Barriers to Testing for Sexually Transmitted Infections among HIV-Serodiscordant Couples: The Influence of Discrimination

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Objectives: African Americans face challenges in accessing services for sexually transmitted infections (STIs). From 2012-2016, the EBAN II intervention was funded by the NIH to test the effectiveness of implementing a culturally congruent, evidence-based HIV/AIDS prevention program in Los Angeles and Oakland, California. This study examined the impact of personal characteristics and experiences of discrimination on the likelihood of being tested for STIs.

Method: Participants (N=91) completed a baseline survey. Descriptive statistics were used to test for differences between those who did and did not obtain STI testing. Factors included HIV serostatus, sociodemographic variables, STI history, the presence of outside partners, and discrimination experiences. Multiple logistic regressions were conducted for men and women separately.

Results: Participants with no recent experiences of discrimination were more than 3 (3.4) times more likely to obtain a baseline STI test than those who reported discrimination experiences. HIV-positive women with no recent experiences of discrimination were 11 times more likely than those with reports of recent discrimination to obtain STI tests.

Conclusions: It is often women who are the gatekeepers for health seeking in families and the same may be for these couples. Experiences of discrimination may impede STI testing, and heighten several health risks, particularly among HIV-positive African American women in HIV-serodiscordant relationships. Addressing the impact of discrimination experiences may be important for STI prevention and treatment efforts in interventions promoting health care utilization. *Ethn Dis*. 2020;30(2):261-268; doi:10.18865/ed.30.2.261

Introduction

In 1926, sexually transmitted infections (STI) were first identified as a major health problem in the United States.[1] Since then, they have increased dramatically throughout the United States, particularly in large metropolitan cities.[2] Nearly 2.3 million cases of gonorrhea, syphilis and chlamydia were diagnosed in the United States in 2017. This surpasses the previous record set in 2016 by more than 200,000 cases and marked the fourth consecutive year of increases in these STIs.[3] In California, there were 218,710 cases of chlamydia reported in 2017, the highest number in almost 30 years.[3] Further, 75,450 gonorrhea cases were reported, the highest since 1988,[4] and 13,605 early syphilis cases were reported, the highest since 1987.[4] These rates constitute a public health crisis, as both chlamydia and gonorrhea can lead to pelvic inflammatory disease, chronic pelvic pain, ectopic pregnancy and infertility; syphilis can cause congenital infections and other serious illness. [5] This crisis is particularly salient for high-risk populations, including HIV-serodiscordant couples, as untreated STIs also increase the likelihood of HIV transmission.[6]

Although concerted efforts have resulted in overall improvements in health and longevity, significant ethnic group disparities in health, access to health care, and STI- and HIV-testing and treatment persist, particularly among African Americans.[7,8] In California, the last decade has seen budget cuts in STI prevention campaigns and in the clinics where STI testing and treatment are provided, disproportionately affecting impoverished and marginalized populations.[8] Compared with Whites, African

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Americans face additional challenges in accessing services, resulting in an urgent need to identify and address barriers to STI testing among those vulnerable populations most impacted by rising STI rates.[9,10] African Americans also experience the historical burden of being included in unprecedented medical experimentation and being denied treatment of syphilis, even when treatment was available.[1] But little research has been conducted to examine the relationship between recent experiences of discrimination and STI testing.

The purpose of this study was to examine the relationships between personal barriers … among a vulnerable population of serodiscordant African American couples enrolled in an evidence-based HIV/AIDS prevention program, EBAN II, in Los Angeles and Oakland, California.

Obtaining STI testing is subject to constraints including cost and transportation barriers. Caretaking responsibilities can influence willingness and the ability to access STI testing. Women make the majority of health care decisions for their families, making decisions for themselves and others.[11,12] More than 75% of caregivers are female, spending up to 50% more time providing care for others than males, and disproportionately come from socioeconomic status households.[13,14] Despite the fact that women may be the primary individuals responsible for making health care decisions, they often lack health insurance for themselves and their families.[12]

Participants with chronic illnesses like HIV may not feel well enough to access testing, especially if it is costly or requires traveling a distance. Those who are hospitalized during the course of an intervention may not physically be able to complete study requirements, including obtaining STI tests.[15]

Marginalized groups also report experiences of discrimination due to race or ethnicity, nationality, gender, or sexual orientation; these factors may interact with stigma associated with an HIV diagnosis and/or directly influence individuals' avoidance of accessing medical care out of fear of unnecessary hassles and/or discrimination.[16] There are also gender disparities in STI frequency and complications, with untreated STIs leading to serious negative health consequences, particularly for women, including infertility, chronic pelvic pain, pelvic inflammatory disease and ectopic pregnancy.[17,18] Given the rising rates of STIs and associated risks for those affected by them, it is critical to examine factors that may affect STI testing in vulnerable populations.

A priority in HIV research is to examine the barriers to health utilization in national studies that include populations where transmission rates are high. The eight-year EBAN I study was a randomized clinical trial designed to reduce risk of HIV transmission among heterosexual, serodiscordant African American couples across multiple settings in the United States; the results confirmed the intervention's effectiveness in reducing HIV rates.[19] However, these factors deserve more attention when efforts to increase women's interest in an intervention are prioritized. The EBAN II study was funded by the National Institutes of Mental Health as a Type II hybrid effectiveness-implementation study[20] that builds upon prior research to examine the intervention's effectiveness in real-world community-based organizations (CBOs).[21] Oakland and Los Angeles were selected because of their STI and HIV rates.[15] We have previously described[15] how the availability of STI testing, including issues of policy, access and payer reimbursement, greatly impacted the implementation of EBAN II. When the study began in 2011, participants were encouraged to obtain STI testing using whichever testing resources were available to them. While participants were expected to obtain testing for gonorrhea, chlamydia and syphilis at three time points (baseline, and 3- and 6-month follow-ups), reimbursement rules made repeat testing difficult to obtain. Furthermore, STI testing was typically not available at the EBAN sites, which required participants with limited financial resources to devote to transportation to travel substantial distances for both testing and obtaining the results.[15] STI testing resulted in a financial burden

for those participants who attempted to adhere to the study protocol.

The purpose of this study was to examine the relationships between personal barriers, such as experiences of discrimination with STI testing, among a vulnerable population of serodiscordant African American couples enrolled in an evidence-based HIV/AIDS prevention program, EBAN II, in Los Angeles and Oakland, California.

Methods

Description of Study

EBAN II was conducted in six community-based organizations in Los Angeles and Oakland, California. Couples were recruited via flyers and referrals to examine how EBAN II implementation could be achieved. Completion of the study involved attending eight group sessions, completing surveys, and obtaining STI testing at baseline, and three-month follow-up. All participants were asked to access STI testing using any available testing resources and provide written verification of their HIV and STI status. At the time, it was assumed that STI testing could be easily accessed throughout most communities with high rates of sexually transmitted diseases. Consequently, STI testing was not offered or reimbursed by the study. Informed consent was obtained for all participants, and all procedures were approved by the UCLA institutional review board.

Measures

A comprehensive structured interview was administered to participants. For the purposes of these analyses, only baseline data are reported here. STI test results were also completed at post-test and three-month follow up. Consistent with past criteria,[19] gender was coded as either male or female. HIV serostatus was determined by enzyme-linked immunosorbent assay and confirmed by Western blot and coded as HIV negative (0) or HIV positive (1). Age was defined by birthdate. Employment was categorized as employed (part- or full-time) (1) and unemployed (0). Personal income was calculated as total personal monthly income and was categorized as <$400, between $400-$850, between $851-$1650, and >$1650. Discrimination was assessed with the item: "In the last month, in general, how much of a problem have you had with being discriminated against because of your race, nationality, gender, or sexual orientation?" Responses ranged from "not a problem for me in the last month" to "a major problem in the past month" and were coded into (0) didn't bother me at all, and (1) bothered me a little, somewhat, or a lot. STI in the past 90 days was assessed with the questions: "Have you been treated for an STI in the past 90 days?" and "Has your partner been treated for an STI in the past 90 days?" Affirmative answers were coded (1) and negative responses were coded (0). Responses were analyzed for percentage of agreement between partners. Outside (ie, concurrent) partner was assessed with one item for females that asked "In the past 90 days, did you have vaginal sex with someone other than your study partner?" Males were asked three questions to determine if they had outside partners: "In the past 90 days, did you put your penis in another woman's vagina (not study partner)?", "In the past 90 days, did you put your penis in another man's anus?", and "In the past 90 days, has a man put his penis in your anus?" Affirmative answers were coded (1) and negative responses were coded (0).

HIV/STI pre- and post-test counseling was provided, with the test results privately provided to each participant. A form with the test results was given to each participant by their provider to verify their HIV status. In the case of a positive result, participants were provided with post-test counseling and other assistance.

Data Analysis

First, we conducted a series of t tests and $\chi 2$ tests to test for obtaining a baseline STI test or two or more STI tests differences in HIV serostatus, demographic characteristics, recent experiences of discrimination, having an STI in the past 90 days, STI treatment of one's partner in the past 90 days, and the presence of outside partners. Next, we conducted a series of multiple logistic regressions to estimate the relative contribution of HIV serostatus, age, employment status, personal income, recent experiences of discrimination, personal and partner's STIs in the past 90 days, and the presence of outside partners to obtain one or more STIs in the total sample. We conducted multiple logistic regressions for men and women separately. Predictors were analyzed with the best subset stepwise selection that included HIV serostatus, age, employment status, personal income,

recent experiences of discrimination, an STI in the past 90 days, partner's STI in the past 90 days, and the presence of outside partners. Odds ratios (ORs) for each predictor variable were estimated from the logistic regression. All analyses were performed with SAS, Version 9.4 (SAS Institute Inc, Cary, NC).

Results

Demographic characteristics of the sample are presented in Table 1. All 91 participants identified as African American (46 males and 45 females). No gender differences were observed for employment, recent experiences of discrimination, obtaining 1, 2 or 3 STI tests, having had an STI in the past, partner's STIs in the past, or outside partners. The mean age of the study group was aged 50 years. Ninety two percent of the study participants were unemployed at baseline and 95% reported a personal income of ≤$1650 per month, which according to the US Census Bureau is above the poverty threshold.[22] Females were more likely to be HIV positive (P<.001), and younger (P< .01). Women were more likely to report income of $851 per month or more than males (P=.04). Males, vs females, were more likely to report that their partner had been treated for an STI in the past (P<.05).

Of those who answered (n=91) whether they had a relationship outside of their main partner, 76 participants (83.5%) stated they did not have an outside partner, and 15 (16.5%) reported having an outside partner. Of those 15 people, 6 did not receive an STI test. Among couples (n=10) in which one member reported having an outside partner,

Table 1. Demographic characteristics of study population

	Male, n=46	Female, n=45	Total, n=91
HIV status[a]			
Negative	32 (69.57%)	14 (31.11%)	46 (50.55%)
Positive	14 (30.43%)	31 (68.89%)	45 (49.45%)
Age (years)[b]	52.87 (9.2)	47.67 (8.36)	50.3 (9.13)
Employment status (unemployed)	40(90.91%)	42(93.33%)	82(92.13%)
Personal income (~$1335 FPL)[c]			
<$400/month	13 (28.26%)	6 (13.33%)	19 (20.88%)
$400-$850/month	19 (41.3%)	16 (35.56%)	35 (38.46%)
$851-$1650/month	12 (26.09%)	20 (44.44%)	32 (35.16%)
> $1650/month	2 (4.35%)	3 (6.67%)	5 (5.5%)
Discrimination in the past month			
Not a problem	30 (34.09%)	36 (40.91%)	66 (75%)
A problem	14 (15.91%)	8 (9.09%)	22 (25%)
STI test at baseline	28(60.87%)	30(66.67%)	58(63.74%)
Baseline STI test positive	0(0%)	1(2.22%)	1(1.1%)
Baseline STI test negative	28(60.87%)	29(64.44%)	57(62/64%)
STI test at two time points	7 (15.22%)	8 (17.78%)	15(16.48%)
STI test at three time points	4(8.7%)	4 (8.89%)	8(8.79%)
No STI test	17 (36.96%)	15 (33.33%)	32 (35.16%)
Had an STI in the past	15 (32.61%)	7 (15.56%)	22(24.18%)
Partner treated for an STI in the past[c]	15 (32.61%)	6 (13.33%)	21(23.6%)
Percentage of agreement among couples who reported that neither of them had been treated for an STI in the past 90 days	84% (21 couples)		
Percentage of agreement among couples who reported that one of them had been treated for an STI in the past 90 days	0% (0 couples)		
No outside partners	72.73% (32 couples)		
Both partners had an STI test	62.5% (20 couples)		
Outside partners	27.27%(12 couples)		
Both partners had an STI test	41.67%(5 couples)		

a. P<.001.
b. P<.01.
c. P<.05.

there were 6 couples (60%) in which both participants obtained an STI test, and 40% who did not. Among those individuals who reported no outside partners (n=64), there were 20 couples (62.5%) in which both participants obtained an STI test.

Fifty-eight participants (64%) completed baseline STI testing but at various points. Individuals from 25 couples reported that neither of them had been treated for an STI in the past 90 days; of these, 21 couples' responses were consistent with each other (84%). Seventeen couples reported that one of them had been treated for an STI in the past 90 days, but none of the couples agreed on their partner's report of being tested.

Bivariate Analyses

Twenty-five percent of the study participants reported experiencing discrimination in the past month. Only recent experiences of discrimination differentiated between those who did and did not obtain an STI test at baseline. Participants who responded that discrimination was not a problem for them in the past month (75%, N=66) were more likely to obtain an STI test at baseline than those who indicated that they had experienced a problem with discrimination in the past month (25%, N=22) (P=.0157).

Multivariate Analyses

Logistic regression models to identify associations with obtaining a baseline STI test were conducted for the total sample and by gender and included the following variables: HIV serostatus, age, personal income, discrimination in the past month, personal or partner STI in the past 90 days (Table 2). Only one variable (recent experiences of discrimination) was associated with the likelihood of obtaining a baseline STI test. The overall model indicated that those participants who were HIV positive and reported no recent experiences with discrimination were more likely to obtain a baseline STI test (OR=3.419; 95%CI=1.228, 9.522). In the model with women only, those who reported not having recent experiences of discrimination were significantly more likely to obtain a baseline STI test (OR=11.594; 95%CI=1.354, 99.268). The model for men was not significant. This model was strong, with percent concordance ranging from 65.5 to 79.5, with the highest rate in the model for women and the lowest in the model for the whole sample. Percent discordance ranged from 20.5 to 34.2.

The results of the logistic regression models to identify predictors of obtaining at least two STI tests (at any time point) were not significant.

Discussion

EBAN II was one of very few funded implementation studies of an evidence-based behavioral prevention intervention in the era of medication prevention strategies (eg, pre-exposure prophylaxis (PrEP) and post-exposure prophylaxis [PEP]). Conducted in partnership with key county-level stakeholders, this study took place at a time when the Centers for Disease Control and Prevention and the California Department of Public Health had begun shifting HIV prevention strategies from evidence-based interventions and community-based testing and counseling to strategies more reliant on opt-out HIV testing in medical settings, linkage to care/treatment as prevention, and PrEP.[23]

Health providers rarely ask health seekers about past experiences that may affect their willingness and comfort in obtaining test results. In an effort to identify factors that facilitate or serve as barriers to STI testing, we examined whether personal variables were associated with obtaining an STI test. Only recent experiences of discrimination predicted the likelihood of participants obtaining a baseline STI test: those individuals with no recent experiences of discrimination were three times more likely to

Table 2. Logistic regression model to identify associations with obtaining a baseline STI test

	Total			Males			Females		
	OR	95% CI		OR	95% CI		OR	95% CI	
Age	.992	.942	1.045	.959	.886	1.038	.996	.907	1.093
Personal income (≥$851)	.851	.331	2.189	2.585	.514	13.007	.306	.069	1.359
HIV status (negative)	1.023	.404	2.59	3.843	.856	17.249	.301	.057	1.577
Personal or partner STI in the past 90 days	2.472	.773	7.905	2.448	.564	10.615	5.016	.352	71.446
Discrimination in the past month	3.419	1.228	9.522	2.618	.637	10.765	11.594	1.354	99.268

obtain a baseline STI test. Among women only, those with no recent experiences of discrimination were 11 times more likely than women with those experiences to obtain a baseline STI test. This subsample of women were all HIV positive, which suggests they may have been not only concerned about infecting their partner with HIV, but with the possibility of infecting them with an STI as well.

Only recent experiences of discrimination predicted the likelihood of participants obtaining a baseline STI test: those individuals with no recent experiences of discrimination were three times more likely to obtain a baseline STI test.

Racial/ethnic discrimination is a commonly reported barrier to seeking and utilizing health care, especially for African Americans.[16] In other research, more than 20% of African Americans reported avoiding seeking medical care due to concerns of poor treatment or discrimination due to their race/ethnicity. Further, close to one in five women reported experiences of discrimination due to gender when seeking medical care.[16] A survey of 7,500 adults asked about whether respondents experienced unfair treatment or disrespect by doctors, health care providers or staff during the past 12 months.[24] Most respondents (87%) were members of at least one marginalized group (ie, female, aged >40 years, racial or ethnic minority, sexual minority or disability). Among these respondents, having a health condition and economic factors (income, lack of or type of insurance) were the main reasons for discrimination.[16]

In our analyses, we were unable to detect the influence of employment and income on STI testing because the vast majority of our study population was unemployed (92%) and financially vulnerable, with only five participants reporting a personal income of more than $1650 per month. However, as noted in our previous work, we observed that testing at frequent intervals, as encouraged by this study, was not feasible given the substantial financial constraints reported by the participants in this study.[15] Future research should explore the intersection of income and preventive testing, as well as the development of interventions that can strengthen STI prevention efforts among vulnerable populations and address barriers to testing in the intervention content.[25]

Though exploratory and not statistically significant, it is clinically informative to note that couples were not always in agreement about partners' STI treatment history. Furthermore, among couples with outside partners, not all had obtained STI tests. Not having accurate information about their partners' recent STI histories can confer sexual risks. The importance of open disclosures with regard to testing histories is also an area that interventions need to address. Some partners may believe that disclosure may raise issues about their fidelity but to the other informed partner, this reality may strengthen the reason why self-protection and regular testing is so critical to disease prevention.

The patterns of testing and disclosure to partners was of high interest in this study. However, these analyses have noteworthy limitations. This was a convenience sample and was not representative of all African American HIV serodiscordant couples. Only one of 58 participants tested positive for an STI infection in our study. It is possible that these participants, as partners in HIV serodiscordant relationships, were more likely to be knowledgeable of the risks of STIs and therefore had reduced risk; however, this is difficult to ascertain from our data. We did not assess (but we did observe during the course of implementation) a full range of barriers to testing from participants' perspectives, including system-level and organizational-level barriers such as limited access, which we discuss below. Furthermore, we only assessed for STIs that had a high prevalence rate in California between 2011 and 2016; we did not assess for other common STIs and therefore may have missed other STIs that were present in our study sample. Finally, our measure of discrimination asked about general perceptions of unfairness due to race, nationality, gender, or sexual orientation; as such, we were unable to determine the source, setting, and nature of these experiences, including whether they occurred in health care

settings. It was of interest to note the relationship between women's reports of STI testing when they had no experiences of discrimination in the past month. Histories of discrimination and limitations in resources need to be assessed during initial phases of screening and recruitment into interventions for HIV/STI prevention in order to minimize the effects of these experiences that can affect testing and strategies on how to report instances of inadequate treatment.

The environmental context of STI testing during the time of this study is important to explore, given that only two-thirds of the sample obtained baseline STI testing despite consistent encouragement and support. In 2011, at the start of this implementation trial, STI guidelines regarding testing availability differed by HIV serostatus and category of risk. Whereas free HIV testing was and continues to be supported by large federal programs, securing free STI testing for chlamydia, gonorrhea, and syphilis was challenging[15]; guidelines for reimbursement varied and were confusing for consumers. In California, Family PACT clinics received reimbursement only if the person who was being tested meets strict requirements tied to STI screening recommendations or medical necessity.[26] In Oakland, one of the EBAN II hubs, access to STI testing was dependent on accessing traditional primary care clinics, emergency departments, or reproductive health centers subject to these restrictions (eg, Planned Parenthood). STI care in Oakland often required clients to either have insurance or meet certain eligibility criteria to enroll in Family PACT or MediCal[27] and be willing to be seen in one of these settings. In Los Angeles, the other EBAN II hub, STI services were provided at no cost to the participant, but retesting was limited within specific timeframes, regardless of category of risk. Reimbursement guidelines were inconsistent for our study protocol and often would require participants to pay for testing, despite being in an HIV serodiscordant relationship, a high-risk category. In addition, issues related to privacy and confidentiality, distance from available clinics (lack of transportation or finances to utilize public transportation), and factors related to convenience (variable clinic hours, wait time for appointments, no same-day or walk-in appointments, challenges with filling prescriptions) all served as barriers to timely testing and treatment.[27]

On an organizational level, agencies should conduct evaluations of factors that may pose barriers for client engagement in STI testing, including cost and location of services, length of wait times, clinic hours, and negative staff-client interactions.[28] Furthermore, to encourage STI testing and eliminate barriers especially among vulnerable clients, health care providers should be trained in cultural awareness and humility, historical practice that have increased medical mistrust, sexual history-taking, age-appropriate discussions on sexual health, and familiarity with routine HIV and STI screening policies and recommendations, and prevention tools.[29] Clients who test negative need to learn or continue to engage in safe sex practices and those who test positive must learn the skills to disclose to sexual partners to reduce risks of transmission, as well as manage and treat the infection to protect onesel.[30] This is especially the case for serodiscordant couples, where STIs can increase the transmission of HIV. Couples whose primary focus is on preventing HIV transmission, including those who may be on PrEP or PEP treatment protocols, may underestimate their risks of acquiring STIs. Interventions that address factors that facilitate or impede testing for both the HIV positive and negative partner among vulnerable populations, especially for women who may be socialized to rely on their partner for what may be indicated in a sexual relationship rather than the critical necessity of self-protection are needed; the crisis continues.[30]

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Conflict of Interest

No conflicts of interest to report.

Author Contributions

Research Concept: Alarcon, Loeb, Hamilton, Wyatt; Acquisition of data: Hamilton, Jordan, Lockett, Carey-Grant, Wyatt; Data analysis and interpretation: Alarcon, Loeb, Hamilton, Moss, Zhang, Lockett, Carey-Grant; Manuscript draft: Alarcon, Loeb, Hamilton, Moss, Curley, Wyatt; Statistical expertise: Loeb, Zhang; Acquisition of funding: Hamilton, Wyatt; Supervision: Loeb, Hamilton, Jordan, Lockett, Carey-Grant, Wyatt

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