



Do Masculinity and Perceived Condom Barriers Predict Heterosexual HIV Risk Behaviors Among Black Substance Abusing Men?

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Abstract

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Keywords

Condom use; Black men; Substance Abusers; Perceived Masculinity; Condom Barriers

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ABSTRACT

Although HIV prevention during substance abuse treatment is ideal, existing HIV risk-reduction interventions are less effective among Black and other ethnic minority substance abusers. The Sexual Health Model (SHM) and the Person, Extended Family and Neighborhood-3 model (PEN-3) both highlight the importance of increasing our understanding of the relationship of sociocultural factors to sexual-decision making as a step towards developing more HIV prevention interventions for ethnic minorities. However, few studies examine sociocultural factors in the sexual decision-making process of Black substance abusing men. This secondary analysis of data collected in an evaluation of Real Men Are Safe (REMAS), an HIV prevention intervention, in the National Drug Abuse Treatment Clinical Trials Network (CTN) addressed this gap by examining the relation of two specific sociocultural factors (i.e., masculinity and perceived barriers to condom use) to the self-reported sexual behaviors of Black substance abusing men with their main and casual female partners. Analyses of the baseline data of 126 Black men entering substance abuse treatment revealed that the endorsement of both personal and social masculinity predicted more unprotected sexual occasions (USO) with casual partners. The perception that condoms decreased sexual pleasure also predicted higher USO rates with casual partners. However, fewer partner barriers was not associated with USO among casual partners as expected. Neither the endorsement of social or personal masculinity or perceived condom barriers predicted USO with main partners. The findings suggest that interventions that depict condom

use as both pleasurable and congruent with Black male perceptions of masculinity may be more effective with Black substance abusing men.

Keywords: HIV prevention, Black substance-abusing men, masculinity, condom barriers, socio-contextual factors

INTRODUCTION

The progress in stabilizing the HIV epidemic has been unevenly distributed across specific populations. The disproportionately high numbers of Black individuals especially Black men burdened with HIV/AIDS led the Centers for Disease Control and Prevention (CDC) to initiate a 'Heightened National Response to the HIV/AIDS Crisis Among African Americans' campaign in 2007 (CDC, 2007). In 2010, Blacks accounted for 44% of all new US HIV infections, a rate 7.9 times higher than Caucasians. Moreover, even though male-to-male transmission accounts for the largest number of new Black HIV cases, heterosexual contact accounts for almost two fifths (38%) of all new HIV cases (CDC 2012). Among Black men specifically, heterosexual transmission accounted for 11,000 new HIV cases between 2007 and 2010 (CDC 2012). Previous research on Blacks suggests that sociocultural factors are important determinants of sexual risk behaviors (Wyatt, 2009; Airhihenbuwa et al., 2009). Given the unique experiences of Black substance abusing men, the sociocultural factors associated with HIV risk among Black substance abusing men may differ from other men. Therefore, the limited knowledge available on the HIV risk behaviors among Black substance abusing men impedes efforts to reduce HIV risk for that group. The present study examined the relation of two sociocultural factors, perceived condom barriers and the perception of masculinity, to risky sexual behaviors in heterosexual relationships among substance abusing Black men.

Drug use combined with risky sexual behavior increases the risk of HIV transmission (CDC, 2012). The increased risk is not solely due to the risk of transmission through injection drug use (IDU). Instead, drug use prior to sex also increases risk by decreasing inhibitions (CDC, 2012) and increasing impulsive behaviors (de Wit, 2009). Koblin et al. (2006) reported that alcohol or drug use prior to sex increased the likelihood of unprotected sex or improper condom use. Moreover, men under the influence of certain drugs may increase their HIV risk by engaging in prolonged and/or rougher sex that may result in trauma to the anus or rectum (Koblin et al.).

Fontdevila, El-Bassel & Gilbert (2005) conducted focus groups to understand the rationale for HIV risk behaviors among Black and Latino substance abusing men in Harlem. The men described experiences in their social world that exposed them to unique HIV risk behaviors (e.g., exchanging sex for drugs, and sex with injection drug users). In addition, the men described drug subcultural beliefs or feelings potentially related to HIV risk behaviors (e.g., a diminished sense of future well-being, a death wish reducing the motivation to engage in protective behaviors, and a state of drug or alcohol euphoria that enhances sexual arousal, or impaired judgment).

The classic *Ecological Systems Theory* (EST; Bronfenbrenner, 1979) emphasized the role of sociocultural factors in understanding both the initiation and maintenance of behaviors.

Two more recent theories building on EST stress the role of sociocultural factors in understanding HIV risk among Black men and women. Wyatt's Sexual Health Model (SHM) proposes that external factors such as cultural norms, and marginalization influence sexual behaviors among Blacks (Wyatt, 2009). Specifically, the SHM model suggests that certain conceptualizations of masculinity may promote risky (i.e., unsafe) rather than safe sex practices. The Person, Extended Family, Neighborhood (PEN-3) model also proposes that external factors such as cultural messages, neighborhood norms, and community values shape health decisions (Airhihenbuwa, et al., 2009). Even though both SHM and PEN-3 suggest that cultural beliefs and messages about condoms may reduce condom use, little is known about the specific condom barriers influencing condom use.

The next sections review the research on condom barriers, conceptualizations of masculinity, and HIV risk behaviors.

Condom Barriers and HIV Risk Behaviors

Previous evidence suggests that perceived condom barriers are potentially more important determinants of condom use than either HIV knowledge, general attitudes about condom use, or even self-efficacy (St Lawrence et al., 1999). Doyle et al., (2009) reported evidence of four types of barriers including partner barriers, perceived negative effects of condoms on the sexual experience (PESE), access/availability, and motivational barriers among substance abusing men. However, the factor loadings and the alpha coefficients for the partner barriers and the PESE subscales were strongest. Partner barriers include condom negotiation difficulties and feared repercussions of suggesting condom use (Doyle et al.; Essien, Ross, Fernández-Esquer, & Williams, 2005). The PESE subscale assesses the perception that condoms lessen sexual pleasure (e.g., quality of the climax), mood, and sense of closeness with the partner while increasing discomfort (e.g., insufficient lubrication, fit; Doyle et al.).

Studies of Black men have largely ignored the identification of specific condom barriers. However, recent research reveals that both partner barriers (e.g., condom negotiation difficulties and feared repercussions of suggesting condom use) and sensation barriers (operationally defined as scores on the PESE subscale of the CBS) reduced condom use among Black men attending a STD clinic (Charnigo et al., 2010). The condom barriers affecting condom use among Black substance abusing men remain poorly understood. For example, the relation of unprotected sexual occasions (USO) to the two condom barriers predicting condom use in the Charnigo study (i.e., partner barriers and PESE) has not been examined in a sample of substance abusing men. Given the strong link between substance abuse and HIV risk behaviors (Essien, Meshack, Peters, Ogungbade, & Osemene, 2005), the absence of information on condom barriers among Black substance abusing men may impede efforts to design effective interventions to prevent HIV/AIDS transmission within that group.

Conceptualizations of Masculinity and HIV Risk Behaviors

Growing evidence suggests that men behave in ways consistent with their personal conceptualizations of masculinity (Wade & Rochlen, 2013). Previous research suggests that variations in the conceptualization of masculinity may reflect differences in the contextual factors and culturally defined scripts shaping men's lives (Fontdevila et al., 2005; O'Sullivan,

Hoffman, Harrison, & Dolezal, 2006). Yet the existing literature on HIV risk behaviors has not adequately examined the role of cultural scripts about masculinity.

The substance abusing men in the Fontdevila et al., (2005) focus groups described cultural narratives related to USO. Along with the cultural beliefs mentioned earlier, the men identified specific cultural beliefs that impact their condom use such as men should be sexually in control, condoms may shorten one's erection, masculinity is diminished when one does not please a woman sexually, and other negative attitudes about condom use based on messages from both peers and older male relatives. Moreover, according to the focus group participants, the presentation of one's best 'masculine self' during the excitement of a sexual situation may take priority over concerns about sexual risks. Even though the extent to which men endorse these masculinity beliefs likely influences sexual behaviors, the link between specific masculinity conceptualizations and unprotected sex has not been adequately examined among substance abusing Black men. The absence of more information on this relationship impedes the development of more effective interventions for Black substance abusing men.

The limited empirical evidence also suggests that Black men's conceptualization of masculinity may be multidimensional. Specifically, an early study on the multidimensional nature of masculinity among Black men identified both an internal personal dimension (e.g., willingness to take a stand, valuing personal strength, and independence) and a social-control oriented dimension (e.g., forceful, dominant, aggressive, and assertive) (Hunter & Davis, 1992). Using one dimensional measures impedes our understanding of whether either or both dimensions are related to HIV risk behaviors. Furthermore, without more information on the role of specific aspects of masculinity, the benefits of incorporating one or both dimensions of masculinity when designing effective interventions for Black substance abusing men will be unclear.

This study was designed to address several specific gaps in understanding the relation of cultural factors to unprotected sexual behaviors. Guided by past studies suggesting that condom barriers (Charnigo et al., 2010) and the conceptualization of masculinity (Hunter & Davis, 1992) are related to condom use (Charnigo et al., 2010), the aim of this study was to determine whether two specific sociocultural factors, perceived condom barriers (both partner barriers and PESE), and both social and personal dimensions of masculinity, predict USO. The two study hypotheses were:

Among Black substance abusing men:

- (1) A higher endorsement of both the personal and social dimensions of masculinity will significantly predict higher rates of USO with main and casual female partners.
- (2) USO with both main and casual female partners will increase as condom barriers (both partner barriers and the perceived negative effects of condom use on sexual pleasure) increase.

Previous research indicates that condom use often varies by partner type (Calsyn et al., 2009). Therefore, based on evidence of different condom-related concerns with main and casual partners (Calsyn, Campbell, Tross, & Hatch-Maillete, 2011; Fontdevila et al., 2005), the data were analyzed separately for main and casual female partners.

METHODS

This study was conducted as a secondary data analysis of baseline data collected by the National Drug Abuse Treatment Clinical Trials Network (CTN). The original study, CTN-0018, was a multisite randomized clinical trial. The participants were recruited from 14 substance abuse treatment programs across the United States. Seven of the programs were methadone clinics and the other 7 were psychosocial outpatient clinics. Sites varied in terms of location (urban vs. rural in the Northeast, South, Midwest, Southwest, and West) and HIV prevalence rates. The aim of the original study was to evaluate the effectiveness of Real Men Are Safe (i.e., hereafter referred to as the REMAS study) for men at risk of acquiring HIV due to their risky drug use and sexual behaviors. The present study only included the baseline data of the REMAS study. To be included in the REMAS study, men had to (1) be 18 or older (2) acknowledge engaging in unprotected vaginal or anal intercourse in the prior six months on the Risk Behavior Survey (CDC, 1993) (3) be willing to attend HIV/STI prevention groups (4) be willing to complete assessments at baseline (i.e., program entry) and at two weeks, three months and six months post intervention, and (5) be enrolled in substance abuse treatment. Men were excluded if they (1) had a primary partner planning to get pregnant or (2) a Mini Mental Status Exam Score < 25 (Crum, Anthony, Bassett & Folstein, 1993).

Participants

Of the 161 men in the original CTN 0018 study, who self-reported as Black in the REMAS study, 126 met criteria and ultimately were included in this study. All men in the present study acknowledged engaging in sexual activity with a woman and only 2% of men acknowledged engaging in sexual activity with men as well.

Measures

Sexual Risk Behaviors. The Sexual Behavior Interview (SBI) assessed participants' USO by asking the frequency of vaginal and anal intercourse events and the frequency of condom use for those events using the audio computer assisted self-interviewing (ACASI) method. A timeline follow-back-like procedure helped participants remember sexual occasions during the 90 days prior to the assessment. The SBI integrates items from the Drug Abuse Relationship Interview (Calsyn, Wells, Saxon, Jackson, & Heiman, 2000) and the Sexual Risk Behavior Assessment Schedule (Meyer-Bahlburg, Ehrhardt, Exner & Gruen, 1991). The SBI asks about the number of sexual occasions during the past 90 days with their main and casual partners and the number of times they used male or female condoms in these sexual occasions. Although the SBI asks about various types of sexual activity, the current study focused on the frequency of unprotected sex (vaginal and anal) by partner type (main or casual).

Perceived Barriers to Condom Use. The Condom Barriers Scale (CBS) (St. Lawrence et al., 1999) was used to assess perceived barriers to condom use. The 29-item, self-report measure instructs participants to use a 5-point, Likert scale (1=strongly agree to 5=strongly disagree) to rate perceived barriers in the following areas: access/availability, motivational barriers, partner barriers, and PESE. This study only utilized the two condom barrier scales---partner barriers and PESE subscales ---demonstrated to be associated with Black men's HIV risk behaviors in previous research (Charnigo, Crosby and Troutman, 2010). The cronbach alphas reported for the Black men for both partner barriers ($\alpha = .85$) and sensation seeking (PESE) ($\alpha = .81$) in the Charnigo et al., (2010) study were both adequate. Similarly, the internal

consistency reliabilities for partner barriers ($\alpha = .89$) and PESE ($\alpha = .85$) in this study were adequate as well. Scores on the condom barriers scales could range from 8 to 40 on the partner barriers scale and 7 to 35 on the PESE. Higher scores indicate fewer perceived barriers to condom use.

Perceived Masculinity. The Bem Sex Role Inventory-Short Form (BSRI; Bem, 1981), a 30-item, self-report measure, assesses the endorsement of personality traits assigned to each gender. Individuals rate themselves on a 7-point Likert scale on stereotypical masculine and feminine personality characteristics (1=never or almost true to 7=always or almost always true). The dimensions developed by Choi et al. (2009) were utilized to assess the social and personal dimensions of masculinity. High scores on either dimension indicate greater endorsement of that aspect of masculinity. Although the previous reliability information on the use of the Bem with Black men was based on the entire scale, the Cronbach alpha (.88) for the masculinity scale was high (Konrad & Harris, 2002). Similarly, the internal consistency for social masculinity scale was adequate ($\alpha = .73$) in our sample. However, the internal consistency for the personal masculinity was lower ($\alpha = .53$). Scores on the masculinity scales could range from 4-28 on the social masculinity scale and 5-35 on the personal masculinity scale. Higher scores indicate more endorsement of social or personal masculine ideology.

Demographic Measures. The Addiction Severity Index-Lite (ASI-L; McLellan et al., 1992) was used to collect the following demographic information: ethnicity, age, and educational level. Primary drug use was assessed with the drug use screening items of the CTN Common Assessment Battery (Hartzler, Donovan, & Huang, 2011).

Procedures

The Institutional Review Board (IRB) of the University of Washington and the IRBs of each of the 14 participating clinics all approved the study. Trained research assistants introduced the study to men enrolled in drug abuse treatment and obtained written consent from those willing to participate. Research assistants assessed for inclusion and exclusion criteria and administered baseline assessments to eligible participants. The participants were financially compensated for their time and travel. More details about the sample characteristics of REMAS participants, study procedures, and the intervention are available elsewhere (Calsyn et al., 2009).

Data Analysis

The primary outcome measure for this study was the number of USO with female partners as reported on the SBI. We used the same procedures as the Calsyn et al. (2009) study to code partners as either main or casual partners. Specifically, we coded the partner as a main partner if the participant identified a sexual partner as a spouse, fiancé, or steady lover on the SBI. However, we coded the sexual partner as casual if the participant described the partner as a person with whom the man exchanged sex for drugs or money, had occasional sex but basically was just a friend, had only a one-time sexual encounter, or some other type of uncommitted sexual relationship. We conceptualized USO as the difference between the total number of sexual occasions reported and the number of protected sexual occasions reported on the SBI.

We conducted preliminary analyses to determine whether any predictor or dependent variables required transformation. One dependent variable, number of unprotected sexual

occasions with casual partners, was positively skewed. Since a square root transformation improved the distribution of the USO with casual partners, we used the transformed version in subsequent analyses. Other preliminary analyses confirmed that the variables met the assumptions of linearity and homoscedasticity of residuals for multiple regression. Based on previous research suggesting that age and education may influence HIV risk behaviors (Hunter, Reid-Hresko, & Dickinson, 2011; Regushevskaya, Dubikaytis, Nikula et al., 2008), we originally included participant age and education as predictors in the regression analyses. However, since neither was a significant predictor in either model, we later removed participant age and education from the analyses and then repeated the regression analyses.

USO may covary with the total number of sexual occasions since decreasing the number of sexual occasions is one way to decrease USO. The high correlation between USO and total number of sexual occasions made it inappropriate to add total number of sexual occasions as a control variable. However, we attempted to reduce the potential confound of the total number of sexual occasions variable by investigating whether treating USO as a categorical variable in logistic regression would change the results. Since the findings were similar to the findings when USO was treated as a continuous variable, we are presenting the findings from the continuous USO version in the next section. The correlation between social and personal masculinity was significant ($r=.48$, $p=.00$) as expected. However, the strength of the association was not large enough to suggest the two types of masculinity were indistinguishable. Nevertheless, Grimm and Yarnold (1995) point out that including highly correlated variables raises the risk of multicollinearity. When multicollinearity is a concern, Grimm and Yarnold argue that theory may dictate the appropriate solution. Based on existing research, we concluded that personal and social masculinity, although distinct, may overlap too much to place in the same model.

The analyses were conducted separately for casual and main female partners.

RESULTS

Characteristics of the Sample

Table 1 presents the demographic characteristics of the Black male participants at baseline. Participants ranged in age from 18 to 67. The sample was fairly educated. Most (82%) graduated high school. Yet, the majority of participants were unemployed (62.2%). About half of the men had never married (54.3%). Even those who had married were no longer married. They were either separated (16.5%), divorced (26.8%) or widowed (2.4%). Cocaine was the problem substance identified most frequently (28.3%) followed by multi-drug users who either reported two or more drugs (not alcohol) (16.5%) or alcohol plus one or more drugs (15%). Eighty (63%) reported a main female partner and 71 (56%) reported one or more casual female partners. Thirty-eight (31%) reported both a regular and a casual partner. Three fourths of the men (75.7%) with casual partners reported one or more USO in the past 90 days. Moreover, among those with main partners, 85.3% reported one or more USO with that main partner.

Table 1.
Descriptive Statistics of Demographics and Baseline Study Variables

Variable	<i>M</i>	<i>SD</i>	<i>N</i>	%
Demographics				
Age	43.41	10.66		
Years of Education	12.08	1.64		
Employment Status				
Unemployed			79	62.20
Employed Part-Time			28	22.10
Employed Full-Time			20	16.70
Major Problem Substance(s)				
Cocaine			36	28.30
More than one drug (excluding alcohol)			21	16.50
Alcohol and one or more other drugs			15	19.00
Unprotected Sexual Occasions (USO)				
One or more USO with a main partner(s)			68	85.30
One or more USO with casual partners			54	75.70
Condom Barrier Scale (CBS)				
Partner	26.36	8.11		
PESE	20.68	6.66		
Bem Sex Role Inventory (BSRI)				
Social	17.72	4.85		
Personal	27.79	4.23		

PESE= Perceived Effects of Condoms on the Sexual Experience

Main Findings

Standard multiple regression was conducted using SPSS (version 19) to examine whether the personal and social conceptualizations of masculinity (hypothesis one) and the two specific condom barriers (i.e., partner barriers and perceived effect on sexual experience [PESE]) (hypothesis two) predicted USO. The findings partially support hypothesis one. The summary table for Model 1 which included personal masculinity and the two condom barrier scales is presented in the top half of Table 2. Model 2 which included social masculinity and the two condom barrier scales as predictors is presented in the bottom half of Table 2. The transformed version of USO with casual partners was the outcome variable in both models for casual partners. The casual partner models with personal ($F [3.51] = 3.16, p = .03$) and social ($F [3, 51] = 3.43, p = .02$) masculinity as predictors were both significant. The findings for sex with casual partners supported hypothesis one that masculine ideology (both personal [$p = .04$] and social [$p = .03$]) would predict USO. The more the men endorsed each dimension of masculinity, the more unprotected sex they reported.

The findings also partially supported the second hypothesis that condom barriers would predict USO with casual partners. However, we use the term partial support because only PESE (and not partner barriers) significantly predicted USO; moreover, PESE only predicted USO with casual partners in the personal masculinity model ($p=.03$). The results suggest that the more the men believed that condoms diminished the sexual experience, the more instances of unprotected sex they reported with casual partners. However, the relationship between PESE and USO only approached significance in the social masculinity model ($p=.07$). Moreover, the findings did not support the hypothesis that the other condom barriers variable, partner barriers, would predict unprotected sex in either casual partner model.

The next two models included the same predictor variables. However, USO with main female partners was the outcome variable. Neither the personal nor the social masculinity models were significant. Therefore, the findings for unprotected sex with main partners failed to support that either the endorsement of masculine ideology (hypothesis one) or the two condom barriers (hypothesis two) predicted USO.

Table 2

Summary of Multiple Regression Analyses for Dimensions of Masculinity and Condom Barriers Predicting Unprotected Sexual Occasions with Casual Female Partners (N = 126)

Variable	B	SE B	β	R ²
<u>Model 1</u>				
Personal Masculinity	0.16	0.08	.27*	.17
PESE	-0.11	0.05	-.29*	
Partner Barriers ¹	0.16	0.04	.20	
<u>Model 2</u>				
Social Masculinity	0.15	0.07	.29*	.17
PESE	-0.09	0.05	-.24	
Partner Barriers	0.07	0.04	.23	

Note. * $p < .05$.

PESE= Perceived Effects of Condoms on the Sexual Experience

¹ Higher scores on the Condom Barriers Scale represent fewer barriers

DISCUSSION

Both the SHM (Wyatt, 2009) and the PEN-3 (Airhihenbuwa et al., 2009) models stress the importance of sociocultural factors in understanding the disproportionately high HIV rates among Black men. The objective of the present study was to examine whether two specific sociocultural factors--- personal and social dimensions of masculinity and condom barriers--- predicted HIV risk behaviors among substance abusing Black men. The hypothesis that a higher endorsement of personal and social dimensions of masculinity predicts higher rates of USO was supported for sex with female casual partners. This finding on casual partners is

consistent with previous research suggesting that the more the men endorsed personal and social dimensions of masculinity, the more they engaged in risk-taking behaviors (Bowleg, 2004; Kennedy, Nolen, Applewhite, & Waiter, 2007; Mahalik, Burns, & Syzdek, 2007; Monahan, Miller, & Rothspan, 1997; Noar & Morokoff, 2002; Thompson, Talley, Caito, & Kreuter, 2009; Wade, 2009) such as unprotected sex. However, given the same body of previous research along with the SHM and PEN-3 perspectives, the lack of significant findings for sex with main female partners was unexpected.

The findings on casual partners are consistent with the SHM (Wyatt, 2009) and the PEN-3 (Airhihenbuwa et al., 2009) models. Specifically, the findings with casual partners further argue for developing interventions for Black men that portray condom use as consistent with Black men's conceptualization of masculinity (Wyatt, 2009). It is also important to note that both personal and social dimensions of masculinity were associated with risky sexual behaviors in this study. This finding supports existing research suggesting the need to assess multidimensional (i.e., personal identity and social roles) aspects of masculinity among Black men (Hunter & Davis, 1992; Hunter & Davis, 1994), especially due to the potential impact of unique obstacles that Black men face in society (i.e., barriers to attaining traditional accomplishments associated with masculinity such as providing for one's family). Further, our initial assumption was that social and personal masculinity were assessing very different conceptualizations of masculinity. However, the similar findings and the high correlations suggest that the two dimensions of masculinity might not be as different as we first assumed. Future researchers may investigate whether other dimensions of Black masculinity should be considered.

The second hypothesis that USO would increase as condom barriers increased was partially supported for casual partners. As predicted, the greater the PESE, the more likely the men were to report unprotected sexual occasions with casual partners. The relationship between PESE and USO suggests that interventions that include some discussion of ways to enhance sexual pleasure with condoms may be more effective with Black substance abusing men than interventions focusing solely on health beliefs or education.

Recent research (Charnigo, Crosby, & Troutman, 2010) led us to expect that partner barriers would also predict USO. However, this relationship was not significant for casual partners. Perhaps the measurement of partner barriers in this study offers a plausible explanation. The CBS instructs respondents to focus on the relationship with a main partner. However, participants without a main partner are directed to answer according to "what your sexual relationships are mostly like." Perhaps, no relationship between partner barriers and condom use was evident because some participants were referring to main partners but others were describing their relationships more generally. Perhaps the findings would be different if the measure had been limited to either barriers with either main or casual partners but not both. Similar to the masculinity dimensions, the findings for main partners on condom barriers were different than the findings for casual partners. Specifically, neither PESE nor partner barriers predicted USO with main partners.

The difference in the findings for casual versus main partners has both research and clinical implications. The differences demonstrate the importance of examining findings separately by partner type (i.e., casual versus main partners) in future research. Clinically, the

findings also support the need to consider partner type in discussions about condom use in the development of future HIV risk reduction interventions. These implications are supported by other recent studies demonstrating differences in levels of sexual behavior and perceptions of sexual risks based on partner type (Furman & Shaffer, 2011; Noar, Webb, Stee, et al., 2012). For example, Fontdevila, El Bassel, and Gilbert (2005) found that men have concerns with their main partners that differ from the concerns with the casual partners. Specifically, men reported the concern that suggesting condom use with a partner might be viewed by the main partner as either a sign of his infidelity or his suspicion of her infidelity.

Similarly, the high USO rates with both casual and main partners is alarming. Even though the men reported more condom use with their casual partners than their main partners, the fact that approximately a third of the men acknowledged both main and casual partners raises the possibility that a substantial number of men engaging in unprotected sex in their casual sexual encounters are also exposing their main partners to HIV risk. The rate of USO reaffirms both the importance of more research such as the present study aimed at identifying sociocultural predictors of USO among substance abusing Black men and the urgent need for effective interventions aimed at reducing HIV risk behaviors specifically among Black men (Darbes, Crepaz, Lyles, Kennedy, & Rutherford, 2008; Frye, Bonner, Williams et al., 2012).

The findings of this study further support the need for culturally congruent HIV risk reduction behavioral interventions that address sociocultural influences on HIV risk behaviors. The findings in this study have implications for our ongoing cultural adaptation of REMAS. A detailed description of the steps taken to date to revise REMAS to create REMAS-CA, a culturally adapted version of REMAS, is provided elsewhere (Calsyn, Burlew, Hatch-Maillette, Wilson, Beadnell, & Wright, 2012). An initial trial demonstrated that REMAS-CA yielded better outcomes than REMAS for ethnic minority substance abusing men (Calsyn, Burlew, Hatch-Maillette, Wilson, Beadwell, & Wright, 2013). However, the present findings identify topics that may further improve the efficacy of behavioral interventions for risky sexual behaviors among Black substance abusing men. The inclusion of discussions on how condom use is consistent with black men's conceptualizations of the personal dimension (e.g., independence) and a social-control oriented dimension (e.g., dominance) of masculinity may enhance the intervention's efficacy. Also, discussions on how condoms can play a role in sexual enhancement (i.e., varying types of condoms and lubricants, incorporating condoms in erotic foreplay) could potentially increase the effectiveness of REMAS-CA in decreasing risky sexual behaviors specifically among Black substance abusing men even more. Future research should continue to assess the influence of other sociocultural factors on HIV risk behaviors, especially among Black substance abusing men participating in REMAS-CA. For example, previous studies have suggested that other sociocultural factors directly or indirectly influence sexual behavior and sexual networks in the Black community such as readiness to change, poverty, high incarceration rates, age, frequency and quantity of alcohol use and depression (Adimora & Schoenbach, 2005; Adimora, Schoenbach, & Doherty, 2006; Gullette, Wright, Booth, Feldman, & Stewart, 2009; Harris, Torres, & Allender, 1994; Hunter & Davis, 1992; Khan, Kaufman, Pence et al., 2009; Steven-Watkins, Knighton, Mitchell, Oser, & Leukefeld, 2013).

As in all studies, this study has limitations that might be addressed in future research. First, this secondary analysis limited us to a smaller sample. A larger sample in future studies may increase the generalizability of the findings and provide more opportunities to examine the heterogeneity of Black substance abusing men. In the current study, we initially considered the heterogeneity among Black substance abusing men by including participant age and education as predictors in the regression analyses. However, since neither was a significant predictor in either model, we later removed participant age and education from the analyses and then repeated the regression analyses. However, we did not examine age as a moderator. Specifically, the analysis might examine whether the relationship between masculinity and condom barriers to USO is the same for younger and older substance abusing men. Second, this study utilized a cross sectional design as a first step toward identifying relevant sociocultural factors. A prospective study using a longitudinal design in future research may better clarify whether personal and social dimensions of masculinity and condom barriers have a causal relationship to HIV risk behaviors.

Third, similar to many HIV studies, the study relied on the self-report of sexual behaviors. Fortunately, the original team attempted to address any potential concerns about the accuracy of self-report by utilizing the audio computer assisted self-interviewing (ACASI) method to allow participants to answer sensitive questions about their sexual behaviors privately. The ACASI method has been shown to increase the validity of self-reported sexual behaviors (Macalino, Celentano, Latkin, Strathdee, & Vlahov, 2002; McAuliffe, DiFranceisco, & Reed, 2007). Further, the memory prompts in the ACASI program, similar to the timeline follow back procedure, are intended to enhance the recall of sexual behaviors within the 90-day window. Fourth, some participants may have been reluctant to acknowledge social masculinity traits with negative connotations, such as aggressiveness, even if they possess these traits. For example, Harrison and Edoueda (2001) found that the same acts (i.e., interpersonal conflicts [described in a vignette]) were perceived as more violent and aggressive when Black rather than White undergraduate men are the actors. It is important to not only consider the self-perception of masculinity among Black men, but also the impact that the often highly negative perceptions of Black men by society has on Black men's conceptualization of their own masculinity. Researchers should consider social desirability when designing future studies using measures such as the Bem Sex Role Inventory. Despite these limitations, this study provides useful and heretofore unavailable information on the nature of the relationship of personal and social dimensions of masculinity and condom barriers to HIV risk behaviors among substance abusing Black men.

The present study has a number of strengths. First, this secondary analysis takes advantage of data collected in a large multisite randomized clinical trial sponsored by the National Drug Abuse Treatment Clinical Trials Network (CTN) to learn more about HIV risk taking among Black male substance abusers. Second, the detrimental influence of aspects of masculinity on sexual behaviors had previously been demonstrated in qualitative studies (Bowleg, 2004; Kennedy, Brown, et al. 2012; Kennedy, Nolen et al., 2007) but largely ignored in quantitative studies (Noar & Morokoff, 2002). This study, perhaps the first quantitative study to examine the relation of personal and social dimensions of masculinity and perceived barriers to condom use among Black substance abusing men, contributes to the literature by

demonstrating the generalizability of the findings from qualitative research. Third, this study is one of the few studies to demonstrate the importance of examining findings specific to Black men with their female partners in substance abuse treatment separately for casual and main partners. Accordingly, this study addresses the gap in research on Black men and their female partners in existing HIV prevention research (Bowleg, Teti, Malebranche, & Tschann, 2013). Fourth, even though previous work may have documented the need to consider how conceptualizations of masculinity affect HIV risk behaviors, our findings contribute to the existing literature by providing more information on the specific dimensions of masculinity that may be related to HIV risk behaviors among Black substance abusing men. A multidimensional approach to assessing conceptualization of masculinity (social versus personal dimensions) better addresses the sociocultural aspects of sexual behavior highlighted in Wyatt's SHM (Wyatt, 2009), and may increase the likelihood of designing efficacious interventions for specific target groups. Finally, unlike some of the previous work, this study mainly employed measures such as the CBS (Charnigo, Crosby & Trotman, 2010) with demonstrated utility in previous Black samples.

CONCLUSION

This study supports our underlying assumption that sociocultural factors affect condom use among Black substance abusing men. The findings revealed that both the endorsement of personal and social dimensions of masculinity and the perception that condoms decrease sexual pleasure were associated with more unprotected sexual occasions with casual partners. Therefore, interventions that depict condom use as congruent with Black male perceptions of masculinity and illustrate how condoms can be pleasurable may be more effective with Black substance abusing men than interventions focusing solely on health beliefs or education.

The findings from this study also highlight the need for additional research in several areas. First, more research identifying predictors of condom use with main partners appears warranted since neither the masculinity dimensions or either of the condom barriers (perceived effect of condoms on the sexual experience or partner barriers) were associated with condom use with main partners. Second, the difference in the results for casual and main partners draws attention to the importance of considering partner type in future research and in the development of HIV risk reduction interventions for Black substance abusing men. Third, although the focus of this research was on documenting the relation of both condom barriers and personal and social dimensions of masculinity to USO, a future step in this research area may be to examine interaction effects. For example, the relation of perceived condom barriers to USO may vary depending on one's conceptualization of masculinity or depending on demographic variables such as age or education. Fourth, given the complexity in the relationship between conceptualization of masculinity and sexual behaviors, future researchers should also consider mixed methods that include both qualitative and quantitative approaches. Fifth, even though the present study focused on HIV risk behaviors with female partners, we encourage future research on HIV risk behaviors with same sex partners. Future research should continue to investigate the influence of other sociocultural factors, especially those that influence the sexual decision making process, on sexual risk behaviors among Black men. Finally, the findings in this study are limited to Black substance abusing men. Future studies

should also identify the sociocultural factors that influence sexual behaviors among other groups, such as Black women and Latinas/os, especially considering the increasing number of studies emphasizing the importance of considering sociocultural factors in HIV prevention interventions (Airhihenbuwa, Okoror, Shefer, Brown et al., 2009; Coates, Richter, & Caceres, 2009; Darbes, Crepaz, Kennedy, & Rutherford, 2008; Prado, Lightfoot, & Brown, 2013; Wyatt, 2009).

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