



Body image and condomless anal sex among Young Latino sexual minority men

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ABSTRACT

Objective: To investigate body image and condomless anal sex (CAS) among young Latino sexual minority men (SMM)—a population with health disparities in HIV and body image concerns.

Methods: Participants were 151 young Latino SMM from the San Diego area who were HIV-negative or unknown. Participants completed a questionnaire online in either English or Spanish, which included body image and sexual behavior items. A binary CAS variable was created based on the number of CAS partners reported (0 vs 1 + over past 3 months). A logistic regression was conducted with body dissatisfaction, appearance investment, and their interaction term entered as predictor variables and CAS as the outcome.

Results: Of 151 participants, 54 (35.8%) reported no CAS in the past 3 months. Appearance investment, but not body dissatisfaction, was associated with higher odds of CAS. However, a significant interaction indicated that body dissatisfaction was associated with higher odds of CAS when appearance investment was high.

Conclusions: Young Latino SMM who are highly invested in, and dissatisfied with, their appearance may be at significantly increased risk for acquiring HIV through elevated odds of CAS. Reducing appearance concerns in this population may lead to reductions in HIV risk behaviors.

1. Introduction

Sexual minority men (SMM; i.e., gay, bisexual, and other non-heterosexual identified men) experience a higher rate of human immunodeficiency virus (HIV) diagnoses than any other group in the United States; 82% of new HIV diagnoses in males aged 13 and older and 67% of total new diagnoses were among gay and bisexual men in the United States in 2015 (CDC, 2017a). SMM also report a greater average number of lifetime sexual partners than heterosexual men and women (CDC, 2017b; Glick et al., 2012), which may contribute to higher rates of HIV infection through increased exposures to sexual partners with a higher prevalence of HIV. High rates of condomless anal sex (CAS) may be another factor related to elevated rates of HIV in SMM, as the probability of HIV transmission from anal sex is higher in

comparison to condomless vaginal sex (Varghese, Maher, Peterman, Branson, & Steketee, 2002). CAS is reported by 65% of SMM within the last 12 months (CDC, 2016) and is associated with an HIV transmission risk 18 times higher than the risk associated with condomless receptive vaginal sex (CDC, 2017b). Given these HIV risk factors, it is important to identify points of intervention to reduce the number of infections among SMM.

Latino SMM are a subgroup in need of HIV intervention due to heightened prevalence and incidence rates among this population. HIV disproportionately impacts Latinos, as they represented about 17% of the United States population but accounted for nearly a quarter of new HIV diagnoses in 2015 (CDC, 2017c). Among Latino men, SMM accounted for 85% of new diagnoses (CDC, 2018a). Further, rates of new HIV diagnoses among Latino SMM increased by 21.5% between 2010

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and 2015 (CDC, 2018b), while diagnoses among the total SMM population stabilized; in contrast, during this time period, rates of new HIV diagnoses stabilized for African American SMM and decreased for White SMM (CDC, 2018b). Psychosocial factors related to access to healthcare, stigma, and cultural attitudes about masculinity may contribute to high rates of HIV infection in Latino SMM (CDC, 2017c). Among Latino SMM, men that either endorse attitudes that reflect machismo beliefs or have experienced racism or sexual prejudice have greater odds of engaging in CAS (Jarama, Kenamer, Poppen, Hendricks, & Bradford, 2005; Mizuno et al., 2012; Sears, 2006). Because CAS is the sexual behavior that carries the highest risk of HIV infection, and Latino SMM are disproportionately impacted by HIV, understanding the factors associated with CAS in this vulnerable population should be examined to aid HIV prevention efforts.

While research has found that psychosocial problems, such as depression and substance use (Millar, Starks, Grov, & Parsons, 2017), place SMM at an elevated risk for CAS and other sexual risk behaviors, the association between body image and CAS has been explored less frequently. In comparison to heterosexual men, SMM are more likely to report feeling that their body is unattractive (18% vs. 11%) and to experience body dissatisfaction (32% vs. 24%; e.g., Peplau et al., 2008). Frederick and Essayli (2016) found that SMM consistently reported more dissatisfaction with their appearance than heterosexual men across multiple studies. Findings on the association between body dissatisfaction and sexual risk behaviors have produced mixed results both in the general population and among SMM (e.g., Brennan, Craig, & Thompson, 2012; Brennan et al., 2015; Gillen, Lefkowitz, & Shearer, 2006; Goedel, Krebs, Greene, & Duncan, 2016). Meta-analytic findings indicate that body dissatisfaction is negatively associated with condom use self-efficacy (i.e., confidence in one's ability to practice safer sex practices; Blashill & Safren, 2015). While research investigating the association between body dissatisfaction and CAS is minimal, Blashill, Goshe, Robbins, Mayer, and Safren (2014) examined this association among gay and bisexual men; body dissatisfaction predicted condom use self-efficacy, which subsequently predicted CAS. One reason for conflicting findings in the literature may be the lack of investigation into moderators in the association between body dissatisfaction and sexual risk behaviors.

Body image is a multidimensional construct that includes perceptions, attitudes, and behaviors individuals have about their appearance; thus, examination of potential moderating effects may provide insight regarding the association between body dissatisfaction and CAS. According to Cash's cognitive-behavioral framework of body image, appearance investment (cognitive and behavioral investment in one's appearance) and satisfaction with appearance are two central components of body image (Cash & Pruzinsky, 2002). It is important to examine how these two different aspects of body image interact, as body dissatisfaction may have different associations with sexual risk behaviors at varying levels of appearance investment; people who report body dissatisfaction coupled with high appearance investment may engage in sexual risk behaviors that vary from those who report body dissatisfaction and low appearance investment (Cash & Pruzinsky, 2002). Individuals with low appearance investment and high body dissatisfaction may avoid sexual activity due to fear of embarrassment or rejection from others. In contrast, individuals who are highly invested in their appearance but experience body dissatisfaction may engage in more frequent sexual activity as a means of obtaining positive feedback about their bodies, as those who are highly invested may be more motivated to engage in strategies to reduce dissatisfaction; being sexually active has been associated with less body dissatisfaction among adult undergraduates (Gillen et al., 2006). However, those with high appearance investment and body dissatisfaction may experience additional sexual risk as they may so strongly desire positive feedback from sexual encounters that they are more receptive to sexual advances and do not negotiate safer sex practices, such as condom use. One study that examined the interaction between body dissatisfaction and appearance

investment among SMM found that body dissatisfaction was associated with less CAS when appearance investment was low, while body dissatisfaction was associated with more CAS when appearance investment was high (Gholizadeh et al., 2018). The study by Gholizadeh et al. (2018) utilized a sample that was restricted to racially/ethnically diverse HIV-positive participants. No studies yet published have examined the associations between body image and CAS among Latino, HIV-uninfected SMM.

The current study aims to investigate the roles of appearance investment and body dissatisfaction in predicting CAS among Latino SMM. This study builds on past research by examining these two core aspects of body image and their potential interaction in predicting CAS among Latino SMM. We hypothesize that when appearance investment is low, body dissatisfaction will be associated with lower odds of CAS, and when appearance investment is high, body dissatisfaction will be associated with higher odds of CAS.

2. Method

2.1. Participants

One hundred fifty-one Latino sexual minority men (SMM) between 18 and 29 years of age ($M = 24.18$, $SD = 3.19$) were recruited to participate in an online questionnaire study. Data was collected from 207 participants, but 56 were removed for being invalid responders as determined by a validity check measure (see below for more details). Participants were recruited through advertisements on Grindr, which is a dating/sex-seeking mobile phone application intended for SMM. Participants were also recruited through the lab's registry of participants who have previously participated in studies. Inclusion criteria were: (a) between 18 and 29 years of age, (b) male gender identity, (c) English or Spanish speaking, (d) sexual minority status which was characterized by denoting a non-exclusively heterosexual identity (e.g., gay, bisexual, pansexual, etc.) and/or reporting attraction to the same sex, (e) Latino/Hispanic ethnic identity, (f) HIV seronegative status or unknown serostatus via self-report, and (g) residence in San Diego County, California. Individuals that were HIV-positive were excluded from the study due to its examination of CAS in the context of HIV acquisition risk amongst HIV-uninfected individuals. Participants who met all inclusion criteria were then presented with an online consent form describing the study.

2.2. Procedure

Prospective participants that accessed the study by clicking on a Grindr advertisement were directed to a secure online form asking for their names and email addresses. After they entered this information, individuals were automatically emailed a link to an online pre-screener to determine eligibility for the study. Individuals from the participant registry were notified of the current study through email; these messages also contained a link to the pre-screener. The first question on the pre-screener asked if participants preferred to take the pre-screener in English or Spanish. The participants' preferred language was then used for the remainder of the pre-screener and, if eligible for the study, the consent form, all items, scales, and instructions. Facebook credentials were required to access the pre-screener for fraud protection and to determine eligibility based on residency in San Diego County. Because Facebook was used to verify these aspects of the survey, only individuals who had a Facebook account could access the study. Participants were notified that their IP addresses were automatically collected by the software used to create and distribute the survey; this was done to prevent participants from taking the questionnaire more than once. All identifying information was deleted after data entry and analysis were completed and compensation was provided.

All included measures were either previously translated and validated by other authors, namely the validated Spanish version of the

Multidimensional Body-Self Relations Questionnaire (MBSRQ; Roncero, Perpiñá, Marco, & Sánchez-Reales, 2015), or were otherwise translated by two affiliates of the current study (one of the co-authors—a bilingual, Spanish-speaking researcher—in addition to an undergraduate, bilingual [English/Spanish] research assistant). These translations aligned with the study's aim of recruiting those who identified as Latino/Hispanic—a population expected to include individuals who may prefer completing a survey in Spanish. In accordance with recommendations in the field (Formea et al., 2014), translations were subsequently verified through a community-based validation process of pilot testing for cultural appropriateness among two bilingual, Latino SMM in the San Diego area that met eligibility criteria for this study.

Once deemed eligible, participants were provided an online consent form and then directed to the questionnaire. Upon completion, participants were directed to a separate online window where they provided their email addresses and names to receive a gift card to an online retailer for ten dollars. Information provided by participants for compensation and communication was not linked to participants' responses. All aspects of this study were approved by the San Diego State University Institutional Review Board.

2.3. Measures

Demographics. Participants provided demographic information that included age, gender, race, ethnicity, sexual attraction, sexual identity, relationship status, citizenship status, country of origin, zip code, education level, employment status and annual income in dollars.

Appearance evaluation. Participants answered seven items on a five-point Likert scale ranging from 1 (*definitely disagree*) to 5 (*definitely agree*) that comprise the appearance evaluation (AE) subscale on the Multidimensional Body-Self Relations Questionnaire (MBSRQ; Brown, Cash, & Mikulka, 1990), which assesses body dissatisfaction. This subscale is typically scored by averaging items, with higher scores indicating greater satisfaction with one's appearance. However, for ease of interpretation, the directionality of the scale was reversed, so that higher scores indicate lower satisfaction with one's appearance – that is, greater body dissatisfaction. For participants who listed Spanish as their preferred language, the translated, equivalent appearance evaluation subscale of the validated Spanish version of the MBSRQ was used (Roncero et al., 2015). Due to the small number of participants who preferred to respond in Spanish, the internal consistency of the AO subscale was evaluated for the combined English and Spanish participants (Spanish, $n = 2$; English, $n = 149$; Total, $N = 151$). Internal consistency of the subscale was $\alpha = 0.75$.

Appearance investment. Participants answered twelve items on a five-point Likert scale ranging from 1 (*definitely disagree*) to 5 (*definitely agree*) of the appearance orientation (AO) subscale within the MBSRQ (Brown et al., 1990). Items are averaged with higher scores indicating greater importance of appearance (e.g., excessive grooming-related behaviors, mirror checking, and substantial time thinking about one's appearance). These behaviors and cognitions are indicative of high investment in physical appearance. A translated, equivalent version of the appearance orientation subscale within the Spanish version of the MBSRQ (Roncero et al., 2015) was used for participants who indicated Spanish was their preferred language. Due to the small number of participants who preferred to respond in Spanish, the internal consistency of the AO subscale was evaluated for the combined English and Spanish participants (Spanish, $n = 2$; English, $n = 149$; Total, $N = 151$). Internal consistency of this subscale was $\alpha = 0.68$.

Condomless anal sex. Participants were asked, "Thinking about the past 3 months, how many men did you have anal sex with (either you fucked him or he fucked you)?" This was a free response item. Participants were subsequently asked, "Of the (number the participant answered in previous question) men with whom you had anal sex with in the past 3 months, how many of those men did you use a condom with every single time?" The response from the second item subtracted

from the response from the first item was used to create a binary variable to indicate those who had one or more condomless anal sex (CAS) partners in the past three months, versus those who had none. Participants were assigned a "0" if they reported zero CAS partners, and a "1" if they reported one or more CAS partners.

Validity check. Three validity items (e.g., "For this item, please select 'Slightly agree'") were utilized throughout the questionnaire to signify low effort respondents (Aust, Diedenhofen, Ullrich, & Musch, 2013). Participants were removed from the analytic sample if they answered more than one out of three validity check items incorrectly. After removing 56 invalid responders, the final analytic sample was $N = 151$.

2.4. Statistical analysis

First, bivariate correlations were calculated amongst body dissatisfaction, appearance investment, and CAS. Next, two independent samples t-tests were conducted, testing the difference in body dissatisfaction and appearance investment, respectively, between participants with and without CAS. Then, a binary logistic regression was conducted with body dissatisfaction as the independent variable and appearance investment as the moderator, and the binary CAS variable entered as the criterion. Both predictors were mean-centered and entered into PROCESS (Hayes, 2012), an extension of SPSS, to analyze and probe interaction terms. Odds ratios (OR), and 95% confidence intervals (CI) are reported for the outcome of CAS. To test the significance of the omnibus model and model fit, chi square (χ^2) and Nagelkerke's R^2 were reported, respectively. In the presence of a significant interaction term, simple slope analyses were conducted, probing the effect of body dissatisfaction within two levels of appearance investment ($\pm 1SD$ from the mean). The Johnson–Neyman technique (Johnson & Neyman, 1936) was also utilized in PROCESS (Hayes & Matthes, 2009) to probe the interaction. This technique identifies regions of significance, which are the moderator values at which the effect of the independent variable (body dissatisfaction) transitions between being statistically significant and nonsignificant. Since this technique assesses significant effects along the continuous scale of the moderator (appearance investment) rather than fixed, arbitrary values, it provides additional information regarding the interaction effect on CAS. As an alternative way to model the interaction, we also conducted analyses with appearance investment as the IV and body dissatisfaction as the moderator to improve conceptual understanding of the interaction.

3. Results

Fifty-four of the participants (35.8%) reported that they did not engage in anal sex during the past three months (with or without a condom), fifty-eight participants (38.4%) reported using a condom with all anal sex partners within the past three months, and thirty-nine of the participants (25.8%) reported engaging in condomless anal sex (CAS) within the past three months. Descriptive statistics for demographics are listed in Table 1. The average appearance investment score was 3.23 ($SD = 0.52$) and the average body dissatisfaction score was 2.99 ($SD = 0.65$). Individuals who endorsed CAS reported greater appearance investment ($M = 3.43$; $SD = 0.54$) compared to those who did not report CAS ($M = 3.16$; $SD = 0.50$; $t_{149} = -2.9$, $p = .004$). Individuals with CAS ($M = 3.0$; $SD = 0.82$) did not significantly differ from those without CAS ($M = 3.0$; $SD = 0.58$) on body dissatisfaction ($t_{149} = 0.55$, $p = .59$). There was a significant negative correlation between appearance investment and body dissatisfaction ($r = -0.20$, $p = .02$). Appearance investment was significantly positively associated with CAS ($r = 0.23$, $p = .004$) and body dissatisfaction was non-significantly associated with CAS ($r = 0.05$, $p = .59$).

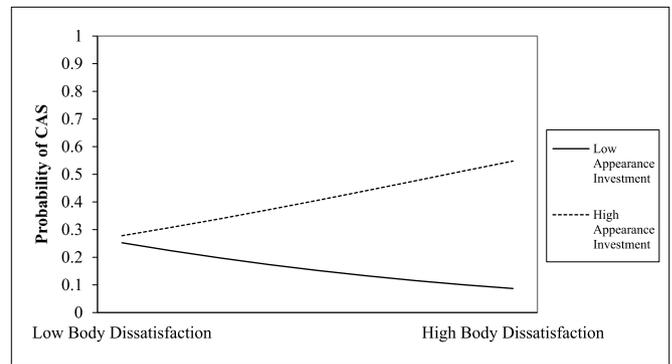
The omnibus model predicting CAS was significant ($\chi^2 [3] = 16.67$, $p = .001$; Nagelkerke's $R^2 = 0.154$). The main effect of appearance

Table 1
Descriptive statistics of demographics.

Demographic Variables	Range	Mean ± SD
Age	18–29	24.18 (3.19)
	N	Percentage
Race		
White	83	55.3%
Black or African American	40	26.7%
Native American or American Indian	6	4%
Asian or Pacific Islander	4	2.7%
Other ^a	17	11.3%
Sexual Identity		
Gay	104	68.9%
Bisexual	46	30.5%
Other ^b	1	0.7%
Sexual Attraction		
Only attracted to males	91	60.3%
Mostly attracted to males	19	12.6%
Equally attracted to males and females	37	24.5%
Mostly attracted to females	4	2.6%
Citizenship Status		
U.S. citizen	146	96.7%
Other ^c	5	3.3%
Country of Origin		
United States	138	91.4%
Mexico	11	7.3%
Other ^d	2	1.3%
Employment Status ^e		
Employed full-time (30 or more hours per week)	98	64.90%
Employed part-time (less than 30 h per week)	38	25.2%
Unemployed	10	6.6%
Disabled	1	0.7%
Student	22	14.6%
Annual Individual Income (Before Taxes)		
Less than \$6000	19	12.6%
\$6000 to \$11,999	16	10.6%
\$12,000 to \$17,999	11	7.3%
\$18,000 to \$23,999	31	20.5%
\$24,000 to \$29,999	50	33.1%
\$30,000 to \$59,999	21	13.9%
\$60,000 or more	3	2%
Relationship Status ^e		
Single	93	61.6%
Legally married	33	21.9%
Civil unionized	3	2.0%
In a monogamous relationship	14	9.3%
Sexually active with more than one person	16	10.6%
Other ^f	1	0.7%
Highest Education Level		
Less than high school	6	4.0%
High school or GED	29	19.5%
Some college	72	48.3%
Some graduate work (no degree to date)	31	20.8%
Graduate/Professional	11	7.4%

^a Self-reported “Hispanic,” “Latino,” “Mexican,” “Guatemalan,” “Mixed”.
^b Self-reported “Pansexual”.
^c Self-reported “Brazil,” “Mexico,” “Resident Alien,” or declined to state.
^d Self-reported “Belize,” “Brazil”.
^e Multiple selections allowed.
^f Self-reported “In a semi-open relationship”.

investment (OR = 3.61, [95% CI: 1.59, 8.20], $p = .002$) was significant; however, the main effect of body dissatisfaction was not (OR = 0.96, [95% CI: 0.49, 1.86], $p = .89$). These main effects were qualified by a significant body dissatisfaction by appearance investment interaction (OR = 6.0, [95% CI: 1.48, 24.26], $p = .012$). Body dissatisfaction was associated with higher odds of CAS when appearance investment was high (+1 SD above the mean; OR = 2.43, [95% CI: 1.09, 5.40], $p = .029$); no significant effect was revealed between body dissatisfaction and CAS at low levels of appearance investment (−1 SD; OR = 0.38, [95% CI: 0.12, 1.18], $p = .093$; See Fig. 1). To complement these results, a region of significance identified by the



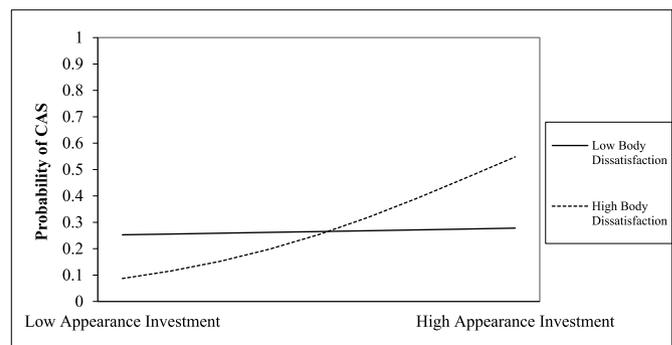
Note. Low Body Dissatisfaction and Low Appearance Investment represent 1 SD below the mean on their respective variables. High Body Dissatisfaction and High Appearance Investment represent 1 SD above the mean on their respective variables.

Fig. 1. 2-Way interaction between body dissatisfaction (IV) and Appearance investment (Moderator).

Note. Low Body Dissatisfaction and Low Appearance Investment represent 1 SD below the mean on their respective variables. High Body Dissatisfaction and High Appearance Investment represent 1 SD above the mean on their respective variables.

Johnson–Neyman procedure was an appearance investment value of 3.66 (roughly 1 SD above the mean on appearance investment). The effect of body dissatisfaction on CAS progressively strengthened as the value of appearance investment (ranging from 1 to 5), increases to a value of 5. A second region of significance was found at an appearance investment value of 2.42. The effect of body dissatisfaction on CAS progressively strengthened as the value of appearance investment decreases to a value of 1. That is, in the context of low appearance investment (scores 2.0 through 2.5, or roughly 1 to 1.5 SDs below the mean) body dissatisfaction was associated with lower odds of CAS. For appearance investment values between 2.42 and 3.66 (or roughly average levels of investment), greater body dissatisfaction was not significantly associated with CAS.

As an alternative way to model the interaction, follow-up simple slope analyses examined the effect of appearance investment at ± 1 SD values of body dissatisfaction. Appearance investment was associated with higher odds of CAS at high body dissatisfaction (+1 SD; OR = 11.47 [95% CI: 2.83, 46.47], $p < .001$); no significant effect was revealed between appearance investment and CAS at low levels of body dissatisfaction (−1 SD; OR = 1.13, [95% CI: 0.41, 3.12], $p = .808$; See



Note. Low Body Dissatisfaction and Low Appearance Investment represent 1 SD below the mean on their respective variables. High Body Dissatisfaction and High Appearance Investment represent 1 SD above the mean on their respective variables.

Fig. 2. 2-Way interaction between appearance investment (IV) and Body dissatisfaction (Moderator).

Note. Low Body Dissatisfaction and Low Appearance Investment represent 1 SD below the mean on their respective variables. High Body Dissatisfaction and High Appearance Investment represent 1 SD above the mean on their respective variables.

Fig. 2). To complement these results, the region of significance identified by the Johnson–Neyman procedure was a body dissatisfaction value of 2.71 (roughly 0.5 SD below the mean of body dissatisfaction). The effect of appearance investment on CAS progressively strengthened as the value of body dissatisfaction (ranging from 1 to 5), increased to a value of 5.

4. Discussion

The purpose of the current study was to examine the association between condomless anal sex (CAS) and body image among young HIV-negative or unknown serostatus Latino sexual minority men (SMM). In contrast to previous studies that examined the individual effects of body image constructs on sexual risk, the current study investigated the interaction between body dissatisfaction and appearance investment in predicting CAS (e.g., Gillen et al., 2006; Goedel et al., 2016; Wilton, 2009). This study adds to the literature as one of the first to examine this interaction and extends the analysis to both SMM who are Latino and who are HIV-negative or unknown serostatus. Consistent with the study's hypotheses, body dissatisfaction was associated with higher odds of CAS when appearance investment was high. The positive association between appearance investment and CAS was particularly strong for Latino SMM with high body dissatisfaction. The Johnson–Neyman technique analyses elaborated that the effect of body dissatisfaction on CAS progressively strengthened as the value of appearance investment increased, and was therefore associated with higher odds of CAS; in addition, low body dissatisfaction (higher satisfaction) was associated with lower odds of CAS as the value of appearance investment decreased. When applying the Johnson–Neyman technique to the complementary analysis where appearance investment was the IV and body dissatisfaction was the moderator, the technique found that as body dissatisfaction increased (lower satisfaction), the effect of appearance investment was associated with higher odds of CAS. Thus, being highly invested in, and being dissatisfied with, one's appearance may be a significant risk factor for HIV and other STIs among Latino SMM through increased likelihood of CAS.

It is possible that Latino SMM with high appearance investment and high body dissatisfaction seek out sexual partners as a means to redress concerns that they are unattractive, which may cause them to forgo condom negotiating given the potential anxiety that may be associated with negative evaluations from their sexual partners that could amplify body dissatisfaction. In addition, individuals with low evaluations of their physical appearance perceive more barriers in condom use, which may lessen motivation to use condoms (Gillen et al., 2006). By engaging in sex with a partner, an individual may momentarily decrease body dissatisfaction; having sex is seen as positive feedback about an individual's body (Gillen et al., 2006). Although speculative in nature, for men who invest highly in their appearance but negatively evaluate themselves, increasing body satisfaction through sex may decrease dissonance between investment and evaluation of one's appearance. In this way, sex may be used to temporarily increase self-perception of oneself to be congruent with effort invested.

Due to the interaction between body dissatisfaction and appearance investment in predicting CAS, both core constructs of body image should be assessed when evaluating SMM for sexual risk related to body image. Results from this study corroborate findings from Gholizadeh et al. (2018) that examining body dissatisfaction in isolation is insufficient to capture its potential impact on sexual risk behaviors; the appearance investment context of body dissatisfaction is important. As found in the current study, body dissatisfaction in the context of low appearance investment leads to the lowest odds of CAS but the highest odds among those with high appearance investment. As a result of the importance of the body dissatisfaction and appearance investment interaction, it is suggested that future research refrain from solely examining the main effects of body dissatisfaction on sexual risk. The importance of this interaction may be one reason why previous studies

examining the effect of body dissatisfaction on sexual risk behaviors among SMM have produced mixed results (Blashill et al., 2014; Goedel et al., 2016; Wilton, 2009). By examining the context within which body dissatisfaction occurs, health providers will be able to better identify the factors in which body dissatisfaction could lead to risky sexual behavior and discuss potential forms of prophylaxis or behavioral change.

The results of the current study should be evaluated within the context of its limitations. The design was cross-sectional; thus, inferences of temporal ordering cannot be made. An additional limitation is that this study examined CAS regardless of the serostatus of sexual partners. This study focused on all CAS due to the risk of transmitting STIs; in addition, some STIs, such as gonorrhea, increase the probability of HIV transmission (CDC, 2017b). The current study also exclusively examined Latino SMM and therefore results should not be extrapolated to other demographic populations without caution, as particular cultural attitudes or beliefs may alter the association between body image and sexual risk behavior; likewise, results may not generalize outside of Southern California as participation was restricted to residents of this area to assess the needs of this specific Latino SMM community. Future studies could replicate this study in other populations of Latino SMM to see if there are any regional and/or cultural differences in the interaction between body dissatisfaction and appearance investment in predicting CAS. An additional limitation is that not all participants endorsed having anal sex within the last three months; as a result, a value of zero CAS partners could represent someone who has not had anal sex in the past 3 months or someone who has only had anal sex with the use of a condom. Increasing the time frame beyond three months likely would have resulted in fewer participants stating that they had no anal sex partners, which would decrease the zero inflation but may also increase bias due to a longer recall window. Future studies could benefit from including additional participants who prefer to complete the questionnaire in Spanish, as it may serve as a proxy measure of US acculturation. Future studies could also benefit from examining motivations for CAS as a function of body image among this population through the use of focus groups or semi-structured qualitative interviews.

Body image or eating disorder prevention programs for SMM, such as the PRIDE Body Project (PBP; Brown & Keel, 2015), could decrease sexual risk behaviors by addressing body image concerns, thereby reducing appearance investment and body dissatisfaction. The PBP is a peer co-led, empirically-supported, cognitive-dissonance based program that addresses body image concerns in SMM. Body image prevention programs like the PBP could also serve a secondary function as sexual health information hubs by incorporating information about sexual health education into their programs, such as by examining barriers to condom use and providing skills for condom negotiation with partners (Blashill & Safren, 2015). Likewise, by being aware of the role body image plays in sexual risk, organizations that provide sexual health services can assess for body image concerns and subsequently refer patients to mental health services where appropriate. Through psychoeducation in body image acceptance programs, participants may be better able to connect their own body dissatisfaction or investment in their appearance with tangible sexual risk outcomes.

In summary, the current study contributes to the literature by examining the association between two core constructs of body image—appearance investment and body dissatisfaction—and their association with CAS among Latino SMM, a group with an increased rate of HIV transmission. Results indicated that the association of body dissatisfaction and CAS varied based on the level of appearance investment, and that the group most likely to engage in CAS was men who have high appearance investment and high body dissatisfaction; however, low appearance investment may be protective against sexual risk with high body dissatisfaction. As a result of this study's findings, it is recommended that body dissatisfaction is no longer examined as a single construct in the context of sexual risk; rather, body

dissatisfaction should be explored in the framework of appearance investment. Intervention and prevention programs for sexual risk behaviors could incorporate discussion on positive body image and discuss means to decrease appearance investment and increase body satisfaction; likewise, body image interventions can incorporate elements of sexual health education to discuss ways to decrease transmission of HIV and other STIs.

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