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Differences between men and women in condom use, attitudes, and skills in substance abuse treatment seekers

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Abstract

Examining attitudes and skills regarding condom use by men and women in substance abuse treatment who engage in high risk sexual behavior may help to explain their inconsistent condom use. Men and women enrolled in two multi-site HIV risk reduction studies were administered the Condom Barriers Scale, Condom Use Skills and an audio computer-assisted structured interview assessing sexual risk behavior. Men endorsed more barriers to condom use than women, especially in the Effects on Sexual Experience factor. For both men and women, stronger endorsement of barriers to condom use was associated with less use of condoms. However, the difference between condom users and condom non-users in endorsement of condom barriers in general is greater for men than women, especially for those who report having casual partners. Findings support the need to focus on gender-specific barriers to condom use in HIV/STI prevention interventions, especially risk behavior intervention techniques that address sexual experience with condoms.

Keywords

Condoms; sexual risk behavior; gender differences; substance abuse treatment

Introduction

Individuals struggling with substance abuse problems are particularly vulnerable to contracting Human Immunodeficiency Virus (HIV) and other sexually transmitted infections (STIs). The association between risky sexual behavior (e.g., having multiple partners, high-risk partners, trading sex for money/drugs, not using condoms) and substance use has been well documented in the literature.¹ Although substance abusers are at high risk for HIV/STIs, consistent and correct condom use is considered an effective prevention tool by the

Centers for Disease Control and Prevention.² Rates of reported condom use in the US general population hover around 20%, with this percentage varying slightly according to demographics (e.g., age, race), partner type, year of data collection, and time period assessment.^{3–5} Sexual behavior research using drug users has a much wider range of reported condom use, from 15%⁶ to 24% or even 40%.^{7,8} A consistent finding is that persons at increased risk for HIV and STIs more frequently endorse condom use. For example, national survey data show that those engaging in risky drug- or sex-related behaviors were more likely than others to report using condoms.³ Within drug using samples condom use has been associated with risky behaviors such as having multiple sex partners, engaging in sex work, having a high-risk partner, and sex with casual versus main partners.^{9–12} One interpretation of such results is that riskier groups are responding to potential HIV/STI risk by better protecting themselves. However, even moderate rates of condom use are unacceptable among drug users engaging in risky sexual behaviors because of this group's considerable risk in transmitting HIV/STI.^{13,14} Identifying barriers to consistent condom use may help explain underutilization, thus informing and improving prevention interventions. Furthermore, substance abusers may have unique barriers to condom use compared with those in the general population, including loss of inhibition and impaired judgment associated with drug effects.¹⁵

Barriers to condom use

One oft cited barrier to condom use is lack of motivation to use condoms.^{12,16} Encouragingly, motivation as a construct has been incorporated into behavior change theories such as the Theory of Planned Behavior¹⁷, and the Information-Motivation-Behavior Model.¹⁸ These theories have been applied successfully to condom use behaviors; for example, Hogben et al.¹⁹ tested part of the Theory of Planned Behavior and found that beliefs about and attitudes towards condoms were related to intention (motivation) to use condoms. Similarly, Song et al.¹² showed that intention to use condoms, self-efficacy, and condom use skills all predicted reported condom use, which supports the Information, Motivation, Behavior Skills Model. Other studies highlight the importance of using practice-based skills training to increase effective condom use. For example, Calsyn et al.²⁰ found that men in substance abuse treatment performed better on a condom use skills measure after practicing condom use skills, compared to only viewing a demonstration of correct condom use. Not only do the Theory of Planned Behavior and Information, Motivation, Behavior Skills Models stand up to empirical scrutiny, they also provide a launching point for developing intervention strategies. The initial step of identifying barriers to condom use is important because associated behaviors are malleable to intervention. If barriers to condom use can be altered, there is hope that more intractable behaviors, such as sexual practices, can be targeted and changed through intervention as well.

Other studies examining barriers to condom use focus on those that are partner-related, such as partners' dislike of condoms^{21,22} and partners' feeling accused of having an STI.²² Such evidence is a reminder that condom use occurs within the context and characteristics of a dyadic relationship. That is, condom use behavior can be heavily influenced by ongoing relationship dynamics, as well as the partner interaction before and during the sexual encounter. Understanding barriers to condom use that are related to one's partner, and whether such barriers are different for men and women, is an important aspect of HIV/STI prevention efforts.

Gender

Research examining condom use barriers has focused on varied populations. Many studies have used single gendered samples^{12,22,23}, most often women. There is great value in studying women given that they tend to bear an unequal burden when managing the

complexities of intimate heterosexual relationships (i.e., birth control, vulnerability to sexual and physical violence, gender-based power inequality). However, examining just women's or just men's risky sexual behavior increases the chances that inaccurate assumptions are made about one gender outside the context of examining both. Furthermore, comparisons between men and women allow for better understanding of the unique treatment and prevention needs of men and women, better enabling development of appropriate prevention interventions.

Some research on differences between men and women has been conducted but with mixed results. For example, Brooks et al.²⁴ found that women enrolled in substance abuse treatment were more likely to report multiple partners and higher levels of unprotected sex with regular partners compared to male counterparts. In contrast, Absalon et al.²⁵ found that men reported higher rates of certain risky sexual behaviors than women (i.e., sex under the influence of drugs or alcohol, casual partners, multiple sex partners), even though women in this sample of street-recruited drug users reported higher-risk sexual partners (i.e., steady injection drug use partners or exchange-for-sex partners) than men.

Thus, there is a body of literature describing differences between men and women in sexual risk, but less is known about such differences related to condom use barriers. In a sample of HIV positive injection drug users (IDU)²⁶, men were more likely than women to endorse the beliefs that, with condoms, sex doesn't feel as good or as natural. Among rural heterosexual African American stimulant users²⁷, women reported more advantages to condom use on a decisional balance measure. These studies reinforce that differences exist between men and women when it comes to condom beliefs and sexual risk behavior. Gender norms and roles would lead one to believe that barriers to condom use would also be different across gender.²⁸ However, the exact nature of these differences has yet to be elucidated through research studies. In addition, differences in the populations studied (e.g., IDU vs. non-IDU; HIV seropositive vs. seronegative; and same-sex vs. opposite-sex partners) may lead to differences in gender patterns across studies. An analysis of differences between men and women in a more general, substance use treatment-seeking population, could provide needed clarity for condom use promotion efforts.

Assessing condom barriers and skills

A recognized need is to measure both barriers to condom use, as well as the correct use of condoms.^{29,30} Instruments have been developed to measure these dimensions of condom use, including the Condom Use Skill Measure for male and female condoms^{20,31}, and the Condom Barriers Scale.³² This latter instrument was originally developed to measure women's perceived barriers to condom use. Studies revealed four psychometrically meaningful subscales: motivational barriers, partner barriers, negative effect on sexual experience, and access/availability barriers. Doyle et al.³³ found a similar factor structure with this measure in a sample of men.

The National Institute on Drug Abuse Clinical Trial Network (CTN) conducted two parallel HIV risk reduction studies: Real Men Are Safe³⁴ and Safer Sex Skills Building for Women.³⁵ The studies provided a unique opportunity to examine differences between men and women related to condom use, as both protocols used the same research design, approach to assessing sexual risk behavior, instruments to measure barriers to condom use and condom use skills, and many of the same study sites (nine of 16 sites conducted both protocols). Furthermore, the study samples included men and women enrolled in psychosocial outpatient treatment (as well as methadone maintenance), a population often overlooked in sexual risk behavior studies in favor of focusing on more narrowly defined groups (e.g., IDUs, samples based on HIV status).

The purpose of this study is to compare treatment-seeking male and female substance abusers in their reported barriers to condom use and their condom use skills, to provide additional information about the unique treatment and prevention needs of men and women. The study has three objectives: to determine if men and women vary on A) baseline assessment condom barriers; B) condom use skills; and C) their recent condom use among main and casual sex partners. We hypothesize that the following differences between men and women will be demonstrated: men will identify more barriers associated with the effect on sexual experience and women will identify more partner related barriers.

Method

Participants

Randomized participants from the Real Men Are Safe³⁴ (n=590) or Safer Sex for Women³⁵ (n=515) studies formed the pool of potential participants. Eligible participants in these studies were men and women aged 18 and older who were enrolled in a participating substance abuse treatment program, reported engaging in unprotected vaginal or anal intercourse during the prior 6 months, were willing to be randomly assigned to one of two interventions and complete study assessments, and able to speak and understand English. Excluded were participants who showed gross mental status impairment, defined as severe distractibility, incoherence or retardation as measured by the Mini Mental Status Exam^{36,37} or clinician assessment, men who had a primary sexual partner who was intending to become pregnant, or women who were trying to become pregnant, or participants who had been in methadone maintenance treatment for less than 30 days. In addition, participants needed to have completed the following measures, described in more detail below, at the baseline assessment: Condom Barriers Scale^{32,33} (589 men, 506 women), Condom Use Skills²⁰ (555 men, 492 women), Sexual Behavior Inventory³⁴ (SBI-men, n=585) or Sexual Experiences and Risk Behavior Assessment Schedule³⁵ (SERBAS-women, n=458).

Measures

Condom Barriers Scale (CBS)—The CBS is a self-report instrument consisting of 29 items worded as short statements and rated by participants on a 5-point Likert-type scale from 1 (*strongly agree*) to 5 (*strongly disagree*). Items reflect attitudes about condoms, which may act as barriers towards condom use. Lower scores indicate more frequent endorsement of barriers to using condoms. Items are summed and yield a total CBS score as well as mean scores on four conceptual domains: Partner Barriers (8 items), Effects on Sexual Experience (7 items), Access/Availability (8 items), and Motivational Barriers (6 items). Because the CBS had originally been developed for use with heterosexual women, the wording of 10 items of the original 29 was slightly modified³³ to make the items more gender- or sexual-orientation neutral. Doyle et al.³³ factor analyzed the CBS responses for men and found the same four factors that St. Lawrence et al.³² had identified for women. However, there were a few items that loaded on different factors for men compared to women. For the current study, factor scores were calculated by summing the items that occurred on the same factors for men as women. Items are listed in Table 1. Cronbach's alpha reliability estimates³⁸ of the original factor scales of the CBS^{32,33} were moderate to high in value for women and men respectively: .90/.91 for Partner Barriers, .84/.85 for Effect on Sexual Experience, .66/.67 for Access/Availability, and .65/.69 for Motivational Barriers. Cronbach's alpha reliability estimates obtained for the factor scales utilized in this study were comparable to these prior studies (.89, .85, .61, .61).

Condom Use Skills (CUS)—The CUS consist of two scales, male condom use skills (MCUS; 14 items) and female condom use skills (FCUS; 11 items). All study participants were administered both scales. The items for each scale correspond to steps for correct

condom use that were taught in the parent study interventions. The MCUS included all 7 items of the Condom Skill Scale of Farris et al.³¹ previously shown to be a valid measure. In administering the MCUS, 5 types of condoms and 4 types of lubricant were placed on a table in front of the participant along with a plastic penile model. Participants were asked to choose a condom that would provide protection from HIV and apply and remove the condom from the model, verbalizing what they were doing as they did it. Participants received a point for each activity they demonstrated correctly. A female condom and a pelvic model were placed on the table for administration of the FCUS. The application/removal instructions were repeated. Scoring proceeded as above. A potential limitation of the scoring method was using an equal weight for each item. Some items, such as “getting all the air out,” (CUS item 9) may be more salient for preventing condom failure than others, such as “check date” (CUS item 3). Items are listed in Table 1. The CUS assesses the “information” and “skills” components of the Information, Motivation, Behavioral Skills Model of HIV prevention¹⁸, while the Condom Barriers Scale assesses more of the “motivation” component.

Sexual Behavior Inventory (SBI)/Sexual Experiences and Risk Behavior Assessment Schedule (SERBAS)

The SBI items were selected or adapted from the Sex and Drug Abuse Relationship Interview³⁹ and the SERBAS^{40,41}. SBI and SERBAS items were administered using the audio computer-assisted self-interviewing (ACASI) method. Respondents have been shown to disclose more regarding participation in high-risk behaviors with ACASI compared to in-person, face-to-face interviews^{42,43}. The SERBAS is a widely used sexual risk behavior assessment with good evidence of reliability and validity among both injection drug users and others at high risk for HIV. SBI and SERBAS items used in the current study utilized identical or very similar wording. The following sexual behavior variables, based on the 90 days preceding the baseline assessment, were generated for the current analyses: 1) sexually active (yes/no), 2) monogamy, defined as having a main sexual partner identified as a spouse or fiancé/fiancée or long term lover or new lover, and having no other sexual partners (yes/no), 3) had one or more casual partners (yes/no), 4) any condom use with main sexual partner (yes/no), and 5) categories of condom use with casual partners (none, some [1–79% of occasions], frequent [>80% of occasions]).

Data Analysis

A multivariate analysis of variance (MANOVA) was utilized to address objective one: to determine if men and women substance abusers differentially endorsed barriers to using condoms as measured by the CBS. The four CBS factor scores served as dependent variables with gender (male vs. female) as the independent variable. A MANOVA was also utilized to address objective two: to determine if men and women substance abusers differ in condom use skills. Total MCUS and total FCUS scores served as dependent variables, gender the independent variable. For both MANOVAs described above, if the multivariate *F*-value was significant at a *p* .05, univariate analyses of variance (ANOVA) were conducted for each CBS or CUS scale. For each CBS and CUS scale for which a subsequent statistically significant univariate *F*-value was observed, a series of contingency analyses utilizing the *chi-square* statistic were conducted with the items for the significant factors. CBS items were dichotomized as “endorsed” (strongly agree/agree) or “not endorsed” (neither agree nor disagree/disagree/strongly disagree). To guard against type 1 error, a Bonferroni correction was applied for the analyses conducted at the item level with *α* for *p* being set at .05/number of items on the scale or factor.

A MANOVA was used to address objective three: to determine if CBS endorsement and MCUS/FCUS vary as a function of gender and recent condom use for vaginal or anal intercourse with main and casual sexual partners. CBS and CUS scales served as dependent

measures with gender and condom use groups serving as independent variables. Separate MANOVAs were run for participants who reported having a main partner and participants who reported having a casual partner(s). Participants who reported having a main partner and casual partner(s) were included in both analyses. Univariate ANOVAs were generated if the multivariate F -value was statistically significant ($p \leq .05$).

Results

Men and women were not significantly different in mean age ($M=39.1$ [$SD=10.5$] vs. $M=38.8$ [$SD=9.0$]) or years of education ($M=12.1$ [$SD=2.1$] vs. $M=12.2$ [$SD=1.9$]). The sample was 65.1% white, 25.1% black, 8% mixed race (84.1% identified Native American as part of the mix), 1.3% Native American/Alaskan Native, 0.5% Asian/Pacific Islander. Hispanic ethnicity was endorsed by 13.6% of the sample. Men (50.9%) were more likely to be from an ethnic/racial minority (non-white and/or Hispanic) than women (41.8%, $\chi^2=9.13$, $p = .003$). Women (96.7%) were slightly more likely to be sexually active in the 90 days prior to baseline assessment than men (92.8%, $\chi^2=7.58$, $p = .006$). Men and women did not differ by monogamy status (57.1% vs. 56.4%), having a main sexual partner (71.6% vs. 71.6%), or having casual partners (49.6% vs. 47.7%). Fewer women reported any condom use with a main partner (9.8%) compared to men (14.0%, $\chi^2=4.22$, $p = .04$). However, women and men did not differ in percent reporting frequency of condom use with casual partners (none, 76.9% vs. 79.8%; some, 13.3% vs. 13.5%; frequent, 9.8% vs. 6.7%).

Presented in Table 2 is the summary of the MANOVA comparing men and women participants on the CBS. Men endorsed more barriers to condom use (lower scores) on the factors of Effects on Sexual Experience, Accessibility, and Motivation. On the Effects on Sexual Experience factor, men were more likely to endorse all the barrier items listed in Table 1, except for item 2a (“Condoms rub and cause irritation”), at a significantly higher rate ($p \leq .007$) than women (differences by specific factor items are not shown). On the Motivational Barriers factor, men endorsed two additional barriers compared to women, “I don’t want my partner to put a condom on me/I don’t want to put a condom on my partner” (item 4b; 51.1% vs. 42.9%, $\chi^2=7.31$, $p = .007$) and “I don’t need to use a condom, I never catch anything” (item 4e; 13.4% vs. 8.0%, $\chi^2=8.11$, $p = .004$). On the Accessibility/Availability factor, “Condoms are against my religious values” (item 3a; 6.6% vs. 1.4%, $\chi^2=18.78$, $p < .001$) was the only item with a significantly different endorsement rate by gender.

Also presented in Table 2 is the summary of the MANOVA comparing men and women participants on CUS measures. Women demonstrated superior condom application and removal skills for both the male and female condom. For male condoms, women scored better than men only on “Chose a water-based lubricant” (CUS item 2; 38.7% vs. 49.6%, $\chi^2=13.18$, $p < .001$). Men scored higher than women only on “Tied off condom and disposed of in trash” (CUS item 14; 22.2% vs. 14.2%, $\chi^2=11.51$, $p < .001$). For female condoms, women scored higher than men on five items, including several associated with potential female condom failure: “Package is opened carefully” (FCUS item 2; 66.1% vs. 75.3%, $\chi^2=10.47$, $p = .001$); “Inner ring squeezed between fingers” (FCUS item 6; 44.7% vs. 59.1%, $\chi^2=21.73$, $p < .001$); “Inner ring pushed into vaginal canal while squeezed” (FCUS item 7; 54.0% vs. 63.6%, $\chi^2=9.83$, $p = .002$); “Inner ring placed against cervix so that it is completely covered” (FCUS item 8; 43.3% vs. 65.0%, $\chi^2=48.58$, $p < .001$); “End of condom is twisted and removed by pulling, with care taken not to spill its contents” (FCUS item 10; 17.7% vs. 26.5%, $\chi^2=11.92$, $p = .001$).

Table 3 shows CBS and CUS differences between men and women as a function of whether they used condoms for any sexual occasion during the prior 90 days with their main sexual

partner. There was a significant multivariate gender by condom use interaction. On the Motivational barriers factor both men and women condom users report fewer barriers than non-condom users, but the difference between users and non-users is greater for women compared to men. Consistent with findings in Table 2, women demonstrated superior male and female condom use skills compared to men. Users of condoms demonstrated greater skills on the use of the male condom than non-users, however, no difference in female condom use skills were observed between condom users and non-users.

Presented in Table 4 are CBS and CUS differences between men and women as a function of frequency of condom use with their casual sexual partners in the prior 90 days (no use, some use, frequent use [$>80\%$ of occasions]). The multivariate F -value for gender by condom use interaction approached statistical significance ($p = .051$). There is a significant condom use frequency by gender interaction for the CBS Effects on Sexual Experience factor. Differences among the condom frequency groups are larger for men than women. Men who use condoms frequently endorsed fewer barriers than male non-users or sometime-users. There was a multivariate significant main effect for gender with women endorsing fewer barriers on the Effects on Sexual Experience factor. There was a multivariate main effect for recent condom use, with condom users endorsing fewer barriers on the Partner, Effects on Sexual Experience, and Motivational Barriers factors. For the CUS there was a main effect for gender with women demonstrating greater FCUS scores. However, no differences between men and women were detected for the MCUS and there was not a main effect for recent condom use frequency.

Discussion

This study elucidates differences between male and female substance abuse treatment seekers on attitudinal barriers towards condom use and condom use skill. Given the primary role of consistent condom use in the prevention of HIV and other STIs among this population, directing interventions to more closely target important gender-specific condom attitude and skill differences is a critical endeavor. Baseline data from these large ($n=1,105$ combined), community-based risk reduction trials offer a unique opportunity to address gender-related questions related to sexual risk behavior, condom attitudes, and skills.

Differences between men and women in sexual risk behavior

In this study, women and men did not differ greatly in the degree to which they reported engaging in sexual risk behavior. Although more women than men reported sex in the past 90 days, the rates were above 90% for both groups, a possible artifact of a study inclusion criterion -having had unprotected vaginal or anal intercourse in the 6 months prior to study entry. Therefore, this study's sample was comprised of particularly high risk individuals, despite participants' status as being in treatment. Women were less likely than men to have used a condom with a main sexual partner, but women and men did not differ in the types of partners they reported or in the degree to which they used condoms with casual partners.

Overall, these findings suggest slightly more risk for women by virtue of being somewhat more likely to be sexually active and, similar to the Brooks et al.²⁴ finding, very infrequently using condoms with a main partner. Particularly with drug-involved populations, unprotected sex with a main partner can place one at risk either because one's partner has other sexual partners or has shared injection equipment outside the sexual partnership.^{44,45} Unprotected sex with casual partners is generally considered to place individuals at highest risk, and the women and men in this study were remarkably similar in whether they reported having casual partners and in how frequently they used condoms with this type of partner. Our finding of no gender effect in having casual partners differs from the Absalon et al.²⁵

report, but this could be due to differences in the populations sampled (treatment-seeking versus street-recruited).

Differences between men and women in condom barriers

For the sample as a whole, men were more likely than women to endorse barriers to using condoms. At a greater rate than women, they endorsed negative effects on sexual experience, including condoms not feeling good or natural, not fitting well, changing orgasm, interrupting the mood, and interfering with feeling close to one's partner. They were less likely to endorse motivational items related to "wanting to" put a condom on themselves or their partner and to needing to use a condom. Related to access, women and men did not differ on items about whether they can get condoms, but men were more likely to be religiously opposed to using condoms. It is not surprising that negative effects of condoms on sexual experience were reported more by men than women; this is consistent with other studies reporting men's concerns about condoms^{15,26}. It is also consistent that men reported more condom barriers overall, while women perceived a more positive balance between advantages and disadvantages of condom use²⁷.

Among those who reported having any sex with main partners, a significant interaction between gender and condom use was accounted for largely by motivational barriers. For both women and men, condom non-users reported more motivational barriers than condom users, but this difference was more pronounced for women. Among those with main partners, gender effects on barriers related to the experience of sex and accessibility were similar to those observed in the full sample; men perceived more barriers. In addition, men with main partners perceived more partner-related barriers than did women. Compared to women, men who had a steady partner may have felt at greater risk of being suspected by that partner of infidelity if they initiated condom use; infidelity is a theme in several of the partner items. These findings were counter to our pre-study hypothesis based on the literature to date that women would endorse more partner related barriers.

Women and men who reported sex with casual partners were similar to each other in their endorsement of condom barriers. On three of the four scales (Partner, Accessibility/Availability, and Motivation), they were not different. Beliefs that condoms interfere with sexual experience were endorsed less by both female and male frequent condom users than by less frequent and non-users. However, for men with casual partners, the relationship between condom use frequency and these beliefs was stronger than it was for women with casual partners, and women and men who engage in casual sex appear to be more similar than different in their beliefs about condoms. The one area of difference is effects of condoms on sexual experience, reported most by men and most related to their actual condom use frequency. It is consistent with prior qualitative research that sexual experience (e.g., natural feeling) is the most salient barrier for men¹⁵.

Differences between men and women in condom knowledge and skills

Overall, women performed better on the CUS, measuring information and behavioral skill components, than men in use of both male and female condoms, although this effect of gender did not reach significance when only those with casual partners were included in the analysis. According to the Theory of Planned Behavior, perceiving fewer negative outcomes associated with condom use (i.e., lower endorsement of barriers) would be associated with greater intentions to use condoms. Although we did not assess condom intentions, the relationship between beliefs and intentions has been confirmed for condom use in prior literature.^{19,46,47} For women, greater intention may have increased the salience of condom information, resulting in a higher level of skill than that observed in the men in this study. An additional interpretation is that women are more likely to seek out health-related help

and resources in general, thus increasing access to information about proper condom use. Indeed, differences between men and women in help-seeking are well-documented in the literature, in which women are shown to be more likely to seek help than males.^{48,49}

Only one other study has reported comparisons between men and women in condom use skills.⁵⁰ Among sexually active inner-city adolescents, skill in putting a condom on a model was not different between female and male adolescents, but females rated themselves as less comfortable completing the task. That adult women in substance abuse treatment were the most informed and skillful regarding condom use has important implications for interventions with both women and men. Beyond teaching women how to use condoms and how to negotiate condom use with a partner, it may be beneficial to explore with women how to share this knowledge with a male partner. Likewise, greater attention should be paid on how to better engage men in learning condom use skills. For example, the Real Men Are Safe and Safe Sex for Women interventions specifically included both male and female condom skill education for all participants. We did not assume that men would be disinterested or lack opportunity to advocate for or apply female condoms. In fact, results from the Real Men Are Safe study³⁴ showed that men in our study did introduce female condoms to partners. Partners are also often a source of information, and ignoring male skill in this area reinforces notions that STI protection is the responsibility of women. Therefore, we took an inclusive approach, believing that 1) men in substance abuse treatment can successfully be taught these skills, and 2) interventions that include both demonstration and practice of condom use are likely to be most successful at increasing men's skills and information about both male and female condom use.²⁰

Limitations

The data are taken from two parallel, but separate, intervention studies that were not designed specifically to compare women and men with each other. Thus, the two samples may differ in characteristics not assessed that are in some way related to the differences identified. We do know that the two studies differed in one potentially important inclusion criterion: recent participation in penetrative sex. Thus, women who were included had to have had sex with a man, even though they could identify as lesbian or bisexual, whereas men could have had sex exclusively with other men (3.4% [n=20] reported having had sex only with other men in the 90 days prior to baseline assessment). Although the study was conducted in a variety of treatment settings and had few exclusion criteria, the limits on generalizability in terms of patient factors such as self-referral to the study, age, type of substance of abuse, psychiatric and substance abuse diagnosis, and sexual history have not been explored. In future studies it would be useful to explore the relationship between barriers to condom use and primary drug of abuse, sex under the influence of drugs or alcohol, partner characteristics and type of sexual activity (vaginal versus anal intercourse).

Implications for sex-risk reduction interventions

Large multi-site studies provide sufficient power to detect effects that might be considered small from the standpoint of clinical significance. It would be reasonable to ask whether the findings have real implications for sexual risk prevention practice. For example, scaled score differences between men and women reported in Table 2 are all less than one point. It should be remembered that these differences are averages across multi-item scales. In addition, when individual items were re-coded as dichotomous, representing whether items were "endorsed" (strongly agree/agree) or "not endorsed" (neither agree nor disagree/disagree/strongly disagree), items on the significant factors were also significant (with Bonferroni correction). Thus these differences can be said to represent qualitative differences in whether participants perceived or did not perceive a particular barrier.

Understanding differences between women and men in their beliefs, information and skills related to condom use will allow clinicians to better tailor risk behavior intervention techniques. Gender-specific sex-risk reduction has been advocated, and, indeed, gender-specific programs have been found to be effective for both women and men in substance abuse treatment^{34,35}. A particular strength of this study is that the sample is both high risk (i.e., inclusion criterion stipulated unprotected sex in the past six months), and also engaged in treatment. One advantage of using a treatment-seeking sample is that knowledge from results can be used in the context of ongoing psychosocial outpatient counseling.

Based on results from the current study, men's interventions must continue to address multiple types of perceived barriers to condom use, particularly those related to how sex feels when using a condom. Encouragement to try different types of condoms, as well as decisional balance exercises in which benefits and costs of condom use are weighed, are common components of interventions and are of obvious value. In addition, condom use skills of men in substance abuse treatment should be addressed, and this is most optimally done through a combination of demonstration and practice.

Women's sexual risk reduction interventions are often designed to take into account power and control imbalances between men and women, and they include a focus on negotiating safer sex with male partners. In addition to these negotiation skills, women may be able to play a role in transmitting condom information and skills to their male partners; this is a potential focus for interventions. According to our finding which showed that men reported more "sexual experience" barriers than women, intervention strategies which promote sexual pleasure, as well as safer sexual practices for both men and women are warranted.⁵¹ Clinicians working with substance abusing women may also want to highlight the finding that women are more likely than men to not use a condom with a main partner. It is often assumed that treatment-seeking women in longer-term relationships are at low risk for contracting a STI, but our results suggest otherwise. Results from this study suggest that women in treatment remain vulnerable to STI contraction if their partners are engaging in sex with other partners. In fact, it is important for clinicians to remember that both men and women engage in risky sexual behavior despite being actively involved in substance abuse treatment. Additionally, for both women and men, interventions should continue to address decisional balance or, from a Theory of Planned Behavior perspective, outcome beliefs, as well as knowledge about, and skills to use, condoms. A question for future research is whether HIV prevention interventions can change beliefs about condoms create barriers to their use, and if this attitudinal change results in increased condom use, especially with casual partners.

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Table 1

Condom Barriers Scale and Condom Use Skills items.

Condom Barriers Scale^{1, 2}	
<i>Factor 1: Partner Barriers</i>	
1a	If I suggest to my partner we use a condom he or she might end the relationship.
1b	My partner does not want us to use condoms
1c	If I suggested that we use a condom, my partner would think I do not trust him or her.
1d	If I suggested we use a condom, my partner would think I'm accusing him/her of cheating.
1e	If I used a condom, my partner might think I'm cheating on him/her.
1f	If I suggested my partner use a condom, she might be turned off and lose interest in having sex.
1g	If I used a condom my partner might get angry.
1h	If I suggested my partner use a condom he/she might think I am putting him/her down or insulting him or her.
<i>Factor 2: Effects on Sexual Experience</i>	
2a	Condoms rub and cause irritation
2b	Condoms don't feel good
2c	Condoms interrupt the mood
2d	Condoms feel unnatural
2e	Condoms don't fit right
2f	I feel closer to my partner without a condom
2g	Condoms change the climax or orgasm
<i>Factor 3: Access/Availability</i>	
3a	Condoms are against my religious values
3b	Condoms cost too much
3c	I don't have transportation to buy or get condoms
3d	I would be embarrassed to buy condoms or ask for them
<i>Factor 4: Motivational Barriers</i>	
4a	Most of the time neither of us has a condom available
4b	I don't want my partner to put a condom on me/I don't want to put a condom on my partner
4c	I usually forget about using a condom
4d	I don't need to use a condom, I never catch anything
Condom Use Skills	
<i>Male Condom Use Skills²</i>	
1	Chose a latex condom
2	Chose a water-based lubricant
3	Expiration date on package is checked
4	Package is opened carefully
5	Condom checked for damage
6	Determined direction in which condom rolls
7	Condom rolled correctly downward
8	Condom rolled to base of penis

Condom Barriers Scale^{1, 2}

- 9** Air removed from condom
- 10** Space left at tip of condom
- 11** Lubricant added to inside tip of condom or penis
- 12** Turned to the side and withdrew condom
- 13** Took care to avoid spilling
- 14** Tied off condom and disposed of in trash

Female Condom Use Skills³

- 1** Expiration date on package is checked
 - 2** Package is opened carefully
 - 3** Condom checked for damage
 - 4** Condom unrolled and the two rings separated
 - 5** Condom rubbed gently to evenly spread the lubricant
 - 6** Inner ring squeezed between fingers
 - 7** Inner ring pushed into vaginal canal while squeezed
 - 8** Inner ring placed against cervix so that it is completely covered
 - 9** Outer ring covers outside of vagina
 - 10** End of condom is twisted and removed by pulling, with care taken not to spill its contents
 - 11** Condom disposed of in a trash can
-

¹ Items not loading on the same factor for men as for women are not displayed.

² Participants rate each item on a 5-point Likert-type scale from 1 (*strongly agree*) to 5 (*strongly disagree*).

Table 2

Gender differences on the Condom Barrier Scale Factor Scales and Condom Use Skills.

	Men (n=587)	Women (n=510)	
Condom Barriers Scale¹	<i>M (SD)</i> ²	<i>M (SD)</i> ²	<i>F</i>
Multivariate $\hat{f}$			16.01 ***
Partner Barriers	3.46 (0.96)	3.52 (0.94)	1.23
Effects on Sexual Experience	2.85 (0.90)	3.25 (0.88)	57.05 ***
Access/Availability	4.15 (0.63)	4.26 (0.62)	8.35 **
Motivational Barriers	3.00 (0.89)	3.21 (0.89)	14.23 ***
Condom Use Skills	Men (n=558)	Women (n=494)	
Multivariate $\hat{f}$			13.30 ***
Male Condom Use Skills ³	7.28 (2.33)	7.68 (2.28)	7.48 **
Female Condom Use Skills ⁴	4.53 (2.27)	5.26 (2.38)	26.58 ***

¹ Lower scores represent increased endorsement of barriers to condom use.² Standard deviation.³ Maximum score is 14.⁴ Maximum score is 11. $\hat{f}$ Exact *F*-value calculated from *Wilks* λ ***
p .001,**
p .01,*
p .05

Table 3
Condom Barriers Scale and Condom Use Skills Differences for Men and Women as a function of Any Condom Use with Main Sexual Partner.

	Men		Women		F _{Gender}	
	No Condom Use (n=292)	Some Condom Use (n=82)	No Condom Use (n=263)	Some Condom Use (n=45)	F _{Condom Use}	F _{Condom Use by Gender}
Condom Barriers	M (SD)					
Multivariate [†]						
Partner effects	3.31 (1.00)	3.69 (0.97)	3.51 (0.91)	4.15 (0.88)	22.28***	11.18* 2.43*
Sexual Experience Effects	2.82 (0.88)	3.09 (0.94)	3.19 (0.94)	3.71 (0.90)	27.38***	11.24*** 1.82
Accessibility	4.17 (0.63)	4.18 (0.56)	4.28 (0.62)	4.46 (0.83)	19.41***	29.89*** 1.95
Motivational Effects	2.82 (0.83)	3.34 (0.92)	3.02 (0.82)	4.06 (0.83)	2.35	9.76** 1.71
Condom Use Skills						
Multivariate					85.10***	30.07*** 9.32**
Male Condom	7.20 (2.37)	7.60 (2.47)	7.53 (2.30)	8.22 (2.39)	2.68	6.17*** 0.19
Female Condom	4.51 (2.25)	4.74 (2.43)	5.24 (2.38)	5.64 (2.24)	5.14*	3.95* 0.36
					1.74	11.83*** 0.13

[†]Exact F-value calculated from Wilks's

*** p .001,

** p .01,

* p .05

Table 4

Condom Barriers Scale and Condom Use Skills Differences for Men and Women as a function of Frequency of Condom Use with Casual Sexual Partners.

	Men			Women			F _{Condom Use}	F _{Gender}	F _{Condom Use by gender}
	No Condom Use (n=160)	Some Condom Use (n=79)	Frequent Condom Use (n=39)	No Condom Use (n=120)	Some Condom Use (n=61)	Frequent Condom Use (n=45)			
Condom Barriers									
Multivariate [†]									
							8.34 ***	3.14 *	1.94 [†]
Partner effects	3.36 (0.94)	3.55 (0.91)	3.87 (1.02)	3.22 (0.93)	3.38 (0.99)	3.74 (0.76)	9.81 ***	2.35	0.01
Sexual Experience Effects	2.65 (0.89)	2.73 (0.86)	3.55 (1.00)	3.09 (0.82)	3.18 (0.78)	3.30 (0.85)	13.40 ***	6.08 *	5.50 **
Accessibility	4.09 (0.69)	4.24 (0.52)	4.35 (0.64)	4.26 (0.60)	4.27 (0.61)	4.23 (0.58)	15.1	0.12	1.82
Motivational Effects	2.89 (0.85)	3.22 (0.84)	3.70 (1.04)	2.93 (0.72)	3.34 (0.84)	3.62 (0.80)	28.52 ***	0.90	0.38
Condom Use Skills									
Multivariate									
							0.93	5.52 **	0.81
Male Condom	7.49 (2.21)	7.47 (2.23)	7.86 (2.00)	7.68 (2.12)	8.43 (1.89)	7.96 (2.25)	1.53	3.51	1.61
Female Condom	4.70 (2.21)	4.91 (2.02)	4.94 (2.43)	5.40 (2.35)	5.82 (2.28)	5.58 (2.31)	0.91	10.35 ***	0.12

[†] Exact F-value calculated from Wilks's λ

*** p .001,

** p .01,

* p .05,

[†] p = .05