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Predictors of Maintained High-Risk Behaviors Among Impoverished Women

SYNOPSIS

THE RESEARCHERS SOUGHT to explore and describe the demographic, cognitive, psychosocial, and behavioral factors associated with the continued risky behavior of a convenience sample of homeless and drug-addicted women two to four weeks after they had completed an AIDS education program. The sample included 942 crack users and 767 women who had multiple sex partners.

Analyses revealed that impoverished women who maintained multiple sexual partners were less likely to be in drug recovery programs than in homeless shelters. They were more likely to share needles and be involved sexually with male injection drug users compared with impoverished women who did not maintain multiple sexual partners.

Persistent crack users were older than those who reported cessation of crack use, were more often African American, and were more likely to have sex partners who were injecting drug users. Women who demonstrated less improvement in depression and distress scores, concerns, use of affective coping, appraisal of threat, and social support were more likely to maintain crack use and multiple partners.

The study's implications for the design of intervention programs aimed at risk reduction based on ethnicity are discussed.

Acquired immune deficiency syndrome (AIDS) is beginning to have a profound effect on women, with the incidence of human immunodeficiency virus (HIV) infection currently growing at a proportionately faster rate than among gay and bisexual men (*1*). Whereas the proportion of women among HIV-positive people in the United States was 25 percent in 1990, this number has now risen to at least 40 percent and is continuing to rise (*2*). Impoverished African American and Latina women have been particularly hard hit, accounting for 72 percent of all diagnosed AIDS cases in women in the United States (*2*).

Impoverished women are reportedly at increased risk for HIV infection as a result of heterosexual exposure to multiple sexual partners at risk, specifically with men who have been in jail or prison, bisexual men, and injection drug users (IDUs) (*3*). These women also have higher HIV risk because of the increased incidence of sexually transmitted diseases (STDs) and rape among them and their personal use of injection and noninjection drugs (*4–6*).

Although knowledge of HIV transmission is high among low-income women (*7,8*), recent data reveal that risky sexual behavior and crack use continue among subgroups of these women (*6*). Furthermore, the use of crack cocaine among low-income women (*5,9*) has led to increased prostitution and STDs, including HIV (*10*).

Although safer sexual practices have been presented as a way of preventing the spread of AIDS, limited understanding of cultural differences and educational and socioeconomic inadequacies have long been barriers in effectively promoting behavioral change, particularly among impoverished women (*6,8,11,12*). Moreover, little is known about whether specific factors may be predictive of continued crack use and risky sexual behavior by impoverished and homeless women after participation in an AIDS education program. Knowledge of factors that influence maintained unsafe behavior among these women is needed if health care professionals are going to reduce the spread of AIDS in this vulnerable population.

Researchers have proposed several factors based on the Health Belief Model (*13*) that affect people's ability to change high risk behavior. These include sociodemographic and behavioral factors, attitudes, beliefs, social support, and personality (*14*). More specifically, salient predictors of risky behavioral change include perceived susceptibility to disease (*15*), absence of alcohol or drug use during sex (*16,17*), perceived efficacy of risk reduction (*18*), and open communication and self-efficacy (*15*). The majority of these studies, however, have been conducted on predominantly white homosexual men (*14,18*) or college students (*15*).

Crack cocaine, which has been associated with high rates of unprotected sexual activity (*4*) and increasing STDs (*19*), is estimated to be the drug of choice for as many as 2 million women of child-bearing age (*20*). However, compared with men, female crack addicts are less likely to seek treatment for their cocaine addiction, and they encounter more difficulties in the recovery phase. A majority relapse before completion of treatment (*21,22*).

A recent study on impoverished minority women suggested differences in risky behaviors based on ethnicity and level of acculturation (*6*). In this study of 1,173 impoverished women of color, highly acculturated Latinas were most likely to use injection drugs (23 percent) compared with African American women (10 percent) and less acculturated Latinas (3.5 percent). African American women, on the other hand, were more likely than highly and less acculturated Latinas to use noninjection drugs (59 percent versus 25 percent and 1 percent) and engage in unprotected sex with multiple partners (49 percent versus 31 percent and 13 percent). Logistic regression analyses controlling for important covariates confirmed these ethnic and acculturation effects on risky behaviors. However, factors affecting behavioral change in these women over time were not examined. Thus, although we found that ethnicity and acculturation and other factors, such as age, marital status, and perceived risk of acquiring AIDS were related to risky behavior cross-sectionally, it is not known whether they are predictive of risk reduction after exposure to AIDS interventions.

The purpose of this study was to explore and describe the demographic, cognitive, psychosocial, and behavioral factors associated with maintained risky behaviors. Maintained risky behaviors were defined as continued vaginal or anal sex with multiple partners and continued use of crack cocaine 2 to 4 weeks after completion of an AIDS education program provided by African American and Latina nurses and outreach workers (*6*).

Methods

Sample and data collection. As part of a study directed primarily at minority women at risk for HIV infection in Los Angeles, a convenience sample of 3,021 African American, Latina, and white women who were residents of 22 homeless shelters, 18 drug recovery programs, and nine outreach programs were solicited for participation if they met the following criteria for inclusion:

1. They were ages 18 to 75 years.
2. They were identified as participants of drug recovery programs or were homeless and housed in a shelter or a one-room occupancy dwelling or were living on the streets.
3. They were self-identified within the past six months as being an injection drug user, a sexual partner of an IDU, a prostitute, had been having unprotected sex with two or more partners, or had been diagnosed with an STD.

The overwhelming majority of women eligible agreed to participate in the study (92 percent). Homeless shelters and drug recovery programs were recruited through letters that were sent to their directors. All interested women candidates met with African American or Latina nurses and outreach workers who described the study and the nature of participation. Those who met eligibility criteria were assured anonymity and signed informed consent. The study was approved by the human subjects committee of the University of California, Los Angeles. Data was collected in 60-minute interviews by six African-American and Latina nurses or outreach workers. Participants were paid $5 for their time. Of the 3,021 women who completed the baseline questionnaire, 1,778 were re-interviewed within two to four weeks. The others were interviewed later.

Interventions. Women were randomized by site (homeless shelter or drug recovery program) into specialized or traditional programs, as described elsewhere (*8,23*). Women in both groups were administered structured instruments that were pilot tested to establish reliability and validity. Tapes in English or Spanish, which presented the high-risk practices associated with transmission of HIV and the signs and symptoms of AIDS were shown to both groups. In the specialized program, the women in groups of four or five met with a trained African American or Latina nurse and outreach worker who provided in a culturally sensitive manner a two-hour program consisting of the following:

1. Demonstration and testing of risk-reducing behaviors including placement of condoms on plastic models and needle and syringe disinfection with bleach and water;
2. Discussion of quality problem-focused coping responses, such as ways to solve problems, seek information and health care, and the steps to take in decision-making; and

3. Techniques for enhancing self-esteem and feelings of control (*6*).

Condoms and 1-ounce bottles of bleach were provided free to both groups of women, as well as pamphlets on the process of disinfection. Women in the traditional intervention program received in groups of four or five a one-hour cuturally sensitive basic AIDS education by another African American or Latina nurse and outreach worker that consisted of AIDS etiology, symptoms, modes of transmission, and methods of protection.

Predictors. Variables thought to predict maintenance of risky sexual behavior and crack use include sociodemographic characteristics, behavioral and cognitive variables, attitudes and beliefs, social support, and personal characteristics. Sociodemographic variables include age, education, employment, ethnicity, marital status, level of acculturation, and site of residence. Behavioral variables include coping responses, both affective and problem-focused, history of STD, being an injection drug user, sharing needles, having a sex partner who shoots drugs, and trading sex for drugs. Cognitive variables include concerns and knowledge of AIDS. Attitudes and beliefs were assessed by the respondents' perceived risk of contracting AIDS. Personal characteristics included depression and self-esteem.

Outcome variables. Respondents were asked about their sexual partners and crack use at baseline and again two to four weeks after the AIDS education programs. Risky behavior outcomes at baseline were defined as (*a*) having multiple sexual partners in the past six months and (*b*) use of crack cocaine in the past six months. At followup, respondents were asked about their number of sexual partners and crack cocaine use since the AIDS educational programs.

Instruments. Sociodemographic information was elicited by structured survey questions. Perceived risk of contracting AIDS was measured by a single item: "How likely do you think you are to become infected with the AIDS virus?" Responses on a three-point scale ranged from 1 (no chance) to 3 (high chance).

AIDS knowledge was assessed using a modified 15-item questionnaire (*24*). Revisions consisted of wording simplification and the addition of four items reflecting misperceptions of HIV transmission. Sum scores were formed for the 15 items, which were measured by a true-false response set. The resulting scale had a range of 0 to 15. In the sample, Cronbach's reliability coefficient was found to be .77 for the knowledge scale.

Support available was measured by a modified version of a social support scale developed by Zich and Temoshok (*25*). In the modified instrument used in the study, each respondent was asked if support was available to her in seven separate areas, seeking a yes or no answer. An internal consistency coefficient of 0.89 was found for this study sample. Social support had a possible range from 0 to 7.

Personal characteristics included depression and self-esteem, as measured by the Center for Epidemiologic Studies Depression scale (*26,27*). The Cronbach alpha coefficient as a measure of internal consistency was 0.89. Self-esteem was assessed by a 25-item instrument (*28*) The women indicated whether self-esteem statements were "like me" or "unlike me." Reliability and convergent validity have been well demonstrated (*29*). Revisions in the study consisted of simplifying the scaling to true and false to reflect whether each feeling was experienced by the person. The modified 24-item true-false scale had a coefficient alpha of 0.82 and a possible range of 0 to 24.

The Inventory of Current Concerns, developed by Weisman and coworkers (*30*), consists of 72 items designed to assess on a three-point scale concerns of medical-surgical patients relating to health, self appraisal, work and finances, family, friends, religion, and existential issues. For this study, a revised 31-item Community-Based Inventory of Current Concerns (*31*) was used. This revised instrument, appropriate to impoverished women, dealt with concerns such as survival, hopelessness and despondency, drug addiction, and parenting.

An additional nine items were added to capture concerns related to loneliness, safety, safe sex, and family support. In this version of the instrument, the women were asked to rate, using one of two formats, how worried or upset they were about 22 of the concerns, as measured on a five-point scale ranging from 0 (not at all) to 4 (extremely), or the degree to which they would feel better if the remaining 18 concerns were not present, measured on a five-point scale ranging from 0 (not at all) to 4 (a great deal). Sample concern items included "where you will be getting your next meal?" and "having to move from place to place." Internal consistency in the study, as measured by the Cronbach coefficient alpha, was found to be .92. The revised version was scored as a mean-item scale, with a range of possible scores from 0 to 4.

The Jalowiec Coping-Scale (*32*) assesses 15 problem-focused and 25 emotion-focused coping responses. Our revision resulted in a 30-item instrument that reflected 22 emotion-focused and eight problem-focused coping strategies used by impoverished women. A five-point Likert scale indicated degree of coping use from 0 (never) to 4 (always). Sample coping items were "think of different ways to handle the problem," and "have sex for drugs, money, or other things you need." Mean scores were derived, with a possible range of 0 to 4. Reliability in this study, as measured by Cronbach's coefficient alpha, was found to be .77 for emotion-focused coping and .72 for problem-focused coping.

Acculturation was measured by 12 items that assessed assimilation into the U.S. culture by language preference (*33*). Reliability for the acculturation scale in this sample was .97; the median acculturation score for Spanish speaking Latinas was 33. Latina women were classified as being either high (more than 24) or low (less than 24) in acculturation, where a score below 24 represents feeling more comfortable with Spanish than with English.

Analysis plan. Inspection of the data revealed that only 15 low-acculturated Latinas had multiple partners and none used crack at baseline. Since there was little risky behavior for them to maintain, low acculturated Latinas were excluded from the analytic sample. Of the remaining women with baseline and followup data, 767 had multiple partners, and 942 used crack at baseline. No significant differences were found between the specialized and traditional groups for maintenance of crack use or multiple partners. At followup, 70 women (12 percent) in the traditional program continued to use crack compared with 50 (15 percent) in the specialized program. Similarly, 36 women (8 percent) in the traditional group still reported multiple partners as did 30 women (10 percent) in the specialized group.

Since no program differences were found, data were pooled to yield a sample consisting of crack using women at baseline and a sample of women having multiple partners at baseline. For these two samples, chi-square and t tests and odds ratios were used to identify correlates of continued risk behaviors and to assess the magnitude of their effects.

Results

Impoverished women who maintained multiple sexual encounters after the education program reported a mean age of 32 years and 12 years of education (table 1). No differences were observed in these characteristics as compared with women who changed their sexual behaviors during this two- to four-week time period. In terms of crack use, impoverished women who reported continued use were slightly older than those who did not (age 34 versus 32).

Maintainers of multiple sexual partners were more likely to be residents of homeless shelters or to live on the street and less likely to be participants of drug recovery programs as compared with women who did not report such risky behavior at followup (table 2). Women who continued to use crack were less likely to be in drug recovery programs than those who did not; they were also somewhat more likely to be African American (96 percent versus 87 percent) and to have a sex partner who shot drugs (19 percent versus 11 percent).

Table 1. Age and education of women maintaining and not maintaining multiple partners and crack use at followup

		Age		Education	
Variable	Number	Mean	SD	Mean	SD
Multiple partners	767	...	...	...	...
Yes	66	31.6	7.05	12.0	1.8
No	701	32.0	7.20	12.0	1.7
Crack use	942	...	...	...	...
Yes	120	33.7	6.9	12.1	1.6
No	822	[1]32.1	6.8	12.0	1.7

[1]$P < .05$.

NOTE: SD = standard deviation.

Not surprisingly, women who continued to report sex with multiple partners, compared with those who did not, more often reported needle sharing (20 percent versus 11 percent) and a sex partner who shot drugs (26 percent versus 14 percent). No significant differences were noted with respect to race overall or to employment, marital status, history of STD, injection drug or crack use, perceived susceptibility to HIV, or knowledge of AIDS at baseline between those women who did and did not report multiple partners at followup. Most of these variables were also unrelated to reported use of crack at followup as was having multiple partners at baseline.

Women who did and did not report multiple partners at baseline were about equally likely to be located for followup (63 percent versus 59 percent). On the other hand, women reporting crack use at baseline were somewhat more likely to be followed up than those who did not (64 percent versus 55 percent $P < .001$). Thus, women with risky behaviors appear to be just as likely to be followed up, if not more so.

A comparison of mean scores of psychosocial variables revealed that women who continued to have multiple partners reported somewhat less self-esteem and less social support at baseline than those who did not (table 3). No significant differences were found for women who reported crack use compared with those who did not.

Computations of odds ratios revealed a trend for Latina women to be more likely than Anglo women to maintain sex with multiple partners, whereas African Americans more closely resembled whites (table 4). Women who reported having a sex partner who shot drugs were twice as likely to continue having sex with multiple partners as women not reporting injection drug using partners. Similarly, women who shared needles were twice as likely as those not sharing to retain multiple sex partners. Trends were also noted in that women with low self-esteem and those who reported sex for drugs were more than 1½ times as likely to persist in having sex with multiple partners.

In contrast to ethnic profiles with respect to continued risky sexual behaviors, African Americans were four times as likely as whites to continue using crack two-four weeks after an AIDS education program, while Latinas did not differ from whites. Women ages 32 and older were also about twice as likely to report continued use of crack as those younger than 27. Similarly, women who reported having a sex partner who shot drugs were nearly twice as likely to continue crack use as those not having an IV drug using partner.

Finally, as depicted in table 5, when posttest-pretest difference scores in psychosocial measures were analyzed by crack use and having multiple partners at two-four weeks, many significant findings were revealed. Women who maintained these risky activities reported the least improvement in concerns, depression, affective coping, distress, appraisal of threat, self-esteem and social support. No significant differences in change scores were found for problem-focused coping, however.

Table 2. Other characteristics of women maintaining and not maintaining multiple partners and crack use at followup

	Multiple partners (N=767)				Crack use (N=942)			
	Yes (N=66)		No (N=701)		Yes (N=120)		No (N=822)	
Characteristics	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Residence:								
Homeless	43	65.2	[1]193	27.5	85	70.8	[1]191	23.2
Drug recovery residents	23	34.9	508	72.5	35	29.2	631	76.8
Race:								
African American	53	80.3	593	84.6	115	96.0	[2]715	87.0
Highly acculturated Latina	11	16.7	60	8.6	3	2.5	55	6.7
White	2	3.0	48	6.9	2	1.7	52	6.3
Marital status:								
Single	37	57.8	373	53.8	54	45.4	443	54.6
Married	7	10.9	70	10.1	11	9.2	107	13.2
Widowed,divorced, separated	20	31.3	250	36.1	54	45.4	262	32.3
Employed	5	7.7	43	6.2	6	5.0	37	4.5
History of sexually transmitted disease	40	60.6	405	57.8	71	59.2	452	55.0
Injection drug use	14	21.2	129	18.4	17	14.2	145	17.6
Share needles	13	19.7	[3]74	10.6	16	13.3	80	9.8
Sex partner shoots drugs	17	25.8	[3]94	13.6	23	19.2	[3]93	11.4
Sex for drugs	33	50.0	323	46.6	38	31.9	328	40.3
Risk of contracting AIDS	17	25.8	104	14.8	19	15.8	91	11.1
Perfect knowledge of AIDS	9	13.6	141	20.1	21	17.5	183	22.3
Crack user	46	70.8	518	74.4	...	...	...	...
Multiple partners	...	...	...	...	81	67.5	513	62.4

[1]P = .001. 2P = .01. 3P = .05. NOTE: SD = Standard deviation.

Discussion

Findings of our study revealed that impoverished women who maintained multiple sexual partners post AIDS education program compared with those who did not were more likely to be in homeless shelters and more likely to share needles and be involved sexually with male injection drug users. The fact that women residing in drug recovery programs were less at risk for HIV transmission may well reflect the limited visitation rights imposed in most shelters, as well as the clear violation of residency rules for continuation of drug use. However, these results underscore the growing body of literature that attests to the fact that homeless women are at increased risk for AIDS through their own injection drug use and indirectly through heterosexual exposure to injection drug using partners. Unfortunately, education focused on the dangers of needle sharing in a population that faces multiple crises from poverty, victimization, and physical and emotional distress on a daily basis is difficult.

The findings that women with partners who shot drugs were about twice as likely as those without such partners to maintain multiple partners and crack use even during a short followup period strongly point to the need for studies investigating the effectiveness of providing risk reduction education within a comprehensive health promotion and resource supplementation program addressed to the couple as a unit. Other supporting research has found that nearly one-fourth of Anglo women and more than half of Chicana

Table 3. Psychosocial comparison of women maintaining multiple partners and crack use versus women not maintaining these behaviors at 2–4 weeks followup

	Multiple partners (N=767)				Crack use (N=942)			
	Yes (N=66)		No (N=701)		Yes (N=120)		No (N=822)	
Variable	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Depression	38.1	4.74	37.3	10.5	35.6	10.7	36.8	10.4
Concerns	2.33	.73	2.27	.70	2.3	.69	2.2	.70
Affective coping	3.30	.53	2.25	.50	3.2	.51	3.2	.49
Problem-focused coping	3.46	.72	3.54	.68	3.5	.70	3.6	.69
Self-esteem	9.62	4.12	[1]11.12	4.73	11.49	4.09	11.03	4.70
Support available	4.17	2.84	[1]4.81	2.45	4.65	2.53	4.79	2.47

[1]P < 5.

Table 4. Correlates of women who maintain multiple partners or crack use versus women not maintaining these behaviors at 2–4 weeks followup

Baseline characteristics	Multiple partners (N=767)		Crack use (N=942)	
	Odds ratio	95 percent CI	Odds ratio	95 percent CI
Race (versus white):				
Latina	4.49	.95, 21.23	1.42	.23, 8.83
African American	2.19	.52, 9.26	4.18	1.01, 17.40
Age (versus younger than 27 years):				
28–31	1.02	.50, 2.06	1.70	.93, 3.11
32–37	.96	.48, 1.93	1.90	1.06, 3.38
38 or older	1.20	.59, 2.47	2.23	1.22, 4.07
Sexually transmitted disease	1.12	.67, 1.88	1.19	.80, 1.75
Injection drug user	1.20	.64, 2.22	.77	.45, 1.33
Crack user	.76	.43, 1.35	...	
Sex partner shoots drugs	2.2	1.22, 3.99	1.85	1.12, 3.06
Sex for drugs	1.68	.96, 2.95	1.15	.78, 1.70
Married	1.08	.47, 2.45	.67	.35, 1.29
Low self-esteem	1.58	.95, 2.64	.89	.60, 1.30
High levels of depression	1.09	.65, 1.80	.70	.47, 1.03
Multiple partners	...		1.25	.83, 1.87
Education less than 12 years	1.04	.61, 1.79	.68	.44, 1.05
Share needles	2.07	1.08, 3.98	1.42	.80, 2.53

NOTE: CI = confidence interval.

women in a methadone maintenance program reported their drug use was initiated by a drug using spouse or common-law partner (*34*) and that women are most frequently introduced to drugs by men (*35*).

Recommendations from a panel of representatives from health departments, drug abuse treatment centers, academic institutions, and service organizations reinforce the fact that intervention targeted to the couple would be more likely to promote long lasting behavioral change (*36*). Thus, a valid question that remains unanswered relates to the willingness or readiness of drug using partners to enter couple-focused intervention. Further research is also needed to learn more about relationship dynamics and role of the significant other in condoning or encouraging drug use.

The finding that women who continued to use crack at follow up were older than noncrack users may reflect the fact that older women may have just been using crack for a longer period of time and may find it harder to quit. Another possibility is that they may have given up trying to quit. Detailed assessment of age differences in drug users is certainly worthy of investigation to determine whether or not some age groups need particularly intensive intervention regarding drug use.

Prior research has documented cultural and sex barriers to drug initiation and drug recovery. For example, as noted previously, a substantial percentage of Anglo and Chicana women in one study stated that they used drugs because a spouse or partner was using drugs on a daily basis (*34*). Moreover, women are more likely than their male counterparts to receive opposition for drug treatment from friends and family (*37*). Because Latinas were more likely than whites to report continued sex with multiple partners, while African American women were most likely to report continued crack use, there is a need to investigate difficulties different ethnic groups face in changing specific types of risky behavior. This study suggests that there may also be a need

Table 5. Posttest-pretest difference in scores of women maintaining crack use or multiple partners versus women not maintaining crack use or multiple partners at 2–4 weeks followup

Variable	Crack use				Multiple partners			
	Yes (N=120)		No (N=822)		Yes (N=66)		No (N=701)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Depression	-4.46	11.82	-9.36	[1]11.90	-3.16	9.99	-9.54	[2]12.51
Concerns	-0.19	.56	-0.52	[1].74	-0.21	.75	-0.52	[2].72
Affective coping	-0.18	.54	-0.46	[1].53	-0.24	.45	-0.45	[2].56
Problem-focused coping	-0.05	.76	-0.08	.75	-0.09	.76	-0.08	.75
Self-esteem	.98	3.78	2.60	[2]4.18	1.15	4.19	2.54	[3]4.41
Support available	-0.12	2.56	.98	[2]2.57	-0.15	3.00	0.85	[2]2.65

[1]P < .001. 2P < .01. 3P < .05.

for more emphasis with highly acculturated Latina women on the dangers of having multiple sexual partners and with African Americans on the dangers of crack use. Continued reinforcment of the negative consequences of risky behaviors on HIV status for all ethnic groups is important and may have marked benefits, at least in the short term.

Finally, the fact that women who were least likely to demonstrate improvement in depression and distress scores, concerns, use of affective coping, appraisal of threat, and social support were more likely to be maintainers of both types of risky activities points to the importance of these variables in addressing risk reduction among homeless and impoverished women. However, baseline values of these variables did not identify those who would be maintainers of risky behavior. Further research is needed to provide descriptive detail of how these factors influence or are influenced by risk behavior from the perspective of the women themselves. In addition, longer follow-up is needed to determine the influence of these factors after the immediate effects of intervention programs have dissipated.

Findings of this study likewise need to be considered along with several limitations. These include limited generalizability, the use of self-report data, and the short-term followup. Nevertheless, this study provides information on maintainers of risky sex and drug behavior in a population in whom crack use and rising seroprevalence of AIDS have become problematic.

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