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Role of Social Network Dimensions in the Transition to Injection Drug Use: Actions Speak Louder than Words

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The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

“No relationships to disclose”

Background

- In China, the population with the highest prevalence of HIV is injection drug users (between 6.7 and 13.4%). (Wang, L 2010)
 - In Yunnan Province the average HIV prevalence among injection drug users (IDUs) in 2007 was 28.4%. (Jia, M 2010)
- Historically, in China drug users smoked or snorted heroin or opium when they initiated drug use and later transitioned to heroin injection.
- Currently, heroin use via injection is the most common drug use mode in China (Lu, L 2008)
- Social networks play a crucial role in generating and disseminating social influence (Neaigus, A 1994), and are particularly important in the context of Chinese collectivist culture which emphasizes loyalty and group goals or norms over individual goals Phillips, M 1996 and Triandis, H 1989).

Objective of the study

To examine the influences of social network factors, particularly social support and norms, in the transition from non-injection heroin or opiate use to heroin-injection.

Methods

■ Study site

- ◆ The study was implemented in two contiguous small counties in Yunnan, China in 2009.
 - ◆ Yunnan was selected because:
 - It is currently the province with the highest number of people living with HIV and AIDS (PLWHA)
 - The first case of an HIV infected drug user in China was in Yunnan in 1989)
 - Yunnan is a southwestern province which borders Myanmar, Laos and Vietnam which is one of the primary routes through which heroin and opium enter China.

Methods

■ Study participants

Eligibility for Non-transitioned heroin and/or opiate users included:

- ◆ Between the ages of 18 and 35 years and resided in either one of two contiguous small counties in Yunnan Province
- ◆ Smoked or snorted heroin or opium at least once a week in the 30 days prior to the interview
- ◆ No history of injection drug use at the time of the interview

Eligibility for Non-transitioned heroin and/or opiate users included:

- ◆ Between the ages of 18 and 35 years and resided in either one of two contiguous small counties in Yunnan Province
- ◆ Transitioned to injecting heroin from non-injection (smoking or snorting)
- ◆ Injected heroin at least once a week in the 30 days prior to the interview.

Methods

■ Respondent driven sampling was used to recruit 426 participants.

- ◆ To select productive seeds, in depth interviews were conducted among 28 heroin/opiate users and focus groups were held with those who had experience in conducting outreach among heroin and opium users.
- ◆ 14 seeds were selected based on findings from these quantitative studies.
- ◆ Three recruitment and interview sites were established in the two Yunnan counties.

■ Eligible participants participated in a face-to-face anonymous interview in a private room with a trained interviewer using a pre-tested questionnaire

Methods

- Bivariate and multiple logistic regression analyses were performed to determine the differences in social network dimensions among transitioned and non transitioned injectors
- To examine the inter-relationships between social network dimensions and the transition to injection use, hierarchical combinations of variables were used to model associations controlling for sociodemographic variables

Methods

- Three models:
 - ◆ Model 1= Network relation variables only, adjusted for sociodemographic characteristics
 - ◆ Model 2= Network relation and structural variables only, adjusted for socio-demographic characteristics
 - ◆ Model 3=Final model containing network relation, structural and functional variables adjusted for sociodemographic characteristics

Measures

- The Chinese Social Network Questionnaire (CSNQ) was used to define three types of social networks; e.g., support network, drug-use network, and sex network.
 - ◆ Network Relations
 - ◆ The type of relationship between egos and alters was measured by asking respondents to indicate which of their network members were family members, friends and sexual partners.
 - ◆ Network Structures
 - ◆ Network structural characteristics that were assessed included network density and size of support and sex networks.
 - ◆ Network Support
 - ◆ Support measures were assessed for perceived social support, tangible support and emotional support for egos from network alters.

Measures

- *Conceptual definitions of the Determinants*
 - ◆ Sociodemographics and Social network factors
- *Operational definitions of the Determinants:*
 - ◆ *Sociodemographics:* Birth date (in month and year); formal educational attainment (in years of schooling); ethnicity (Han or ethnic minority); and employment status (currently employed or unemployed).
 - ◆ *Social network factors:* Network relations, network structures and social support
- *Conceptual definition of the Outcome:*
 - ◆ Transitioning to injecting heroin or opium drug use from a non-injecting drug use status.
- *Operational definition of the Outcome*
 - ◆ A person who transitioned from non-injecting heroin or opiate drug use to injecting heroin or opium injection within the last 30 days prior to the study interview
 - ◆ *Heroin injection:* Defined as intravenous, intramuscular or subcutaneous.

Key Results

- A total of 3,121 social network alters were reported by 403 egos with an average network size of eight.
- 58% of egos transitioned to heroin injection from non-injection.
- The transition was associated with:
 - ◆ Having a larger network size (OR=1.14, 95% CI: 1.06,1.23 p<0.01);
 - ◆ Having a larger number of heroin injector's in ones network (OR=1.59, 95% CI: 1.33,1.91, p<0.01)
 - ◆ and a higher network density.

Characteristics of the sample

Characteristics	Injectors (n=235)		Non-injectors (n=168)	
	N	%	N	%
Gender				
Male	214	91.06	157	93.45
Female	21	8.94	11	6.55
Ethnicity				
Han	153	65.11	81	48.21
Minority	82	34.89	87	51.79
Employment Status				
Employed	83	35.32	87	51.79
Unemployed	152	64.68	81	48.21
	Mean (SD)	Median	Mean (SD)	Median
Years of Formal Schooling	7.59 (2.60)	8	7.18 (2.51)	8
Ego's age (in years)	30.87 (4.00)	32	25.71 (5.77)	26

SD= standard deviation

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Associations between Social network dimensions and transition to injection use from non-injection use (Part 1)

Variable	Model 1		Model 2		Model 3	
	aOR	95% CI	aOR	95% CI	aOR	95% CI
<i>Network relations</i>						
No. of family member alters	1.07	0.98,1.16	1.01	0.88,1.61	1.04	0.83,1.31
No. of friend alters	1.58	1.13,2.22**	1.58	1.05,2.38*	2.17	1.26,3.75**
No. of sex partner alters	1.19	0.85,1.68	1.12	0.79,1.58	1.22	0.82,1.82
Trust in alters	1.01	0.66,1.54	1.08	0.69,1.69	1.21	0.74,1.98
<i>Network structures</i>						
Total network size			1.08	0.95,1.24	0.94	0.77,1.16
Network density			2.04	0.82,5.08	2.54	0.96,6.73
<i>Network functions</i>						
Tangible support						
From injection drug use alters					0.98	0.93,1.03
From sex partner alters					0.96	0.91,1.01
From family member alters					0.99	0.95,1.04
From friend alters					1.01	0.99,1.03

Associations between Social network dimensions and transition to injection use from non-injection use (Part 2)

Variable	Model 1		Model 2		Model 3	
	aOR	95% CI	aOR	95% CI	aOR	95% CI
Social norms relating to injection drug use						
	Total no. of network alters who encouraged egos to inject drugs (subjective norms)				1.00	0.76,1.30
	Total no. of network alters who encouraged egos to <i>not</i> inject drugs (subjective norms)				1.06	0.97,1.16
	Total no. of network alters who are injection drug users (descriptive norms)				1.69	1.24,2.31**
Sociodemographic characteristics						
Ego's age (years)	1.25	1.19,1.32**	1.26	1.19,1.33**	1.24	1.17,1.31**
Total no. of years spent in formal schooling	1.12	1.01,1.24**	1.12	1.01,1.24*	1.14	1.02,1.23*
Han ethnicity	1.46	0.88,2.40	1.42	0.85,2.36	1.43	0.83,2.47
Unemployed	2.66	1.55,4.57**	2.67	1.54,4.65**	2.33	1.31,4.15**

aOR: Adjusted Odds Ratios; 95% CI: 95% confidence intervals; *p≤0.05; **p≤0.01

Model 1= Network relation variables only, adjusted for sociodemographic characteristics

Model 2= Network relation and structural variables only, adjusted for socio-demographic characteristics

Model 3=Final model containing network relation, structural and functional variables adjusted for sociodemographic characteristics

Conclusions

- Findings of this study emphasize that drug users are strongly influenced by their beliefs about their peers behavior.
 - ◆ Having a larger network size and the perception of a greater number of heroin injection users in an ego's social network strongly predicted an ego's transition to drug use.
 - ◆ While a strong significant association was found between having a larger numbers if injectors in ones network and transition to heroin injection, no association was found between positive and subjective norms and the transition.
 - ◆ Egos were more likely to believe their own observations of alters' behaviors rather than follow what alters were telling them to do.

Next Steps

- Future research to explore the effectiveness of using “Popular Opinion Leaders” within networks to influence prevention behaviors that will stymie the transition from non-injecting drug use to drug use in China and in other similar settings.

Thanks