Correlates of Partner-Specific Condom Use Intentions Among Incarcerated Women in Rhode Island

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CONTEXT: *Few studies of incarcerated women have examined potential associations between risky sexual behavior and relationship context factors; thus, little is known about the correlates of intentions to use condoms with main and casual partners among this underserved population.*

METHODS: *A sample of 221 women incarcerated in a Rhode Island Department of Corrections facility in 2002–2003 were interviewed. Multiple linear regression analysis was performed to assess associations between selected demographic, psychosocial and behavioral variables and participants' reported intentions to use condoms with main and casual sexual partners in the first six months after their release.*

RESULTS: *Condom use at last sex with a main partner, sexually transmitted disease (STD) history, no strong desire to currently be pregnant, belief that others influence one's health and perceived STD risk were positively associated with women's intention to use condoms with main partners. Pregnancy history was negatively associated with intention to use condoms with a main partner. Condom use at last sex with a casual partner was positively associated with intention to use condoms with casual partners, whereas binge drinking and believing in the role of chance in determining one's health were negatively associated with intention to use condoms with casual partners.*

CONCLUSIONS: *Whether incarcerated women define a partner as main or casual may influence their decisions about the need to protect themselves by using condoms. Programs that focus on the importance of condom use with all partners could greatly benefit incarcerated women and the communities to which they return.*

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Unintended pregnancies and sexually transmitted diseases (STDs) are important and costly public health problems in the United States and are highly prevalent among incarcerated women. Nationally, 6–10% of incarcerated women are pregnant; 1,400 U.S. women gave birth while incarcerated in 1998.[1] Pregnancies in this population usually are unplanned and high-risk, and they typically result in poor outcomes.[2] Rates of STDs are substantially higher in the prison population than in the general population;[3] for example, compared with the general female population, incarcerated women had a significantly higher prevalence of chlamydia (27% vs. 0.5%) and gonorrhea (8% vs. 0.1%) in 2001.[4] In addition, many STDs increase the risk of HIV transmission at least threefold to fivefold.[5]

Most incarcerated women have had multiple sexual risk exposures. Hogben and colleagues found that incarcerated women had a relatively high lifetime number of sexual partners, and a large proportion had not used a condom at last sex; more than half reported a history of coerced sex.[6] A history of physical or sexual abuse, in childhood or adulthood, is also common among incarcerated women,[7] and such abuse may be linked to sexual and drug use behaviors that increase HIV risk.[8] Additional sexual risk behaviors reported by incarcerated women are having exchanged sex for drugs or money, having engaged in sexual intercourse with injection drug users or HIV-positive partners,

and having used alcohol or drugs before or during sex.[9]

Like many sexually active populations, incarcerated women typically have had sexual intercourse in relationships involving various levels of commitment, familiarity with partners and duration. Adults' and adolescents' use of condoms is more likely with casual partners than with main or steady partners.[10] To date, few studies of incarcerated women's sexual risk behaviors have considered these relationship context factors, and few have measured behavioral outcomes with reference to partner type to identify targets for risk reduction messages.

A study that applied the theory of planned behavior to incarcerated women's intentions to use condoms with main partners demonstrated that beliefs and attitudes about condoms, as well as social norms and perceived self-efficacy, all influence (directly or indirectly) behavioral intentions.[11] However, that study focused on women with long prison sentences (three years or more) and did not assess behavioral intentions regarding nonprimary sexual partners. Further information on factors that influence incarcerated women's decision-making regarding condom use with future primary and casual partners could help improve interventions to reduce these women's risks of STD exposure and unplanned pregnancy after they are released.

We report results of a study that we undertook to examine the following research question: What demograph-

ic, psychosocial, personal risk and behavioral variables are associated with incarcerated women's intentions of future condom use with main and casual partners?

METHODS

Participants and Procedures

Participants were recruited between June 2002 and December 2003 from the Rhode Island Department of Corrections Women's Division as part of a larger study involving a Title X program in which women began using birth control methods during their incarceration or in the community, free of charge, after their release. Participants were recruited by research assistants within seven days of entering the facility. The study sample included sentenced women and women awaiting trial.

Inmates were screened for eligibility, and all were offered reproductive and other family planning services at a local health center. To be eligible, a woman needed to be an English speaker, housed in the general facility population, aged 18 or older and competent to provide informed consent. If a woman could not be screened because she was in segregation, ill or in acute withdrawal from drugs or alcohol, her status was followed until she was released or could be evaluated for eligibility. Of the 2,298 women committed during the recruitment period, 573 were released before research staff could approach them. Of the women screened, 409 did not meet eligibility criteria; 155 eligible women declined to participate.

We restricted our analysis to women aged 18–35–the period of greatest reproductive potential[12]–who were at risk for unplanned pregnancy. We excluded 937 women because they were older than 35 or considered not at risk for unplanned pregnancy–that is, they had had a hysterectomy or tubal ligation, or they had indicated at screening that they had not been sexually active with a man in the three months before incarceration or that they wanted to become pregnant in the first six months after their release from prison. Three additional women were excluded because of incomplete data on partner type experience. The data from 221 women are included in the current analysis.

Data for this study come from the baseline interviews of the larger research project. The baseline interviews were conducted face-to-face with trained female research assistants in the Rhode Island Department of Corrections facility in a confidential, unmonitored setting. All participants provided written, informed consent. Participants were not compensated for this initial interview, although at follow-up interviews (not included in the current analysis), women were paid in the form of grocery store gift certificates. The institutional review board of The Miriam Hospital, Providence, approved the study's protocol.

Measures

• *Demographic characteristics.* Single items assessed participants' date of birth, ethnicity, race, education and religion. Prison records were reviewed to determine the total duration of women's current incarceration.

Experience of physical abuse was assessed by questions asking participants whether they had ever been physically abused or assaulted–"for example, kicked, hit, choked, shot, stabbed, burned or held at gunpoint"–by a family member, a sexual partner, someone else they knew or a stranger. Two parallel sets of items–one for "as a child" and one for "as an adult"–were used to assess previous sexual abuse, defined as experience of "nonconsensual sexual touching anywhere on your body, touching of genitals or breasts, or [being] made to have oral sex or vaginal or anal intercourse." We considered a woman to have a history of physical or sexual abuse if she responded yes to any question on the respective topic.

• *Psychosocial characteristics.* Participants' perceptions of the importance of various aspects of their health and functioning were evaluated by using the 10-item Value on Health Scale.[13] Sample items include "How important is it to you to feel in good shape?" "How important is it to you to know that your weight is right about what it should be?" and "How important is it to you to get better quickly whenever you're sick?" Reliability for this measure was excellent (Cronbach alpha, 0.95). Responses ranged from one (not important) to five (extremely important).

The level of control participants feel that they–rather than other persons or chance–have over their health and their ability to remain healthy was evaluated by using the Multidimensional Health Locus of Control scale.[14] This 18-item scale includes a subscale for internal health locus of control and two subscales for external health locus of control–one for powerful others and the other for chance. Each subscale contains six items (Cronbach alpha for subscales ranged from 0.69 to 0.71). Sample items include "If I get sick, it is my own behavior which determines how soon I get well" (internal); "My family has a lot to do with my becoming sick or staying healthy" (external–powerful others); and "My good health is largely a matter of good fortune"(external–chance). Possible responses for these measures ranged from one (strongly disagree) to five (strongly agree).

Self-efficacy to use condoms was measured by using previously evaluated scales.[15] Participants were asked, "How confident or sure are you that you would use condoms with your [main, casual] partner in these situations?" Stated situations included "when I am sexually aroused," "when I have been using drugs/alcohol" and "when I am already using another contraceptive method." Possible responses ranged from one (not at all sure or confident) to five (extremely sure or confident). For our analysis, we used the mean score of items for each partner type (Cronbach alpha, 0.94 for main partner scale and 0.95 for casual partner scale).

A 10-item version of the Center for Epidemiologic Studies Depression Scale[16] was used to measure depressive symptoms over the past seven days (Cronbach alpha, 0.87). Sample items are "I felt depressed," "I felt fearful" and "My sleep was restless." Scores ranged from one (rarely or none of the time) to five (all of the time, which was explained to mean 5–7 days).

Participants also completed the Medical Outcomes Study Social Support Survey.[17] Nineteen items on the survey assess how often various types of support are available to the respondents if they need it; survey items include "someone to help you if you were confined to a bed," "someone who hugs you," "someone to get together with for relaxation" and "someone to turn to for suggestions about how to deal with a personal problem." Possible response scores ranged from one (none of the time) to five (all of the time). For this analysis, we used the mean score of all 19 items (Cronbach alpha, 0.98).

Although desire not to become pregnant in the near future was a requirement for participation, we included a measure to capture ambivalence regarding pregnancy, because attitudes and intentions regarding pregnancy are complex and not always consistent. We used a single item that asked participants how much they agreed with the statement "I want to be pregnant now." Possible responses ranged from one (strongly disagree) to five (strongly agree). Because of a skewed distribution of responses on this item, we created a dichotomous variable to represent strong desire for pregnancy (i.e., strongly agree vs. all other responses).

•*Personal risk.* A single item assessed participants' perceived degree of risk for pregnancy in the six months following their release if they were to consistently use a method of birth control. Perceived risk of STDs with consistent use of condoms for vaginal and anal sex in the six months following release was also assessed by using a single item. Answers for these items ranged from 0% to 100% chance.

The women were asked whether they had ever been told by a health care provider that they had any of the following STDs: gonorrhea, chlamydia, trichomonas, syphilis, pelvic inflammatory disease or herpes. Symptoms of each STD were described to facilitate recall. Participants were also asked whether they had ever been pregnant. Those who reported having been pregnant were asked whether they had ever undergone induced abortion ("pregnancy termination"). All participants were also asked whether they had ever exchanged sex for drugs or money.

Participants were asked about recent heterosexual behaviors and number of partners. First, they were asked whether, in the past three months, they had had vaginal intercourse with a "main or steady partner" (defined as "someone who you are serious about and who you consider your primary sexual partner"), or "any casual or nonsteady sexual partner(s)" (defined as a friend or acquaintance whom "you do not consider your primary sexual partner" who was a partner for "vaginal intercourse, oral sex or anal sex"); for each item, participants could respond yes or no. Next, participants indicated their lifetime number of sexual partners, their total number of partners in the past 12 months and their number of casual partners during the three months before their incarceration.

•*Behavioral characteristics.* The women were asked whether a condom was used at their last sex with each partner type in the previous three months. Participants also were asked about their frequency of condom use and their frequency of use of contraceptives other than condoms in the past three months with each partner type; responses ranged from one (none of the time) to four (all of the time).

Dichotomous items were used to measure three substance use behaviors in the past 90 days: binge drinking (defined as four or more drinks in a day) at least once per week, any heroin use and any cocaine use.

•*Partner-specific condom use intentions (dependent variable).* Participants' intentions regarding condom use were evaluated by using the following question with reference to each partner type: "How often do you plan to use condoms in the next six months (following release from the Rhode Island Department of Corrections) with your [main/steady, casual/nonsteady] partner?" Possible responses ranged from one (never) to five (always).

Data Analysis

To describe the demographic, psychosocial, personal risk and behavioral characteristics of the sample, as well as responses to the dependent variable items, we calculated frequencies and percentages for categorical variables and means and standard deviations for continuous variables. If the distribution of responses for a continuous variable was highly skewed, we instead calculated the median and range.

Before testing multivariable regression models assessing predictors of intentions to use condoms with main and casual partners, we examined correlations to assess collinearity among the independent variables and bivariate relations between the independent variables and the dependent variable. An independent variable was retained for the multivariable regression analysis if it was related to the outcome variables at p≤.25 and noncollinear with other predictors.

Hierarchical multivariable regression analyses examined potential predictors of women's intention to use condoms with main and casual partners in the first six months after their incarceration. Independent variables were entered into the linear regression models as three conceptual blocks in the following order: demographic, behavioral and psychosocial correlates. (No personal risk variables met the criteria for inclusion in the multivariable analysis.) At each step, the change in the proportion of variance explained by each set of predictors was evaluated.

RESULTS
Description of the Sample

Study participants did not differ significantly from eligible women who declined to participate or from women who declined to be screened with respect to mean age, racial composition or total duration of current incarceration. The 221 women in our sample had a mean age of 24.9 years (Table 1). Nineteen percent of the women identified as Latina; 57% identified as white, 19% as black, 6% as Native American, 2% as Asian or Pacific Islander, and 24% as other. The majority of participants had relatively brief incarcerations; 51% were released within two weeks. Because participants' du-

TABLE 1. Selected characteristics and condom use intentions of incarcerated women, Rhode Island Department of Corrections, 2002–2003

Characteristic	Mean, median or % (N=221)†	Characteristic	Mean, median or % (N=221)†
DEMOGRAPHIC		**Strong pregnancy desire (%)§**	30.9
Age (mean)	24.90 (5.01)	PERSONAL RISK	
		Perceived at least some risk for self in next six mos. (%)	
Ethnicity (%)		Pregnancy	42.3
Latina	19.0	STD	34.8
Non-Latina	81.0		
		Lifetime history (%)	
Race (%)		STD	56.1
White	57.4	Pregnancy	74.2
Black	18.5	Abortion	32.1
Native American	6.0	Sex for drugs or money	31.9
Asian/Pacific Islander	1.9		
Other	24.1	BEHAVIORAL	
		Types of sexual partners in past three mos. (%)	
Education (%)		Main only	59.7
<H.S.	62.9	Main and casual	28.5
≥H.S.	37.1	Casual only	11.8
Religion (%)		**No. of partners (median)**	
Catholic	43.9	Lifetime	9 (1–997)
Protestant	30.8	Past year	2 (1–997)
Other	25.3		
		No. of casual partners in past three mos. (%)	
Total wks. of current incarceration (%)		0	60.0
<1	21.0	1	11.4
1–2	29.7	2–3	14.1
>2	49.3	≥4	14.6
Abuse history (%)		**Condom use at last sex in past three mos. (%)**	
Physical	65.2	With main partner††	28.6
Sexual	52.0	With casual partner‡‡	67.7
PSYCHOSOCIAL		**Consistent contraceptive use in past three mos. (%)§§**	
Health values (mean)‡	3.88 (0.90)	With main partner††	11.9
		With casual partner‡‡	6.7
Health locus of control (means)‡			
Internal	4.58 (0.90)	**Substance use in past three mos. (%)**	
External—powerful others	3.51 (1.06)	Weekly binge drinking	17.2
External—chance	3.17 (1.10)	Cocaine use	49.8
		Heroin use	28.1
Condom use self-efficacy (mean)‡			
With main partner	2.57 (1.52)	CONDOM USE INTENTION‡	
With casual partner	4.04 (1.23)	**With main partner (mean)**	2.67 (1.73)
Depression (mean)‡	2.77 (0.76)	**With casual partner (mean)**	4.56 (0.97)
Overall social support (mean)‡	71.81 (28.87)		

†Values in parentheses are standard deviations or ranges. ‡Possible scores range from one to five. Higher scores indicate greater value placed on health, greater agreement with the beliefs associated with the type of health locus of control, greater self-efficacy, worse depression symptomatology, more social support and stronger intention to use condoms in the first six months after release. §Strongly agreed with the statement "I want to be pregnant now." ††Among women with a main partner in the past three months. ‡‡Among women with a casual partner in the past three months. §§Any method other than condoms.

ration of incarceration was nonnormally distributed, we grouped data for this variable into three categories—less than one week, 1–2 weeks and greater than two weeks.

Sixty-five percent of the sample reported a history of physical abuse, and 52% reported a history of sexual abuse. The participants' mean score for internal health locus of control was higher than that for powerful others or chance. Women's mean score representing self-efficacy to use condoms with casual partners was higher than that for use with main partners.

Slightly more than one-third of participants (35%) believed they would have at least a 1% chance of becoming infected with an STD if they consistently used condoms in the first six months after their release. More than half the

participants (56%) reported having had an STD. Seventy-four percent of participants reported ever having been pregnant, and 32%, having undergone abortion. Almost one-third of participants (32%) reported having exchanged sex for drugs or money.

Of note, in the three months before their incarceration, 60% of women had had only main sexual partners; 29% had had both partner types and 12% had had only casual partners. Although a substantial proportion of women reported having had casual partners in the past three months (40%), nearly half of these women (47%) reported consistent condom use with such partners (not shown); moreover, 68% of women with at least one casual partner in the past three months reported having used a condom at last sex

TABLE 2. Coefficients (and 95% confidence intervals) from multiple linear regression analysis indicating associations between selected characteristics and incarcerated women's intention to use condoms in the first six months after their release, by sexual partner type

Characteristic	Main partner (N=185)	Casual partner (N=144)
Demographic		
Age	–0.03 (–0.22 to 0.16)	–0.15 (–0.33 to 0.03)
≥H.S. education	–0.17 (–0.54 to 0.21)	–0.22 (–0.58 to 0.13)
Race		
Black	–0.001 (0.55 to 0.54)	0.17 (–0.29 to 0.64)
Other	0.05 (–0.39 to 0.48)	0.18 (–0.21 to 0.56)
F (df)	*19.2 (4, 180)†*	*1.29 (4, 139)*
R²	*.04*	*.04*
Behavioral		
Condom use at last sex in past three mos.		
Main partner	2.55 (2.14 to 2.96)***	na
Casual partner	na	0.86 (0.52 to 1.21)***
STD history	0.38 (0.01 to 0.75)*	0.001 (–0.34 to 0.34)
Pregnancy history	–0.47 (–0.93 to –0.02)*	–0.20 (–0.57 to 0.17)
Abortion history	–0.05 (–0.47 to 0.38)	na
No. of casual partners in past three mos.		
1	0.38 (–0.21 to 0.96)	–0.11 (–0.58 to 0.35)
2–3	0.004 (–0.53 to 0.54)	–0.06 (–0.50 to 0.38)
≥4	0.34 (–0.24 to 0.92)	0.05 (–0.46 to 0.56)
Cocaine use in past three mos.	na	0.07 (–0.31 to 0.45)
Weekly binge drinking in past three mos.	na	–0.48 (–0.86 to –0.09)*
F (df)	*24.52 (7, 173)***	*4.82 (8, 131)***
R²	*.48*	*.22*
Psychosocial		
No strong pregnancy desire	0.48 (0.10 to 0.86)**	na
Health values	–0.02 (–0.23 to 0.18)	na
Health locus of control		
Internal	0.14 (–0.04 to 0.32)	0.10 (–0.06 to 0.26)
External—powerful others	0.23 (0.03 to 0.43)*	0.10 (–0.07 to 0.27)
External—chance	0.10 (–0.10 to 0.30)	–0.18 (–0.35 to –0.001)*
Depression	–0.18 (–0.36 to 0.01)	na
Perceived at least some STD risk	0.59 (0.18 to 0.99)**	0.03 (–0.32 to 0.38)
F (df)	*4.69 (7, 166)***	*1.40 (4, 127)*
R²	*.08*	*.02*

*p<.05. **p<.01. ***p<.001. †p=.10. Notes: df=degrees of freedom. na=not applicable (excluded from analysis). For race, the reference category is white; for number of casual partners in the past three months, zero. All other variables are dichotomous, continuous or ordered categorical.

with a casual partner (Table 1). In contrast, among those with a main partner in the past three months, only 20% reported consistent condom use (not shown), and 29% reported condom use at last sex with a main partner (Table 1). Use of cocaine and heroin in the past three months was reported by 50% and 28%, respectively.

Predictors of Condom Use Intentions

Recent condom use history with main partners, lifetime STD history, no strong pregnancy desire, increased score for powerful others health locus of control and perceived STD risk were significantly associated with stronger intention to use condoms with future main partners (Table 2). Pregnancy history was associated with decreased intentions to use condoms in the next six months with main partners. Having used a condom at last sex with a casual partner was associated with greater intentions to use condoms with future casual partners, whereas binge drinking and endorsing the belief that one's health is largely a matter of chance were associated with lower intentions to use condoms with future casual partners.

DISCUSSION

Like other sexually active populations, incarcerated women report previous experience with main and casual sexual partners. Although a majority of women reported having had only main partners in the three months before incarceration, approximately four in 10 participants reported having had casual partners during that period. It also appears that these women make decisions regarding the need for STD protection partly on the basis of partner type: We found that levels of recent condom use had been high with casual partners, but this was not the case with main partners. Women who had both main and casual partners in the three months before incarceration may be at increased risk of STD exposure because of inconsistent condom use with either partner type.

Some interesting differences emerge from our study regarding factors associated with intentions to use condoms with main compared with casual partners. Past behavior is often one of the best predictors of intentions regarding future behavior,[18] and we found that with both main and casual partners, women's condom use at most recent sex was significantly associated with their intention to use condoms after their release. Having had an STD, firmly believing that powerful others influence one's health, perceiving a personal risk of STDs and not strongly desiring to be pregnant were all associated with stronger intentions to use condoms with main partners. Incarcerated women could benefit from educational interventions that help them accurately assess their risk of contracting an STD from a main partner. Previous research indicates considerable variability regarding the accuracy of individuals' perceptions about their main partners' risk behaviors. In one study, for example, more than one-third of sexually experienced adolescents incorrectly believed that their main partners had not engaged in a risk behavior.[19] In another study, only one-quarter of participants whose partner had concurrent partners were aware of this.[20] Moreover, because having had an STD and not strongly desiring pregnancy were associated with condom use intention in our study, interventions that tie condom use to both STD prevention and pregnancy prevention might strengthen women's intentions to use condoms with main partners.

It is less clear why the sense that powerful others are in control of one's health outcomes would have driven condom use intentions with main partners. Future studies should examine how the degree to which one feels that she is in control of her health or that others control her health may influence partner-specific decision-making.

Although incarcerated women appear to use condoms more often with casual partners than with main partners, a substantial proportion of participants were inconsistent in their use with casual partners. Results from our study suggest that interventions for incarcerated women that promote consistent use of condoms with all partners should also emphasize avoiding other risk factors, such as alcohol intoxication, which can impair a person's decision-making ability regarding condom use with potential casual sex part-

ners. Such a focus may be particularly important in this population, in whom the prevalence of problem drinking is relatively high.[21] In addition, interventions to counter women's belief that chance or luck influences their health might help strengthen women's resolve to use condoms with casual partners. In contrast to previously observed links between experiencing physical or sexual abuse and engaging in risky sexual behavior,[22] we found no connection between abuse history and intention to use condoms with main or casual partners.

Limitations

Our findings should be interpreted in light of several limitations. For example, because our cross-sectional study included only women with high reproductive potential who indicated at screening that they had no plans to become pregnant in the first six months after their release, the findings may not be generalizable to older women or those who intend to become pregnant in the near future. Moreover, intentions may change over time and may differ between women who will be released soon and those who will be released much later. Yet, intentions can be a strong predictor of actual behavior.[23] In one study, for example, adolescents' condom use intentions were significantly associated with subsequent condom use up to one year later.[24] Of note, however, previous research has found that intentions are often only moderately correlated with various types of behavior, depending on the time span between the assessments of intentions and behavior.[25]

In addition, our study used mostly self-reported data, and participants' responses may reflect perceived socially desirable responses or an attempt to inflate or minimize reports of sexual behaviors. However, interviews were conducted in a confidential, unmonitored setting, and research assistants were specially trained to assure participants that their responses would remain confidential. Young women's reports of sexual behavior are accurate over moderate periods of time (e.g., three months) and when provided in face-to-face interviews.[26]

We also acknowledge that the definitions of sexual partner type (main and casual) may be oversimplified and that the category of casual partnerships includes various possible relationship contexts (e.g., strangers, one-night stands, sexual acquaintances, customers and drug-use partners). However, qualitative and quantitative research suggests that the concept of "main" partners is robust.[27]

Finally, our study used a nonrandom convenience sample of women entering the Rhode Island Department of Corrections facility. Results may not be generalizable to women incarcerated elsewhere.

Conclusion

Incarcerated women clearly represent a group who engage in sexual behavior within different types of sexual partnerships; how those partnerships are defined influences their decisions about the need for protective sexual behaviors (i.e., condom use). Women confined to prison or jail could benefit from education and preventive intervention services during their incarceration, especially just before their release, because they may soon be at risk again for the consequences of unprotected sexual intercourse—that is, STDs and unplanned pregnancy. Programs might positively influence women's intentions and actual use of condoms after their release if they focus on the importance of condom use with all partners—regardless of length of relationship, familiarity with partners and perceptions of monogamy—and discuss behaviors and beliefs that support condom use with main and casual partners. Providing such services while a woman is incarcerated could greatly benefit the individual woman as well as the community to which she returns.

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