Published in final edited form as:

Sex Health. 2013 August ; 10(4): 339–347. doi:10.1071/SH13013.

Measuring Self-Efficacy to Use Vaginal Microbicides: The Microbicide Use Self-Efficacy (MUSE) Instrument

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Abstract

Objectives—To evaluate the psychometric properties of the Microbicide Use Self-Efficacy (MUSE) instrument and to examine correlates of self-efficacy to use vaginal microbicides among a sample of racially and ethnically diverse women living in the northeastern United States.

Methods—Exploratory and confirmatory factor analytic methods were used to explore and determine the dimensionality and psychometric properties of the MUSE. Construct validity was assessed by examining the relationships of the MUSE to key sexual behavior, partner communication, relationship, and psychosocial variables.

Results—Two dimensions of microbicide use self-efficacy were psychometrically validated and identified as Adherence and Access and Situational Challenges. The two 4-item subscales measuring *Adherence and Access* and *Situational Challenges* had reliability coefficients of .78 and .85, respectively. Correlates of the two measures were tested at a Bonferroni-adjusted alpha level of $p = .001$, and 19 of 43 variables analyzed were found to significantly relate to *Adherence and Access*, while 16 of 43 variables were significantly related to *Situational Challenges*. Of the 35 significant relationships, 32 were in the domains of partner communication, partner relationships, and behavioral and psychosocial variables.

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Conflicts of interest

None declared.

Conclusions—The MUSE instrument demonstrated strong internal validity, reliability, and initial construct validity. The MUSE can be a useful tool in capturing the multidimensional nature of microbicide use self-efficacy among diverse populations of women.

Additional keywords

HIV/STI prevention; microbicide; self-efficacy; women; instrument development

Introduction

Globally, more than half of people 15 years and older living with HIV/AIDS are women.¹ Within the United States (US), women account for approximately one quarter of all new HIV/AIDS diagnoses.² In 2010, high-risk heterosexual contact accounted for an estimated 77% of the new HIV infections among women in the US.³ Additionally, the Centers for Disease Control and Prevention estimates that 19 million new sexually transmitted infections (STIs) occur each year, and STI incidence rates among women in the US remain high.³ STIs, including chlamydia, gonorrhea, syphilis, and herpes, have also been associated with increased risk of HIV transmission.³

Given the high rates of STIs and HIV infection among women, prevention technologies for women are urgently needed. Female-initiated prevention methods would provide women with technologies they could potentially use to protect themselves from infection in situations where control over condom use is limited.^{4,5} One potential method is the vaginal microbicide. Microbicides are being developed as products to be inserted into a woman's vagina to reduce or prevent transmission of HIV; development may extend to prevention of other STIs and/or pregnancy.^{6–8} Some vaginal microbicides may be used covertly, thus allowing women to protect themselves without the involvement or awareness of their sexual partner(s).

The potential impact of an effective microbicide has been mathematically modeled, with millions of HIV infections potentially averted in higher prevalence areas, even if marketed microbicides are not as efficacious as condoms and not used consistently.⁹ Initially, efficacy trials with first generation candidate microbicide gels had been disappointing.^{10–12} One efficacy trial of a candidate microbicide, 1% tenofovir gel, reported a 39% overall reduction in HIV acquisition, and 54% reduction among participants with peri-coital gel adherence greater than 80%.¹³ Additionally, this same trial reported a 59% reduction in herpes simplex virus 2 acquisition.^{13,14} Unfortunately, the Microbicide Trials Network protocol MTN-003, also known as the VOICE trial, recently presented disappointing results in their efforts to evaluate tenofovir as a daily use prevention strategy (whether by oral tablet or vaginal gel).¹⁵ Investigators in that study, not unlike other microbicide clinical trials, reported a lower than expected rate of product adherence.

Understanding the facilitators of microbicide use will aid researchers and clinicians to better predict who would more likely use microbicides, increase understanding of situational and cultural variables that predict use, and aid the advancement of intervention strategies.^{13,14} Initial evidence suggests that women who previously used condoms or spermicides would be more willing to use microbicides than women without a history of condom or spermicide

use. Evidence also suggests women in non-committed sexual relationships (e.g., acquaintances, friends, other sexual partners such as transactional partners or new sexual partners) would be more willing to use microbicides than women with partners with whom they feel an emotional commitment.^{16,17}

A key psychosocial construct that has served as an important predictor for the successful performance of a variety of health-related behaviors is *self-efficacy* to perform a specific behavior. Bandura defined perceived self-efficacy as "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (p.3).¹⁸ Self-efficacy reflects confidence in one's ability to exert control over personal motivation, behavior, and one's social environment.¹⁹ Some researchers have found a link between condom use self-efficacy (defined as the belief in one's ability to use condoms in sexual situations) and condom use behaviors,^{20–22} whereas others have not.^{23,24} Possible explanations for the discrepancies include use of different self-efficacy measures^{22–24} and use of divergent samples to assess the relationship between condom use self-efficacy and condom use behaviors.^{21,22,24}

In a comprehensive review of the literature on self-efficacy measurement in the context of HIV-risk-reduction research, Forsyth and Carey noted that studies where the relationships between self-efficacy and HIV-risk reducing behaviors were not well-supported may have been due to how self-efficacy was operationalized. They recommended that measures be developed to assess participants beliefs in their abilities to perform specific behaviors *within a particular context or circumstance*.¹⁹

Several factors have been identified as being associated with condom use self-efficacy including sexual partner characteristics, number of sexual partners, and frequency of intercourse.^{25–27} Age and racial and ethnic differences have also been recognized as variables that may affect condom use self-efficacy.^{26,28–30} To date, there are no published development and validation studies for a microbicide use self-efficacy measure. The Phoenix Project was designed to develop and psychometrically evaluate measures of constructs that were hypothesized to be both direct and indirect predictors of willingness to use microbicides.¹⁶ Among predictor variables investigated were several developed to measure a woman's confidence or *self-efficacy* to acquire or use anti-HIV microbicide topical vaginal gels in partner-specific situations. The present study was conducted to: 1) explore the psychometric relationship of the separate variables to determine whether a single or multiple dimensions underlie the construct of self-efficacy for microbicide use that would facilitate development of a valid summated instrument that could reliably measure microbicide use self-efficacy for research purposes; and 2) examine the relationships between microbicide use self-efficacy and theoretically important covariates.

Methods

Study design

A cross-sectional study was designed to gather formative microbicide acceptability and psychosocial data from female participants using an audio computer-assisted self-interview (A-CASI) administered on laptop computers equipped with headphones. A detailed

description of study procedures, and the full questionnaire development and administration has been previously reported.^{16,17} All study procedures were approved by the primary and site-specific institutional review boards.

Participants

Women were recruited from four states in the Northeastern US. Study enrollment included the following eligibility criteria: a) 18 to 55 years of age; b) Black/African American, Latina/Hispanic, or White; c) vaginal sex with at least one male sex partner in the last 12 months; d) HIV-negative or of unknown HIV status; and e) not pregnant. A non-proportional quota sampling methodology was used to recruit subgroup strata based on race/ethnicity and number of vaginal sex partners in the past year.³¹

Measures

Variables designed to measure microbicide use self-efficacy were examined for potential relationships to a subset of variables measured in the primary study based on hypothesized theoretical relevance. These variables included history of vaginal product use, self-efficacy for condom use, relationship context and quality, personal behavioral risk, perceived HIV and STD risk with a specific partner, communication with partner about HIV and STD risk, self-efficacy to communicate with partner about sexual risk protection strategies, perceived partner norms regarding sexual behavior, frequency of condom use for vaginal and anal sex, willingness to use microbicides, and need for approval from others.

Statistical plan

Analyses were conducted in two stages. The first stage involved exploratory and confirmatory measure development analyses of the 8 individual variables that assessed different aspects of microbicide use self-efficacy. The analytic goals were to determine if the separate variables were related to each other, and if a reliable scale or subscales could be formed to parsimoniously summate the construct information. For measurement analyses, the complete study sample ($N=531$) was divided randomly into two sub-samples. Exploratory dimensional analyses (EDA) and initial reliability analyses were conducted on the responses of sub-sample 1 ($n=266$) and confirmatory factor analysis (CFA) was conducted on the responses of sub-sample 2 ($n=265$). A final CFA was conducted using the complete sample to obtain more stable estimates of item loadings, model fit, and reliability.

The second stage involved construct validity analyses examining the relationships between the microbicide use self-efficacy subscales and theoretically important covariates. A total of 43 statistical tests were conducted with each MUSE subscale serving as either the dependent variable in an analysis of variance (ANOVA) or as a bivariate correlate in a Pearson r correlation. A Bonferroni correction was applied to control Type I error and the effective alpha level of $p = .001$ was used to determine statistical significance. Means, standard deviations, and measures of effect size (omega-squared for ANOVA; r -squared for Pearson correlations) are reported for all statistically significant relationships. The Tukey HSD post hoc test was used to identify group differences for significant ANOVA results when an independent variable had more than two levels. Welch or Brown-Forsythe robust tests of

equality of means were used to correct for any homogeneity of variance violations within an ANOVA.

SPSS version 14.0 for Windows was used for exploratory measure development and construct validity analyses. The LISREL 8.7 structural equation modeling program³² was used for confirmatory measure development analyses.

Results

Sample characteristics

The study sample ($N = 531$) was comprised of 36.3% African American women, 32.4% White women, and 31.3% Latinas. Mean age of the sample was 33.8 (± 9.6) years, 58% reported never having been married, and 54% reported a high school education or less. The majority of women (70.8%) reported two or more vaginal sex partners in the last 12 months.

Exploratory dimensional analyses—Exploratory dimensional analyses were conducted using the 8 items comprising the MUSE instrument with data from sub-sample 1. An effective sample size of 253 was available for the EDA after a listwise deletion of items. The Scree Test,³³ the minimum average partial (MAP) procedure,³⁴ and the parallel analysis (PA) procedure^{35,36} were employed in a preliminary step to aid in the determination of the underlying dimensional structure. Both principal components analysis (PCA) and maximum likelihood factor analysis (MLFA) were then conducted to examine a two-dimensional solution that was judged optimal based on a convergence of the results of the Scree Test, MAP, and PA. Examination of the respective 2-factor and 2-component varimax-rotated solutions for the MLFA and the PCA indicated similar results for a two dimensional solution, which accounted for 68% of the variance. The PCA and MLFA varimax-rotated item loadings are presented in Table 1. The first factor, *Adherence and Access*, is represented by 4 items that rate microbicide use self-efficacy in several important prospective settings. The second factor, *Situational Challenges*, is represented by 4 items that rate microbicide use self-efficacy in several prospectively difficult situations. Reliability values for the *Adherence and Access* and *Situational Challenges* subscales, measured by Cronbach's Coefficient Alpha statistic,³⁷ were .81 and .86 respectively.

Confirmatory factor analyses—A CFA examined the posited EDA 2-factor solution using the sub-sample 2 response data to the 8 MUSE items. An effective sample size of 243 was available for the CFA after a listwise deletion of items. The initial CFA model examined a specified two dimensional solution with 4 item parameters freed to load on an *Adherence and Access* factor, 4 item parameters freed to load on a *Situational Challenges* factor, a correlation allowed to be freely estimated between the 2 latent constructs, and each item error variance allowed to be freely estimated. Modification indices suggested the initial model could be improved by allowing 2 error covariances to be freely estimated. The revised model was significantly improved but did not achieve statistical non-significance based on the Minimum Fit Function Chi-Square statistic [$\chi^2(17)=61.2, p<.001$]. However, several alternative fit indices were supportive of the revised measurement model. These included values of: a) .96 on the Comparative Fit Index (CFI)³⁸; b) .96 on the Non-Normed or Tucker-Lewis Index (TLI)³⁹; and c) .058 on the standardized root mean square residual

(SRMR).⁴⁰ In general, as values range above .95 for the CFI and TLI, in combination with SRMR values of less than .06, model fit is generally considered very good.⁴¹ Reliability was .75 for the *Adherence and Access* subscale, and .85 for the *Situational Challenges* subscale.

A final CFA was conducted on the revised measurement model using the complete listwise-deleted sample ($N=496$) available for analysis. This overall model was significant based on the Minimum Fit Function Chi-Square statistic [$\chi^2(17)=71.1, p<.001$], but the alternative indices indicated very good model fit (CFI=.98; TLI=.98; SRMR=.046). In the full sample, reliability for the *Adherence and Access* subscale was .78, with a scale mean of 16.6 (± 2.9) and a range of 7 to 20. The reliability for the *Situational Challenges* subscale was .85, with a scale mean of 14.5 (± 3.7) and a range of 4 to 20. Figure 1 presents the item loadings and the correlation between the factors from the CFA using the data for the whole sample versus the data of subsample 2 only.

Validity analyses—Of the 43 variables examined in relation to *Adherence and Access*, 7 were not statistically significant ($p>.05$), 17 were nominally significant ($p<.05$) but not significant after applying the Bonferroni adjustment, and 19 were significant at the Bonferroni-adjusted value of $p=.001$. Detailed results are presented in Table 2.

Of the 43 variables examined in relation to *Situational Challenges*, 16 were not statistically significant ($p>.05$), 11 were nominally significant ($p<.05$) but not significant after applying the Bonferroni adjustment, and 16 were significant at the Bonferroni-adjusted value of $p=.001$. Detailed results are presented in Table 3.

Discussion

We were able to identify and measure two important substantive dimensions within our MUSE instrument which we have referred to as Adherence and Access and Situational Challenges. The two subscale measures have good internal validity and reliability, and each measured dimension facilitates a greater understanding of the complexities of self-efficacy. The *Adherence and Access* dimension reflects a woman's confidence in her ability to both acquire the resources for, and to obtain access to, microbicides, and to feel confident in her ability to use microbicides correctly and consistently. The *Situational Challenges* dimension represents a woman's confidence that she could use microbicides within the contexts of emotionally charged or substance-impaired situations. A clearer understanding of these dimensions and their related correlates can enhance the development of future interventions that could increase the likelihood that women at risk for HIV (or in the case of multipurpose prevention technologies, other STIs and/or pregnancy) would access and use microbicides consistently and correctly.

We found a significant relationship between *Adherence and Access* and employment status and household income levels, with those employed full or part-time having significantly higher scores than those unemployed, and those with the highest household income level having higher scores than those with the lowest household income level. Both household income level and employment status are important for defining the basic resources a woman

would need to gain access to microbicides. If microbicides do become a viable prevention strategy for HIV, STIs and/or pregnancy prevention, it will be especially important to assist women of limited financial means with their attainment of these products on a gratis or subsidized basis. From a measurement perspective, the relationship of household income level and employment status to only the *Adherence and Access* dimension supports the discriminant validity of the two correlated self-efficacy subscale measures.

We also found a significant relationship between the number of times a woman had used a condom with male partners in general during sex and *Adherence and Access*. It is interesting to note that women who had endorsed using a condom five or more times had significantly greater *Adherence and Access* self-efficacy than those using a condom less than 5 times or not at all. This also contrasts with the lack of a significant relationship found between self-efficacy dimensions and the number of times her partner had used a condom during sex. Training in assertiveness within specific relationships (e.g., negotiating condom use with main partners) may have the added benefit of building the self-efficacy needed to pursue the use of microbicides should they be shown to be a viable prevention strategy.

Among 3 partner communication variables, one which examined whether the woman and her partner had discussed her STD and HIV history was significantly related to both self-efficacy dimensions; those who answered yes had higher scores on both subscales. The other two partner communication variables were significantly related to *Situational Challenges* only, with those women who noted that they had both discussed their partner's STD and HIV history and that they had discussed protecting themselves against STDs and HIV having significantly higher scores. The significant findings associated with the partner relationship variables and several other psychological variables (see Tables 2 and 3) suggest multiple entry points for developing interventions, and especially with respect to interventions tailored to couples. They provide support for intervening with couples on strategies to improve the reciprocal conversation that can take place among sexual partners about prevention of HIV, STIs and unintended pregnancy, with the potential benefit of an increase in microbicide use self-efficacy among women as one outcome.

Lastly, we found that a woman's perceived evaluation of her personal risk for HIV and STDs within the past year was significantly related only to *Situational Challenges*, with higher perceived risks associated with lower scores. Among this set of variables, the two measures of condom use self-efficacy, which measured a parallel set of items and dimensions to the MUSE, were very highly related to microbicide use self-efficacy. This suggests a correspondence of self-efficacy across prevention methods. In addition, women whose sociotropic cognitions indicated a strong reliance on approval of others had lower MUSE scores, while those with higher scores for autonomous happiness had higher MUSE scores.

It is especially noteworthy that higher MUSE scores were strongly related to higher scores on the Willingness to Use Microbicides scale.¹⁶ In its relationship to willingness to use microbicides, we view microbicide use self-efficacy as a potential mediator, in which we would expect higher levels of self-efficacy to lead to greater use of microbicides via its initial impact on willingness. In addition, the finding that women with a higher self-

perceived risk evaluation for HIV and STDs had lower scores on *Situational Challenges* signals the importance of raising this aspect of microbicide use self-efficacy to potentially lead to a greater willingness to use microbicides for prevention among women who perceive themselves to be at greater risk of infection.

There were only a few demographic, SES, and past behavioral variables that were related to the two identified dimensions of microbicide use self-efficacy. There were, however, many significant relationships between these two dimensions and variables that measured partner communication, partner relationships, and variables that were more psychological in nature. These significant variable relationships highlight potential intervention entry points and pathways that could be used to affect aspects of microbicide use self-efficacy, and potentially mediate an effect on actual microbicide use. Relationships that were of the greatest magnitude, based on statistical effect sizes, were for variables that measured parallel dimensions of self-efficacy for condom use, and for variables that measured self-efficacy to discuss aspects of HIV and STD protection with the woman's sexual partner. The relationship between microbicide use self-efficacy and willingness to use microbicides was also strong and supports the potential for microbicide use self-efficacy as a mediator variable that could be intervened on both directly, and indirectly, through a number of potential variable pathways that were identified earlier.

While a goal for vaginal microbicide development is an HIV prevention method that provides women with a product they could use without having to rely on negotiating with male sexual partners as they must for condom use or abstinence, we found a lack of relationship between the self-efficacy subscales and whether participants viewed it acceptable to use either a spermicide or microbicide without telling or discussing it with their partner. This finding suggests that if self-efficacy is shown to be a mediator of willingness to use a microbicide, and can be shown to be a strong predictor of actual microbicide use, we might best focus available resources for intervention development around self-efficacy with respect to partner relationships and support for a woman's ability to directly communicate about sexual risks and prevention strategies with her partner, as these variables tended to be highly correlated with self-efficacy subscales. Indeed, measures such as the MUSE could help determine whether self-efficacy is predictive of sustained adherence to product use.

While there is some debate as to the future of microbicides for HIV prevention, recent international development efforts have begun to consider, in earnest, multipurpose biomedical prevention technologies. In particular, those efforts are focused on developing an array of technologies designed to meet varying user needs with a single dosage form. Despite setbacks in anti-HIV microbicide development, this Initiative for Multipurpose Technologies (IMPT: Coalition Advancing Multipurpose Innovations⁴²) continues to support the development of peri-coital dosage forms, including topical forms. As such, it is important that measures such as the MUSE be tested and validated so that it can be used in future biomedical prevention development research. Such measures can help understand predictors of both trying and maintaining adherence to product use over time.

There are some limitations associated with the current study. First, the results are based on cross-sectional data and suggestions to intervene on self-efficacy (or any other hypothesized facilitators) aimed at enhancing microbicide use would need to be examined in a longitudinal context. Second, the specific sample measured may or may not be generalizable beyond the characteristics of the sample analyzed. The sample did represent a wide range with respect to demographic characteristics generally; evaluating its utility in other populations will be important. Finally, as with many psychosocial constructs that mediate decision-making, willingness to use a microbicide as well as self-efficacy with respect to its use, are hypothetical until such time as microbicides become available for public use. Future studies should consider using the Phoenix Project measures in Phase 3 and 4 trials to advance our understanding of the relationship between these measures and acceptability and adherence to products longitudinally in clinical trials, as well as publicly available microbicides. In particular, such efforts would allow the evaluation of the scale's utility in other populations where partnership dynamics, women's empowerment, and situational specifics may vary from those inherent in the current study.

In conclusion, we describe an 8-item measure of microbicide use self-efficacy called the MUSE instrument that captures two dimensions: 1) *Adherence and Access*, and 2) *Situational Challenges*. The MUSE instrument was developed and psychometrically evaluated in a racially and ethnically diverse sample of 531 adult women, and was shown to demonstrate acceptable concurrent validity, internal validity and reliability. This measure should prove useful to investigators interested in capturing the multidimensional nature of microbicide use self-efficacy among diverse populations of women.

Acknowledgments

The authors thank the following people for their contributions: Candelaria Barroso, Hilda Castillo, Allison Cohn, Michelle Gomez, Alyssa Israel, Luz Lopez, Angela Martinez, Mayra Morales, C. Teal Pedlow, and Andronike Tsamas, research staff; Larry Shulman, site coordinator; and Susan Cu-Uvin, Kenneth H. Mayer, and Patricia Symonds, co-investigators. They also thank the women who participated in the study and all the community-based organizations that collaborated to facilitate recruitment efforts. This work was funded by National Institutes of Mental Health grant R01 MH064455 (Morrow, PI), and supported in part by two postdoctoral training grants (T32 MH078788 and T32 DA13911). Further details of qualitative item development and psychometric analyses can be obtained from the first author.

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Figure 1.

Two-factor model of the Microbicide Use Self-Efficacy instrument with item loadings and the correlations between factors for the CFA model based on the complete sample ($N = 496$) vs. the CFA model based on sub-sample 2 ($n = 243$) in parentheses.

Note: Participants preferred formulation (e.g., foam, liquid or lotion, gel or jelly, gel capsule, ovule, or suppository, cream or ointment, or film) and preferred application method (e.g., inserted with an applicator, inserted without an applicator, or does not matter) was automatically inserted by the A-CASI based on participants responses to previous questions.

Table 1Component and Factor Pattern Item Loadings in Sub-sample 1 ($N = 253$).

Variable	Adherence and Access		Situational Challenges	
	PCA	MLFA	PCA	MLFA
1. If a microbicide were available as a [preferred formulation] and could be [preferred application method], how confident are you that you could insert it correctly?	.74	.67		
2. If a microbicide were available as a [preferred formulation] and could be [preferred application method], how confident are you that you could use it every time you had sex?	.70	.65		
7. If a microbicide were available as a [preferred formulation] and could be [preferred application method], how confident are you that you could get the money needed to buy it?	.77	.66		
8. If a microbicide were available as a [preferred formulation] and could be [preferred application method], how confident are you that you could go into a store and buy it?	.83	.75		
3. If a microbicide were available as a [preferred formulation] and could be [preferred application method], how confident are you that you could use it when you're emotionally upset?			.75	.64
4. If a microbicide were available as a [preferred formulation] and could be [preferred application method], how confident are you that you could use it during sex after you have been drinking?			.87	.84
5. If a microbicide were available as a [preferred formulation] and could be [preferred application method], how confident are you that you could use it during sex when you are high?			.90	.83
6. If a microbicide were available as a [preferred formulation] and could be [preferred application method], how confident are you that you could insist on using it, even if your partner does not want to?			.58	.48

Note: PCA = Principal components analysis; MLFA = Maximum likelihood factor analysis.

Participant s [preferred formulation] and [preferred application method] to a previous question was automatically inserted by the A-CASI program.

Item numbers refer to the original order asked of participants in Project Phoenix.

Table 2

Means, Standard Deviations, Effect Sizes and Post Hoc Differences for All Bonferroni-adjusted significant differences with respect to the Adherence and Access Self-Efficacy subscale for $N = 496$.

Adherence and Access Self-Efficacy Subscale				
Variable	<i>N</i>	Mean (SD)	<i>P</i>	Ω^2
Employment Status				
Not Employed	271	16.1 (3.1)	<.001*	.038
Full or Part-Time	216	17.2 (2.4)		
Household Income				
Low (<15K) _a	266	16.1 (3.0)	<.001	.031
Medium (15K-36K)	154	17.0 (2.8)		
High (36K+) _b	57	17.6 (1.9)		
# Times Used Condom During Sex				
Never _a	40	14.9 (3.7)	<.001*	.056
1 to 4 _a	123	15.9 (3.2)		
5 or more _b	332	17.0 (2.5)		
Discussed your STD & HIV risk history?				
No	130	15.6 (3.0)	<.001	.036
Yes	366	16.9 (2.8)		
Variable	<i>N</i>	<i>r</i>	<i>P</i>	<i>r</i> ²
Condom Confidence subscales				
<i>Adherence & Access</i>	456	.48	<.001	.23
<i>Situational Challenges</i>	454	.38	<.001	.14
Relationship subscales				
Positive Relationship	492	.15	.001	.02
Positive Sex	492	.23	<.001	.05
Perceived Partner Norms	496	.29	<.001	.08
Willingness to Use Microbicides	461	.32	<.001	.10
Other microbicide and last sex variables				
Confidence to talk about using a product to protect against pregnancy	496	.44	<.001	.20
Confidence to talk about using a product to protect self against STDs	495	.44	<.001	.18
Confidence to talk about using a microbicide	461	.49	<.001	.24
Confidence to convince him to use a microbicide	461	.43	<.001	.19
Talk about using a microbicide and talk about protecting against HIV	366	.22	<.001	.05
Would you use a microbicide in the future with casual partners	496	.23	<.001	.05
Need for approval from others	492	-.19	<.001	.04
Autonomous personal happiness	492	.15	.001	.02
Safer sex activities	496	.29	<.001	.08

Note: Ω^2 is a population-adjusted measure of systematic variance accounted for. r^2 is a commonly used measure of variance accounted for with respect to the Pearson Correlation statistic. Variable subscripts (a, b) that differ indicate significant differences ($p < .05$) between levels of a grouping variable with more than 2 levels based on the Tukey HSD post hoc test, or Game-Howell post test if Robust test statistic reported.

* Robust test statistic used to adjust for homogeneity of variance violation.

** No Tukey HSD post hoc group differences.

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Table 3

Means, Standard Deviations, Effect Sizes and Post Hoc Differences for All Bonferroni-adjusted significant differences with respect to the Situational Challenges Self-Efficacy subscale for $N = 496$.

Situational Challenges Self-Efficacy Subscale				
Variable	<i>N</i>	Mean (SD)	<i>P</i>	Ω^2
Discussed your STD & HIV risk history?				
No	130	13.1 (3.7)	<.001	.051
Yes	366	15.1 (3.6)		
Discussed his STD & HIV risk history?				
No	129	13.2 (3.8)	<.001	.043
Yes	367	15.0 (3.6)		
Discussed protecting against STD & HIV?				
No	116	13.3 (3.8)	<.001	.033
Yes	380	14.9 (3.6)		
Variable	<i>N</i>	<i>r</i>	<i>P</i>	r^2
Condom Confidence subscales				
<i>Adherence & Access</i>	456	.36	<.001	.13
<i>Situational Challenges</i>	454	.54	<.001	.29
Relationship subscales				
Positive Relationship	492	.17	<.001	.03
Positive Sex	492	.15	.001	.02
Perceived Partner Norms	496	.23	<.001	.05
Perceived risk for HIV/STD from partner	491	-.15	.001	.02
Willingness to Use Microbicides	461	.27	<.001	.07
Other microbicide and last sex variables				
Confidence to talk about using a product to protect against pregnancy	496	.32	<.001	.10
Confidence to talk about using a product to protect self against STDs	495	.36	<.001	.13
Confidence to talk about using a microbicide	461	.47	<.001	.22
Confidence to convince him to use a microbicide	461	.48	<.001	.23
Would you use a microbicide in the future with casual partners	496	.16	<.001	.02
Need for approval from others	492	-.19	<.001	.04

Note: Ω^2 is a population-adjusted measure of systematic variance accounted for. r^2 is a commonly used measure of variance accounted for with respect to the Pearson Correlation statistic.