

Are HIV/AIDS Conspiracy Beliefs a Barrier to HIV Prevention Among African Americans?

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Objectives: This study examined endorsement of HIV/AIDS conspiracy beliefs and their relations to consistent condom use and condom attitudes among African Americans.

Methods: We conducted a telephone survey with a random sample of 500 African Americans aged 15 to 44 years and living in the contiguous United States.

Results: A significant proportion of respondents endorsed HIV/AIDS conspiracy beliefs. Among men, stronger conspiracy beliefs were significantly associated with more negative condom attitudes and inconsistent condom use independent of selected sociodemographic characteristics, partner variables, sexually transmitted disease history, perceived risk, and psychosocial factors. In secondary follow-up analyses, men's attitudes about condom use partially mediated the effects of HIV/AIDS conspiracy beliefs on condom use behavior.

Conclusions: HIV/AIDS conspiracy beliefs are a barrier to HIV prevention among African Americans and may represent a facet of negative attitudes about condoms among black men. To counter such beliefs, government and public health entities need to work toward obtaining the trust of black communities by addressing current discrimination within the health care system as well as by acknowledging the origin of conspiracy beliefs in the context of historical discrimination.

Key Words: African Americans, HIV/AIDS conspiracy beliefs, condom use, condom attitudes

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A significant proportion of African Americans have endorsed conspiracy beliefs about HIV/AIDS in prior research.^{1–6} For example, 27% of respondents in a door-to-door survey of black adults in San Bernardino, California, agreed with the belief, that “HIV/AIDS is a man-made virus

that the federal government made to kill and wipe out black people.”⁵ Such mistrust of the government is thought to stem from historical and current racial discrimination in the US health care system, the most well-publicized example of which is the Tuskegee syphilis study.^{6,7}

Given the disproportionately high prevalence rates of HIV and AIDS among African Americans,⁸ identifying barriers to prevention efforts in black communities is critical for the design of effective interventions. Although scholars have emphasized the need to address conspiracy beliefs in the context of prevention interventions,^{9–12} almost no research to date has examined whether endorsement of HIV/AIDS conspiracy beliefs translates into more negative attitudes about condoms and subsequent lower condom use. In a small exploratory telephone survey of 71 black adults conducted by the present authors, endorsement of HIV/AIDS conspiracy beliefs was associated with attitudes and intentions regarding condoms, but the relations varied by the type of conspiracy beliefs examined.² The sample size was small, however, especially for sexually active respondents ($n = 44$), and the influence of other factors (eg, sociodemographic factors) could not be taken into account.

In an extension of prior research, the present study examined the extent to which respondents in a national telephone survey of 500 African Americans endorsed a range of conspiracy beliefs about HIV/AIDS. It was hypothesized that HIV/AIDS conspiracy beliefs would be related to actual condom use behavior as well as to attitudes toward condoms. In addition, we believed that HIV/AIDS conspiracy beliefs would provide a basis for condom attitudes among African Americans, because individuals who mistrust government information about HIV may be similarly suspicious of public health information about condoms. Thus, we predicted that greater endorsement of HIV/AIDS conspiracy beliefs would be associated with more negative attitudes about condoms and, consequently, less consistent condom use. In addition, because prior research has suggested gender differences in endorsement of conspiracy beliefs and predictors of condom use,^{5,13–15} we examined the hypothesized relations separately by gender as well as for the entire sample. To test the associations among conspiracy beliefs, condom attitudes, and condom use, we examined a mediational model in secondary analyses, which hypothesized that endorsement of HIV/AIDS conspiracy beliefs is related to condom use via an indirect attitudinal pathway. Significant relations between conspiracy beliefs and condom-related attitudes and behaviors would have considerable implications for the design and delivery of HIV prevention interventions for African Americans.

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METHODS

Survey

We conducted a cross-sectional anonymous telephone survey with African Americans aged 15 to 44 years living in the United States. Survey Sampling International (SSI; Fairfield, CT) generated a targeted random digit dial (RDD) sample of 19,000 telephone numbers for this study. The telephone numbers were drawn from exchanges in the contiguous United States with estimated black household densities of 27% or greater based on US Census data. SSI estimates that these exchanges include approximately 50.5% of black listed households in the contiguous United States. Applied Research Northwest (ARN; Bellingham, WA) conducted the interviews (averaging 32 minutes in length) between September 2002 and March 2003 using a computer-assisted telephone interviewing system.

The target person in each household was the black or African-American individual (aged 15 to 44 years) who last had a birthday. To be eligible, potential respondents had to report being 15 to 44 years of age and that they were born in the United States. In addition, they had to report that they were either black or African American in response to the question "Which one or more of the following would you say is your race?" Response categories were (1) American Indian or Alaska Native, (2) Asian, (3) black or African American, (4) Native Hawaiian or other Pacific Islander, and (5) white.

Of the initial 19,000 telephone numbers, 11,315 were disqualified (eg, nonworking numbers, businesses, fax numbers) and 5676 were for ineligible households. Of the remaining 2009 numbers, 689 were unable-to-reach numbers (for 666 of these, 20–25 dial attempts were made), 526 were numbers for which we obtained a refusal before completing screening questions, and 794 were eligible based on screening questions. Of the 794 eligible persons, 68 refused participation, 111 agreed to participate but could not be reached for the interview, 115 partially completed an interview, and 500 completed interviews (yielding a full participation rate of 63.0%). The present analyses were limited to the 500 respondents with completed interviews. (Respondents who completed interviews did not significantly differ from those who partially completed interviews with regard to mean scores on the HIV/AIDS conspiracy beliefs scale presented below; $M = 2.35 \pm 0.84$ and $M = 2.39 \pm 0.83$, respectively; $t(610) = 0.39$, $P = 0.70$.) The socio-demographic and HIV risk characteristics of the final sample are presented in Table 1.

The Institutional Review Boards of Oregon State University, Kent State University, and the RAND Corporation approved this study (the first author was formerly employed by Kent State University). Verbal informed consent was obtained from respondents aged 18 years or older, and verbal assent was obtained from respondents aged 15 to 17 years.

Measures

In addition to the primary study variables (ie, HIV/AIDS conspiracy beliefs, condom attitudes, condom use), the study interview assessed several factors (described below) that have been related to condom use in prior research.

TABLE 1. Characteristics of Respondents (n = 500)

Characteristic	n	%
Age in years, $M = 27.4 \pm 8.9$		
15–20	152	30.4
21–34	223	44.6
≥ 35	125	25.0
Gender		
Male	174	34.8
Female	326	65.2
Education		
High school graduate or less	255	51.0
Some college/technical school or college graduate	245	49.0
Currently working	336	67.2
Annual household income from all sources, n = 444		
<\$35,000	237	53.4
\geq \$35,000	207	46.6
Currently married/living with partner	185	37.0
Number of children*		
None	238	47.6
One or more	262	52.4
MSM	10	5.7
Multiple sexual partners, past 3 mo (n = 455)†	78	17.1
Ever had STD	126	25.2
Consistent condom use (100%) (n = 324)‡	118	36.4

*Number of children is number of children currently living, regardless of age.

†Only respondents who reported having at least 1 sexual partner in their lifetime were asked about number of sexual partners during the prior 3 months.

‡Only respondents who reported having sexual intercourse in the past 3 months were asked about condom use.

Sociodemographic Characteristics

Respondents were asked questions to assess their gender, age, education, employment status (working/not working), annual household income and number of people income supports, and number of children currently living regardless of age. Educational attainment was dichotomized into "high school graduate or less" versus "some college or more." Number of children currently living was dichotomized into "any children" versus "no children."

Psychosocial Factors (Black Identity, Religiosity)

We assessed black identity with the 8-item racial centrality scale from the Multidimensional Model of Racial Identity.¹⁶ A sample item is, "In general, being black is an important part of my self-image." Response options were 1 (disagree strongly) to 5 (agree strongly). The scale, which has been validated in prior research, had low but acceptable internal consistency reliability (0.60) and Guttman split-half reliability (0.62) in the present study. Participants were also asked how religious they considered themselves to be, with response options of 1 (not at all religious) to 5 (extremely religious).

Perceived Risk

Perceived risk was assessed with a single item: "Based on your behavior in the past 3 months, what do you think your risk is for getting HIV, the AIDS virus?" Response options were 1 (no risk at all) to 6 (extremely at risk).

Partner Factors

Respondents were asked their current marital status and whether they were currently living with a partner. We combined these 2 variables into 1 dichotomous variable that measured whether or not the respondent was currently married or cohabitating (yes/no). We also created a dichotomous measure of multiple sexual partners in the past 3 months, operationalized as 2 or more vaginal or 2 or more anal intercourse partners, from the questions described below.

Sexually Transmitted Disease History

Respondents were asked if they had ever had a sexually transmitted disease (STD) or infection (yes/no).

HIV/AIDS Conspiracy Beliefs

Respondents reported their agreement (on a 5-point scale ranging from 1 [disagree strongly] to 5 [agree strongly]) with 14 statements capturing beliefs about HIV/AIDS conspiracy theories. We adapted many of the statements from prior research,^{3-6,17-20} including our preliminary work.² Exploratory factor analysis (EFA) using varimax rotation was performed on the 14 items assessing conspiracy beliefs. Based on an eigenvalue criterion of values greater than 1,²¹ 4 factors were extracted. Two of the factors had a small number of items (ie, 2 items each) and low internal consistency reliability (ie, $\alpha = 0.57$ and $\alpha = 0.33$), however. We therefore conducted a confirmatory factor analysis to examine whether an overall 1-factor model fit the data better than the 4-factor model indicated by the EFA. Comparison in goodness-of-fit χ^2 statistics indicated that a more parsimonious 1-factor solution (with all 14 items) was a better fit than the 4-factor solution. The standardized loadings for 4 of the items on the single factor solution were lower than 0.4,²² however, and were thus dropped from the factor. The final factor model consisted of

10 items (as noted in Table 2). We created a scale by averaging scores on these 10 items, with higher scale scores indicating stronger endorsement of HIV/AIDS conspiracy beliefs. The final scale had good internal consistency reliability (0.85) and Guttman split-half reliability (0.87).

Condom Attitudes

Women who had at least 1 male sexual partner in their lifetime and men who had at least 1 female sex partner in their lifetime were asked questions to assess their attitudes toward condoms. Specifically, they rated using a condom every time they have sex in the next 3 months along 9 dimensions: pleasant/unpleasant, good/bad, beneficial/harmful, enjoyable/unenjoyable, satisfying/unsatisfying, easy/difficult, safe/dangerous, moral/immoral, and wise/foolish. Each dimension was rated on a 5-point scale (eg, 1 [very harmful] to 5 [very beneficial]). Responses to the 9 items were averaged for an overall condom attitudes scale (internal consistency reliability = 0.88, split-half reliability = 0.90), with higher scores indicating more positive attitudes toward using condoms. (Respondents included 10 men who have sex with men [MSM], of whom 3 did not answer the condom attitude questions because they reported never having had a female sex partner.)

Condom Use

Men who had ever had a female sexual partner and women who had ever had a male sexual partner were asked (1) how many people they had vaginal intercourse with during the past 3 months, (2) how many times in the past 3 months they had vaginal intercourse, and (3) how many of those times a condom was used. We also asked similar questions about women's anal intercourse with men and men's anal intercourse with women. In addition, men who had ever had a male

TABLE 2. HIV/AIDS Conspiracy Beliefs Endorsed Overall and by Gender (n = 500)

HIV/AIDS Conspiracy Belief	% Agree Somewhat or Strongly		
	Overall (n = 500)	Men (n = 174)	Women (n = 326)
The medicines used to treat HIV are saving lives in the black community	38.4	42.0	36.5
A lot of information about AIDS is being held back from the public	58.8	62.6	56.8
HIV is a man-made virus‡	48.2	48.3	48.2
There is a cure for AIDS, but it is being withheld from the poor	53.4	55.2	52.5
The government is telling the truth about AIDS	37.0	31.6	39.9*
The medicine used to treat HIV causes people to get AIDS‡	6.0	7.5	5.2
HIV was created and spread by the CIA‡	12.0	16.1	9.8†
AIDS is a form of genocide against blacks‡	15.2	20.7	12.3*
The medicine that doctors prescribe to treat HIV is poison‡	6.8	8.6	5.8†
AIDS was created by the government to control the black population‡	16.2	21.3	13.5
Doctors put HIV into condoms‡	1.6	4.0	0.3†
People who take the new medicines for HIV are human guinea pigs for the government‡	43.6	43.7	43.6
Medical and public health institutions are trying to stop the spread of HIV in black communities	75.4	74.1	76.1
AIDS was produced in a government laboratory‡	26.6	30.5	24.5*

Significance values are based on χ^2 tests between women's and men's frequency distributions of the 5 category responses to each item (disagree strongly, disagree somewhat, no opinion/do not know, agree somewhat, agree strongly), $df = 4$.

* $P < 0.05$.

† $P < 0.01$.

‡Items retained in final scale.

CIA indicates Central Intelligence Agency.

sex partner were asked if they had anal intercourse with a man during the past 3 months. If they had, they were asked (1) how many men they had insertive (receptive) anal intercourse with during the past 3 months, (2) how many times in the past 3 months they had insertive (receptive) anal intercourse with a man, and (3) how many of those times a condom was used. To measure condom use, we calculated the percentage of times each respondent had used a condom when they had vaginal or anal intercourse during the prior 3 months. We then created 1 dichotomous measure of consistent condom use for vaginal and/or anal intercourse (0%–99% condom use vs. 100% condom use).

Statistical Analyses

Multivariate linear regression was used to predict condom attitudes, and multivariate logistic regression was conducted to predict condom use behavior, HIV/AIDS with conspiracy belief scores. All models were adjusted for socio-demographic characteristics, psychosocial and partner factors, perceived risk, and STD history. Analyses were performed for the overall sample and by gender.

In secondary analyses, we examined whether condom attitudes mediated the relation between HIV/AIDS conspiracy beliefs and condom use. Specifically, we conducted a series of multivariate regressions based on criteria established by Baron and Kenny.²³ Thus, we examined 3 associations: (1) between HIV/AIDS conspiracy beliefs and condom attitudes, (2) between HIV/AIDS conspiracy beliefs and condom use, and (3) between condom attitudes and condom use. If all 3 of these relations were significant, the conditions to test mediation were considered to be met, and the final regression model tested the relation between HIV/AIDS conspiracy beliefs and condom use, controlling for condom attitudes as well as socio-demographic, psychosocial, and partner factors; perceived risk; and STD history. Condom attitudes can be considered a mediator if the relation between HIV/AIDS conspiracy beliefs and condom use is reduced to nonsignificance when condom attitudes are added to the model.

RESULTS

Endorsement of HIV/AIDS Conspiracy Beliefs

As shown in Table 2, between 1% and 60% of the respondents endorsed specific conspiracy beliefs about HIV/AIDS. Few respondents endorsed the most extreme beliefs, such as “Doctors put HIV into condoms.” The greatest proportion of respondents endorsed beliefs about the government’s role in withholding a cure for AIDS or information about the disease itself. In addition, men and women showed different patterns of endorsement, with men exhibiting stronger HIV/AIDS conspiracy beliefs than women on some of the items. Scores on the HIV/AIDS conspiracy beliefs scale averaged around the midpoint ($M = 2.34 \pm 0.83$), with men ($M = 2.48 \pm 0.90$) reporting significantly stronger conspiracy beliefs than women ($M = 2.27 \pm 0.78$; $t(498) = 2.71$, $P < 0.01$).

Relations Among HIV/AIDS Conspiracy Beliefs, Condom Attitudes, and Condom Use

As shown in Table 3, HIV/AIDS conspiracy beliefs were not significantly related to condom attitudes or condom use in overall analyses or analyses of female respondents only ($P > 0.05$). Among men, however, HIV/AIDS conspiracy beliefs were significantly associated with condom attitudes and condom use, adjusting for the effects of the covariates. Specifically, men who held stronger HIV/AIDS conspiracy beliefs had more negative attitudes about condoms and were less likely to use condoms consistently. Moreover, condom attitudes were significantly associated with condom use among men (odds ratio [OR] = 4.52, 95% confidence interval [CI]: 2.25, 9.08; $P < 0.001$) as well as in the overall sample (OR = 4.04, 95% CI: 2.65, 6.17; $P < 0.001$) and among women (OR = 3.76, 95% CI: 2.14, 6.61; $P < 0.001$), adjusting for the same potential covariates.

Mediational Analyses

The conditions to test mediation were met only for male participants. Thus, we tested whether men’s attitudes about

TABLE 3. Adjusted Linear Regression Coefficients and ORs for Association Between HIV/AIDS Conspiracy Beliefs and Condom Attitudes and Use, Overall and by Gender

Dependent Variable	n	Adjusted Linear Regression Coefficient (β) or OR with 95% CI
Condom attitudes		
		β (CI)
Overall sample	437	-0.5 (-0.14, 0.05)
Men only	152	-0.18 (-0.31, -0.02)*
Women only	285	0.01 (-0.11, 0.14)
Consistent (100%) condom use		
		OR (CI)
Overall sample	316	0.98 (0.72, 1.34)
Men only	119	0.61 (0.38, 0.99)*
Women only	197	1.33 (0.84, 2.1)

* $P < 0.05$.

All regression models adjusted for age, education, employment status, having any children, black identity, religiosity, perceived risk for HIV, marital/cohabitation status, having 2 or more sexual partners in the past 3 months, and STD history. Analyses with the overall sample also adjusted for gender. Results of the model including income and number of people income supports were consistent with the findings presented above. Because a substantial proportion of the sample did not answer the income questions ($n = 56$), we did not include these variables in the final model.

condoms mediated the relation between their endorsement of HIV/AIDS conspiracy beliefs and their condom use behavior. Results indicated that the relation between HIV/AIDS conspiracy beliefs was reduced to nonsignificance when condom attitudes were included in the model (OR = 0.66, 95% CI: 0.39, 1.14; $P > 0.10$), whereas the relation between condom attitudes and condom use remained significant (OR = 4.32, 95% CI: 2.14, 8.72; $P < 0.001$). The differences in the effects of HIV/AIDS conspiracy beliefs between the model including condom attitudes and the model excluding condom attitudes were not large, however, suggesting only partial mediation.

DISCUSSION

To our knowledge, the present study is the first to examine the relations of a range of different types of HIV/AIDS conspiracy beliefs with condom-related attitudes and behavior among a relatively large national sample of African Americans. Consistent with prior research,²⁻⁶ many respondents endorsed conspiracy beliefs. In addition, significant gender differences emerged in terms of the types of beliefs endorsed, the strength of the beliefs, and the relation of conspiracy beliefs to condom-related attitudes and behavior. Men held stronger conspiracy beliefs than did women, and endorsement of conspiracy beliefs was associated with more negative attitudes toward using condoms and less consistent condom use among men but not among women. Furthermore, attitudes toward condoms seemed to account in part for the effect of HIV/AIDS conspiracy beliefs on condom use among men, suggesting only partial mediation. These results suggest that addressing HIV/AIDS conspiracy beliefs in the context of HIV prevention interventions may serve to increase receptivity to information about the positive aspects of condoms, which may, in turn, lead to greater condom use.

As a whole, our results demonstrate that HIV/AIDS conspiracy beliefs may be a barrier to HIV prevention efforts, particularly for black men. Conspiracy beliefs may be a manifestation of some African Americans' mistrust of the US government and health system. In the United States, medical and public health institutions are major sources of prevention information regarding HIV/AIDS. Individuals who endorse HIV/AIDS conspiracies may thus be suspicious of HIV prevention information disseminated by the US government and public health system; consequently, such individuals may be less likely to follow prevention recommendations regarding safer sexual behavior. Moreover, prior research suggests that conspiracy beliefs about HIV/AIDS are related to a broader belief about conspiracies within US society as a whole (eg, criminal justice, family planning, drugs¹⁸). Thus, conspiracy beliefs are not specific to HIV/AIDS, and individuals who endorse such beliefs are likely to exhibit suspicion about prevention messages regarding other public health problems as well.

Although the present study's results indicated that HIV/AIDS conspiracy beliefs were associated with less consistent condom use, an alternative response to belief in conspiracies could be greater condom use to avoid HIV treatments and contact with the health care system. Indeed, in our pilot study,² we found that African Americans who endorsed treatment-related conspiracy beliefs (eg, "People who take the

new medicines for HIV are human guinea pigs for the government") held more positive attitudes toward using condoms and had greater intentions to use condoms at next intercourse, whereas those who endorsed government-related beliefs (eg, "AIDS is a form of genocide against African Americans") were less likely to believe in the quality of condoms for birth control. In contrast, in the present study, we found that a scale containing government and treatment-related conspiracy beliefs as well as individual government- and treatment-related items (data not shown) was associated with more negative attitudes about condoms and less consistent condom use for men. Given that the present study had a larger sample size and included a greater number of conspiracy belief items than our original pilot study, the conclusion that strong beliefs in HIV/AIDS conspiracies are related to negative condom attitudes and less condom use is more tenable. Additional qualitative work is necessary to elucidate possible consequences of different types of conspiracy beliefs, however. Moreover, research among people living with HIV may help us to understand whether the effects of treatment-related conspiracy beliefs vary for different behavioral outcomes, such as adherence to treatment.

Gender differences in the practice of condom use may be an explanation for the divergence between men's and women's results. Because men ultimately control condom use, men's conspiracy beliefs about HIV/AIDS may have a greater influence on condom use behavior than women's beliefs. Many women rely on their male partner for cooperation to use condoms, and other factors, such as their self-efficacy to negotiate condom use, may override the effects of their attitudes toward condoms. Thus, although conspiracy beliefs are important to incorporate in prevention interventions for men and women, addressing men's conspiracy beliefs about HIV/AIDS may have a stronger effect on condom use behavior.

The present study was a national survey of African Americans. Previous research found that conspiracy beliefs were prevalent among African Americans (but not among whites). Thus, studying the relation between conspiracy beliefs and condom attitudes and behavior among African Americans in particular was an important step. Potential limitations, however, must be noted. For example, some eligible participants who agreed to participate could not be reached for the interview, and some individuals refused to participate. Compared with individuals who completed the interview, the prevalence of conspiracy beliefs and their relations to condom use behavior may have differed for individuals who could not be reached or who did not consent to be interviewed. In particular, individuals who hold strong conspiracy beliefs may have been less inclined to respond to a telephone interview. Research by Czaja,²⁴ however, shows not only that sensitive data (including sexual behavior) can be obtained over the telephone but that respondents may be more likely to report socially unacceptable behavior to telephone interviewers. Given this prior research as well as the high numbers of respondents who endorsed conspiracy beliefs in the present study, the response bias occurring as a result of the use of a telephone interview is most likely minimal.

In addition, this study's cross-sectional design limits the causal conclusions that can be made. Condom use behavior

was measured retrospectively, and HIV/AIDS conspiracy beliefs were measured at the time of the interview. Thus, we cannot determine whether conspiracy beliefs preceded condom use behavior or if they were formed via participants' recent experiences with condoms. Longitudinal research is needed that examines conspiracy beliefs and condom use behaviors over time to tease apart these relations. Moreover, conspiracy beliefs were assessed in the first section of the interview. This ordering may have inadvertently increased the salience of the negative components of condom attitudes, which were measured later in the interview. Thus, the relation between conspiracy beliefs and attitudes may have been partially biased by the question order.

To build on the present study, additional research should examine whether conspiracy beliefs are barriers to HIV prevention in other groups that are disproportionately affected by HIV/AIDS, such as Latinos, MSM, and injection drug users. Importantly, because we did not target black MSM in this study, we were unable to examine HIV conspiracy beliefs in a subset of the population at significant risk for HIV/AIDS. Future studies investigating conspiracy beliefs among black MSM are essential.

Nevertheless, our results have clear implications for the design and delivery of HIV prevention interventions and public health educational campaigns. Based on the large number of individuals who endorsed HIV/AIDS conspiracy beliefs in this and prior studies, it is important for researchers and practitioners to integrate such beliefs into safer sex education messages targeting African Americans, especially black men. Several culturally sensitive interventions have been developed for African Americans, which use, for example, black peer educators to disseminate prevention messages.²⁵⁻²⁸ Such prevention interventions could also incorporate open discussion of conspiracy beliefs. Further, to the extent that conspiracy beliefs stem from general mistrust of the US government and health care system, interventions that encourage frank dialogue about conspiracy beliefs in the context of historical and current racial discrimination may have the greatest prospect for success. To obtain the trust of black communities, government and public health entities need to acknowledge the origin of conspiracy beliefs openly in the context of historical discrimination as well as to collaboratively work to address current discrimination within the health care system. In this way, we can begin to overcome barriers, such as conspiracy beliefs, that are obstacles to the ready acceptance of prevention messages and the subsequent practice of safer sexual behaviors.

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