

Determinants of Needle Sharing among Intravenous Drug Users

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Abstract: Data from 110 IV-drug abusing persons in methadone maintenance were analyzed to determine the correlates of needle sharing. Sharing was directly related to peer group behavior, attitudes conducive to sharing, economic motivation to share, not owning injection equipment, and fatalism about developing AIDS.

Sharers were aware of their AIDS risk. Indicated measures to reduce needle sharing would be positive peer support groups to help resist pressures to share, legal and free access to fresh injection equipment, education on the utility of risk reduction, and increased treatment options for IV cocaine users. (*Am J Public Health* 1989; 79:459-462.)

Introduction

Intravenous drug users (IVDUs) are the largest group at risk for the acquired immunodeficiency syndrome (AIDS) in New York City.^{1,2} IVDUs also are the major window for heterosexual transmission and main source of perinatal transmission of the disease.³ The human immunodeficiency virus (HIV) can be transmitted through contaminated blood left in needles, syringes, and other injection equipment that may be shared. Although awareness and fear of AIDS reportedly have decreased sharing of injection paraphernalia, substantial numbers of addicts still engage in such behavior.⁴⁻⁶ Entry into methadone treatment has been shown to reduce IV drug use,^{7,8} but some individuals nevertheless continue or revert to drug injection and non-sterile needle sharing.^{9,10}

Existing research on needle sharing is quite limited. Two ethnographic studies have identified various situational factors, economic considerations, and social pressures that may lead to sharing.^{11,12} A survey of drug abusers in an inpatient treatment program found no demographic or personality differences between needle sharers and other drug abusers.⁵ Both the amounts of AIDS knowledge and needle sharing among IVDUs appear to be high in the New York City area,^{6,13,14} suggesting that knowledge may not affect sharing.

The present study examines addicts enrolled in methadone maintenance who continue to inject drugs, comparing those who share needles and other equipment with those who do not.

Methods

The study subjects are 110 persons in methadone maintenance who volunteered for an AIDS prevention demonstration/research project and who also reported current IV drug use. The subjects are a subset of a larger sample of 274 volunteers, the remainder of whom did not report current IV drug use. Subjects were drawn from three methadone clinics in New York City between January and September 1987. The project sample is 27 per cent of the total patient population, and the study subjects (IVDUs) are 40 per cent of the project sample. Because project participants were self-selected, they may not be completely representative of the patient population.

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The data analyzed here were obtained from a self-administered questionnaire completed by all subjects at baseline. The questionnaire was not anonymous, but confidentiality was guaranteed; the results were not available to methadone clinic staff. Subjects were paid \$15 for completing the questionnaire. The instrument consisted of fixed-response, Likert-type items written at an elementary reading level; it was also available in Spanish. Research staff were available on site to assist subjects who needed help with the questionnaires. Included were measures of knowledge about AIDS and its transmission; attitudes concerning AIDS prevention; and high-risk drug-using and sexual behaviors. IVDUs were classified as needle sharers if they reported any sharing of needles or other injection equipment within the previous month.

A set of independent variables for the analysis was derived from the questionnaire based on prior theory and research pertinent to needle-sharing behavior. These variables are: a) knowledge of AIDS risk-related behaviors; b) attitudes conducive to needle-sharing; c) intravenous drug use by one's peers; d) economic motivation to share needles; e) ownership of personal injection equipment; f) personal acquaintanceship with AIDS/ARC (AIDS-related complex) victims; g) perceived usefulness of avoiding AIDS risk behaviors; h) length of time enrolled in methadone treatment; and i) demographic characteristics. (Details of index construction are in the Appendix.)

The questionnaire also included data on needle sharers' attempts at risk-reduction, such as discretion in sharing, selectivity in partners, and equipment sterilization practices.

Results

Sociodemographic and drug use variables for the study sample are given in Table 1. Cocaine injection as well as cocaine combined with heroin ("speedballing") are predominant. The use of heroin with cocaine usually is intended to regulate cocaine effects.¹⁵ Few subjects reported injecting heroin exclusively, thus indicating the effectiveness of methadone treatment in controlling heroin use. Methadone is not a substitute for cocaine. Forty per cent of the sample reported sharing needles or other injection equipment during the preceding month. About one-fourth of the subjects who shared needles reported doing so as part of visits to shooting galleries; the remainder shared only in friendship networks or with sexual partners.

Table 2 presents the bivariate correlations between needle sharing and the independent variables. Some of the independent variables are also correlated among themselves (absolute mean intercorrelation = .23, range = .00 to .38). A multiple linear regression (OLS) analysis was conducted with

TABLE 1—Sociodemographic Characteristics, Drug Injection and Needle Sharing (N = 110)

Characteristics	Per Cent
Age (years)	
Under 30	17
30–34	42
35–39	22
40 and over	19
Gender	
Male	74
Female	26
Ethnicity	
White	64
Black	19
Hispanic	14
Other	3
Marital Status	
Single	72
Married	28
Employment	
Employed	43
Unemployed	57
Time in Methadone Program (years)	
Under 1	29
1–3	35
4 and over	36
Injected Cocaine in Last Month	75
“Speedballed” in Last Month	46
Shared Needles/Equipment in Last Month	
Not at all	60
One or two times	24
One day a week	4
A couple days a week	8
Almost every day	4

the dependent variable coded as a dichotomy (some needle sharing in last month vs no sharing). Examination of residuals indicated that the data meet the linearity and homoscedasticity assumptions required for OLS.

The result of the regression analysis, which includes all

TABLE 2—Bivariate Associations between Independent Variables and Needle Sharing^a

Variable	Correlation (r)	95% Confidence Interval ^b
Gender ^c	.17	(-.03, .37)
Age	-.14	(-.33, .06)
Ethnicity ^d	-.04	(-.24, .16)
Marital Status ^e	.23	(.04, .43)
Time in Methadone Program	.19	(-.01, .39)
Knowledge of AIDS Risks ^f	.02	(-.18, .22)
Attitudes Conducive to Sharing ^g	.43	(.27, .66)
Peer IV Drug Use ^h	.43	(.25, .64)
Economic Motivation to Share ⁱ	.40	(.22, .62)
Does not Own Injection Equipment ^j	.27	(.07, .47)
Knows AIDS/ARC Victims ^k	.09	(-.10, .29)
Perceived Utility of Risk Avoidance ^l	.35	(.17, .57)

^aCoded as no sharing = 0, some sharing = 1.

^bTo compute the confidence intervals, r was converted to the statistic Z (not standard score),¹⁶ which has an approximately normal sampling distribution with standard error = $1/\sqrt{N-3}$. For our sample, SE = .10.

^cMale = 0, female = 1.

^dWhite = 0, non-White = 1.

^eMarried = 0, single = 1.

^fHigher knowledge = higher score.

^gMore conducive attitudes = higher score.

^hMore peers using = higher score.

ⁱMore economic motives = higher score.

^jOwens = 0, doesn't own = 1.

^kMore victims known = higher score.

^lLow perceived utility = higher score.

TABLE 3—Multiple Linear Regression on Needle Sharing

Variable	Regression Coefficient	95% Confidence Interval
Gender	.101	(-.084, .287)
Age	.001	(-.014, .013)
Ethnicity	-.015	(-.179, .150)
Marital Status	.147	(-.026, .321)
Time in Methadone Program	.056	(-.128, .241)
Knowledge of AIDS Risks	.007	(-.025, .011)
Attitudes Conducive to Sharing	.098	(.022, .174)
Peer IV Drug Use	.093	(.010, .176)
Economic Motivation to Share	.132	(.016, .248)
Does not Own Injection Equipment	.252	(.039, .465)
Knows AIDS/ARC Victims	-.030	(-.197, .137)
Perceived Utility of Risk Avoidance	.121	(.039, .204)
Intercept	-.711	

variables from Table 2, is shown in Table 3. Direct associations with needle sharing were found for attitudes conducive to sharing, peers' intravenous drug use, economic motivation to share, not owning personal injection equipment, and low perceived utility of AIDS risk avoidance. Knowledge of AIDS risks, knowing AIDS/ARC victims, gender, age, ethnicity, marital status and time in methadone treatment were not associated with sharing. Interaction effects among independent variables were not explored because of the large number of possible effects relative to the sample size.

Discussion

Apparently needle sharing cannot be attributed to ignorance about the consequences of such behavior, or how to effectively protect oneself and others against infection.

Attitudes toward sharing, however, do help explain this behavior. Addicts are more likely to share if they are unwilling to tolerate withdrawal symptoms in preference to sharing and/or if they believe that their friends would be “insulted” if they refused to share. Some can be induced to share when their friends claim that the needles are “clean.” This may be due less to naivete than to reaching for an excuse to avoid threatened discomfort. Refusal to share after receiving assurances of safety may also signify distrust of one's peers.

Intravenous drug use by friends and sexual partners creates a social environment that leads to sharing. Thus our results support previous observations that peer behavior strongly influences needle sharing decisions.^{11,12}

Economic pressure to share, as indicated by being unemployed and/or by a perceived inability to afford new needles, is directly associated with sharing. Limited funds often force addicts to choose between buying new injection equipment or additional drugs.

Not owning injection equipment is independently related to sharing, i.e., addicts who are reluctant to carry injection equipment, and therefore have less reason to own it, tend to rely on sharing.

The final variable identified through the regression analysis is Perceived Utility of Risk Avoidance. One interpretation of this result is that addicts with a fatalistic attitude, who believe that their past behavior has already made them highly vulnerable to developing AIDS, are prone to continuing needle sharing. An alternative interpretation is that needle sharers' fatalism is more of a reaction to their present

behavior, rather than a cause of that behavior. In that event needle sharers may simply be indicating their realistic awareness of their heightened risk for AIDS.

Needle sharers are not denying the dangers of their behavior and do report attempts to reduce the risks posed by sharing: most sharers say they have become more careful about those with whom they share needles and most claim they only borrow injection equipment in an "emergency" (Table 4). Although we cannot know how consistent or effective these risk-reduction efforts are, needle sharers are clearly aware of the implications of their conduct. Yet despite this knowledge, their desire to use a needle or to please their drug-using friends and sexual partners is strong and immediate.

Greater claimed selectivity in partners may be one reason that most needle sharers say they "never" or only "sometimes" sterilize their injection equipment after someone else uses it (Table 4). Another reason for infrequent sterilization may be that nearly half of sharers say that their friends would be "insulted if they sterilized the works" after others have used them. Finally, when injection equipment is "cleaned," it is often with ineffective sterilization techniques, e.g., water only.

The cross-sectional nature of this study makes it impossible to draw definitive conclusions about the presence or direction of causal effects. However, our statistical results are generally consistent with the findings of previous, mainly qualitative, studies. Assuming that the variables significantly associated with needle sharing in the regression model are indeed explanatory variables, some public health measures to help reduce this AIDS risk behavior can be recommended:

- One method to reduce needle-sharing would be to strengthen addicts' abilities to resist the leads of their peers, particularly (for women) of their sexual partners. What may help them are alternative sources of social support, e.g., peer groups or women's groups, where the interpersonal and communication skills necessary to resist pressures to share can be learned and reinforced.
- Free and legal access to needles and other injection equipment, not now existing in states with sizable IVDU populations, could be useful for addicts until they decide to enter treatment or begin to respond to treatment. This conclusion supports the concept of an experimental needle exchange that may soon be implemented in New York City.¹⁷ Although this involves practical problems that are still not entirely resolved, experience with a needle exchange in Amsterdam has been favorable.¹⁸
- Because feelings of hopelessness or fatalism about developing AIDS may be inhibiting risk reduction, more emphasis should be placed on educating needle

sharers about the potential benefits of behavioral change.

- Finally, much of the attraction of continued drug abuse among these subjects is attributable to intravenous cocaine. The data point to the need to increase community resources for preventing and treating cocaine abuse as one important weapon against the transmission of AIDS.

APPENDIX

Construction of Composite Measures

Knowledge of AIDS Risks

The correct answers were summed for 28 true-false questionnaire items ($\alpha = .83$). Factor analysis of the knowledge item set did not reveal any separate subscales. Typical items are: "Anyone who has shot drugs might be carrying the AIDS virus now" (T); "If a needle looks clean it can't give you AIDS" (F); "You could get AIDS by having unprotected sex with a person who shot drugs" (T); and "Cleaning needles and works with soap and water will kill the AIDS virus" (F). (The full scale is available from the authors.)

Attitudes Conducive to Needle Sharing

This scale was constructed by counting responses to four items ($\alpha = .57$): "I'd rather get sick than share works" (agree = 1); "My buddies would be insulted if I refused to share my works with them" (agree = 1); "If someone says their works are clean, I'll share" (agree = 1); and "We don't talk much about AIDS in my crowd" (agree = 1). (In the drug use context, addicts understand the term "sick" as "dope sick.")

Perceived Utility of Risk Avoidance

This scale sums responses to three items ($\alpha = .70$): "I've already done plenty that could have exposed me to AIDS" (agree = 1); "My gut feeling is, I'm going to get AIDS sooner or later" (agree = 1); and "I never did anything that could give me AIDS" (disagree = 1).

Peer IV Drug Use

This index sums the scored responses to two items: "Some of my friends shoot up regularly" (agree = 2, not sure = 1, disagree = 0) and "In the last month, how many of your sexual partners were shooting drugs?" (two or more = 2, one = 1, none = 0).

Economic Motivation to Share

This index sums responses to two items: employment status (unemployed = 1) and "I can't afford to buy new needles all the time" (agree = 1).

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TABLE 4—Risk Reduction Attempts by Needle Sharers (N = 44)

	Per Cent
I've become a lot more careful who I shoot up with	77
I only share needles and works with certain friends	66
I only use somebody else's needles or works in an emergency	68
Cleans needles or works after someone else used	
Every or most times	29
Sometimes or never	71
Employs effective sterilization techniques ^a	50

^aSoaks in bleach, pure alcohol, rubbing alcohol, or peroxide; or boils in water.

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\$4.4 Million in Nursing Grants Available in Fiscal 1989

Approximately \$4.4 million is available in fiscal 1989 to support new grants for nurse practitioner and nurse midwifery programs, according to an announcement in the January 6 *Federal Register*.

The grants will assist in meeting the costs of projects to plan, develop, operate, expand or maintain educational programs. It is estimated that 23 competing projects averaging \$185,000 will be supported.

Public or nonprofit private schools of nursing, schools of public health, hospitals, and other public or nonprofit private entities are eligible to apply for grants, as are medical schools that received a grant or contract under section 822(a) of the Public Health Service Act prior to October 1, 1985.

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The deadline for applications is July 1. Application materials are available from:

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