

THE ROLE OF FAMILY EMBEDDEDNESS, COMORBIDITY, AND DRUG TREATMENT IN THE EFFECTIVENESS OF AN HIV PREVENTION INTERVENTION MODEL

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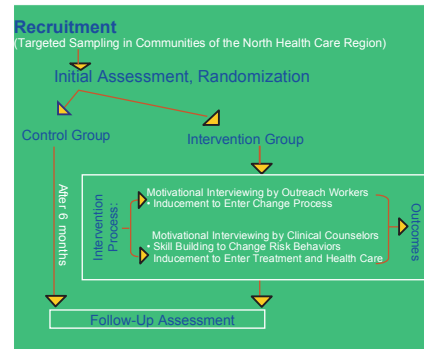
Introduction:

Motivating drug injectors to enter treatment, reduce sharing of injection equipment, and to reduce drug injection are central strategies in HIV prevention, including individual, group and community interventions.

Objective:

This study assesses the effectiveness of a culturally-enhanced Motivational Interviewing Model, consisting of clinical counseling and community outreach counseling, in reducing injection-related HIV risk behaviors and engaging participants in drug treatment. The sample consisted of a cohort of drug injectors, not in treatment, residing in the North Metro Health Region in Puerto Rico. This study responds to the need for effective prevention programs in Puerto Rico, where since the mid-1980's there has been a self-sustaining AIDS epidemic. Currently the AIDS incidence rate is 32.3 per 100,000 population, with drug injection as the main risk category.

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.

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.

TABLE 1 DESCRIPTION OF STUDY SAMPLE BY CONTROL AND EXPERIMENTAL GROUPS

Variables	Control (n=272)		Intervention (n=265)		p
	n	%	n	%	
Gender					
Male	239	87.9	259	90.9	
Female	33	12.1	26	9.1	0.249
Age					
Less than 25 yrs.	90	34.6	96	34.2	
25 – 34 yrs.	101	38.8	97	34.5	
35 yrs. or more	69	26.5	88	31.3	0.415
Education					
< High school	156	57.4	161	56.5	
High school	90	33.1	86	30.2	
> 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 injection					
0 – 2 times per day	97	35.9	106	37.2	
3 or more times per day	173	64.1	179	62.8	0.757
Years of Drug Injection					
0 – 5 years	159	58.5	155	54.4	
6 – 10 years	44	16.2	41	14.4	
11 – 15 years	29	10.7	31	10.9	
16 years or more	40	14.7	58	20.4	0.358
Social Integration (majority of free time spent with...)					
Alone	101	37.5	116	40.8	
Time w/ friends	73	27.2	64	22.6	
Time w/ family	95	35.3	104	36.6	0.443
Drug Treatment (previous)					
No	51	18.8	76	26.7	
Yes	220	81.2	209	73.3	0.034
Depression Symptoms					
Minimal	23	8.5	28	9.8	
Moderate	103	38.1	113	39.6	
Severe	144	53.3	144	50.5	0.760

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 behavior reduction including demonstration and practice;	Clinical Counselors
Continuous outreach contacts in the community or in treatment center, 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. 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 Depression Index was used to measure depression symptoms. The total sample of 557 injection drug users was randomly assigned to either the experimental condition (49.7%) or the control condition (50.3%). Six months after the initial interview, 440 of the initial 556 (79.1%) were relocated and interviewed.

Results:

Table 1 compares the experimental and control groups by demographic characteristics. The only difference found between the two groups was with respect to previous drug treatment. Drug users in the control group were more likely to have been in treatment previously than were their peers in the experimental group.

TABLE 2 DISCONTINUE 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 treatment by time with family)	3.44	(1.15,10.25)	0.027

Findings from the first regression model (Table 2) show that participants in the experimental group were more likely to discontinue drug injection. The second logistic regression model (Table 2) shows that participants with moderate or severe symptoms of depression were less likely to discontinue drug injection. In addition, Table 2 shows that participants who had initiated drug treatment at follow-up and who spent the majority of free time with their families (Interaction #3) were more likely to discontinue drug injection.

TABLE 3 FREQUENCY OF 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

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

Table 3 shows that participants with severe symptoms of depression were more likely to inject 3 or more times per day than those without depression symptoms. Participants who spent time with their families were more likely to inject less than 3 times per day (0 to 2 times). No significant interaction term was found.

TABLE 4 DRUG 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

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

TABLE 5 SHARED 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)	0.047

*Analysis adjusted by gender, age, drug abuse treatment, and HIV serostatus.
 *No significant interaction term was found.

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

Conclusions:

This motivational interviewing model was effective in entering participants in drug treatment and reducing drug injection and needle sharing. Spending time with family (family embeddedness) appears to have been a significant resource that helped participants to engage in treatment. However, the model was not effective in helping participants with a comorbid condition to achieve these outcomes and benefits of the intervention. It seems that a more comprehensive model addressing depression and anxiety is needed to be effective in helping this very chronic addicted population.

Table 4 shows that participants in the experimental model were more likely to initiate drug treatment than their counterparts in the control group. Participants who spent their time with their families were also more likely to initiate drug treatment. Those with severe symptoms of depression were less likely to enter drug treatment. Moreover, participants in the experimental group who spent time with their families (Interaction #1) were more likely to initiate drug treatment.

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