative mental health outcomes for GBM. Interventions that focus on both sexual knowledge and self-perception of what it means to be gay may help to alleviate anxious and depressive symptoms that are results of SEM consumption by enabling GBM to compare and learn about themselves from other mediums besides SEM. To the best of our knowledge, no research has addressed genital satisfaction for GBM and its association with SEM consumption. Future studies may also want to examine a body image measure that specifically addresses genital satisfaction and its association with SEM consumption, overall body satisfaction, and mental health.

This study highlights the role that body image plays in mental health outcomes across a wide range of GBM in terms of education, income, race, and age, but only for HIV-negative GBM. Research needs to be conducted to test these associations longitudinally and examine the possibly causality between the variables. Additionally, research is needed to understand the importance of body image for HIV-positive men and how it may affect their mental health. As the percentage of GBM who are infected with HIV grows, it is important to understand not only their physical health and decision making, but also their mental health. In terms of sexual risk, negative body image may mediate the relationship between SEM and sexual risk, which has also not been examined in literature. Living in westernized cultures brings forth a multitude of media images that may play a role in negative body attitude for all genders, races, and sexualities. Teasing apart the associations between general media and SEM exposure may help to better tailor interventions and body perception.

Conclusions

These findings have important implications in understanding the associations between negative body image and mental health with SEM consumption among GBM. Although GBM report very few negative effects of SEM, these findings expand on past research and suggest that there is a connection to negative mental health via negative body image. Given these findings, additional research needs to be conducted to fully understand the associations between these variables with the goals being to find additional treatments for mental health within the GBM community. In part, these findings suggest there may be a need for mental health treatment in the GBM community that also focuses on body image and SEM consumption as possible significant predictors.

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Figure 1.

Path model results for SEM consumption directly on negative affect and via male body attitude.

** $p < 0.01$; *** $p < 0.001$

Table 1

Demographic characteristics and differences in key variables

	n	%	Hours of SEM Consumption				Body Image		Depression		Anxiety	
			Mdn	25%	75%		M	SD	M	SD	M	SD
Race/Ethnicity				$H(3)=12.75^{**}$			$F(3,1011)=6.84^{***}$		$F(3,1011)=0.42$		$F(3,1011)=1.36$	
Black	79	7.8	3.00 ^a	1.00	6.00		2.98 ^a	1.05	13.97	10.14	1.41	0.64
Latino	123	12.1	2.00 ^{a,b}	1.00	3.00		3.58 ^b	0.92	15.21	11.35	1.59	0.68
White	726	71.6	2.00 ^b	1.00	4.00		3.38 ^b	0.94	14.50	10.66	1.55	0.68
Other/multiracial	84	8.4	2.00 ^{a,b}	1.00	5.00		3.50 ^b	1.01	15.45	10.15	1.50	0.67
Sexual Orientation				$H(1)=0.42$			$F(1,1011)=2.25$		$F(1,1011)=0.10$		$F(1,1011)=0.53$	
Gay	966	95.6	2.00	1.00	4.00		3.39	0.96	14.65	10.74	1.54	0.68
Bisexual	46	4.4	2.00	1.00	2.25		3.17	0.93	14.13	8.70	1.47	0.57
Education				$H(2)=2.51$			$F(2,1011)=0.41$		$R^2(1011)=8.23^{***}$		$R^2(1011)=5.89^{**}$	
High school degree or less	63	6.2	2.00	1.00	4.00		3.38	0.96	17.92 ^a	12.12	1.63 ^a	0.81
Some college or Associate's degree	357	35.2	2.00	1.00	4.00		3.42	1.01	15.80 ^a	11.06	1.62 ^b	0.76
4-year College Degree or more	592	58.6	2.00	1.00	3.50		3.36	0.94	13.56 ^b	10.10	1.48 ^a	0.60
Income				$H(3)=5.05$			$F(3,1011)=3.59^{*}$		$R^2(1011)=26.84^{***}$		$R^2(1011)=19.48^{***}$	
Less than \$20k per year	149	14.7	2.00	1.00	4.00		3.44 ^a	1.03	19.21 ^a	11.09	1.75 ^a	0.76
\$20k to 49k per year	386	38.1	2.00	1.00	4.00		3.46 ^b	0.98	16.05 ^b	11.09	1.65 ^a	0.78
\$50k to \$74k per year	191	18.9	2.00	1.00	4.00		3.42 ^a	0.91	14.11 ^b	9.78	1.47 ^b	0.60
\$75k or more per year	286	28.3	2.00	1.00	3.00		3.23 ^a	0.92	10.65 ^c	8.90	1.32 ^b	0.42
Employment				$H(2)=0.54$			$F(2,1011)=0.02$		$F(2,1011)=5.91^{**}$		$F(2,1011)=1.15$	
Unemployed	144	14.3	2.00	1.00	3.75		3.38	1.03	16.97 ^a	12.28	1.57	0.76
Part-time	138	13.7	2.00	1.00	5.00		3.37	0.96	15.81 ^{a,b}	10.54	1.61	0.73
Full-time	730	72.1	2.00	1.00	4.00		3.39	0.95	13.94 ^b	10.26	1.52	0.65
Geographic Region				$H(3)=3.97$			$F(3,1011)=0.40$		$F(3,1011)=0.14$		$F(3,1011)=0.64$	
Northeast	196	19.2	2.00	1.00	4.00		3.32	0.99	14.44	10.15	1.52	0.59
Midwest	182	17.8	2.00	1.00	4.00		3.38	0.96	14.69	11.28	1.52	0.68
South	356	34.9	2.00	1.00	4.00		3.39	0.96	14.43	10.58	1.58	0.74
West	278	27	2.00	1.00	4.00		3.41	0.97	14.95	10.73	1.51	0.66

	n	%	Hours of SEM Consumption			Body Image		Depression		Anxiety	
			Mdn	25%	75%	M	SD	M	SD	M	SD
Relationship Status											
Single	485	48	2.00 ^a	1.00	5.00	3.40	0.96	16.81 ^a	10.97	1.59 ^a	0.70
Partnered	527	52	2.00 ^b	1.00	3.00	3.37	0.97	12.61 ^b	9.50	1.49 ^b	0.66

* p .05,

** p .01,

*** p .001.

Medians and means with differing superscripts differed significantly in Tukey-HSD-adjusted post-hoc analyses.

Table 2

Correlations between variables of interest

Variable	1	2	3	4	5
1 Age	--				
2 Hours of SEM Consumption	0.23	--			
3 Body Attitude	-0.13	***	0.08 *	--	
4 Anxiety	-0.16	***	0.09 **	0.31 ***	--
5 Depression	-0.13	***	0.11 ***	0.40 ***	.59 ***
<i>M</i>	41.14	3.26	3.38	1.54	14.65
<i>SD</i>	12.82	4.48	0.97	0.68	10.69
Cronbach's α	--	--	0.88	0.87	0.93

* p .05,** p .01,*** p .001