Correlates of Correct Condom Use Among High-Risk African American Men Attending an Urban STD Clinic in the South

Richard Crosby[1,2,3], **Ralph J. DiClemente**[4,5,6,7], and **William L. Yarber**[3,8]

[1] College of Public Health at the University of Kentucky

[2] Department of Applied Health Science, Indiana University

[3] Rural Center for AIDS/STD Prevention at Indiana University

[4] Rollins School of Public Health at Emory University

[5] Emory Center for AIDS Research

[6] Emory University School of Medicine, Department of Pediatrics, Division of Infectious Diseases, Epidemiology, and Immunology

[7] Emory University School of Medicine, Department of Medicine (Division of Infectious Diseases)

[8] Department of Applied Health Science at Indiana University

Abstract

The purpose of this cross-sectional study was to assess prevalence and correlates of correct condom use among high-risk African American men attending a publicly-funded sexually transmitted disease (STD) clinic. Men 18 through 29 years of age and newly diagnosed with a sexually transmitted disease were further assessed for study eligibility. Of 296 meeting eligibility criteria, 271 agreed to participate thereby yielding a participation rate of 91.5%. Correct use, assessed by an index, was reported by 38%. Correct use was associated with having sex with 3 or fewer female sex partners (AOR=3.1), being in an exclusive relationship (AOR=3.2), not indicating problems with the fit or feel of condoms (AOR=2.9), and not being drunk/high while using condoms (AOR=2.6). The correct use of condoms among young African American men newly diagnosed with an STD may be a function of situational factors. These factors could potentially be addressed in the context of clinic-based behavioral intervention programs.

Keywords

Condoms; men; sexually transmitted infections; prevention; sexual behavior

INTRODUCTION

In the United States AIDS among African Americans has been declared a national crisis.[1] Case rates are approximately 8 times greater among African American men compared to their white counterparts.[1,2] Indeed, African American men have the highest prevalence and incidence rates of AIDS than any other demographic classification of US residents.[3,4] This disparity is exacerbated by the fact that African Americans with HIV lose an average of 11 times more life-years than their white counterparts.[5] African American men are also

Correspondence: Richard Crosby, PhD, College of Public Health, 121 Washington Ave. Lexington, KY 40506-0003; telephone: 859-257-5678 (ext 82039) /FAX: 859-323-2933/ crosby@uky.edu.

disproportionately affected by a wide range of sexually transmitted infections (STIs). Gonorrhea serves as a particularly important example of the extreme racial disparity experienced by African Americans relative to STDs. In 2004, for example, the rate of gonorrhea was 629.6 (per 100,000) for African Americans compared to 33.3 for whites and 71.2 for Hispanics.[6] Given these multiple disparities, an improved understanding of antecedents to African American men's STI-protective behaviors is a public health imperative. This is true for both African American men who have sex with men and those who have sex predominately (if not exclusively) with women. Less research effort has been devoted to the latter category of men.[7–9]

Clearly, a critically important STI-protective behavior is the consistent and correct use of male condoms.[10–12] Although limited in number, studies have investigated antecedents of *consistent* condom use among heterosexual African American men.[13–15] However, published quantitative studies have not specifically investigated the *correct* use of condoms among this population. Given evidence from studies of other populations[16–22] and a qualitative study of correct condom use among young African American men,[23] it is quite likely that the quality of condom use may be far from adequate among this population. However, it may be the case that some men manage to use condoms correctly (regardless of whether they are used consistently) and thus it is important to know how these men differ from those not using condoms correctly. Indeed, the identification of factors associated with correct use could be valuable in the design of education-based intervention program for this population of men. Accordingly, the purpose of this study was to identify the prevalence and correlates of correct condom use among a sample of young African American men, residing in the Southern U.S., who were newly diagnosed with an STI.

METHODS

Participants and Procedure

Data were collected as part of an HIV prevention trial. Only the baseline data were used for the current study. Recruitment occurred at a large, urban, public STI clinic (located in the Southern U.S.) from September 2004 to April, 2006. Men attending the clinic were recruited after they had been clinically diagnosed with an STI. Upon termination of the clinical encounter the nurse asked potentially eligible men if they would be interested in learning about a study and perhaps volunteering to participate. Men agreeing to this were introduced to the research assistant (in an adjacent office) who proceeded to explain the study to men and gain written informed consent. All study procedures were approved by the Office of Research Integrity at the University of Kentucky.

Eligibility criteria were: 1) newly diagnosed with an STI, 2) self-identification as African American, 3) 18 to 29 years of age, 4) English speaking, and 5) reporting that a male condom had been used at least once in the past 3 months for sexual intercourse, defined as "penis in the vagina") with a woman, and 6) indicating they were not knowingly HIV positive. Two hundred and ninety six eligible men were identified. Of these, 271 agreed to participate thereby yielding a participation rate of 91.5%. After providing written informed consent, men completed a brief self-administered questionnaire lasting about 20 minutes. To avoid problems with literacy, the questions were recorded to a CD that men could choose to play using a portable headset. Each question constituted a single track; thus, men could easily replay a question just as they would play a track of music. Men were compensated $40 for their participation in these baseline assessments.

Measures

Correct condom use—The outcome measure was assessed using a five-item index. Items measured whether men put condoms on after sex had begun, took condoms off before sex was over, breakage, slippage (defined as "slipped off") during intercourse, and slippage after ejaculation but before complete withdrawal. These events each represent points of potential condom failure. Indeed, the five events constitute the full range of possible user errors that could lead to condom failure. Clearly, other user errors exist such as allowing condoms to contact sharp objects, using poorly lubricated or ill-fitting condoms, and using oil-based lubricants. Although these errors do indeed represent a lack of correct condom use, they are not endpoints per se' (i.e., the errors lead to the endpoints of breakage or slippage). [16–24] Thus, we chose to assess only the critical endpoints that may culminate in condom failure.

Correlates—Five scale measures were employed to assess various constructs relevant to men's use of condoms. Table I displays these five scales along with the number of items in each, the obtained inter-item reliability coefficient, the response format, and a sample item characterizing the question stems.

Several single-item measures were assessed. Most of these measures were hypothesized to relate with correct condom use based on evidence from studies investigating discrete forms of condom failure such as breakage.[16–24] Many of these were relatively self-explanatory such as number of sex partners (past 3 months), history of STIs, frequency of condom use (past 3 months), being high and/or drunk before or during sex that involved condom use (past 3 months), and whether recent partners had been using any type of hormonal contraception (examples were provided to men). Five additional items, however, require elaboration. One asked, "In the past 3 months, did you have problems with the way a condom fit, or felt on your penis (for example, the condom was too large or too small, it was the wrong shape, it caused irritation of the skin on your penis, or it caused loss of erotic sensation for you or your partner). Men were asked to indicate "yes" or "no." The second item asked, "In the past 3 months did you discuss condom use with your partner (or partners) before having sex?" The item was intended to assess whether men and their female partners had mutually planned condom use. Responses were provided using "0" (never) or a numerical value representing the number of times this had occurred in the past 3 months. The third asked men whether they had relied on condoms for birth control in the past 3 months. Because this item represented a personal attribution, it was distinct from the one asking men if they knew whether their female sex partners used hormonal contraception. To gage whether men had gained knowledge about the correct use of condoms, we asked if they had ever been taught how to use a condom. Finally, men were asked, "In the past 3 months have you refused to use a condom when a sex partner wanted to?"

Covariates—In addition to age, we determined that a remaining covariate would be critically important to this study: frequency of condom use. This variable is important because those using condoms more frequently have greater opportunity to experience any of the 5 errors/problems comprising the outcome measure.

Data Analysis

Based on the purpose of the study, the outcome measure was dichotomous by definition (i.e., men either reported one or more of the five problems had occurred or that none of the problems had occurred). This dichotomy created a natural distinction between men at risk of condom failure, when condoms were used, versus those using condoms correctly. Also, because of marked skewness, the five scale measures and the measure of directly observed condom application skills were all dichotomized by a median split. Based on past and

current practices of the Centers for Disease Control and Prevention,[25] we defined multiple partners as consisting of 4 or more. The remaining single-item measures were inherently dichotomous.

Bivariate associations between the dichotomous correlates and the outcome measure were assessed by prevalence ratios, their 95% confidence intervals, and respective *P*-values. Correlates achieving a screening level of significance (*P* < .10) were entered into a forward stepwise logistic regression model. In this model, multivariate significance was defined by 95% confidence intervals and *P*-values of less than .05. Data were analyzed using SPSS (version 14.0).

RESULTS

Characteristics of the Sample

Average age of the men was 23.6 years (standard deviation = 3.3). The majority (70.4%) reported earning less than $1000 per month after taxes, with 26.3% earning between $1000 and $2000 per month after taxes. Nearly one-half of the men (48.0%) reported they were currently in an exclusive–monogamous—sexual relationship (defined as having sex with only one person).

Prevalence of Correct Use

More than one-third of the men (37.6%) reported "correct use" of condoms over the past 3 months as assessed by the 5-item index previously described. These men (n = 102) were compared to the remainder (n = 169) with regards to the assessed correlates.

Bivariate Associations

Table II displays the observed bivariate associations. Each correlate is displayed with two rows. The first row represents the expected direction of the association (that is, we expected to find that more men in the first row, relative to the second row, used condoms correctly). Each row is shown with the number of men and the percent of these numbers using condoms correctly. For example, men not reporting problems with "fit and feel" were significantly more likely than men not reporting these problems to report correct condom use. Specifically, 185 men reported no problems with the fit or feel of condoms in the past 3 months. Of these men, 45.9% used condoms correctly compared to 19.8% among the 86 men who did report problems with the fit or feel of condoms.

As shown, 7 of the correlates achieved bivariate significance. Correct condom use was more likely for men not relying on condoms for birth control, having 3 or fewer sex partners in the past 3 months, not reporting problems with the fit or feel of condoms, not being high or drunk when using condoms, not discussing condom use with partners before sex, and those not refusing to comply with partners' requests to use condoms. Of interest, however, 2 of these 7 produced significance in the direction opposite of that anticipated. Of those who indicated reliance on condoms for birth control, 28.0% used condoms correctly compared to 45.5% among those indicating they did not rely on condoms for birth control. Also, of the men who had discussed condom use with partners before sex, 30.5% reported correct use compared to 42.8% among those not having this discussion.

Two correlates were preserved in continuous form and the bivariate findings for these are not shown in Table II. Men's age was not significantly associated with whether they had used condoms correctly (t = .62, df [269], *P* = .54). Similarly, men's frequency of condom use did not differ based on whether they had has used condoms correctly (t = .96, df [269], *P* = .34). Thus, the need to enter these covariates into the multivariate model was dismissed.

Multivariate Associations

Table III displays the results of the logistic regression model. The model was significant (χ^2 with 4df = 52.3, P< .0001), and achieved a satisfactory fit with the data (Goodness of Fit χ^2 with 7 df = 6.07, P = .53). Four of the 7 correlates entered retained significance. Men who reported having sex with 3 or fewer women were about 3 times more likely to use condoms correctly. Men indicating they were in an exclusive (monogamous) relationship were more than 3 times as likely to report using condoms correctly. Also, men who had not indicated problems with the fit or feel of condoms were nearly 3 times as likely to use condoms correctly. Finally, men who reported they had not been drunk or high while using condoms were about 2.5% more likely to report correct use.

DISCUSSION

In this study of 271 young, African American, men newly diagnosed with an STI we identified 4 factors that independently contributed to the prediction of using condoms correctly (regardless of whether they were used consistently) as assessed by a 5-item index. Analyses were restricted to men having sex with women. Apparently, having sex with the same woman, or with relatively fewer women, may promote relational conditions that favor correct condom use. Qualitative research may be an effective means of gaining further insight in this regards. The findings also substantiate the idea that problems with "fit and feel" may signal trouble with breakage, slippage, or the incomplete use of condoms. Finally, the findings provide some initial evidence suggesting that abstinence from alcohol and drug use while using condoms may promote their correct use. Overall, it is vital to understand that further investigation into this area of research is warranted and that the study findings are merely suggestive of intervention implications. It is also important to note that the findings are based on men's reports of the 5 events that comprised the index; whether their reports are accurate cannot be verified.

The Centers for Disease Control and Prevention has recommended that the consistent and correct use of condoms is an important strategy for the prevention of STIs (including HIV). [26] Although a relatively vast body of observational research has addressed consistent use, only a few observational studies have addressed the equally important issue of correct use. These studies are, of course, vital as a forerunner to intervention development. From an intervention perspective, these findings from this study suggest several possible intervention implications. For example, the two related findings (having multiple partners, and not being in a monogamous relationship) imply that relational dynamics may indeed be a very important factor in determining whether condoms are used correctly. Although the specific nature of these dynamics requires further investigation, it may well be that attention essentially shifts to the task of using condoms as the novelty and even awkwardness of a new sexual relationship abates. Clearly, future research should investigate how and to what extent female partners provide men with corrective feedback relative to condom selection, application, use, and removal. Given subsequent answers to these issues about relational dynamics and the correct use of condoms, intervention programs could be improved by the addition of components designed to help men (and perhaps women) achieve improved quality of condom use in relationships that are new or casual.

The findings also raise the possibility that condom distribution programs for young African American men may benefit from offering a broad selection of various sizes and types (brands) of condoms. This concept may be especially applicable to clinic-based distribution programs. Given that "fit and feel" issues are potentially antithetical to sexual pleasure it is also interesting to speculate whether improved fit and feel of condoms could foster more frequent use. Part of fit and feel may also include lubrication. Thus, a companion decision to expanding condom selection is offering men small (pocket size) tubes of water-based

lubrication. Men's comfort with the fit and feel of condoms (including adequate lubrication) may also be improved by providing African American men (and possibly their female partners) with improved application skills. The availability of lifelike penile models makes teaching these skills in a clinical environment quite practical.

Further, our study is (to the best of our knowledge) the first to show an association between being high or drunk and reduced quality of condom use. The finding is not surprising given that intoxication reduces acuity and motor skill. From an intervention perspective, the message may be roughly comparable to that used regarding driving while intoxicated. Men may not perceive that alcohol or substance use negatively affects their condom use just as they may not make this connection relative to their quality of driving. The best approach to advocate would be that men avoid sex altogether when they are drunk or high.

The variables that did not achieve bivariate significance also warrant discussion. For example, it is noteworthy that both age and frequency of condom use were not associated with the correct use of condoms. The lack of association with each variable suggests that condom use errors and problems will not simply diminish over time (i.e., with maturity or increasing practice) thereby implying the need for behavioral intervention. Moreover, the lack of association with having been previously diagnosed with an STI suggests the possibility that men acquiring a subsequent infection do not improve the quality of their condom use in response to the experience of the previous infection (as well as the multiple relational and social issues that accompany the experience of STI diagnosis and treatment). Also important is that men's quality of condom use did not vary as a function of whether they reported having any unprotected sex during the recall period. This null finding suggests that men from this population who always have protected sex may be no less likely than men having unprotected sex to experience various forms of condom failures. Indeed, individual motivations, perceptions, and attitudes were not important correlates of correct condom use in this study. Instead, the 4 significant correlates might best be characterized as situational (that is, they relate to the context of sex rather than attributes of the person).

Finally, the observation that nearly 38% of the men were classified by the index as "correct users" warrants comment. Despite their ability to use condoms correctly, these men had nonetheless acquired an STI. This point suggests that ability for correct use and frequency of unprotected sex may not be related. To test this hypothesis we created a variable representing men's frequency of unprotected sex in the past 3 months (i.e., frequency of sex minus frequency of condom use). The mean frequency of unprotected sex was nearly identical for men classified as correct users (13.2) versus the remainder (13.9) (t = .15 [268], P = .88). This post-hoc finding suggests that men's ability to use condoms correctly may not be sufficient to motivate consistent condom use. If this is indeed the case, clinic-based counseling protocols, for young African American men, may be effectively conceived of as a two-stage process. First, men would acquire the skills needed for correct use and then motivational interviewing could be applied to promote the consistent application of these skills thereby achieving correct (step 1) and consistent (step 2) condom use for optimal protection against subsequent acquisition of STIs.

Limitations

As is true for most sexuality research, findings are limited by the validity of retrospective self-report. In particular, the ability of men to accurately recall condom-specific events is critical to the validity of the study findings. A second example involves the assessment of whether men were involved in a monogamous relationship. Clearly, this assessment was problematic because men may have been unaware that their female partners were having sex with other men and because the "monogamy" may have only begun in the past few weeks (for example). The use of a convenience sample means that our findings may not be

generalizable to other populations of young, African American men newly diagnosed with an STD. It should be noted that the inter-item reliability coefficient for the measure of impulsivity was lower than desirable and that the validity of any of the scale measures is difficult to ascertain for this population of relatively young African American men. Recall bias relative to the assessment of "fit and feel" may also be a study limitation. Conceivably, men experiencing breakage or slippage may have attributed the event to ill-fitting condoms. Finally, it should be noted that the observed association between intoxication and quality of condom use is extremely difficult to establish without the benefit of an event-specific analysis.

Conclusions

Findings suggest that a majority of men from the study population may fail to use condoms correctly. Nonetheless, more than one-third may use condoms without experiencing problems that could compromise their protective value. The correct use of condoms among young African American men newly diagnosed with an STI may be a function of situational factors such as the length and nature of the sexual relationship, the fit and feel of condoms, and being intoxicated. These factors could potentially be addressed in the context of clinic-based behavioral intervention programs.

Acknowledgments

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Table I

Descriptive Information Pertaining to Five Scales Employed to Assess Correlates of Correct Condom Use

Scale/construct	# of items	Cronbach's alpha	Response format
Perceptions About Condom Use	6	.74	5-point analogue
Sample item: Condoms take all of the fun out of sex			
Attitudes Towards Condom Use[1]	10	.80	5-point analogue
Sample item: Condoms create a sense of safety			
Partner Communication About Safer Sex	4	.84	4-point analogue
Sample item: How many times (past 3 months) have you and your sex partner discussed how to use condoms?			
Sensation Barriers Related to Condom Use[2]	7	.82	5-point analogue
Sample item: Condoms change the climax or orgasm			
Impulsivity[3]	5	.60	5-point analogue
Sample item: Planning takes all of the fun out of things			

[1] Source is St. Lawrence JS, et al. Factor structure and validation of an adolescent version of the condom attitude scale: An instrument for measuring adolescents' attitudes toward condoms. Psy Assessment 1994;6:352–359.

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Table II

Bivariate Associations Between Dichotomous Correlates and Correct Use of Condoms

Correlates	% w/correct use[1]	PR[2]	95% CI[3]	P
Perceptions about condom use				
Favorable (n = 145)	35.2	.87	.64 – 1.18	.37
Not favorable (126)	40.5			
Attitudes towards condom use				
Favorable (140)	34.3	.83	.61– 1.13	.24
Not favorable (131)	41.2			
Partner communication about safer sex				
More frequent (140)	38.6	1.05	.77–1.43	.74
Less frequent (131)	36.6			
Sensation barriers related to condom use				
Low (131)	38.9	1.07	.79–1.45	.67
High (140)	36.4			
Impulsivity				
Low (137)	35.8	.90	.66 – 1.23	.52
High (134)	39.6			
Rely on condoms for birth control[4]				
Yes (125)	28.0	.66	.44 – .86	.003
No (145)	45.5			
Number of sex partners[4]				
3 or fewer (202)	45.0	2.83	1.61–4.96	.0001
4 or more (69)	15.9			
In an exclusive (monogamous) relationship				
Yes (129)	53.5	2.27	1.61 – 3.18	.0001
No (140)	23.6			
Problems with "fit and feel" of condom[4]				
No (185)	45.9	2.32	1.48–3.66	.0001
Yes (86)	19.8			
Previously diagnosed with an STD				
Yes (69)	29.0	.74	.45–1.11	.12
No (198)	39.4			
High or drunk while using condoms[4]				
No (102)	48.0	1.55	1.14–2.11	.006
Yes (155)	31.0			
Engaged in unprotected sex[4]				
No (81)	34.6	.90	.63–1.27	.53
Yes (189)	38.6			
Ever taught how to use condoms				
Yes (242)	37.2	.95	.58–1.54	.83

Correlates	% w/correct use[1]	PR[2]	95% CI[3]	P
No (28)	39.3			
Discussed condom use with partners before sex[4]				
Yes (118)	30.5	.71	.51–.99	.04
No (152)	42.8			
Refused to comply with partner's request to use condoms[4]				
No (217)	41.0	1.91	1.05–3.49	.017
Yes (42)	21.4			

[1] As assessed by a 5–item index

[2] Prevalence ratio

[3] Confidence interval

[4] In the past 3 months

Table III

Significant Multivariate Associations Between Assessed Correlates and Correct Use of Condoms

Correlate	AOR[1]	95% CI [2]	P
Had sex with 3 or fewer women[3]	3.06	1.38 – 6.76	.006
In an exclusive (monogamous) relationship	3.23	1.77 – 5.87	.0001
No problems with fit or feel of condoms[3]	2.92	1.44 – 5.93	.003
Never high or drunk when using condoms[3]	2.58	1.41 – 4.71	.002

[1] Adjusted odds ratio -- adjusted for the influence of all other variables in the model

[2] Confidence interval

[3] In the past 3 months