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Effect of acculturation on the acceptability of potential microbicides and sexual risk-taking

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Abstract

Background—The objective was to determine the acceptability and use patterns of potential microbicides among African American (AA), Acculturated Hispanic (AH) and Less-Acculturated Hispanic (LAH) women. We measured baseline sexual risk-taking and the likelihood of behavioral change, given effective microbicides.

Methods—Interview of 506 Mexican American (MA) and AA women, all of whom have a sexually transmitted infection (STI) enrolled in Project Sexual Awareness for Everyone..

Results—The 3 groups reported similarly high acceptance of potential microbicides (76 – 83% p = 0.24). LAHs were most likely to report they would use microbicides covertly (p = 0.03). Given the possibility of effective microbicides, AHs were consistently more likely to report risk disinhibition. AHs, as compared to LAHs and AAs respectively, were most likely to report that they would not use condoms, (53% vs. 33% vs. 30% p < 0.001), would have a one-night stand (18% vs. 8% vs. 6% p = 0.02), or would have sex with a man before they got to know him (18% vs. 8% vs. 6% p = 0.01). AHs were also most likely to say they would or probably would change from baseline safe sexual practices to unsafe sexual behaviors if potential microbicides were available. Age was controlled for in the analysis as AHs were younger than AAs and LAHs.

Conclusions—Future microbicides were acceptable among this at risk cohort. Acculturation was a predictor of risk disinhibition and should be considered when tailoring STI prevention messages, given the advent of effective microbicides.

Keywords

Microbicide acceptability; ethnicity; acculturation; sexual risk behavior

INTRODUCTION

Topical microbicides are products in development which can be inserted into the vagina or rectum to prevent Human Immunodeficiency Virus (HIV) and other sexually transmitted infections (STIs) (1,2). Although a microbicide has not been approved for commercial use, several potential candidates are in early clinical trials world-wide (1,2). In order for microbicides to be effective, they must be acceptable to at-risk populations (3). Hispanic and

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African-American (AA) women are disproportionately affected by STIs in the United States (US) (4). In 2005, the incidence of *Chlamydia trachomatis* (CT) per 100,000 US population was 1729 in AA women, 733 in Hispanic women and 237 in Caucasian women (4). In 2004, HIV was the leading cause of death among AA women 25 – 34 years-old, and the 4th leading cause of death in Hispanic women 35 – 44 years-old (5). In 2005, high-risk heterosexual contact was the source of 80% of newly diagnosed HIV infections among US women (5).

Concern has been expressed that the perceived or actual effectiveness of microbicides may be associated with an increase in sexual risk-taking behavior, also known as "risk disinhibition" or "risk compensation" and a decrease in condom use, also referred to as "condom migration" (6-10). Microbicide acceptability studies need to address these possible consequences to best inform future microbicide users about comprehensive STI prevention practices.

The primary objective of this study was to determine the theoretical acceptability of potential microbicides among a large cohort of Mexican-American (MA) and AA women, all of whom were infected at study entry with a non-viral STI. We divided the MA women into Acculturated Hispanics (AHs) versus Less Acculturated Hispanics (LAHs), based on a validated Hispanic acculturation scale (11-13). The secondary outcome was to determine ethnic differences in potential risk disinhibition if effective microbicides were available. Data were obtained from the intake interview of the Project Sexual Awareness for Everyone (SAFE) study, a randomized controlled trial (RCT) of behavioral intervention to prevent recurrent STIs.

MATERIALS AND METHODS

This study was approved by the Institutional Review Boards at the University of Texas Health Science Center at San Antonio and the San Antonio Metropolitan Health District. The cohort of this study includes all women enrolled in the third iteration of Project SAFE, a RCT designed to use behavioral intervention to prevent recurrent STIs. Briefly, MA and AA women, age 14 – 45 years-old, diagnosed with a non-viral STI including *Neiserria gonorrhea* (GC), *Chlamydia trachomatis* (CT), syphilis or *Trichomonas vaginalis* (TV) were referred to our research clinic. The women were informed prior to coming to our clinic that in order to participate in the study, they were required to invite their current male sexual partner (or a male with whom they have had sexual intercourse within the last 2 months) to the initial screening visit. Dyad enrollment occurred between 09/01/2005 and 06/01/2008. At intake, men and women were interviewed separately, by a trained research assistant, specific to their gender. Dyads were then randomized to one of three groups: (1) individual control counseling for both, (2) behavioral intervention for the female and control counseling for the male, or (3) behavioral intervention for both (separate male and female groups). The control counseling lasted approximately 15 minutes and was provided by nurse clinicians according to Centers for Disease Control guidelines (14). The SAFE intervention, which was developed using extensive ethnographic data to ensure suitability to our population, and was based on the AIDS Risk Reduction Model entailed three, weekly, 3-hour, small-group, multi-component behavioral cognitive interventions (15,16,17). All male and female participants were interviewed, examined, screened and treated for STIs at baseline and 6 and 12 months follow-up. Subjects were encouraged to return to our clinic as needed for any symptoms of re-infection. At each visit a physical examination was performed with collection of specimens for microbiologic testing, including GC, CT, Syphilis and TV. Participants were offered a test-of-cure following treatments and HIV testing at each visit. The primary outcome of Project SAFE was subsequent re-infection with CT or GC.

The data for this study were obtained from the female intake interview. We asked women where they were born (United States, Mexico or other), their ethnicity and race. All women who identified themselves as Hispanic or any mix including Hispanic ethnicity were then

administered a brief acculturation scale, which has been validated in Mexican and South and Central American populations (11). Marin and coworkers subsequently transitioned to a 4-item acculturation scale based on language use, which we used in this study (12,13): In general, what language do you read and speak, what language do you usually speak at home, in what language do you usually think, and what language do you usually speak with your friends? Responses were: 0 = Only Spanish, 1 = More Spanish than English, 2 = Both Spanish and English Equally, 3 = More English than Spanish, and 4 = Only English (possible scale range 0 – 16). The cohort was divided into Hispanic women with a score of 16 ("Only English" to all 4 questions) versus those with a score less than 16 (at least some Spanish usage). We chose this cutpoint because we believed that self-identified Hispanic women who read, thought, and spoke at home and to their friends in "Only English" might be distinctly different from their counterparts who reported various levels of Spanish language use. In addition, clinicians dealing with similar populations can use this defined cutpoint to understand a Hispanic woman's level of acculturation. African-American women constituted the third comparison group.

We asked each woman a series of questions regarding her baseline demographic and psychosocial variables, and sexual-risk behaviors, including condom use, multiple sexual partners and concurrent sexual relationships. We determined the first and last date of sexual intercourse with each male partner and defined a "one-night stand" as the first and last date of sexual intercourse with a male partner being 48 hours or less, with no continued, ongoing sexual contact.

We then showed each woman a water-soluble personal lubricant (KY jelly™) and asked her opinions about the use of potential microbicides, with the characteristics of this lubricant. We asked those women who reported that they would potentially use microbicides (n = 399), "if a microbicide worked almost all of the time (9 out of 10 times), do you think you would take more chances?" We inquired about the potential likelihood of participating in 8 sexual risk taking behaviors and asked the women to grade their responses "Yes", "Probably Yes", "No" or "Probably No". We considered "Yes" or "Probably Yes" to be affirmative. The eight sexual risk behaviors were: 1. Would you have a one night stand? 2. Would you have sex with a man you would usually think was too risky? 3. Would you have sex with a man before you got to know him? 4. Would you have sex with a man you know is having sex with others? 5. Would you have sex with a man who shoots up? 6. Would you have sex with a man who has sexually transmitted disease symptoms? 7. Would you have more than one sexual partner? and 8. Would you have sex without a condom?

Group comparisons were evaluated by Chi-Square statistic for categorical variables and logistic regression analysis, using AHs as the referent group. Group differences were evaluated using techniques appropriate to measurement of dependent variables. We compared group means using One-Way Analysis of Variance, with Student-Newman-Keuls post-hoc range tests to adjust for multiple comparisons as appropriate. For nominal outcomes, we used multiple logistic regression analysis with AH as the referent group, with backward stepwise analysis to derive adjusted odds ratios reflecting control of potential confounding variables when indicated.

RESULTS

Complete data from the SAFE 3 intake interview were available for 514 women. The acculturation scale was incomplete for 8 Hispanic women, yielding 506 women in our cohort. Of these, 90 identified themselves as AA and 416 as Hispanic. Of the 416 Hispanic women, 198 answered "Only English" to all 4 acculturation questions and were considered AHs; 218 answered various combinations (acculturation score 0 – 15) of Spanish and English language

use and were categorized as LAHs. A reliability analysis of our continuous 4 question acculturation scale showed an alpha coefficient of 0.89. Of the 506 participants, 26 reported their birth place as Mexico and 6 reported "other". Among US born women, the mean acculturation score was 13.8, among the 32 foreign-born women the mean acculturation score was 10.9 ($p < 0.001$).

Table 1 shows baseline demographic, health and sexual risk taking variables. Our cohort (n = 506) primarily consisted of unmarried, low-income women with low educational attainment, poor access to health care and a high risk for recurrent STIs.

Table 2. summarizes womens' responses regarding acceptability of potential microbicides (n = 506). The groups were similar in their experience with the use of a personal/vaginal lubricant. When asked if they would use a microbicide with the characteristics of KY jelly, 324 (64%) women answered 'yes', 75 (15%) answered 'maybe' and 107 (21%) answered 'no'. There was no difference in acculturation among the women who answered 'yes' or 'maybe' (data not shown), and thus we considered these 399 women to be potential microbicide users.

Table 3 presents the likelihood of sexual risk taking behaviors, given an effective microbicide, among potential microbicide users (n = 399). Of note, there was no difference in risk taking behaviors among the 324 women who answered they would use microbicides versus the 75 women who answered they might use microbicides (data not shown). There was a trend, which was significant in 3 risk behaviors (one-night stands, multiple sexual partners and unprotected sex), of the AH women reporting that they would potentially be more likely to engage in risk taking behaviors, given an effective microbicide. Of note, of the 8 sexual risk behaviors asked, the major behavioral change noted was non-use of condoms. The reliability coefficient (alpha) of our 8 question sexual risk-taking scale was 0.71. Because the condom question had a large effect, we re-calculated the reliability coefficient without it: the resulting coefficient was 0.76.

The overall mean sexual risk taking score (including the condom question) was significantly higher among AHs (1.14 ± 1.46) than LAHs (0.67 ± 1.11) and AAs (0.51 ± 0.81) ($p < 0.001$). The significant differences in the means persisted among the three cohorts even when the condom question was removed (data not shown).

Of note, at baseline, AHs were significantly younger and less likely to report weekly church attendance. In addition, AAs had significantly higher educational attainment and were less likely to report being unemployed and not in school. Because these 4 variables may be associated with sexual risk taking, we controlled for these potential confounders in the logistic regression analyses outlined in Table 3.

We examined baseline levels of condom use, one night stands, multiple sexual partners and having intercourse within 7 days of meeting a male partner (which we correlated with 'having sex before you got to know a man') among the 399 women who reported that they would use future microbicides. We contrasted these self-reported baseline behaviors with the likelihood of behavioral change reported by the women, given the advent of effective microbicides. We were particularly interested in women who reported 'safe' baseline behaviors (using condoms, one sexual partner etc.) who might be negatively impacted by microbicide availability. We found that potential risk disinhibition and condom migration among these participants was most likely to occur among AHs; these data are provided in Table 4.

DISCUSSION

We have described microbicide acceptability and sexual risk-taking behaviors among a large cohort of MA and AA women who, at baseline, had a laboratory verified STI. This indicates that all of these women, or their partners, had engaged in high risk sexual behavior (18). Thus,

these women may benefit most from microbicide use and their opinions regarding microbicides, use patterns and behaviors are important to microbicide research, development, marketing and education.

We found high theoretical acceptability of potential vaginal microbicides (77 – 83%) among these women, consistent with other acceptability trials in Thailand, Africa, Puerto Rico, India and the US (19–24). Our data agree with previously published findings that acceptability of microbicides is similar among AA and MA women (21). Our patients reported that they would utilize microbicides with casual or steady partners and this was not associated with either ethnicity or acculturation.

Concern has been expressed in the literature that if microbicides were available, people would not use condoms, termed "condom migration" (6,9). This phenomenon has been documented after nonoxynol-9 trials (25). Ideally, at risk women would use condoms and microbicides, rather than substituting microbicides for condoms, because we do not yet know the efficacy of potential microbicides. We found that significantly more AHs reported that they would not or probably would not use condoms, given an effective microbicide. In addition, AHs who used condoms at baseline were more likely to report a change to non-use, if microbicides were effective. These findings suggest that STI prevention messages, specifically condom use, need continued emphasis even after the advent of microbicides, particularly in similar populations of AH women (8).

There is concern that the real or perceived efficacy of microbicides will increase people's sexual risk taking behaviors (6,8). Many microbicide products are similar to personal vaginal lubricants, and may be marketed not only to protect against STIs, but to enhance sexual pleasure (19,26). Some authors have noted increased frequency of sexual intercourse during microbicide trials, which may be due to the enhanced lubrication offered by microbicides, but may also be attributable to increased communication among couples enrolled in research studies (7,26, 27).

Our cohort was similar at baseline in several risk factors. AAs were more likely to be infected with different STIs than Hispanics and with multiple STIs. However, when questioned about sexual behaviors given an effective microbicide, there was a trend, significant in 3 variables, of potential increased risk taking behaviors among AHs. Among the 8 sexual risk taking behaviors, the largest effect was in non-use of condoms, with relatively few women reporting other risky sexual behaviors, like having sex with a man who shoots up or who has symptoms of a STI. A strength of our data was that the behavior trends were significant even after controlling for age, a well known risk for STI acquisition.

A major emphasis in microbicide research is to determine the acceptability of the products in at- risk populations. A correlate of acceptability research is to determine how at risk populations might behave, given the advent of a new prevention product. We have previously found that the SAFE behavioral intervention reduces recurrent STIs in MA and AA women (15,28,29). Because the efficacy of potential microbicides is not fully defined, previously tested STI prevention messages, such as the SAFE intervention, should continue as we educate women and men about microbicide use.

Much has been written about the "Epidemiologic Paradox" or "Hispanic Paradox" of better health outcomes to foreign-born women, who are often from more disadvantaged socio-economic groups (30-33). The "Hispanic Paradox" has been attributed to some variables that are not easily defined such as respect for authority, elders and family, a sense of community and importance of cultural heritage and religion (30). In this study, we found that church attendance differed among the 3 cohorts and thus controlled for this variable in measuring sexual risk taking.

Our study is unique because the majority of our subjects were born in the US and all entered our clinic with the same risk factor, a laboratory verified STI. However, even among this high risk cohort, we have identified a subset of women, AH women, who may need additional counseling on STI prevention with the advent of effective microbicides.

A woman's risk for HIV and other STIs is often related to behaviors beyond her direct control, particularly her partner's risky practices (34,35). Because cooperation from the sexual partner is not necessarily required, microbicides will potentially add another option for HIV and STI prevention, particularly in vulnerable women who cannot negotiate condom use or monogamy (34-36). Nevertheless, many studies found that perceived partner acceptability of microbicides and the type of partnership were important considerations for womens' use patterns (19,21, 22,24,27,28,35). For example, it has been described that women would be more likely to use the product covertly with casual or paying sexual partners (19). We found that LAHs were significantly more likely to want to use microbicides without their sexual partner's knowledge and were significantly more likely to report that concealed use was an important attribute of potential microbicides. Ethnic differences regarding preferences for covert use has been previously reported, with Latina and Caucasian women more likely to desire covert use, as compared to AA women (19).

Previous studies reported that women thought covert use would be difficult or feared consequences should their partner(s) discover they were using a microbicide secretly (19,24, 35). Because violence is a concern with concealed use of a microbicide, we determined the baseline level of sexual or physical abuse in our population. The rate of current or past abuse was high (10 – 14%) and there was a trend toward increased rates in LAHs. We found that women were willing to pay similar prices for microbicides and this cost estimate did not differ among ethnic or acculturation groups. The price of microbicides will also be in the decision to disclose use of a product, particularly in women whose partner(s) control their finances (35). Our data suggest that microbicide marketing to LAHs may want to emphasize the ability of the female to control this STI prevention product.

Another major concern of potential microbicide users is the effect of microbicide use on future fertility (28). Our groups were similar in their plans to have more children, their concern for future fertility and their current pregnancy status. However, AHs were significantly more interested in a product that prevented STIs, but not pregnancy. This unique finding may explain why the AH women in this cohort reported that they were more likely to not use condoms, given effective microbicides. When asked about a combination microbicide/contraceptive, our cohorts expressed similar interest, and levels consistent with results from other studies (19, 36-38). Previous investigators found that most (82%) women planned to use adjunct contraception (for example, condoms) with an anti-HIV microbicide and 50% planned to use condoms in addition to an anti-HIV, contraceptive microbicide (36). Our data emphasizes how health educators and clinicians will need to understand a woman's motivations to prevent STIs and or pregnancy given effective microbicides.

The main limitation of this study is that we measured reported potential behaviors, rather than validated behaviors occurring in the context of a microbicide trial. However, participants responses showed a consistent theme, significant in several questions, regarding possible risk disinhibition which might occur if microbicides were available. Also, our risk taking questions were based on an assumption that microbicides would be 90% effective. It is unknown how effective microbicides will be, and it is likely that the risk taking behaviors would be different if we assumed lower microbicide efficacy.

There has been an association between use of vaginally inserted contraceptive products and microbicide acceptability (23). However, current or past use of the contraceptive ring, female

condom, or spermicidal jells and foams was so infrequent in our cohort that we could not correlate use of these vaginal contraceptive products with microbicide use patterns or acceptability. Finally, although we showed the patients KY jelly, we did not ask about acceptability of candidate microbicides of suppository or ring form.

Our data shows that among at-risk minority women infected with an STI, acceptability of potential microbicides was high. LAH women were significantly more likely to desire a microbicide which they could use covertly. Although our cohorts were similar at baseline in several risk factors for STI acquisition, AH women showed consistent increased likelihood of potential risk disinhibition given the possibility of effective microbicides. These potential use patterns should be considered in the development and marketing of microbicides. This data can also be used by public health educators and clinicians, dealing with similar populations, to effectively counsel women on effective STI prevention practices, given the advent of new STI prevention products.

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Table 1

Demographic Variables of Less-Acculturated Hispanics (LAHs) versus Acculturated Hispanics (AHs) versus African-Americans (AAs)

Variable	Group	Mean ± SD or N (%)	P	AOR	95% CI
DEMOGRAPHIC					
Mean Age (± Standard Deviation)	AHs	**21.8 ± 3.4**	0.003		
	LAHs	23.0 ± 4.3			
	AAs	23.4 ± 5.2			
Mean years of education (± Standard Deviation)	AHs	11.5 ±1.7	0.05		
	LAHs	11.4 ± 1.9			
	AAs	**12.0 ± 2.0**			
Monthly Household per capita Income (± Standard Deviation)	AHs	$490 ± 301	0.58		
	LAHs	$503 ± 386			
	AAs	$540 ± 424			
Born outside the United States	AHs	3 (1.5)	REF		
	LAHs	27 (12.4)	<0.001	9.24	2.76, 30.96
	AAs	2 (2.2)	0.66	1.50	0.25, 9.10
Teens (Age 14 – 19 years old)	AHs	64 (32.3)	REF		
	LAHs	59 (27.1)	0.24	1.29	0.84, 1.96
	AAs	27 (30.0)	0.69	1.11	0.65, 1.91
Not Married	AHs	153 (80.5)	REF		
	LAHs	164 (77.4)	0.44	1.21	0.75, 1.96
	AAs	74 (86.0)	0.27	0.67	0.33, 1.36
< High School Education	AHs	61 (30.8)	REF		
	LAHs	69 (31.7)	0.75	1.16	0.85, 1.29
	AAs	14 (15.6)	0.02	0.48	0.23, 0.88
Attends church at least weekly	AHs	21 (10.7)	REF		
	LAHs	49 (22.5)	0.002	2.43	1.40, 4.23
	AAs	18 (20.2)	0.03	2.13	1.07, 4.22
Not in school and not working full or part time	AHs	42 (21.2)	REF		
	LAHs	51 (23.4)	0.59	1.13	0.71, 1.80
	AAs	6 (6.7)	0.004	0.27	0.11, 0.65
Currently Pregnant	AHs	52 (27.4)	REF		
	LAHs	51 (24.8)	0.55	0.87	0.56, 1.37
	AAs	20 (23.5)	0.50	0.82	0.45, 1.48
Currently smokes 1 or more cigarettes per week	AHs	39 (19.7)	REF		
	LAHs	49 (22.5)	0.49	1.18	0.74, 1.90
	AAs	20 (22.2)	0.62	1.17	0.63, 2.14
MEDICAL/HEALTH CARE ACCESS/SEXUAL RISK QUESTIONS					
No Health Care Insurance	AHs	68 (34.3)	REF		
	LAHs	80 (36.7)	0.62	1.11	0.74, 1.66
	AAs	24 (26.7)	0.20	0.70	0.40, 1.21
Receive Health Care mainly in Emergency Room	AHs	58 (29.3)	REF		
	LAHs	69 (31.7)	0.60	1.12	0.74, 1.70
	AAs	20 (22.2)	0.21	0.69	0.39, 1.24
Douches	AHs	114 (42.4)	REF		
	LAHs	136 (37.6)	0.32	0.82	0.55, 1.21
	AAs	37 (58.9)	0.01	1.94	1.17, 3.22
Mean age of first vaginal intercourse (years)	AHs	15.4 ± 2.5	0.50		
	LAHs	15.1 ± 2.3			
	AAs	15.3 ± 2.6			
Very/pretty/a little concerned	AHs	155 (79.1)	REF		

Variable	Group	Mean ± SD or N (%)	P	AOR	95% CI
that I might get HIV.	LAHs	171 (80.3)	0.76	1.08	0.67, 1.74
	AAs	76 (84.4)	0.29	1.44	0.74, 2.80
Mean number of life time sexual partners	AHs	10.5 ± 12.7	0.80		
	LAHs	11.3 ± 14.9			
	AAs	11.3 ± 12.9			
Mean number of sexual partners per year sexually active	AHs	1.8 ± 1.9	0.40		
	LAHs	1.6 ± 1.6			
	AAs	1.9 ± 3.1			
Current condom use of “never use them, almost never use them or using now but only some of the time”	AHs	106 (55.8)	REF		
	LAHs	113 (54.6)	0.81	1.05	0.71, 1.56
	AAs	48 (55.8)	0.99	0.99	0.60, 1.67
Reports that it is a good idea to “have a man on the side”	AHs	13 (6.8)	REF		
	LAHs	21 (9.9)	0.27	1.51	0.73, 3.10
	AAs	9 (10.0)	0.35	1.53	0.63, 3.72
Has had a sexual partner who uses intravenous drugs	AHs	13 (6.6)	REF		
	LAHs	10 (4.6)	0.38	0.68	0.29, 1.60
	AAs	4 (4.4)	0.48	0.66	0.21, 2.09
Teens (age 14 – 19) who have a male sexual partner who is 4 or more years older	AHs	21 (10.6)	REF		
	LAHs	14 (6.5)	0.14	0.58	0.29, 1.18
	AAs	7 (7.8)	0.45	0.71	0.29, 1.74
Reports that she would have sex with a man who has a drip, warts or sores if he used a condom	AHs	26 (13.2)	REF		
	LAHs	27 (12.4)	0.80	0.93	0.52, 1.66
	AAs	3 (3.4)	0.02	0.23	0.07, 0.78
Has had 4 or more sexual partners in the last year	AHs	36 (18.2)	REF		
	LAHs	31 (14.2)	0.27	0.75	0.44, 1.26
	AAs	8 (8.9)	0.05	0.44	0.20, 0.99
Has had 2 or more sexual partners in the last 30 days.	AHs	14 (7.1)	REF		
	LAHs	16 (7.3)	0.92	1.04	0.49, 2.19
	AAs	7 (7.8)	0.83	1.11	0.43, 2.85
Has had 2 or more sexual partners in the last 3 months	AHs	22 (11.6)	REF		
	LAHs	25 (12.0)	0.91	1.04	0.56, 1.91
	AAs	12 (14.3)	0.54	1.27	0.59, 2.69
How much do you worry about being able to become pregnant in the future? (A lot or A Little)	AHs	115 (59.9)	REF		
	LAHs	113 (54.3)	0.26	0.80	0.54, 1.19
	AAs	41 (48.2)	0.07	0.62	0.37, 1.04
Do you want to have (more) children? (Yes I am trying now or Yes, probably in the future)	AHs	138 (69.7)	REF		
	LAHs	151 (69.3)	0.92	0.98	0.65, 1.49
	AAs	58 (64.4)	0.38	0.79	0.47, 1.34
Index STI includes Neiserria Gonorrhea	AHs	37 (18.7)	REF		
	LAHs	39 (17.9)	0.83	0.95	0.58, 1.56
	AAs	34 (37.8)	0.001	2.64	1.52, 4.61
Index STI includes Chlamydia Trachomatis	AHs	176 (88.9)	REF		
	LAHs	194 (89.0)	0.97	1.01	0.55, 1.87
	AAs	66 (73.3)	0.001	0.34	0.18, 0.66
Index STI includes Trichomonas Vaginalis	AHs	16 (8.1)	REF		
	LAHs	13 (6.0)	0.40	0.72	0.34, 1.54
	AAs	18 (20.0)	0.01	2.84	1.37, 5.88
Index STI Includes Syphilis	AHs	15 (7.6)	REF		
	LAHs	16 (7.3)	0.93	0.97	0.47, 2.01
	AAs	13 (14.4)	0.07	2.06	0.94, 4.53

Variable	Group	Mean ± SD or N (%)	P	AOR	95% CI
Has more than one index STI	AHs	33 (16.7)	REF		
	LAHs	30 (13.8)	0.41	0.80	0.47, 1.37
	AAs	27 (30.0)	0.01	2.14	1.19, 3.85
Has experienced sexual abuse *	AHs	22 (11.1)	REF		
	LAHs	31 (14.2)	0.34	1.33	0.74, 2.38
	AAs	9 (10.0)	0.78	0.89	0.39, 2.02
Reports having a one night stand in the last 3 months	AHs	9 (4.5)	REF		
	LAHs	11 (5.0)	0.81	1.12	0.45, 2.75
	AAs	7 (7.8)	0.27	1.77	0.64, 4.92

* Answered YES to one or more of the following questions, “Has anyone ever had sex with you without protection against STDs, when you wanted protection?” “Has anyone ever knowingly hurt you physically during sex?” or “Has anyone ever made you feel afraid to say no to sex?”

Table 2

Acceptability of potential microbicides among Acculturated Hispanics (AHs) (n = 218) versus Less Acculturated Hispanics (LAHs) (n = 198) versus African-Americans (AAs) (n = 90).

Question	Group	N (%)	P	AOR	95% CI
Has used KY jelly or something similar to make sex wetter.	AHs	69 (34.8)	REF		
	LAHs	70 (32.3)	0.58	0.89	0.59, 1.34
	AAs	36 (40.0)	0.40	1.25	0.75, 2.08
Would use a microbicide if it were like KY jelly.	AHs	163 (82.3)	REF		
	LAHs	167 (76.6)	0.15	0.70	0.44, 1.14
	AAs	75 (83.3)	0.83	1.07	0.55, 2.09
Is it (VERY OR SOMEWHAT) important to develop microbicides that can be used without the man knowing.	AHs	121 (61.7)	REF		
	LAHs	153 (72.2)	0.03	1.61	1.06, 2.44
	AAs	62 (69.7)	0.20	1.42	0.83, 2.43
Would it be OK for a woman to use a microbicide without telling the man? (YES or MAYBE)	AHs	12 (13.6)	REF		
	LAHs	26 (26.8)	0.03	2.32	1.09, 4.94
	AAs	7 (21.2)	0.31	1.71	0.61, 4.79
Wants a product that only prevents STIs not pregnancy.	AHs	136 (68.7)	REF		
	LAHs	124 (56.9)	0.01	0.60	0.40, 0.90
	AAs	52 (57.8)	0.07	0.62	0.37, 1.04
Wants a product that prevents both STIs and pregnancy.	AHs	166 (83.8)	REF		
	LAHs	177 (81.2)	0.48	0.83	0.50, 1.38
	AAs	74 (82.2)	0.73	0.89	0.46, 1.72
Would you use a microbicide with a new partner? (YES/PROBABLY YES)	AHs	34 (79.0)	REF		
	LAHs	39 (76.5)	0.59	0.87	0.51, 1.46
	AAs	20 (72.6)	0.28	0.70	0.37, 1.33
Would you use it with a partner that you have been having sex with for a while? (YES/PROBABLY YES)	AHs	138 (87.3)	REF		
	LAHs	141 (87.6)	0.95	0.98	0.50, 1.90
	AAs	64 (91.4)	0.40	1.51	0.58, 3.95
What is the highest price you would pay for a tube that you can use 10 times? Mean Dollars ± Standard Deviation	AHs	$21.90 ± $19.41	0.44		
	LAHs	$21.11 ± $20.05			
	AAs	$18.69 ± $17.69			

Table 3

If a microbicide worked 9 out of 10 times do you think you would take more chances? Women answering “Yes or Probably Yes”.

Variable	Group	N (%)	P	AOR*	95% CI
Have a one night stand?	AHs	28 (17.7)	REF		
	LAHs	18 (11.1)	0.10	0.58	0.31, 1.10
	AAs	4 (5.6)	0.02	0.28	0.09, 0.82
Have sex with a man you would usually think was too risky?	AHs	11 (6.9)	REF		
	LAHs	6 (3.7)	0.17	0.48	0.17, 1.35
	AAs	2 (2.9)	0.33	0.46	0.10, 2.17
Have sex with a man before you got to know him?	AHs	28 (17.6)	REF		
	LAHs	13 (8.1)	0.01	0.41	0.20, 0.82
	AAs	4 (5.7)	0.02	0.29	0.10, 0.85
Have sex with a man you know is having sex with others?	AHs	20 (12.6)	REF		
	LAHs	15 (9.3)	0.44	0.75	0.36, 1.55
	AAs	5 (7.0)	0.36	0.62	0.22, 1.74
Have sex with a man who shoots up?	AHs	6 (3.8)	REF		
	LAHs	3 (1.9)	0.31	0.48	0.12, 1.97
	AAs	0 (0.0)	NA±		
Have sex with a man who has symptoms?	AHs	5 (3.1)	REF		
	LAHs	0 (0.0)	NA±		
	AAs	0 (0.0)	NA±		
Have more than one sexual partner?	AHs	23 (14.5)	REF		
	LAHs	17 (10.5)	0.28	0.69	0.36, 1.35
	AAs	8 (11.4)	0.54	0.76	0.32, 1.80
Have sex without a condom?	AHs	85 (53.1)	REF		
	LAHs	54 (33.3)	< 0.001	0.45	0.28, 0.71
	AAs	21 (30.0)	< 0.001	0.39	0.21, 0.71

*Adjusted for age, education (< high school versus high school degree or more), not in school and not working full or part time, and attends church at least weekly versus does not attend church at least weekly.

±Logistic regression not done due to zero cell size

Table 4

The likelihood of engaging in unsafe behaviors (yes, probably yes) given an effective microbicide among potential microbicide users with baseline 'safe' behaviors.

Baseline safe behaviors among potential microbicide users.	Behavior Change Reported if Effective Microbicides were available	Group	N (%)	p	AOR	95% CI
Uses Condoms* (N = 181)	Would not use condoms (N = 69)	AHs	35 (49.3)	REF		
		LAHs	27 (34.2)	0.06	0.53	0.28, 1.03
		AAs	7 (22.6)	0.01	0.30	0.12, 0.79
No One Night Stands in the last 3 months (N = 370)	Would have a One Night Stand (N = 45)	AHs	28 (18.4)	REF		
		LAHs	15 (9.9)	0.04	0.49	0.25, 0.95
		AAs	2 (3.0)	0.01	0.14	0.03, 0.60
Only one sexual partner in the last 3 mos. (N = 333)	Would have Multiple sexual Partners (N = 33)	AHs	18 (13.2)	REF		
		LAHs	10 (7.5)	0.12	0.53	0.23, 1.20
		AAs	5 (8.3)	0.33	0.60	0.21, 1.69
Has not had sex within 7 days of meeting a male partner (n = 287)	Would have sex with a man before she got to know him (N = 26)	AHs	19 (15.4)	REF		
		LAHs	6 (5.4)	0.02	0.31	0.12, 0.81
		AAs	1 (1.9)	0.03	0.11	0.01, 0.82

*Condom use reported as "Always use them" or "Using them now but did not use at the beginning of this relationship".