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Measures of Attitudes Toward and Communication about Condom Use: Their Relationships With Sexual Risk Behavior Among Young Black MSM

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Abstract

Objective—To construct and test measures of psychosocial mediators that could be used in intervention studies seeking to promote safer sex behavior among young Black men who have sex with men (YBMSM).

Methods—YBMSM (N=400), ages 18–29 years, were recruited from an STI clinic, in the Southern U.S. All men had engaged in penile-anal sex with a male as a “top” in the past 6 months. Men completed an audio-computer assisted self-interview and provided specimens used for NAAT testing to detect Chlamydia and gonorrhea. Four measures were constructed and tested for criterion validity (Safer Sex Communication, Condom Turn-Offs, Condom Pleasure Scale, and a single item assessing frequency of condom use discussions before sexual arousal).

Results—With the exception of Safer Sex Communication, all of the measures showed criterion validity for both unprotected anal insertive, and unprotected anal receptive sex. With the exception of the Condom Turn-Offs, the three other measures were supported by criterion validity for oral sex. Both the Condom Turn-Offs and Condom Pleasure Scale were significantly related to whether or not men reported multiple partners as a “top” but only the Condom Pleasure Scale was associated with reports of multiple partners as a “bottom.” Only the Condom Turn-Offs Scale was positively associated with having been diagnosed with either Chlamydia or gonorrhea.

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Conclusion—Findings provide three brief scales and a single item that can be used in intervention studies targeting YBMSM. Perceptions about condoms a turn off and about condoms enhancing pleasure showed strong association with sexual risk behaviors.

Introduction

Despite representing an estimated 2% of the United States population, gay and bisexual men account for an estimated three-fourths of all new HIV infections.[1] Young, Black men who have sex with men (YBMSM) have experienced a far more rapid escalation of the HIV/AIDS epidemic than men who have sex with men (MSM) who identify as White or Latino or any other sub-population in the U.S.[1–6] YBMSM have a one-in-four chance of becoming infected with HIV by the time they reach 25 years of age.[7]

Although the updated National HIV/AIDS Strategy[3] places emphasis on PREP it also acknowledges the importance of Combination HIV Prevention, meaning that a host of options should be promoted to optimize the promotion of HIV-protective behaviors. Whether as an adjunct to PrEP or as a primary strategy for HIV prevention, the consistent and correct use of male latex condoms offers protection against HIV acquisition and transmission with effectiveness rating being very high.[8–10] One strong advantage of promoting condom use as an adjunct to biomedical strategies such as pre-exposure prophylaxis (PrEP) involves averting the well-documented risk of condom migration (not using condoms once PrEP use begins).[11–13] Thus, behavioral interventions designed to condom use for YBMSM remain a public health priority.[3] A key task in the design of these programs is the identification of targeted psychosocial mediators. Key mediators from studies of young Black men include communication with their partners about condom use and safer sex and issues men may have with condoms being antithetical to sexual arousal and sex.[14–17] Communication with partners about condom use may be especially important given that sex and sexual negotiations may be complicated by condom use. Aspects of condom use that lead to sexual “turn offs”[18] are potentially important psychosocial mediators. Conversely, an unexplored but potentially important mediator of condom use involves heightened perceptions of sexual pleasure when condom protection is used.[19]

Several scales have been created to measure condom attitudes/barriers to condom use, with the most commonly used being the UCLA Multidimensional Condom Attitudes Scale,[20] the Condom Barriers Scale [21] and the Multi-Factor Attitude Toward Condoms Scale.[22] Although many of these scales have undergone psychometric assessment, the samples used have mainly been young, college-aged heterosexual students.[23, 24] The Condom Barriers Scale[21] (from which one of our scales was developed) has been used with a range of populations including high-risk African-American heterosexual men,[8] but not with MSM. Some authors have acknowledged that their findings with these measures may not be similar for men who have sex with men.[22] Although Peterson and colleagues[25] developed a 5-point scale to assess attitudes about condoms among gay and bisexual African-American men, to our knowledge, other validated scales regarding condom use attitudes do not exist for YBMSM.

The purpose of this study was to construct and test measures of psychosocial mediators that could be used in intervention studies seeking to promote safer sex behaviors of YBMSM. Specifically, after collecting the data, we tested the scales for inter-item reliability and for criterion validity, using multiple behavioral outcomes.

Methods

Study Sample

A convenience sample of 400 YBMSM was recruited for participation in an NIH-funded randomized controlled trial of a safer sex intervention program. Only baseline data **were** used for this study. Recruitment occurred in a federally supported clinic designated specifically for the diagnosis and treatment of HIV and other sexually transmitted infections (STIs). The clinic was located in a mid-size southern city experiencing extremely high incidence rates of HIV. Inclusion criteria were: 1) self-identification as Black/African American; 2) aged 18 to 29 years; 3) attending the clinic to be tested for HIV or other STIs; 4) engaging in penile-anal sex with a male partner as a “top” (insertive) or a “bottom” (receptive), at least once in the past 6 months; and 4) the ability to speak and comprehend English.

Age-eligible Black males were approached in clinic waiting areas and asked about their interest in participating in an HIV prevention study. Those expressing interest were screened for eligibility. A total of 733 men were screened; of these, 485 were eligible. Eighty-five YBMSM who were eligible declined, yielding a participation rate of 82.5%. The Institutional Review Boards of the University of Mississippi Medical Center and the Mississippi State Department of Health and the University of Kentucky approved all study procedures.

Study Procedures

After providing written informed consent men completed an online questionnaire, using Qualtrics software, in a private office not physically connected to the clinic. The questionnaire collected information about men’s sexual risk behaviors using a 90-day recall period. The questionnaire also included four measures specifically developed or adapted for this population. Subsequently, men were evaluated for Chlamydia and gonorrhea in three anatomic locations. Urethral and rectal infections were detected through nucleic acid amplification testing (NAAT) performed on a urine sample and rectal swab, respectively; oral infections were detected through NAAT testing of a buccal swab. For those not already HIV-positive, a blood sample was collected to test for HIV using OraSure and this was processed in the clinic where men were recruited.

Measures

Behavioral outcomes—Whether men had engaged in condom-unprotected sex (hereafter referred to simply as “unprotected sex”) was assessed for unprotected anal insertive sex (UAIS), unprotected receptive anal sex (UARS), and unprotected oral sex (UOS). Response options were coded a yes versus no. The percent reporting “yes” is reported in Table 1. The number of times men engaged in UAIS (listed as UAIS x in the Table) and UARS (listed as

UARS x) during the past 90 days was calculated by subtracting the number of times they reported condoms being used for anal insertive sex from the total number of times they engaged in anal insertive sex, and then repeating this process for anal receptive sex. To optimally assess the utility of the four scales, we also used a dichotomous measure: the percent of men reporting any UAIS, UARS, or UAOS. This practice of using multiple forms of the same outcome measure is well-established in the extant literature.[26–28] Additionally, whether men had multiple partners as a "top" or as a "bottom" was assessed and coded as yes/no, with the percent indicating "yes" reported in Table 1. Finally, as a marker of sexual risk behaviors we also tested for Chlamydia or gonorrhea.

Safer Sex Communication Scale—This scale was a revised version of a 5-item Partner Communication Scale developed by Milhausen, Sales, and DiClemente.[29] We deleted one item (discussing how to prevent pregnancy) and changed the reporting period from six months to the past 90 days. The remaining four items assessed the frequency of communication with sex partners about using condoms, preventing HIV/STDs, and the sexual history of participants and their partners. The first item read: "During the past 90 days how many times have you and your male sex partner(s) discussed how to use condoms?" The subsequent items were similar, with the last part of the question being replaced by 2) …discussed how to prevent AIDS, 3) discussed how to prevent STDs, 4) discussed your partner's and your sex history. Response options were provided on a 4-**point scale:** 1 (never) to 2 (1 to 3 times), 3 (4 to 6 times), and 4 (7 times or more). The scale had excellent inter-item reliability, yielding a Cronbach's alpha of .87.

Condom Turn-Offs Scale—This scale was an abbreviated adaptation of the Condom Barriers Scale,[21] with 5 items assessing men's perceptions regarding condoms being a turn off during sex. These items were: 1) Condoms rub and make me feel sore, 2) Condoms don't feel good, 3) I get turned off when a partner suggests we use a condom, 4) Condoms spoil the mood, and 5) Condoms feel unnatural. Response options were provided on a 5-point scale, with higher scores representing greater agreement, i.e., a score of 5 represented "strongly agree." The scale produced a Cronbach's alpha of .80.

Condom Pleasure Scale—Based on past use of single-item measures, in various studies,[30–32] this scale was designed by the research team and had 5 items: 1) Condoms help me intensify orgasm, 2) Condoms help me feel better about having sex after it ends, 3) Condoms help me have better sex, 4) Condoms help me let go of my fears, and 5) Condoms help me enjoy sex. Response options were provided on a 5-point scale, with higher scores representing greater agreement, i.e., a score of 5 represented "strongly agree." The scale produced a Cronbach's alpha of .84.

Discussed Condoms with Partner before Sexual Arousal—The final measure was a single item: "In the past 90 days, how often did you discuss condom use with male partners before you became aroused?" Response options were provided on a 6-point scale ranging from 1 (always) to 6 (never).

Data Analysis

To determine criterion validity, the obtained distributions for each scale were tested for normality. Distributions lacking the assumptions for normality were then dichotomized by performing a median split. None of the measures yielded normal distributions. Next, the eight outcome measures were used to evaluate the criterion validity of each scale. Chi-square tests of association were used to assess dichotomous outcomes (percent reporting any UAIS and percent reporting any UARS) and independent groups t-tests were used to evaluate continuous outcomes (UAIS x and UARS x). Additionally, Chi-squared tests were used to determine whether HIV status was related to any of the four scale measures; none of these associations were significant so they were omitted from the paper. Analyses were conducted used SPSS (version 21.0).

Results

Sample Characteristics

The mean age was 22.58 (sd=3.13). Men's mean monthly income ranged from less than $500 per month (19.6%), to $500–$1,000 (28.0%), to $1,001–$1,500 (20.6%), to $1,501–$2,000 (15.0%), to greater than $2,000 per month (16.8%). Just under one-third (29.1%) reported having received food assistance in the past 12 months. Most (60.3%) reported they were currently employed. More than one-half (58.8%) reported having education beyond high school graduation and 47.0% indicated current enrollment in a school or college. About one-half (50.6%) reported they were currently in a meaningful relationship with someone. The number of male sex partners (lifetime) reported ranged from 1–1000, with a median of 8. In the past 90 days, the mean number of sex partners when enrolled men were the top (insertive partner) was 2.68 (sd=7.1) and the mean number when enrolled men were the bottom (receptive partner) was 2.31 (sd=4.7). More than one-third of participants (37.0%) tested positive for Chlamydia or gonorrhea and one-quarter (25.6%) were HIV-positive at study enrollment.

Safer Sex Communication Scale—The first scale produced a range of 4 to 16 (with higher scores indicating more frequent communication with partners about prevention). The distribution yielded a median of 8 and a mean of 8.74 (sd=3.57). The median split resulted in 208 (54.2%) men being classified as having infrequent communication (scores at or below the median) and 176 (45.8%) classified as having frequent communication.

As can be seen in Table 1, for 357 men reporting sex as tops, of those classified as having frequent communication 24.1% had any unprotected anal insertive sex (UAIS) compared to 33.0% among those classified as having infrequent communication; this difference was not significant. For 285 men reporting sex as bottoms, fewer of those classified as having frequent communication (29.9%) had any unprotected anal receptive sex (UARS) compared to those having infrequent communication (39.7%); this difference was not significant. Finally, among those classified as having frequent communication, significantly fewer (73.8%) reported any unprotected oral sex in the past 90 days compared to those classified as having infrequent communication (84.4%). None of the other outcomes were significantly different between the two groups.

Condom Turn-Offs Scale—The second scale produced a range of 5 to 25 (with higher scores indicating issues/barriers related to condom use). The distribution yielded a median of 11 and a mean of 8.57 (sd=4.20). The median split resulted in 209 men (scores at or below the median) being classified as low in issues/barriers with condom use and 175 (45.6%) classified as in the high issue/barriers group.

Regarding UAIS, significantly more (35.6%) of those in the high issue/barriers group (i.e., these men did find condoms to be a turn off) had any UAIS compared to those scoring low on this scale (23.4%). (See Table 1) When treated as a continuous distribution, the mean number of times men scoring above the median engaged in UAIS was 1.91 compared to .71 for those scoring below (t=2.85, df=355, P=.009). Regarding UARS, significantly more (44.3%) of those scoring high on condom issues/barriers had any UARS compared to the percentage (27.3%) for those scoring low.

Among all men in the sample scoring above the median, significantly more (51.5%) reported having multiple sex partners as a top compared to those scoring below the median (36.2%). Prevalence of Chlamydia/gonorrhea also varied as a function of classification status based on this scale. Prevalence was 42.3% among those scoring high on issue/barriers to condom use versus 32.0% among those scoring low. None of the other outcomes were significantly different across condom turn-off groups.

Condom Pleasure Scale—This scale range was 5 through 25 (with higher scores indicating greater pleasure). The distribution yielded a median of 18 and a mean of 18.01 (sd=5.32). The median split resulted in 189 men being classified as low (at or below the median) in pleasure from condom use and 195 (50.8%) classified as high.

As shown in Table 1, when having intercourse as a top, 18.2% (significantly fewer) scoring high (condoms intensified pleasure) had any UAIS compared to 39.2% for those scoring low on this scale. When treated as a continuous distribution, the mean number of times men scoring above the median engaged in UAIS was significantly lower than those scoring below, .68 compared to 1.83 (t=2.73, df=355, P=.007). When a bottom, significantly fewer (29.8%) of those scoring high on condom pleasure had any UARS versus 41.8% for those scoring low. When treated as a continuous distribution, the mean number of times men scoring above the median engaged in UAIS was significantly lower (.96 compared to 2.74) than that for those scoring below (t=2.60, df=283, P=.01).

Among those scoring above the median on the pleasure scale, 38.0% (significantly fewer) reported having multiple sex partners as a top compared to 48.4% scoring below the median. Among those above the median, 46.7% (significantly more) reported having multiple sex partners as a bottom compared to 33.3% among those below the median. (This last comparison was in the opposite direction to what would be expected). Scores on the condom pleasure scale were also associated with unprotected oral sex, with 72.2% (significantly fewer) of those scoring above the median on the pleasure scale reporting UOS compared with 82.5% of those scoring below the median. Prevalence of Chlamydia/gonorrhea did not vary as a function of Condom Pleasure Scale classification status.

Discussed Condoms With Partner Before Sexual Arousal—The distribution yielded a median of 2 and a mean of 3.01 (sd=1.94). The median split resulted in 196 men being classified never or infrequently engaging in this communication and 188 (49.0%) classified “always” or “almost always” engaging in this communication.

Among those who had always/almost always discussed condoms with a partner before sexual arousal, 15.5% (significantly fewer) engaged in any UAIS as a top compared to 41.5% who did not discuss condoms before arousal. Among those who always/almost always discussed condoms before arousal, the mean frequency of UAIS was significantly less (.54 times compared to 1.92 times) among those who had not discussed condoms before arousal (t=3.40, df=355, P=.001).

Among those who always/almost always discussed condoms before sexual arousal, 21.2% (significantly fewer) engaged in any UARS compared to 48.0% of those who had not discussed condoms before arousal. Among those who always/almost always discussed condoms before becoming aroused, the mean number of times of UARS was .77 compared to 2.69 times among those who did not discuss condoms before sex (t=2.93, df=283, P=.004).

Finally, among those who always/almost always discussed condoms before arousal, 72.0% (significantly fewer) engaged in unprotected oral sex compared to 86.3% among those who did not discuss. None of the other outcome variables differed by whether or not men discussed condoms with their partner before arousal.

Discussion

Of the four measures examined in this study, three – the Condom Turn-Offs Scale, the Condom Pleasure Scale, and the single-item measure regarding discussions with sex partners about condom use before becoming sexually aroused– showed associations with more than one sexual risk behavior (the Safer Sex Communication Scale was only associated with UOS). These associations provide strong evidence of criterion validity for these measures. These measures may be useful in the context of intervention research conducted among YBMSM. It is important to consider the relevant merit of each of these measures in regards to the behaviors used to judge their criterion validity.

All four measures, with the exception of Safer Sex Communication, were supportive of criterion validity for both UAIS and UARS. Specifically, men who scored higher on safer sex communication, lower on condom turn-offs, higher on condom pleasure, and almost always or always discussed condoms with a partner before becoming sexual aroused, were less likely to report UAIS and less likely to report UARS. All of the men in this study (by virtue of the selection criteria) reported UAIS during the past six months but approximately 80% had also engaged in UARS during that period. What is interesting is that these associations with attitudes toward, and communication about, condom applied for both UAIS and UARS.

Regarding the multiple partner variables, both the Condom Turn-Offs and Condom Pleasure scale were significantly related to whether or not men reported multiple partners as a top.

Only the Condom Pleasure Scale, however, was associated with reports of multiple partners as a bottom, with more men scoring high on this scale (i.e., believing that condoms intensified pleasure) reporting multiple partners compared with those who scored lower. There were no significant associations between reporting multiple partners and scores on the Safer Sex Communication or the single-item communication measures.

Only the Condom Turn-Offs Scale was positively associated with having been diagnosed with either Chlamydia and/or gonorrhea. This association, however, is strong evidence of criterion validity, given that the actual acquisition of these infections represents a culmination of multiple risky behaviors.

With the exception of the Condom Turn-Offs Scale, the three other measures were supported by criterion validity of unprotected oral sex. Rarely have studies had enough variance in this outcome for comparisons to be made between those using and not using condoms for oral sex. A striking finding was the high prevalence of condom use during oral sex (approximately 20%). In contrast, nationally representative, predominantly heterosexual samples in the U.S. and Sweden found rates of condom use during oral sex of approximately 5%.[33,34] Whether this high occurrence of condom use for oral sex among YBMSM is a product of magnified perceived threat or oral infections is an important question for future investigations.

Another noteworthy finding was the high proportion of men in this sample who endorsed perceptions that condoms enhanced pleasure. To our knowledge, no previous studies have constructed and tested a scale assessing pleasure associated with condom use.

Limitations

Because data for this study came from a larger randomized trial that only recruited men who had been tops at least once in the last six months, this sample was highly selected. Also, the use of a clinic-based convenience sample of YBMSM limits generalizability to other populations of YBMSM. Finally, the quantitative study design was not able to explore the lack of association with HIV status and the for scale measures; the reasons HIV-infected YBMSM hold the same perceptions as their HIV-uninfected counterparts warrants qualitative investigation.

Conclusions

Findings provide empirical validation of three measures relevant to condom use among YBMSM. These measures can be used by researchers conducting intervention studies for this population. Future research should seek to validate these scales with other high-risk populations such as white MSM. Two scales may be particularly useful: perceptions about condoms a turn off and about condoms enhancing pleasure showed especially strong associations with sexual risk behaviors. From a practice perspective, the obtained psychometric support of the three scales provides a basis for using these as screening tools to guide clinic-based counseling efforts designed to promote condom use.

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Summary

This study sample of nearly 400 young Black MSM provided reliability data and evidence of construct validity pertaining to four psychosocial mediators often used in safer sex intervention trials.

Key Messages

A 5-item scale measure of things that “turn off” young Black MSM about condom use was associated with laboratory-confirmed diagnosis of Chlamydia and/or gonorrhea.

Three of the measures were associated with unprotected oral sex thus providing even greater evidence of criterion validity.

The scale measure of safer sex communication did not yield sufficient evidence to support criterion validity.

Table 1

Scale score differences by selected sexual risk behaviors

	Scales											
	Safer Sex Communication			Condom Turn Offs			Condom Pleasure			Discussed Condoms Before Sexual Arousal		
Risk Behavior	Infreq	Freq	P	Low	High	P	Low	High	P	No	Yes	P
UAIS (any)	33.0	24.1	.06	23.4	35.6	.0001	39.2	18.2	<.0001	41.5	15.5	.001
UAIS *x*	1.23	1.21	.50	.71	1.91	.009	1.83	.68	.007	1.92	.54	.001
UARS (any)	39.7	29.9	.08	27.3	44.3	.003	41.8	29.8	.04	48.0	21.2	.001
UARS *x*	1.55	2.01	.86	1.60	1.96	.60	2.74	.96	.01	2.69	.77	.004
Multiple partners (I)[1]	45.1	40.8	.40	36.2	51.5	.003	48.4	38.0	.04	43.5	42.8	.89
Multiple partner (R)[2]	40.4	39.8	.90	40.2	40.0	.97	33.3	46.7	.008	37.8	42.9	.34
Chlamydia/Gonorrhea	38.5	34.7	.45	32.2	42.3	.045	40.1	33.5	.18	37.8	35.7	.68
UOS (any)	84.4	73.8	.014	76.6	82.8	.16	82.5	72.2	.01	86.3	72.0	.001

[1]Multiple partners as an insertive partner

[2]Multiple partners as a receptive partner

Note. Groups (Infrequent/Frequent; Low/High) determined by median split. UAIS = Unprotected Anal Insertive Sex; UARS = Unprotected Anal Receptive Sex; UOS = Unprotected Oral Sex