TESTING AN INTERVENTION MODEL TO REDUCE HIV/AIDS AMONG HISPANIC DRUG USERS RESIDING IN PUERTO RICO

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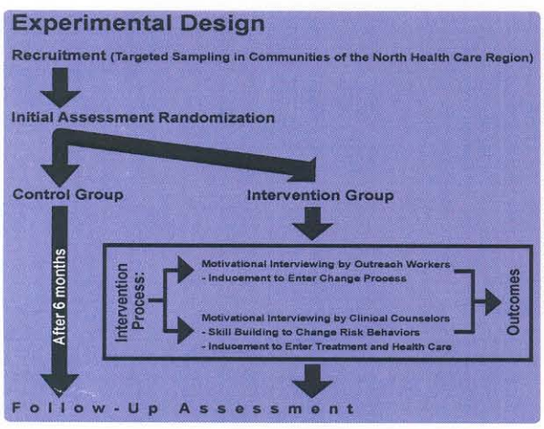
Introduction

- Puerto Rico continues to be a major AIDS epicenter;
- Presently, Puerto Rico's AIDS incidence rate is third (29.5 per 100,000 population) among US states and territories;
- The main HIV risk category in Puerto Rico is drug injection;
- High rates of HIV risk behaviors continue to take place, mainly:
  - Frequency of daily drug injection;
  - Use of shooting galleries.

Experimental Design



The study used an **experimental design** with participants randomly assigned to either the experimental double-dose Motivational Interviewing model, or to an HIV-testing model with pre- and post-test counseling and passive referrals to drug treatment.

The Intervention Model: Motivational Interviewing

STRATEGY:	DELIVERED BY:
Role inducement in the community to enter and continue in the intervention;	Community Counselors
Role inducement in the project's center to enter health care services;	Clinical Counselors
Visits to primary care physicians and other activities related to health status (e.g., immunology clinics, laboratories);	Clinical Counselors
Counseling to continue inducement to enter and complete drug treatment;	Community & Clinical Counselors
Counseling for HIV risk behaviors, including demonstration and practice;	Clinical Counselors
Continuous outreach contacts in the community or in treatment and booster sessions.	Community & Clinical Counselors

Methods

The study sample consisted of 557 injection drug users, not in treatment, living in the North Metro Health Region of Puerto Rico. Individuals were eligible if they had injected drugs in the 30 days prior to the interview, were at least 18 years of age, and were not enrolled in drug treatment during the last 30 days. Verification of injection drug use included visual examination for signs of recent venipuncture, and urinalysis using Abuscreen OnTrack® to confirm recent use of cocaine and/or morphine. After an initial interview, IDUs were offered HIV counseling and testing. The baseline interview collected detailed information about sociodemographics, drug use patterns, HIV risk behaviors, health related conditions, and health care service utilization, including that related to substance abuse. The Beck inventory scale for depression symptoms was used to measure depression symptoms. The total sample of 557 injection drug users was randomly assigned to either the experimental condition (51.2%) or the control condition (48.8%). Six months after the initial interview, 440 of the initial 557 (79.0%) were relocated and interviewed.

Analysis. Frequency distributions were used to describe the study sample. Bivariate analyses, using the chi-square test of independence, were used to compare participants in both groups across follow-up measures of injection risk behaviors and engagement in drug treatment. Finally, four logistic regression models were fitted to estimate the effects of the intervention model in reducing HIV risk behaviors, including engagement in drug treatment. The four dependent variables were: continue drug injection; frequency of daily injection; share needles; and enter drug treatment.

Results

Table 1. Description of the Study Sample by Experimental Group

	Control (n = 272)		Intervention (n = 285)		
	n	%	n	%	p
Gender					
male	239	87.9	259	90.9	
female	33	12.1	26	9.1	0.249
Age					
less than 25 years old	90	34.6	96	34.2	
25 to 34 years old	101	38.8	97	34.5	
35 years old or older	69	26.5	88	31.3	0.415
Education					
less than high school	156	57.4	161	56.5	
high school	90	33.1	86	30.2	
more than high school	26	9.6	38	13.3	0.347
HIV Seroprevalence					
negative	222	89.5	214	85.3	
positive	26	10.5	37	14.7	0.152
Frequency of Daily Injection					
0 to 2 times	97	35.9	106	37.2	
3 or more times	173	64.1	179	62.8	0.757
Years of Drug Injection					
0 to 5 years	159	58.5	155	54.4	
6 to 10 years	44	16.2	41	14.4	
11 to 15 years	29	10.7	31	10.9	
16 years or more	40	14.7	58	20.4	0.358
Social Integration					
alone	101	37.5	116	40.8	
time with friends	73	27.2	64	22.6	
time with family	95	35.3	104	36.6	0.443
Drug Treatment					
no	51	18.8	76	26.7	
yes	220	81.2	209	73.3	0.034
Deppression Symptoms					
minimal	23	8.5	28	9.8	
moderate	103	38.1	113	39.6	
severe	144	53.3	144	50.5	0.760

Table 1 compares the experimental group and control group in demographic characteristics. This table shows that the only difference between the two groups was previous drug treatment. Drug users in the control group were more likely to have been in treatment than their peers in the experimental group.

Table 2. Continue Drug Injection*

	O.R.	95% C.I.	p
Regression Model #1			
Intervention model	0.55	(0.33 , 0.92)	0.022
Regression Model #2			
Intervention model	0.56	(0.33 , 0.96)	0.036
Social Integration			
time with family	0.56	(0.31 , 1.03)	0.061
time with friends	0.69	(0.32 , 1.48)	0.340
Depression symptoms			
moderate	2.75	(1.53 , 4.95)	0.001
severe	5.26	(2.55,10.83)	=0.001
Regression Model #3			
Intervention model	0.84	(0.32 , 2.21)	0.725
Social integration			
time with family	0.49	(0.18 , 1.30)	0.153
time with friends	1.07	(0.32 , 3.58)	0.911
Depression symptoms			
moderate	2.57	(1.41 , 4.68)	0.002
severe	5.24	(2.53,10.86)	=0.001
Interaction #1			
(model by time with family)	0.52	(0.15 , 1.76)	0.291
Interaction #2			
(model by time with friends)	0.57	(0.12 , 2.78)	0.489
Interaction #3			
(drug tx. by time with family)	3.44	(1.15,10.25)	0.027

*Adjusted by gender, age, drug abuse treatment and HIV serostatus.

In terms of the multivariate analysis, the first regression model in Table 2 shows that participants in the experimental group were more prone to discontinue drug injection. In the second regression model (Table 2) we found that participants with moderate or severe symptoms of depression were less probable to withdraw from drug injection.

Table 2 also shows that participants that initiated drug treatment at follow-up and spent time with their families (interaction #3) were more likely to discontinue drug injection.

Table 3. Frequency of Daily Injection*

	O.R.	95% C.I.	p
Regression Model #1			
Intervention model	1.34	(0.81,2.20)	0.256
Regression Model #2			
Intervention model	1.42	(0.84,2.40)	0.190
Social integration			
time with family	0.54	(0.31,0.94)	0.028
time with friends	1.64	(0.75,3.60)	0.212
Depression symptoms			
moderate	1.82	(0.93,3.58)	0.081
severe	3.39	(1.68,6.84)	0.001

*Adjusted by gender, age, drug abuse treatment and HIV serostatus.

Table 3 shows that IDU's with severe symptoms of depression were more likely to use injected drugs than those without depression symptoms. Participants that spent time with their families were more likely to reduce their frequency of daily injection. No significant interaction term was found.

Table 4. Drug Abuse Treatment Initiation*

	O.R.	95% C.I.	p
Regression Model #1			
Intervention model	1.91	(1.24,2.96)	0.004
Regression Model #2			
Intervention model	1.89	(1.21,2.94)	0.005
Social integration			
time with family	1.32	(0.81,2.15)	0.272
time with friends	2.11	(1.15,3.90)	0.017
Depression symptoms			
moderate	0.67	(0.39,1.14)	0.137
severe	0.53	(0.30,0.93)	0.028
Regression Model #3			
Intervention model	1.08	(0.53,2.20)	0.526
Social integration			
time with family	0.77	(0.38,1.55)	0.461
time with friends	1.84	(0.54,6.22)	0.328
Depression symptoms			
moderate	0.69	(0.40,1.18)	0.177
severe	0.54	(0.31,0.96)	0.035
Interaction #1			
(model by time with family)	2.82	(1.06,7.48)	0.037
Interaction #2			
(model by time with friends)	1.84	(0.54,6.22)	0.328

*Adjusted by gender, age, drug abuse treatment and HIV serostatus.

In terms of drug abuse treatment, Table 4 shows that participants in the experimental model were more likely to initiate drug treatment than their counterparts in the control group. IDUs with severe symptomathology of depression were less likely to enter drug abuse treatment.

Moreover, participants in the experimental group that spent time with their families (interaction #1) were more likely to initiate drug abuse treatment.

Table 5. Share Needles*

	O.R.	95% C.I.	p
Regression Model #1			
Intervention model	0.34	(0.13 , 0.93)	0.036
Regression Model #2			
Intervention model	0.33	(0.12 , 0.90)	0.031
Social integration			
time with family	0.80	(0.28 , 2.31)	0.685
time with friends	1.43	(0.39 , 5.24)	0.590
Depression symptoms			
moderate	0.48	(0.09 , 2.52)	0.382
severe	3.68	(0.96,14.1)	0.057

*Adjusted by gender, age, drug abuse treatment and HIV serostatus.

Finally, Table 5 shows that participants in the experimental group were more likely to reduce needle sharing than IDU's in the control group. None of the other independent variables nor any of the interaction terms were statistically significant.

Conclusions

- Prevalence of chronic poverty, welfare dependency and HIV/AIDS among Hispanic/Latino drug users is related to numerous individual and social problems;
- Supportive family networks seem to provide benefits for persons suffering from chronic drug addiction;
- Evidence indicates that prognosis for serious mental illness is better in societies with extensive kinship ties, compared with those based on nuclear families;
- Our data support these previous research findings by demonstrating that, directly and in interaction with the intervention, participation in family activities played a critical role in reducing drug use and HIV risk behaviors among participants;
- Enhanced motivational interviewing intervention was unable to help drug users with depression to reduce any of the HIV risk behaviors addressed;
- Depressed participants were also less likely to enter treatment than non-depressed participants;
- This study provides strong support for the need to enhance our motivational interviewing model by providing treatment for depression, and family counseling.

Acknowledgment

This study was supported by the National Institute on Drug Abuse at the National Institutes of Health (Grant 5 R01 DA10636).

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