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Conspiracy Beliefs about HIV Are Related to Antiretroviral Treatment Nonadherence among African American Men with HIV

Laura M. Bogart, PhD[1], **Glenn Wagner, PhD**[2], **Frank H. Galvan, PhD**[3], and **Denedria Banks, MSW**[3]

[1] Children's Hospital Boston/Harvard Medical School

[2] RAND Corporation

[3] Charles Drew University of Medicine and Science

Abstract

Background—Medical mistrust is prevalent among African Americans and may influence health care behaviors such as treatment adherence. We examined whether a specific form of medical mistrust – HIV conspiracy beliefs (e.g., HIV is genocide against African Americans) – was associated with antiretroviral treatment nonadherence among African American men with HIV.

Methods—On baseline surveys, 214 African American men with HIV reported their agreement with 9 conspiracy beliefs, socio-demographic characteristics, depression symptoms, substance use, disease characteristics, medical mistrust, and health care barriers. Antiretroviral medication adherence was monitored electronically for one-month post-baseline among 177 men in the baseline sample.

Results—Confirmatory factor analysis revealed two distinct conspiracy belief subscales: genocidal beliefs (e.g., HIV is manmade) and treatment-related beliefs (e.g., people who take antiretroviral treatments are human guinea pigs for the government). Both subscales were related to nonadherence in bivariate tests. In a multivariate logistic regression, only treatment-related conspiracies were associated with a lower likelihood of optimal adherence at one-month follow-up (Odds ratio = 0.60, 95% confidence interval = 0.37 to 0.96, $p < 0.05$).

Conclusions—HIV conspiracy beliefs, especially those related to treatment mistrust, can contribute to health disparities by discouraging appropriate treatment behavior. Adherence-promoting interventions targeting African Americans should openly address such beliefs.

Keywords

Antiretroviral Treatment; Adherence; African Americans; Medical Mistrust

Introduction

Large racial/ethnic disparities exist between African Americans and Whites in HIV/AIDS diagnosis, treatment, and survival times. In 2006, the rate of HIV/AIDS diagnosis for African Americans was 68 per 100,000 and 8.2 per 100,000 for Whites.[1] Among all racial/ethnic groups and both genders, the highest rates of HIV and AIDS diagnoses are among African American

Address Correspondence and Requests for Reprints to: Laura M. Bogart, PhD, Division of General Pediatrics, Children's Hospital Boston, 21 Autumn Street (Room 230.1), Boston, MA 02215; Phone: (857) 218-4073; Fax: (617)730-0957; laura.bogart@childrens.harvard.edu.

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men.[2] Moreover, in Los Angeles, the setting of the present study, in 2008 19% of all male AIDS cases were African American men, although only 8% of men in the Los Angeles area were African American.[3, 4] Compared to their White counterparts, African Americans with HIV show lower rates of antiretroviral treatment utilization and adherence[5-20] and worse survival times.[21-24] Thus, uncovering reasons for nonadherence among African Americans with HIV is critical for designing culturally tailored adherence-promoting interventions.

Medical mistrust, including mistrust of HIV treatments, health care providers, and the medical system, is prevalent among African Americans[25-27] and may influence health care behaviors.[11, 13, 28] African Americans have reported lower satisfaction with health care;[29-31] are skeptical about the efficacy of medications;[32, 33] and perceive that the US health care system is racist or discriminatory.[31, 34-41] Such feelings of mistrust are believed to stem from current and historical segregation, racism, and unjust treatment in the health care system and society in general.[25, 42-45]

In the present study, we examined one form of medical mistrust as a potential barrier to treatment adherence – conspiracy beliefs about HIV (e.g., HIV is a manmade virus). Prior research indicates that conspiracy beliefs are prevalent among African Americans.46-51 For example, substantial proportions of African Americans in a national random sample endorsed conspiracy beliefs about the origin and treatment of HIV: 48% believed that HIV is a manmade virus; 53% agreed that a cure for AIDS is being withheld from the poor; and 44% thought that people who take antiretroviral medications are human guinea pigs for the government.48 Research suggests that belief in conspiracies is higher among African Americans (vs. Whites), people of lower socio-economic status, and men.49-55 Among people with HIV, conspiracy beliefs have been related to greater time since diagnosis and worse mental and physical health.[55, 56]

HIV conspiracy beliefs have been associated with poor health behaviors related to HIV prevention and treatment, including lower levels of condom use among African American men in general public samples;[48, 57] lack of HIV testing among at-risk Black South Africans;58 and a greater number of emergency room visits among people with HIV.55 However, a cross-sectional study of 113 African Americans, Latinos, and Whites with HIV attending public treatment facilities did not find significant relationships between conspiracies and treatment nonadherence or engagement in care,[56] although the majority (63%) of the sample endorsed at least one conspiracy belief. The authors suggested that conspiracies are common among patients with HIV but do not influence treatment behaviors. An alternate explanation may be that conflating responses across three racial/ethnic groups may have diluted any adherence effects; research suggests that beliefs indicative of medical mistrust may be more highly related to health behaviors among African Americans than Whites.[11] Further work is needed to determine the relationship between belief in conspiracies and treatment adherence among African Americans in particular.

We tested the hypothesis that conspiracy beliefs are associated with nonadherence in a longitudinal sample of 214 African American men with HIV; conspiracy beliefs were assessed at baseline, and adherence was measured for one month post-baseline. We examined two types of conspiracy beliefs: those related to genocide (e.g., “HIV is a manmade virus”) and those related to treatment mistrust (e.g., “People who take the new medications for HIV are human guinea pigs for the government”). Although prior research in a general population sample suggested that conspiracy beliefs are a unidimensional construct,[48] research has not yet tested the factor structure of such beliefs among people with HIV. Treatment-related beliefs are presumably more salient among people with HIV, and therefore may need to be explored separately from other types of beliefs.

We were especially interested in assessing whether conspiracy beliefs had unique relationships with nonadherence, over and above variables related to adherence in prior research, including depression, substance use, and socio-demographic and medical characteristics, as well as tangible and psychosocial barriers to health care access, such as lack of insurance.[7, 59-61] Such findings would suggest that conspiracy beliefs act as powerful barriers to adherence that need to be overcome in addition to mental health, substance use, and tangible structural barriers in order to improve treatment behaviors among African Americans with HIV. A significant multivariate effect of conspiracy beliefs, controlling for structural health care barriers, would suggest that interventions that ignore the influence of HIV conspiracy beliefs would not be successful, even if tangible hurdles (e.g., related to transportation, health insurance) were removed.

Methods

Recruitment

The present study was conducted among African American men with HIV in the Los Angeles, CA area. We recruited 214 African American men with HIV on antiretroviral treatment using fliers disseminated and posted by staff at three HIV social service agencies and an HIV medical clinic. Individuals were eligible if they were African American, aged 18 or older, and currently taking antiretroviral treatment. Interested individuals were screened for eligibility by telephone. Eligible participants were interviewed in confidential sound-proof rooms at the social service agencies. Study staff obtained informed consent prior to the interview. All study procedures were approved by the institutional review boards (IRBs) of Children's Hospital Boston, RAND Corporation, and Charles Drew University of Medicine and Science. Study procedures were in accordance with the Helsinki Declaration of 1975, as revised in 2000.

Participants

A total of 214 African American men with HIV were recruited and interviewed at baseline, of which 177 (83%) returned for the one-month follow-up assessment. Four participants were lost to follow-up due to incarceration (n = 4), because we did not have IRB approval to survey prisoners; one participant died in between his baseline survey and one-month follow-up appointment. Participants who did not complete the one-month follow-up (n = 37) did not differ from other participants on socio-demographic factors, conspiracy beliefs, or treatment adherence (all p-values > .05).

Assessment

Participants completed a self-administered audio computer-assisted interview (ACASI) at baseline and at one-month follow-up. At one-month post-baseline, participants met with interviewers to download electronic medication adherence data (as described below).

HIV Conspiracy Beliefs—At baseline, participants were asked the extent to which they agreed or disagreed (1 = strongly disagree; 2 = slightly disagree; 3 = neutral; 4 = slightly agree; 5 = strongly agree) with 9 items assessing belief in specific HIV-related conspiracies and misconceptions (see Table 2).[48] Participants could also choose a "don't know" option (there was an average of 12 "don't know" responses per item); "don't know" responses were combined with "neutral" responses on the scale.

Exploratory factor analysis (EFA) was performed using varimax rotation on the 9 conspiracy belief items. Based on an eigenvalue criterion of values greater than one,[62] two factors were extracted, one representing "genocidal" conspiracies, and one representing "treatment" conspiracies (as indicated in Table 2). We used a factor loading cut-off of .60 (at least 36% overlapping variance) to determine items to retain;[63] based on this criterion, we dropped only

one item ("The medication used to treat HIV causes people to get AIDS"), which had a factor loading of .41. We then conducted a confirmatory factor analysis (CFA) with the remaining 8 items to determine whether an overall 1-factor model fit the data better than the 2-factor model suggested by the EFA. Comparison of goodness-of-fit χ^2 statistics indicated that the 2-factor solution ($\chi^2 = 81.3$, df = 20) was a better fit than the 1-factor solution ($\chi^2 = 127.1$, df = 19), $\Delta\chi^2 = 45.8$, df = 1, $p < .0001$. We therefore created two conspiracy beliefs subscales by averaging the 2 treatment beliefs (α=.78) and the 6 genocidal beliefs (α=.92).

Medication Adherence—Medication adherence was measured electronically for one month post-baseline using the Medication Event Monitoring System (MEMS; AARDEX, Inc., Zurich, Switzerland), which consists of bottle caps that record the times when medication bottles are opened. Electronic monitoring software yields detailed reports of daily medication-taking patterns and calculates the percentage of total scheduled doses actually taken in a format suitable for conversion to a statistical analysis package. We only monitored adherence to the antiretroviral medication with the most complex regimen because research indicates that rates of adherence do not differ significantly across medications.[64] Participants were instructed to replenish the bottle when needed by refilling it after they removed the last pill.

At one month post-baseline, participants' MEMS data were downloaded, and participants completed a short questionnaire assessing whether (and how often) they (1) opened the bottle without removing a dose, (2) took a dose from a source other than the MEMS bottle, and (3) removed multiple doses from the bottle at a time (i.e., pocketed doses) over the past month. We used these data to adjust electronic adherence scores to more accurately reflect actual pill taking behavior – a strategy that has been previously validated.[65] We adjusted the data for 13% of participants who reported using such strategies. We examined both continuous adherence (percentage of prescribed doses taken in past month) and the more conservative measure of dichotomous adherence. Because nearly perfect adherence is necessary for virological suppression, dichotomous adherence was defined as ≥95% of prescribed doses taken.66

Socio-demographic Characteristics—We assessed date of birth, education (i.e., highest degree earned), income, employment, sexual orientation, and housing status. Socio-demographic variables were dichotomized: education into high school diploma or less versus greater than high school; annual income into ≤$5,000 per year versus >$5,000 per year; employment into employed full/part-time versus unemployed, on disability, retired, or in school; sexual orientation into heterosexual versus gay/same-gender loving, bisexual, not sure or in transition, something else, or don't know; and housing status into stable (rent or own home or apartment) versus unstable (homeless, residential treatment facility, temporary/ transitional housing, living rent-free with friend/relative, subsidized housing).

Health and Health Care Variables—Participants were asked when they first tested HIV-positive, from which we derived time since diagnosis. Participants were presented with a checklist of 13 tangible barriers to health care access in the past 6 months (see Table 1). The number of barriers endorsed was summed.

Viral load (n = 114) was obtained from medical records for a subset of respondents in order to validate adherence measures against disease progression; we also asked participants whether their current viral load was "detectable" or "undetectable," with a "don't know" option. (We were unable to obtain any medical records viral load data from 100 participants because their providers did not respond to multiple requests for the information.)

Mental Health—Depression was measured with the Medical Outcome Studies' brief depression screener.[67] Screening positive for depression on this instrument indicates a high probability of current major depression.

Substance Use—Participants were asked the number of times they used 5 different substances in the past 30 days (i.e., heroin, powder cocaine, crack cocaine, and amphetamine/methamphetamine). Responses were collapsed into "any" versus "no" substance use.

Statistical Analysis

Descriptive statistics were computed on all study variables. Means and standard deviations were examined for continuous variables, and frequencies were examined for categorical variables. Using t-tests for continuous outcomes and Fisher's exact tests for categorical outcomes, we compared differences between participants who did, versus who did not, endorse at least one conspiracy belief (i.e., strongly agree and slightly agree, versus strongly disagree, slightly disagree, and neutral/don't know).

Bivariate tests were conducted to examine whether the conspiracy belief subscales and potential covariates (socio-demographic characteristics, health and health care variables, depression, and substance use) were related to adherence. When bivariate relationships between the conspiracy beliefs subscales and adherence were significant, multivariate regression was used to predict adherence with the subscales; linear regression was used for continuous adherence (percentage of doses taken) and logistic regression was used for dichotomous adherence (≥95% of doses taken). Multivariate models were adjusted for any socio-demographic, health, health care, mental health, and substance use variables that were related to nonadherence at an alpha level of .10 in bivariate tests. Including these covariates in the model allowed us to determine whether conspiracies functioned as an additional unique barrier to medication adherence. To make results comparable across outcomes, we chose a common set of covariates for the continuous and dichotomous adherence outcomes.

Education and depression were each missing for one participant; age and time since diagnosis were each missing for two participants; sexual orientation and health care barriers were each missing for three participants; and income was missing for four participants. Because the amount of missing data was low, mean substitution methods were used to impute these data.

Results

Sample Description

The average age of the sample was 44, and a substantial percentage had low socio-economic status, with 85% not working, nearly 40% with very low incomes, and over a fifth with no more than a high school degree (Table 1). Over half (56%) were in unstable temporary housing situations (e.g., homeless). Most (78%) identified as gay, bisexual, or another non-heterosexual category. On average, participants were diagnosed with HIV 13 years prior to the study. About 30% endorsed at least one health care barrier, with the most frequent being lack of or inadequate insurance. Nearly half (45%) screened positive for depression, and 27% engaged in drug use in the past month.

On average, participants took only 68% of the prescribed doses of their HIV antiretroviral medications during the month between the baseline and follow-up assessments (Table 1). Only 22% of participants demonstrated an optimal level of adherence (i.e., ≥95% of doses). Greater adherence was significantly associated with undetectable viral load as measured by medical records ($t = 2.33$, $p < .05$, $n = 104$) and self-report ($t = 2.75$, $p < .01$, $n = 174$). (Electronic adherence data were missing for 10 participants for whom we had medical records.)

Endorsement of HIV Conspiracy Beliefs

Almost two-thirds (64%) agreed with at least one HIV conspiracy belief; about half (48%) agreed with two or more. Forty-four percent believed that HIV is manmade, 35% thought that

AIDS was created in a government laboratory, and a third endorsed the genocidal belief related to a cure being withheld (Table 2). Conspiracy beliefs about medications were also substantially endorsed, with 22% believing that people who take the new HIV medications are human guinea pigs for the government, and 17% believing that the medications are poison. Participants who screened positive for depression and who had higher incomes were more likely to endorse at least one conspiracy belief (Table 1).

Relationship of HIV Conspiracy Beliefs with Adherence

In bivariate analyses, stronger genocidal and treatment-related conspiracy beliefs were associated with a lower percentage of doses taken over the past month (genocidal beliefs $b = -.06$, $SE = .02$, $p < .01$; treatment-related beliefs $b = -.07$, $SE = .02$, $p < .01$). Stronger treatment-related beliefs were related to a lower likelihood of optimal adherence in the past month (≥95% of doses taken) (OR = 0.66, 95% CI = 0.45-0.96, $p < .05$), whereas genocidal beliefs were not (OR = 0.90, 95% CI = 0.66-1.23, $p>.10$).

Of the potential covariates, in bivariate tests, both age and health care barriers were significantly related to continuous adherence, and only age was related to dichotomous adherence; thus, both were retained for the multivariate models, which tested the effects of both genocidal and treatment-related conspiracy beliefs simultaneously. The multivariate logistic regression of dichotomous adherence scores indicated that participants who more strongly endorsed conspiracy beliefs at baseline had a lower likelihood of optimal treatment adherence over the following month (Table 3). In the multivariate linear regression of continuous adherence scores, the effect for treatment-related conspiracies was marginally significant, $b(SE) = -0.04$ (0.03), $p < .10$, and the effect for genocidal conspiracies was nonsignificant, $b(SE) = -.02$ (.02), $p > .10$).

Discussion

In our sample of 214 African American men with HIV on antiretroviral treatment, many of whom were men who have sex with men (MSM), we found high levels of mistrust about HIV treatment and the governments' role in the HIV epidemic. Adherence rates were generally low, with less than a quarter of participants adhering to their regimens at high enough levels to be effective against virological failure and the development of drug-resistant strains of the virus. The mean adherence level observed in the present study (68%) is similar to average adherence levels reported in other studies using objective adherence measures [68, 69]

In an extension of prior research, we examined two distinct types of conspiracy beliefs: genocidal and treatment-related. Both types of beliefs were associated with non-adherence in bivariate models. In multivariate models, only belief in treatment-related HIV conspiracies was associated with nonadherence. The association between treatment-related conspiracy beliefs and nonadherence was significant controlling for age, as well as structural and tangible health care barriers such as lack of insurance or transportation to the clinic.

Other research has similarly shown that beliefs about treatment, including efficacy, are related to acceptance of and adherence to antiretroviral therapy,[13, 70-72] and that African American men hold misconceptions about HIV treatment[73, 74] (e.g., treatment optimism beliefs that HIV treatment reduces transmission risk). The present research demonstrates that suspicion of treatments may contribute to nonadherence, and that clinicians need to address mistrust in addition to providing basic treatment education about treatment efficacy.

In contrast to other samples, we did not find that socio-demographic factors contributed to nonadherence, possibly due to the relatively high homogeneity of the sample (i.e., all were African American and men, and most were very low income). Moreover, depression and

substance use, key predictors of adherence in other research, were not significantly related to adherence in this sample. Further research on similar samples is needed before conclusions can be drawn regarding these null results.

Our research differs from prior work in critical ways. Prior research using the scale items in a general African American population sample indicated that conspiracy beliefs are unidimensional,[48] whereas the current research (on African Americans with HIV) showed two unique dimensions (related to genocide and treatment), possibly because of the relevance of treatment to participants' daily lives. Further, levels of conspiracy beliefs appeared to be higher than those found in a random US sample of African Americans.[48] For example, genocidal beliefs about the role of the government and the CIA in creating and spreading HIV were endorsed by a higher percentage of participants in our sample than in the US sample. These findings are not unexpected, given that men and those with greater risk for HIV were more likely to endorse genocidal conspiracies in the national sample, and the present study sample is composed of high-risk men. Nevertheless, the current study was a convenience sample and therefore these percentages are not representative of African American men with HIV as a whole. Moreover, all men in our study were on antiretroviral treatment, which limits generalizability to individuals who have been tested for HIV, who have become engaged in care, who have a usual health care provider, and who have accepted treatment. People with HIV who have more extreme levels of conspiracy beliefs may have been less likely to be included in our study, since they may be too mistrustful of the health care system to have advanced through these multiple stages of the HIV care continuum.

Intervention research is needed on effective methods to address culturally specific factors among African American men, including myths and misconceptions about HIV, as well as likely roots of mistrust, including African American men's experiences with discrimination from HIV status, race, and homophobia (among MSM).75 African American MSM with HIV are marginalized in mainstream, African American, and gay communities due to the intersection of three stigmatized characteristics.76 Marginalization due to such stigmas can lead to suspicion and mistrust of established mainstream entities related to the public health and a vulnerability to HIV denialism (of which HIV conspiracies are one form).

Adherence interventions designed to address culturally specific roots of nonadherence may help to overcome medical mistrust. One recent example is an intervention developed with strong community input that included one-on-one discussions with peer treatment advocates who were enmeshed in the community and who understood cultural barriers to adherence, such as community stigma and myths about HIV.[77] At least two HIV prevention interventions for African American MSM have included such culturally tailored components, which could also be adapted for adherence interventions. A community-level intervention for African American MSM involved popular opinion leaders (POLs) in three cities spreading prevention messages; in one session popular opinion leaders were taught facts and discussed myths about HIV.[78] The Many Men, Many Voices Project included a component addressing the effects of racism and homophobia on sexual risk.79 However, in neither of these articles did the authors report intervention effects on mistrust, conspiracies, and/or stigma. Further research is needed to understand the ways in which such intervention components can reduce such key mediators of sexual risk and nonadherence.

Given the high levels of conspiracies found in our research and other studies, social network research is warranted to understand how myths about HIV are spread throughout African American communities. Such research could help to identify key people in networks to whom African Americans turn for HIV-related information (both accurate and inaccurate). A POL approach (that targets individuals who are central to the flow of HIV-related information in the network) may be helpful in dispelling such beliefs (and changing norms about HIV-related

information) at a community level. Social network analysis could be used to identify POLs who are their community's primary source for HIV-related information and through whom a high volume of HIV-related information travels. Interventions could focus on engaging trusted community members (e.g., community leaders such as ministers) to disseminate accurate messages about HIV (and directly dispel myths) to existing groups of people with HIV in community settings (e.g., support groups or educational groups sponsored by trusted community organizations).

Medical providers can also play a fundamental role in dispelling conspiracies, especially when discussing treatment options. Patients' trust in their providers and health care satisfaction are key correlates of HIV treatment adherence.[13, 71, 80] Qualitative research suggests that African American MSM who are not satisfied with their provider relationship may turn to sources of misinformation about HIV that feed on their treatment-related skepticism.[81] Providers who are open to dialogue about patients' treatment-related concerns have an opportunity to address and overcome mistrust-related barriers to adherence, improve patient relationships, and counteract inaccurate information patients hear in the community.

Given the prevalence of beliefs found in this and other studies, HIV conspiracies cannot be dismissed as rare or extreme. Such beliefs can ultimately contribute to decreased survival time (and further disparities) by discouraging appropriate treatment behavior. Adherence-promoting interventions that openly address and acknowledge HIV misconceptions, as well as identify and then target sources of misconceptions in communities, may contribute to overcoming such mistrust.

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Table 1

Characteristics of the Sample [M (SD) or %] of 214 African American Men with HIV

	Overall	Endorsed Any Conspiracy [a] N=137	Did not Endorse Any Conspiracy [b] N=76
Age	44 (8.4)	44 (8.8)	44 (7.9)
Low income (≤$5,000 annually)	39%	32%	51%*
Low education (≤high school degree)	21%	20%	24%
Employed	15%	12%	18%
Heterosexual	22%	24%	20%
Not in stable housing	56%	54%	59%
Years since diagnosis	12.7 (6.7)	12.6 (6.6)	12.9 (6.8)
Barriers to Health Care (Any)	28%	27%	30%
Didn't have health insurance or medication coverage	7%	6%	8%
Had inadequate insurance coverage	7%	8%	5%
Couldn't get an appointment	6%	5%	7%
Couldn't get through on the telephone	5%	5%	5%
Didn't have a way to get there	4%	4%	5%
Couldn't get to the clinic/doctor's office when it was open	3%	3%	3%
Couldn't take the time to wait at the clinic/doctor's office	3%	4%	1%
Couldn't afford care	3%	4%	0%
Didn't think it was necessary	3%	2%	4%
Didn't know where to find care	2%	1%	3%
Were too sick to get to a medical provider	2%	2%	1%
Had to take care of someone else instead	1%	0%	4%
Couldn't get off work	<1%	1%	0%
Depression (positive screen)	45%	52%	33%**
Substance use (any in past 30 days)	27%	29%	24%
Adherent to ≥95% of Prescribed Doses, Past Month	22%	21%	23%
Proportion of Prescribed Doses Taken, Past Month	.68 (.30)	.66 (.32)	.71 (.27)

Notes: Conspiracy belief data were missing for 1 participant. We used t-tests for continuous variables and Fisher's exact tests for dichotomous variables. Comparisons were made for overall health care barriers (but not each individual barrier) due to the potential for Type 1 error.

* $p < .05$

** $p < .001$.

[a] Slightly or strongly agree

[b] Strongly disagree, slightly disagree, neutral, or don't know

Table 2

Endorsement of HIV Conspiracy Beliefs among 214 African American Men with HIV on Antiretroviral Treatment.

HIV Conspiracy Belief	% Agree (Strongly or Slightly)
HIV is a manmade virus.[a]	44%
AIDS was produced in a government laboratory.[a]	35%
There is a curefor AIDS, but it is being withheld from the poor.[a]	33%
AIDS is a form of genocide, or planned destruction, against Blacks.[a]	31%
AIDS was created by the government to control the Black population.[a]	31%
HIV was created and spread by the CIA. [a]	21%
People who take the new medications for HIV are human guinea pigs for the government. [b]	22%
The medicine that doctors prescribe to treat HIV is poison.[b]	17%
The medication used to treat HIV causes people to get AIDS.[c]	7%

[a] Genocidal-related conspiracy belief

[b] Treatment–related conspiracy belief

[c] Dropped from scale, as suggested by exploratory factor analysis

Table 3

Bivariate and Multivariate Regressions Predicting One-Month Adherence (≥95% of Doses Taken) with HIV Conspiracy Beliefs at Baseline

	≥95% of Doses Taken (Unadjusted) OR (95% CI)	**≥95% of Doses Taken (Adjusted[b]) OR (95% CI)**
HIV Conspiracy Beliefs-Genocidal[a]	0.90 (0.66-1.23)	1.20 (0.81, 1.77)
HIV Conspiracy Beliefs-Treatment-related[a]	0.66 (0.45, 0.96)*	0.60 (0.37, 0.96)*

* $p < .05$

[a] Average agreement on scale (1 = strongly disagree; 2 = slightly disagree; 3 = neutral; 4 = slightly agree; 5 = strongly agree)

[b] Adjusted for age and health care barriers