SHOOTING GALLERY STRUCTURES AND HIV RISK BEHAVIORS

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INTRODUCTION

Injection drug users (IDUs) play a critical role in the spread of the Human Immunodeficiency Virus (HIV) among Puerto Rican populations. IDUs comprise more than 50% of all AIDS cases among Puerto Ricans (1, 2) and studies of HIV seroprevalence have found very high rates among IDUs in Puerto Rico (30% to 45%)(3, 4). These rates have been found to be quite similar to that of Puerto Rican IDUs living in the continental United States (5).

Since the mid-80s when HIV prevention community trials were initiated, we have been cognizant of the central role that structural units of the addicted social context play in the practice of drug related HIV risk behaviors. Notably among the social structures of the addicted social context, shooting galleries constitute structured settings potentially influencing risky behaviors and HIV transmission.

Although many preventive intervention trials have targeted networks of addicts that utilize shooting galleries, there is little information of the type of structures of shooting galleries and their relationship to risk behaviors (6, 7).

METHODS

A sample of 359 injection drug users (IDUs) was recruited in the San Juan Metropolitan Area following a stratified cluster design of 32 copping areas, street settings where illicit drugs are sold. The specific procedures used to sample drug users from the street copping areas have been detailed elsewhere (8).

In summary, two copping areas were selected at random on each month and recruitment time blocks were randomly assigned to each area. On the designated time and day, outreach workers visited the selected area, estimated the number of drug buyers in the area and selected two users using standard Kish selection tables.

The interview protocol ascertained sociodemographic characteristics, drug use patterns, health related conditions, and HIV risk behaviors during the previous 30 days. HIV serostatus was determined with ELISA and Western Blot procedures. IDUs were classified according to the types of shooting galleries used in the previous six months -- non-utilizers of shooting galleries (NU), utilizers of closed galleries (CG) (i.e., houses, apartments), and utilizers of open galleries (OG) (i.e., vacant lots, abandoned buildings, alleys) -- and compared in terms of drug injection risk behaviors.

RESULTS

Table 1

Of the total sample of 359 IDUs, 27.3% were non-utilizers of galleries, 26.5% utilized closed galleries, and 46.2% utilized open galleries. No significant differences were found in the sociodemographic composition of the three groups. Systematic and significant differences were observed in the number of years injecting, and in the proportion reporting previous drug treatment and incarceration.

TABLE 1. SOCIODEMOGRAPHIC CHARACTERISTICS, YEARS OF DRUG INJECTION, AND PREVIOUS DRUG TREATMENT AND INCARCERATION BY TYPE OF SHOOTING GALLERY USED AMONG IDUS IN PUERTO RICO (N = 359)

	UTILIZERS			
	Non-Utilizers n = 98	Closed Galleries n = 95	Open Galleries n = 166	p
Gender				
male	26.6	24.6	48.8	.062
female	31.0	36.2	32.8	
Age				
less than 30 years	36.7	26.3	21.7	.112
30 to 39 years	44.9	48.4	53.6	
40 or more years	18.4	25.3	24.7	
Married				
no	74.5	69.5	81.3	.084
yes	25.5	30.5	18.7	
Incarceration History				
no	36.7	30.5	19.3	.006
yes	63.3	69.5	80.7	
Drug Tx. Experience				
no	37.8	27.4	23.5	.044
yes	62.2	72.6	76.5	
Years of Injection				
5 years or less	34.0	23.2	16.9	.012
6 to 10 years	18.6	26.3	16.9	
11 to 15 years	18.6	14.7	21.7	
16 or more years	28.9	35.8	44.6	

Table 2

Frequency of injection was found to be associated to shooting gallery use. Users of shooting galleries injected more frequently than non-users and users of open galleries injected more frequently than users of closed galleries. The proportion of IDUs sharing needles also varied systematically with type of shooting gallery used: NU, 22.4%; CG, 37.9%; OG, 52.4%. Indirect needle sharing through the shared use of cookers varied similarly: NU, 21.4%; CG, 46.3%; OG, 51.2%. Needle bleaching was most prevalent among users of closed galleries and the difference was borderline significant. Although utilizers of shooting galleries had higher seropositivity rates, the differences were not statistically significant.

TABLE 2. BIVARIATE ANALYSES OF HIV RISK/PROTECTIVE BEHAVIORS AND HIV SEROPOSITIVITY BY TYPE OF SHOOTING GALLERY USED AMONG IDUS IN PUERTO RICO (N = 359)

	UTILIZERS			
	Non-Utilizers n = 98	Closed Galleries n = 95	Open Galleries n = 166	p
Injection Risk Behaviors				
Frequency of Daily Injection				
1 to 3 times	45.9	27.4	28.3	.001
4 or more times	54.1	72.6	71.7	
Share Needles				
no	77.6	62.1	47.6	.001
yes	22.4	37.9	52.4	
Share Cooker				
no	78.6	53.7	48.8	.001
yes	21.4	46.3	51.2	
Needle Bleaching*				
no	68.2	47.2	70.1	.050
yes	31.8	52.8	29.9	
HIV Test Results				
negative	64.9	51.6	56.0	.172
positive	35.1	48.4	44.0	

* Excludes subjects reporting no needle sharing.

Table 3

Multivariate logistic regression analyses were performed to examine differences in risk behaviors after adjusting for potential confounders. The differences in the proportion practicing risk behaviors found in the bivariate analyses were sustained in the multivariate analyses.

TABLE 3. ADJUSTED ODDS RATIOS* OF HIV RISK/PROTECTIVE BEHAVIORS AND HIV SEROPOSITIVITY BY TYPE OF SHOOTING GALLERY USED AMONG IDUS IN PUERTO RICO (N = 359)

	UTILIZERS		
	Non-Utilizers n = 98	Closed Galleries n = 95	Open Galleries n = 166
Injection Risk/Protective Behaviors			
Frequency of Daily Injection	1.0	2.14 (1.12-4.09) p = 0.021	1.84 (1.05-3.25) p = 0.035
Share Needles	1.0	2.36 (1.15-4.83) p < 0.019	4.29 (2.25-8.18) p < 0.001
Share Cookers	1.0	3.65 (1.82-7.31) p < 0.001	4.27 (2.27-8.04) p < 0.001
Needle Bleaching**	1.0	1.86 (0.52-6.70) p = 0.343	0.67 (0.20-2.23) p < 0.510
HIV Test Results	1.0	1.81 (0.92-3.56) p = 0.085	1.07 (0.59-1.96) p = 0.824

* Adjusted for gender, age, education, marital status, drug treatment experience, incarceration history, HIV test results (except in the model where HIV test result is the dependent variable), years of drug injection, and frequency of daily injection (except in the model where frequency of daily injection is the dependent variable).
** Excludes subjects reporting no needle sharing.

CONCLUSION

These results show that users of shooting galleries are at increased risk of HIV transmission and that among utilizers, those injecting in open settings constitute a specially high risk sub-group.

Although type of shooting gallery used during the previous six months was found to be associated to risk behaviors in the last 30 days it was not associated to HIV seropositivity. Given that the HIV test cannot ascertain when the exposure occurred, it is possible that the time frame of the questions about shooting gallery use and risk behaviors might not be adequately capturing the cumulative risk of exposure over time.

Current research on transmission risks and prevention has concentrated on the individuals and their behaviors. Research on factors influencing HIV transmission has tended to ignore questions of social structure and context. In the case of a disease like AIDS patterns of social association and the grouping of individuals into interacting networks provide the social contexts within which the risk behaviors of individuals might result in high or low probabilities of exposure. The detection and understanding of the social structures within which risk behaviors are practiced can be of critical value in developing effective intervention strategies.

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