

# VIOLENCE AND HIV RISK BEHAVIOR AMONG MALE AND FEMALE CRACK USERS

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*Crack users are a critical group on which to focus, given their potential for both violence and HIV risk behavior. However, little is known about specific interpersonal acts of violence perpetrated by male and female crack users or the association of HIV risk behavior with interpersonal violence among male and female crack users. The purpose of this paper is to examine drug use and HIV risk behavior among three groups of crack users (those reporting no violence, those reporting a moderate rate of interpersonal violence, and those reporting a high rate of interpersonal violence) and to examine gender differences among crack users who are and are not involved in violence. Results indicate that violence is associated with higher HIV risk behavior and that there were no gender by violence group differences.*

## INTRODUCTION

The relationship between crack use and HIV risk behavior has been well established (CDC 1995; Coyle 1998; Holmberg 1996; Iguchi and Bux 1997; Inciardi 1993, 1994, 1995; Inciardi, Lockwood, and Pottieger 1993; Tortu et al, 1998; Wingwood and DiClemente 1998; Word and Bowser 1997). In fact, Inciardi (1995) has suggested that crack smokers may be at equal or greater risk for HIV than intravenous drug users. There have also been several studies indicating that crack is related to crime and violence (Chitwood, Rivers, and Inciardi 1996; De La Rosa et al. 1990; Mieczkowski 1990). Inciardi and Pottieger (1994) have suggested that the relationship between crack and crime is similar in nature to the heroin and crime literature, which shows there is a strong positive relationship between the two behaviors: the greater the use of the drug, the more involvement in crime. A research report on crime and homicide in New York

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city in 1988 indicated that the majority of drug-related homicides involved crack or cocaine (Goldstein, Brownstein, Ryan, and Bellucci 1997). The authors of that study concluded that one of the primary reasons for the link between crack/cocaine and homicides is that dealers and customers interact in a highly volatile illicit environment in which disputes cannot be settled legally and are routinely settled by physical force.

Consistent with the conclusion that violence and crack are related to the drug selling context, most crack and violence studies report on male crack users in the drug selling context. Inciardi (1990), for example, examined crack and violence among 611 adolescents in Dade County, Florida. Approximately 70 percent of the sample reported using crack daily or regularly (for a 90-day period) and reported 429,136 criminal acts during the 12-month period prior to the interview (an average of 702 offenses for each study participant). There was also a clear relationship between the proximity of an individual to the crack market and crime, including violent crime. The more involved a person was in crack distribution, the younger they were when their first crime was committed, the younger they were when first arrested, and the younger they were when they were convicted/incarcerated. Individuals closer to the crack distribution market were also more involved in violent crime (robberies and assaults). For example, of those *not* involved in crack dealing, 16 percent reported involvement in robberies and/or assaults; of those involved in minor dealing (e.g., friends), 40 percent reported involvement in robberies and/or assaults; of those involved in extensive dealing, 79 percent reported involvement in robberies and/or assaults.

A crack distribution study in Detroit reported that violence was predominately used for security at the point of retail sale, for periodically resolving conflicts with rivals, and for disciplining "employees" when necessary (Mieczkowski 1990). In fact, Mieczkowski (1990:90) states that ". . . crack as a social phenomenon is tied to violent and abusive behavior." This highlights the fact that both victimization and violence are present in a crack subculture. Fagan and Chin (1990) also examined crack sellers and violence and concluded that crack sellers are violent more often than other drug sellers and that their violence is not confined to the drug-selling context. Crack sellers more than other types of drug sellers were more often involved in a wide range of serious non-drug crimes, including property and violent offenses. Fagan and Chin (1990) summarized the crack subculture as follows:

Participation in the informal economy has increased, especially among minorities living in neighborhoods where the demand for goods and services in the informal economy rivals participation in the formal economy. In the volatile crack markets, crack sometimes has become a "currency of the realm," a liquid asset with cash value that has been bartered for sex, food, or other goods. Sellers or users with large amounts become targets for "take offs" by other sellers or users wanting the drug. In turn,

violence as self-defense is a common theme and an essential element in controlling situations in which large volumes of crack are present. (37)

Both, Mieczkowski and Fagan and Chin concluded that crack sellers were more deeply immersed in drug use, violence, and other crimes than other drug sellers.

Thus, crack users are a critical group on which to focus, given their potential for both violence and HIV risk behavior (Edlin et al. 1994; Inciardi et al. 1993; Inciardi 1990; Ratner 1993). Not only does crack appear to be associated with crime and violence, but several researchers suggest that crack users have trouble disengaging from drug use and violent behavior (Mahen 1996; McBride and Rivers 1996). For example, McBride and Rivers (1996: 43) concluded that "...the frequent use of crack cocaine is at least partially responsible for increases in criminal activities . . . Further, data strongly suggest that crack use is involved with sustaining criminal activities. Crack users appear to have particular difficulty in disengaging from their drug use patterns and its associated criminal activity." Inciardi et al. (1993) also noted that the crack/crime relationship is cyclical with crime and violence employed to finance crack use and crack use facilitating more crime/violence.

Previous studies indicate that delinquency may occur as only one of a constellation of problem behaviors (Jessor 1991). It is important to understand the degree to which violence and other problem behaviors are linked (Ellickson, Saner, and McGuigan 1997) in order to target HIV risk behavior change on crack users. It is also important to examine women in studies of violence and crack use because of their increasing involvement in the criminal justice system. While the rate of incarceration for females is lower than that of males, the number of female prisoners have increased rapidly (BJS 1991). In addition, from 1982 to 1991, the number of women arrested for drug offenses including possession, manufacturing, and sale, increased by 89 percent (FBI 1991). In one survey of women in prison, 46 percent self-reported using drugs and/or alcohol at the time of their offense (Wellisch, Anglin and Prendergast 1993). Further, the Drug Use Forecasting surveys consistently report that female arrestees have higher rates of cocaine use than male arrestees (DUF 1996). Marquart et al. (1999) indicate that women who have been incarcerated and previously used cocaine or crack have engaged in high risk behavior before entering prison and are most likely going to continue engaging in high risk behavior and drug use upon release. Further drug abuse and violence also have implications for health and mental health, especially for women (Wellisch, Prendergast, and Anglin 1994) and may serve to hamper prevention interventions in targeting risk behavior.

Most of the literature on violence among crack users focuses on classifying their criminal offenses as either violent or nonviolent, with violent offenses typically measured by questions focusing on homicide, forcible rape, assault, and robbery (Chitwood, Rivers, and Inciardi, 1996; De La Rosa et al. 1990; Mieczkowski 1990). The current study measures violence more specifically by asking about violent acts during interpersonal conflicts. Violence is typically

measured this way in research examining conflict between family members and intimate partners (Straus and Gelles 1990) and is typically referred to as interpersonal violence. These two measures of violence (criminal violence and violent behavior during interpersonal conflicts or interpersonal violence) may or may not co-occur. There is limited research focused on interpersonal violence committed by crack users and limited research on the associations of levels of violence and HIV risk behavior. The purpose of this paper is to examine drug use and HIV risk behavior among three groups of crack users (those reporting no interpersonal violence, those reporting moderate rates of interpersonal violence, and those reporting high rates of interpersonal violence) and to examine gender differences among crack users who are and are not involved in interpersonal violence.

## **METHOD**

### **SUBJECTS**

As part of the prevention initiative for high-risk crack and injecting drug users, the National Institute of Drug Abuse (NIDA) established a five-year cooperative agreement project at 23 sites<sup>1</sup> between 1990-1996 as a follow-up to the National AIDS Demonstration Research (NADR) Project. The participants for this study were selected from a total sample of 1,301 male and female crack users recruited into the NIDA Cooperative Agreement Project from Lexington and Louisville, Kentucky. The sample for the current study were crack users who were asked about violence (n=754) and who entered the study between June 1995 and January 1998. The sample for the current study was 58 percent of the overall sample, and 40 percent were female.

To be eligible for the study, participants had to be 18 years of age or older, a current injector or crack user (verified by a positive urine screen and/or visible track marks), and could not have been in drug treatment 30 days prior to entering the study. Enrollment in the project was voluntary, and confidentiality was strictly maintained. All participants were paid for their participation.

### **MEASURES**

Participants were interviewed using the Risk Behavior Assessment (RBA) questionnaire (Coyle 1998). The RBA takes, on average, 25 minutes to complete and is conducted by trained interviewers. The 80-item questionnaire covers 10 domains: (1) demographics; (2) drug use (last 48 hours, past month, ever); (3) injection practices; (4) drug treatment; (5) sexual activity; (6) sex exchange practices; (7) health; (8) arrests; (9) work; and (10) income. Several studies have assessed the reliability and validity of the RBA (Dowling-Guyer et al. 1994; Needle et al. 1995; Weatherby et al. 1994).

Violence was measured by a 10-item Conflict Tactics Scale (Straus 1990). Respondents were asked to answer yes or no to whether they had done some of

the things listed when they had a disagreement in the previous 90 days. The items included are shown in Table 1.

In addition, study participants were tested for both current drug use (with urine samples) and for HIV infection using the Centers for Disease Control and Prevention protocol. Study procedures have been described elsewhere (Dowling-Guyer et al. 1994; Weatherby et al. 1994; Wechsberg and Cavanaugh 1998).

#### *PROCEDURE*

Participants were recruited into the study by indigenous outreach workers. Subjects were approached by outreach workers in the community or were referred to the program from someone who had previously participated in the study. Study participation involved three sessions. During the first session, participants were interviewed using the Risk Behavior Assessment (RBA) questionnaire. Participants were then randomly assigned, at the community level, and were given either a standard or an enhanced intervention. The Cooperative Agreement community-based sites, in cooperation with NIDA staff, developed a standard HIV risk prevention/intervention (Coyle 1993; Wechsberg et al. 1997). An enhanced intervention was also developed by each site and was used as a comparison intervention by each site.

Participants were also tested for HIV. About two weeks later participants received HIV post-test counseling. Three to six months after the RBA was administered, participants were recontacted for a follow-up assessment. Study participation involved at least two sessions. See Coyle (1998) for the history and overview of study methodology. The current study presents data collected during the first session.

Violence groups were developed by calculating a total violence score based on the Conflict Tactics Scale (CTS). Each of the 10 items were weighted according to the procedure described by Straus (1990). Total scores ranged from 0 to 29 for both males and females. Then males and females were divided into three separate groups depending on their scores. Participants who indicated no violence in the preceding three months were in the first group (33 percent of the males and 25 percent of the females); participants who scored in the 75<sup>th</sup> percentile or above were in the extreme violence group (28 percent of the males and 30 percent of the females); and those that did report violence, but who fell below the 75<sup>th</sup> percentile, were classified into the moderate violence group (39 percent of the males and 45 percent of the females). Six females were reclassified from the moderate violence group to the extreme violence group because they reported beating someone, threatening someone with a knife or gun, and/or using a knife or a gun on someone in the previous 90 days even though their overall score was lower than the threshold for the extreme violence group.

Table 1 displays the specific violent acts reported by participants by gender and violence group. Larger proportions of males and females in the extreme violence group perpetrated more of the specific violent acts than the moderate

violence group. The mean CTS scores for the moderate violence group were 1.8 for males and 2.9 for females, and the mean CTS scores for the high violence group were 11.6 for males and 15.7 for females.

In addition, each violence item was examined separately by gender and group for significant differences. For the moderate violence group, there were only two

**TABLE 1**  
**PERCENTAGE BY GENDER AND GROUP OF PERPETRATION ITEM**

IN THE PAST 90 DAYS DID YOU HAVE A DISAGREEMENT IN WHICH YOU:	MALES (N=456)			FEMALES (N=298)		
	NO VIOLENCE (N=151)	MODERATE VIOLENCE (N=177)	EXTREME VIOLENCE (N=128)	NO VIOLENCE (N=75)	MODERATE VIOLENCE (N=133)	EXTREME VIOLENCE (N=90)
Insulted or swore at someone	0	90	89	0	83	88
Threatened to hit or throw something at another person	0	44	80	0	52	88
Actually threw something at someone	0	6	41	0	26	23
Pushed, grabbed or shoved someone	0	25	84	0	38	83
Slapped another person	0	10	41	0	14	67
Kicked, bit, or hit someone	0	7	69	0	10	69
Hit or tried to hit someone with something (an object)	0	1	43	0	19	73
Beat someone up	0	0	56	0	0	60
Threatened anyone with a knife or gun	0	0	29	0	0	58
Actually used a knife or a gun on someone	0	0	13	0	0	20

significant differences. More females reported actually throwing something at someone (93 percent) than males (7 percent,  $X^2(1)=29.8$ ,  $p<.001$ ), and more females reported hitting or trying to hit someone with an object (76 percent) than males (24 percent,  $X^2(1)=24.3$ ,  $p<.001$ ).

In the extreme violence group there were four items with significantly different gender proportions. More females reported throwing something at someone (57 percent) than males (43 percent,  $X^2(1)=26.7$ ,  $p<.001$ ); more females report slapping someone (54 percent) than males (46 percent,  $X^2(1)=14.3$ ,  $p<.001$ ); more females report hitting or trying to hit someone with an object (55 percent) than males (46 percent,  $X^2(1)=19.7$ ,  $p<.001$ ); and more females report threatening someone with a knife or a gun (58 percent) than males (42 percent,  $X^2(1)=18.2$ ,  $p<.001$ ).

### OVERVIEW OF ANALYSIS

Demographic and other nominal background data were compared using chi-square. Gender by group differences for categorical variables were tested using logistic regression. There were no gender by group differences for any of the categorical variables. Group differences for continuous variables were compared using a 2 by 3 (gender by violence group) Analysis of Variance (ANOVA). Stepwise linear regression analyses were also used to examine the overall relationship of select HIV risk behavior variables to violence scale rating. There are a number of HIV risk behavior variables in this data set, for example Dennis and Wechsberg (1998) examined 22 different HIV risk variables from this data. However, this sample consists primarily of crack users. Given the association of crack and sexual risk behavior, the following variables were chosen to examine the association of HIV risk and violence: the number of days of injection drug use, number of times of sex exchange, using drugs during sex, the number of sex partners, number of times of unprotected vaginal sex, number of IV drug using sex partners, and the number of days had sex. Due to the large number of comparisons, the significance level was adjusted to .001.

## RESULTS

### DEMOGRAPHIC CHARACTERISTICS

Table 2 shows that significantly larger proportions of those in the no violence group were African-American, and those in the extreme violence group were significantly younger than the other two groups. However, there were no other significant demographic variables by violence group.

### ECONOMIC CHARACTERISTICS

There were very few significant economic differences among the three groups. Similar proportions of the no violence group (62 percent), the moderate violence group (52 percent) and the extreme violence group (59 percent) reported an income

**TABLE 2**  
**DEMOGRAPHIC CHARACTERISTICS**

DEMOGRAPHIC CHARACTERISTICS	NO VIOLENCE (N=226)	MODERATE VIOLENCE (N=310)	EXTREME VIOLENCE (N=218)	DF	X <sup>2</sup> OR F
Average Age	37	36	34	2,748	10.7*
% Never Married	51	46	49	2	1.1
% Living alone	12	11	13	2	.66
% Living with a sex partner or spouse	19	20	23	2	.16
% Living with children under 18 years old	13	17	17	2	1.4
% Homeless	48	49	51	2	.2
% High School Graduate and Above	67	70	72	2	3.7

\*p<.001

less than \$500 in the month preceding the interview. However, significantly larger proportions of those in the extreme violence group (24 percent) self-reported income from illegal activities (the month preceding the interview) than the moderate violence group (16 percent) and the no violence group (8 percent,  $X^2(2)=21.1$ ,  $p<.001$ ).

*CRIMINAL JUSTICE INVOLVEMENT*

Eighty-one percent of the no violence group, 88 percent of the moderate violence group, and 90 percent of the extreme violence group reported ever being arrested and charged/booked with a criminal offense in their lifetime. Of those who had ever been arrested and charged/booked with criminal offenses, respondents in the extreme violence group reported spending more years, on average, in jail or prison (2.4 years) than the moderate (1.5 years) and no violence group (1.1 years,  $F(2,742)=7.4$ ,  $p<.001$ ).

*DRUG USE*

*Age of First Use.* When initiation age by substance type was examined by violence group, participants in the moderate and extreme violence group reported initiating alcohol two years younger, on average, than participants in the no violence group (see Table 3). Respondents in the extreme violence group also reported initiating crack at a younger age than the other two groups. Likewise, of those who had ever injected drugs, participants in the moderate and extreme violence group

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reported their first injection at significantly younger ages than those in the no violence group.

**TABLE 3**  
**DRUG USE**  
**(MEANS OR PERCENTAGE OF VIOLENCE GROUP)**

	NO VIOLENCE (N=226)	MODERATE VIOLENCE (N=310)	EXTREME VIOLENCE (N=218)	DF	X <sup>2</sup> OR F
<b>MEAN AGE OF FIRST DRUG USE</b>					
Alcohol	16	14	14	2,731	11.4*
Marijuana	17	16	15	2,705	3.6
Crack	30	29	27	2,744	7.1*
Cocaine	25	24	22	2,561	4.1
Heroin	29	24	24	2,166	3.4
Speedball	30	25	24	2,113	2.5
Opiates	24	23	21	2,257	2.5
Amphetamines	22	20	19	2,325	3.6
Ever Inject	28	23	24	2,316	9.2*
<b>% EVER USED</b>					
Alcohol	97%	99%	98%	2	2.1
Marijuana	89%	97%	96%	2	14.5*
Cocaine	66%	78%	80%	2	14*
Heroin	19%	25%	25%	2	3.3
Speedball	14%	17%	17%	2	.6
Methadone	4%	6%	9%	2	3.5
Opiates	24%	38%	42%	2	17.9*
Amphetamines	39%	47%	46%	2	3.6
<b>MEAN DAYS USED 30 DAYS PRECEDING THE INTERVIEW</b>					
Alcohol	13	13	15	2,731	2.2
Marijuana	4	5	7	2,705	7.1*
Crack	15	15	17	2,746	5
Cocaine	1	2	3	2,561	2.1
Opiates	1	1	4	2,257	10.2*
Amphetamines	.6	.6	.8	2,326	.14
% inject past 30 days	9%	15%	22%	2	14*
# times injected	34	30	36	2,108	.1

\* p < .001

*Ever Use.* When the proportion of each group who had ever used by substance type was examined, there were significant differences for marijuana, powder cocaine, and opiates with larger proportions of males and females in the moderate and extreme violence groups reporting having ever used marijuana, cocaine, and opiates than the no violence group (see Table 3).

*Days of Use.* Days of use in the 30 days preceding the interview by substance type are shown in Table 3 as well. Those in the extreme violence group used marijuana and opiates more days the preceding month than those in the moderate or no violence groups. The only gender by group interaction was for days of heroin use with males in the extreme violence group using heroin an average of 1.4 days; males in the moderate violence group using heroin 1 day; and males in the no violence group reporting 0 days of heroin use. Females in the no violence group reported using heroin 6 days the preceding month, females in the moderate violence group reported 0 days of heroin use, and females in the extreme violence group reported using heroin 0.4 days ( $F(2,166)=5.3, p<.01$ ).

Overall, more of those in the extreme violence group reported injecting in the 30 days preceding the interview than the other two groups, and more of those in the moderate violence group reported injecting than in the no violence group.

#### *SUBSTANCE ABUSE TREATMENT*

There were no significant overall differences by group for substance abuse treatment history. Interestingly, of those who had ever been arrested and charged/booked with a criminal offense, only 7 percent of the no violence group, 4 percent of the moderate violence group, and 7 percent of the extreme violence group reported receiving substance abuse treatment in prison or jail.

#### *SEXUAL RISK BEHAVIOR*

There were only a few sexual risk behavior differences by violence group (see Table 4) and there were no differences in sexual risk behavior by group for gender. Fewer in the extreme violence group reported having only one sex partner in the month preceding the interview than the moderate violence group or the low violence group. Also, participants in the extreme violence group reported having sex on more days and having more injecting drug using sex partners in the month preceding the interview than the other two groups, while those in the moderate violence group reported having more sex and more IV drug using sex partners than those in the no violence group. Those in the extreme violence group also reported using drugs during sex a greater number of times than the other two groups.

#### *STEPWISE LINEAR REGRESSION*

A series of regressions were then used to predict specific HIV risk behaviors to determine whether violence was more or less related to specific risk behavior. Regression models were used to predict the number of days of injection drug use, number of times of sex exchange, using drugs during sex, the number of sex partners,

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**TABLE 4**  
**SEXUAL RISK BEHAVIORS**  
**(MEANS OR PERCENTAGE OF VIOLENCE GROUP)**

	NO VIOLENCE (N=226)	MODERATE VIOLENCE (N=310)	EXTREME VIOLENCE (N=218)	DF	X <sup>2</sup> OR F
% who reported only 1 sex partner past 30 days	57%	61%	41%	2	17.3*
Average # partners past 30 days	2	3	5	2,624	2.5
# Days had sex (past 30 days)	6	8	10	2,746	10.9*
# Times had unprotected vaginal sex	7	8	12	2,581	3.9
# Times had unprotected oral sex	10	6	14	2,381	2.6
# IV drug using sex partners	.12	.23	.5	2,594	7.9*
# STDs	.95	1.4	1.3	2,748	2
# of times drugs used during sex	11	13	24	2,597	7.5*
% ever given sex for drugs or money	30%	49%	43%	2	9.3
% ever paid for sex with drugs or money	45%	43%	42%	2	.28

\*p<.001

number of times of unprotected vaginal sex, number of IV drug using sex partners, and the number of days had sex (see Table 5). Independent variables were entered in blocks (Pedhazzer 1982) with the demographic variables (age, race, gender, income, and education) entered stepwise in the first block, drug use variables (days used previous 30 days for alcohol, marijuana, crack, and cocaine) entered stepwise in the second block, and violence score was entered stepwise into the third block. All of the models were significant at p<.001 except for the final model for the number of sex partners (not discussed here).

*Injection Drug Use.* The final regression model was significant (F(5,95)=18.3, p<.001). Five variables were entered into the model: income (Beta=.35, t=4.5, p=.000); gender (Beta=.09, t=1.1, p=.26); number of days used cocaine (Beta=.46, t=6.0, p=.000); the number of days used marijuana (Beta=.30, t=3.9, p=.000); and violence score (Beta=-.17, t=-2.2, p=.032) with the adjusted R square of the model .464.

**TABLE 5**  
**STEPWISE LINEAR REGRESSIONS\***  
**(STANDARDIZED COEFFICIENTS)**

	INJECTION DRUG USE	SEX EXCHANGE	DRUGS WITH SEX	UNPROTECTED SEX	IV DRUG SEX PARTNER	DAYS HAD SEX
Age		-.12	-.11	-.16		-.12
Gender	.09	.40				.15
Income	.35		.12	.13		.18
Race			.10	.13	.10	
Cocaine	.46		.17		.23	
Marijuana	.30					.09
Crack			.12		.09	
Alcohol			.15	.14		.23
Violence score	-.17		.12		.13	.12
<i>R</i> <sup>2</sup>	.46	.19	.19	.10	.11	.17

\*All coefficients in final models significant at the .05 level.

*Sex Exchange.* The final regression model was significant ( $F(2,517)=61, p<.001$ ). Two variables were entered into the model: gender ( $Beta=.40, t=10, p=.000$ ) and age ( $Beta=-.12, t=-2.9, p=.004$ ) with the adjusted R square of the model .19.

*Using Drugs During Sex.* The final regression model was significant ( $F(7,402)=14.6, p<.001$ ). Income ( $Beta=.12, t=2.5, p=.013$ ); race ( $Beta=.10, t=1.9, p=.053$ ); age ( $Beta=-.11, t=-2.24, p=.026$ ); number of days used alcohol ( $Beta=.15, t=3.3, p=.001$ ); number of days used cocaine ( $Beta=.17, t=3.4, p=.001$ ); the number of days used crack ( $Beta=.12, t=2.4, p=.016$ ); and violence score ( $Beta=.12, t=2.4, p=.01$ ) with the adjusted R square of the model .19.

*Number of Times Had Unprotected Vaginal Sex.* The final regression model was significant ( $F(4,417)=12.2, p<.001$ ). Four variables were entered into the model: age ( $Beta=-.16, t=-3.3, p=.001$ ); income ( $Beta=.13, t=2.7, p=.008$ ); race ( $Beta=.13, t=2.6, p=.009$ ); and, the number of days used alcohol ( $Beta=.14, t=3.1, p=.002$ ) with the adjusted R square of the model .10.

*Number of IV Drug Using Sex Partners.* The final regression model was significant ( $F(4,402)=13.6, p<.001$ ). Four variables were entered into the model: race ( $Beta=.10, t=2.0, p=.046$ ); number of days used cocaine ( $Beta=.23, t=4.4, p=.000$ ); number of days used crack ( $Beta=.09, t=1.8, p=.067$ ); and, violence score ( $Beta=.13, t=2.7, p=.007$ ) with the adjusted R square of the model .11.

*Number of Days Had Sex.* The final regression model was significant ( $F(6,511)=18.9, p<.001$ ). Six variables were entered into the model: income ( $Beta=.18, t=4.4, p=.000$ ); gender ( $Beta=.15, t=3.5, p=.000$ ); age ( $Beta=-.12, t=-2.7, p=.007$ ); number of days used alcohol ( $Beta=.23, t=5.7, p=.000$ ); number of days used

marijuana (Beta=.09,  $t=2.0$ ,  $p=.045$ ); and violence scale score (Beta=.12,  $t=2.9$ ,  $p=.004$ ) with the adjusted R square of the model .17.

In summary, violence was significantly and positively related to using drugs with sex, the number of IV drug using sex partners, and the number of days of sex. Violent perpetration was significantly negatively related to injection drug use. However, violence did not predict sex exchange or unprotected vaginal intercourse.

### *HIV SEROPREVALENCE, ATTITUDES, AND KNOWLEDGE*

There were no differences by group for HIV seropositivity (7 percent of the no violence group were positive; 3 percent of the moderate violence group were positive; and 4 percent of the extreme violence group were positive) or previous history of being HIV tested (61, 67 and 70 percent respectively had ever been tested). There were also no group differences in attitudes toward chances of getting AIDS and no differences in previous HIV information by group.

### **DISCUSSION**

Results of this paper were somewhat surprising and contrary to what is usually presented in the mass media and other literature on crack and crime (Chitwood, Rivers, and Inciardi 1996; De La Rosa et al. 1990; Mieczkowski 1990). First, 30 percent of the sample in this study reported no violent perpetration in the three months preceding the interview. Inciardi and Pottieger (1994) indicated in their street sample that only .9 percent of the males and 3.6 percent of the females were involved in zero to very low crime rates (a total crime score of 1-3 out of a possible score of 30) three months preceding the interview. Since drugs and crime are frequently associated with violence, the proportion of those who reported no violent acts, even minimal violent or aggressive acts including "swearing or yelling at someone during a disagreement" was unexpected. Future research should continue to examine both measures of violence (criminal violence as typically measured among crack users and interpersonal violence) in order to more fully understand the crack and violence connection.

Another finding from this study is that, overall, there were few significant demographic differences between the three violence groups. The only significant demographic variables were race/ethnicity and age, with larger proportions of whites in the moderate violence group than the no violence group and larger proportions of whites in the extreme violence group than either of the other two violence groups. The extreme violence group had a significantly younger average age. Age and race have consistently been shown to be related to the perpetration of violent crime (Sampson and Lauritsen 1994). For example, a recent report indicated there have been dramatic increases in both homicide victimization and offending rates, particularly among young black males (BJS 1998). However, results from the current study indicate that violence was associated in decreasing proportions of African-Americans is contrary to other literature. Results may reflect unique characteristics of the sample since this study was conducted with street crack users

in a rural state. Another possibility for the findings is the manner in which violence was measured.

When drug use differences between violence groups were examined, those in the violence groups reported initiating alcohol at younger ages than the no violence group, while those in the extreme violence group reported initiating crack at a younger age, on average, than respondents in the other two groups. In addition, higher proportions of those in the violence groups reported ever using marijuana, cocaine, and opiates than respondents in the no violence groups. Also, those in the extreme violence group reported using marijuana and opiates more in the month preceding the interview than the no violence group. Larger proportions of those in the extreme violence group reported injecting than those in the moderate violence, and the no violence group, and more of those in the moderate violence group reported injecting the preceding month than the no violence group. Thus, the extreme violence group was more drug involved but not necessarily more crack involved than the other two groups. However, when the actual number of times of use for alcohol, marijuana, crack, cocaine, opiates, and amphetamines were examined for the month preceding the interview, no significant differences by group emerged. These results may suggest that violent perpetration is associated with factors other than intensity or frequency of drug use, which is consistent with other studies (Kang et al. 1994). In addition, other factors that influence violence among crack users may be drug dealing and/or criminal justice involvement.

For this study, illegal income was significantly associated with violence. This is consistent with other studies reporting that the more ingrained in the drug selling context, the greater frequency in criminal and violent acts (Chitwood, Rivers, and Inciardi 1996; De La Rosa et al. 1990; Mieczkowski 1990). Further, although those who were violent were not more likely to have been arrested or to have been arrested a greater number of times, data from this study indicate that those who were more violent had spent more years, on average, in jail and prison than those who were less violent. However, only 7 percent of the individuals in the extreme violence group reported substance abuse treatment in jail or prison. The percentage of this group who received substance abuse treatment in prison or jail did not differ significantly from the low and moderate violence group even though they had a greater exposure to jail/prison. These individuals are obviously continuing to abuse substances after release.

One implication from the data is to expand substance abuse treatment into jail/prison environments. The idea of incorporating substance abuse treatment into jail or prison environments is not new (CASA 1997; Leukefeld, Matthews, and Clayton 1992; Leukefeld and Tims 1992). A recent report estimated that 80 percent of men and women behind bars are seriously involved with drug and alcohol abuse, while only about 13 percent of state inmates and about 10 percent of federal inmates received substance abuse treatment in 1996 (CASA 1997). Further, the rate of AIDS among the prison population is more than 6 times the rate in the U.S. population (Maruschak 1997). Not only should substance abuse

treatment be targeted at inmates in jail/prison, it should incorporate specialized focus on violence, drug use, and HIV risk behavior (Leukefeld, Logan, and Farabee 1999; Wanberg and Milkman).

Specifically, results of the current study suggest there were selected sexual behavior differences between violence groups. Those in the violence groups had sex more often, used drugs during sex more often, and had more IV drug using sex partners than participants in the no violence group. Those in the extreme violence group had more sex partners (although not significant), had more IV sex partners, had sex on more days, and used drugs during sex more often than the other two groups. Results of the regression analysis were consistent with these findings as well. The regression analysis indicated there is an association of violence with HIV risk behavior over and above many demographic and drug use variables, especially with regard to sexual behavior. In fact, violence was related to using drugs with sex, IV using sex partners, and the number of days they had sex. In addition, having an IV drug using sex partner is an extremely high risk behavior for acquiring HIV (CDC 1996; Stephens and Alemagno 1994).

The data consequently suggest an association of violence with HIV risk behavior among crack users, both injection drug use and sexual behavior. HIV prevention interventions may need to consider the context in which crack users live. A crack user may be more or less involved in violence. Although drug users in the community may be more involved in violence and are at higher risk for HIV, they may be less able to change their behavior given their volatile environment. Crack users involved in violence should be encouraged, as appropriate, to enter treatment, particularly a residential treatment program. This would not only give them respite from the volatile context in which they live, but also would allow them to address their substance use issues as well as their HIV risk behaviors.

One of the most surprising findings in this study is the lack of interactions, across all of the variables, of the violence group by gender. However, it is interesting to note that females in both the moderate violence group and the extreme violence group had, on average, higher scores on the violence scale than males, especially in the extreme violence group. Further, when items were examined separately by group and gender, the only significance was on items where more female perpetrated violence. This trend was present for the moderate violence group in throwing something at someone and hitting someone with an object. For the extreme violence group, there were two additional items that females were more likely to perpetrate: slapping someone and threatening someone with a knife or a gun. There was no violence item in either group that males were more likely to perpetrate. One interpretation of these results is that women are becoming increasingly violent. These results are consistent with studies indicating that levels of criminal activity among women crack addicts may be approaching the levels of males (Anglin and Hser 1987; McCoy et al. 1995; Sommers and Baskin 1997; Sommers, Baskin, and Fagan 1996). Another

hypothesis, however, may be that these women were simply using violence to defend themselves in a volatile crack environment. There are several studies that have documented the risks of victimization associated with sex exchange (Farley and Barkan 1998; Miller and Schwartz 1995; Sterk and Elifson 1990) as well as studies that report the profound sexism noted in the crack subculture. It is a common practice for women to be victimized and degraded on a regular basis by men, which has been described in ethnographic studies of crack users (Amaro 1995; Inciardi, Lockwood, and Pottieger 1993; Mayen 1996; Ratner 1993). Regardless of the hypothesized reasons for the lack of gender differences, these data do suggest the need for further study of violence perpetration among crack using women.

Several study limitations need to be mentioned here. It is important to note that the study sample was not randomly selected. Data were collected from a purposive sample recruited from male and female drug users who were not in treatment. Thus, results from this study cannot be interpreted as representative of all substance users. Also, with the exception of HIV testing, data were self-reported, including responses to very sensitive questions. Nonetheless, conclusions from this study can be helpful in understanding selected characteristics of crack users involved in violence, their drug use, and their HIV risk behavior patterns. This information can be helpful in planning education, prevention, and intervention strategies as well as suggesting directions for future research.

In summary, there is very little information available in the literature about HIV risk behavior and interpersonal violence perpetration among crack users. This study identified a subgroup of crack users who are not involved in violence and a group of crack users who are involved in extreme violence. Violence was shown to be related to higher risk sexual behavior. There were no gender by violence group differences, which suggests that males and females in the extreme, moderate, and no violence groups are similar in terms of their drug use and sexual risk behavior. Future research is needed to understand violence among male and female crack users, the association of violence with HIV risk behavior, and to clarify the relationship between interpersonal violence perpetration and criminal behavior.

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#### **NOTES**

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