

UCLA

UCLA Previously Published Works

Title

Mental health and family relations among people who inject drugs and their family members in Vietnam

Permalink

<https://escholarship.org/uc/item/8bh7323s>

Journal

International Journal of Drug Policy, 24(6)

ISSN

0955-3959

Authors

Li, Li
Tuan, Nguyen Anh
Liang, Li-Jung
[et al.](#)

Publication Date

2013-11-01

DOI

10.1016/j.drugpo.2013.06.007

Peer reviewed

Published in final edited form as:

Int J Drug Policy. 2013 November ; 24(6): . doi:10.1016/j.drugpo.2013.06.007.

Mental Health and Family Relations: Correlated Reports from People Who Inject Drugs and their Family Members in Vietnam

Li Li, PhD^{a,*}, Nguyen Anh Tuan, MD, PhD^b, Li-Jung Liang, PhD^c, Chunqing Lin, PhD^a, Shu C. Farmer, PhD^a, and Martin Flore, BS^c

^aSemel Institute for Neuroscience and Human Behavior, Center for Community Health, University of California, Los Angeles, California, U.S.A.

^bNational Institute of Hygiene and Epidemiology, Hanoi, Vietnam

^cDepartment of Medicine Statistics Core, University of California at Los Angeles, Los Angeles, California, U.S.A.

Abstract

Background—This article explores the association of people who inject drugs and their family members in terms of mental health and family relations. The objective was to understand the family context and its impact on people who inject drugs in a family-oriented culture in Vietnam.

Methods—Cross-sectional assessment data were gathered from 83 people who inject drugs and 83 of their family members recruited from four communes in Phú Thọ province, Vietnam. Depressive symptoms and family relations were measured for both people who inject drugs and family members. Internalized shame and drug-using behavior were reported by people who inject drugs, and caregiver burden was reported by family members.

Results—We found that higher level of drug using behavior of people who inject drugs was significantly associated with higher depressive symptoms and lower family relations reported by themselves as well as their family members. Family relations reported by people who inject drugs and their family members were positively correlated.

Conclusion—The findings highlight the need for interventions that address psychological distress and the related challenges faced by family members of people who inject drugs. The article has policy implication which concludes with an argument for developing strategies that enhance the role of families in supporting behavioral change of people who inject drugs.

Keywords

drug user; family members; Vietnam; depression; family relation

© 2013 Elsevier B.V. All rights reserved

*Correspondence: Li Li, PhD Semel Institute, University of California, Los Angeles 10920 Wilshire Blvd., Suite 350 Los Angeles, CA 90024 Telephone: 310-794-2446; FAX: 310-794-8297 lililili@ucla.edu.

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Conflict of interest All authors declared none conflict of interest.

INTRODUCTION

Vietnam has a long history of opium use (McCoy, 1991). From 1994 to 2004, the number of people who inject drugs (PWID) tripled in Vietnam, yielding an average annual increase of 11.9% (Nguyen & Scannapieco, 2008). In 2011, Clatts and colleagues (2011) estimated that between 100,000 and 180,000 people who inject heroin live in the country. This population engages in high-risk behaviors such as needle sharing and risky sexual behavior, abetting the spread of HIV (Hammett et al., 2012; Hoffman et al., 2011; Quan et al., 2010; Thanh et al., 2009). In Vietnam, 52% of people living with HIV are PWID (Thanh et al., 2009).

Prior research suggests that the family plays an important role in PWID drug use, adherence to treatment programs, and other health outcomes. In a recent study in India, family pressure was found to be one of the most important correlates of cessation (Mehta et al., 2012). In a survey of 543 family members of drug users in Japan, it was reported that the general health of relatives closely correlated with their family member's abstinence status (Morita et al., 2011). In Ukraine, Mimiaga and colleagues (2010) identified that emotional support and reminders from family facilitated medication adherence among HIV-positive PWID. Family issues of PWID were quoted as a barrier to implementing alcohol and other drug abuse treatment programs in the United States (Appel et al., 2004).

In Vietnamese culture, the family is considered an extension of the self and plays an important role in most life decisions (Salter et al., 2010). Different from PWID in some western countries, most PWID live with their families. The family presents the principal source of financial support and care, which prevents PWID from suffering serious social deprivation and ill health (Ogden & Nyblade, 2005; Rudolph et al., 2012; Salter et al., 2010). However, the nexus between the health status and drug-using behavior of PWID and their family members has been underrepresented in the literature. Existing research on PWID and their families in Vietnam has predominately revolved around stigma and discrimination (Gaudine et al., 2009; Nyblade et al., 2008; Ogden & Nyblade, 2005; Thi et al., 2008) and the role of the family in PWID responses to HIV status disclosure (Rudolph et al., 2012; Salter et al., 2010). To date, we are not aware of any studies that have examined family members' well-being and its association with health, social functioning, and drug-using behavior among PWID. This study aims to elucidate the relationships of PWID and their family members in terms of mental health and family relations. We hypothesized that the mental health of family members, perceived family relations, and caregiver burden were associated with PWID mental health, internalized shame, and drug-using behavior. Understanding family context and how various familial relationships affect PWID can inform future intervention design and development.

METHODS

Study Design and Participants

This study used the baseline data from an intervention pilot, which was conducted between August 2010 and June 2012 in Phú Thọ province, Vietnam. Phú Thọ is a province in northern Vietnam with high rates of poverty, drug use, and HIV prevalence (Food and Agriculture Organization of the United Nations, 2012). The HIV prevalence among PWID in Phú Thọ was about 20% during the years of 2004 to 2006 (UNAIDS/WHO, 2008).

Study participants included local PWID and their family members in the four communes of Phú Thọ province. The study used the local commune health centers (CHC) as the sampling frame. In Vietnam, a large proportion of PWID sought routine testing and health care from CHC, thus the CHC providers developed direct working relationships with PWID in their communes (World Health Organization, 2010). The service providers in the CHC introduced

the study to the PWID in their communes through word-of-mouth and a printed flyer, and the PWID who were interested in participating were referred to the project recruiters for screening to determine eligibility. PWID participants had to meet the following criteria: 1) age 18 and above, 2) a history of injecting drug use, 3) residence in the study commune, and 4) willingness to invite a family member to participate in the study. Family members were recruited after obtaining consent of the PWID. Family members had to meet the following criteria: 1) age 18 or over, 2) an immediate or extended family member of a recruited PWID and living with the PWID, and 3) prior knowledge of the drug use status of the PWID participant.

Ethical Issues

When recruiting PWID and family members, research staff followed standardized scripts to introduce the purpose of the study and its procedures, potential risks, and benefits. Participants were assured that the study was voluntary and their decision to enroll would not affect their services or access to services. Written informed consents were obtained from PWID and family members before data collection. The study procedures and materials were approved by the Institutional Review Boards of the University of California, Los Angeles, and the Vietnam National Institute of Hygiene and Epidemiology.

Data Collection

Participants completed a face-to-face survey that was administered by trained interviewers. The survey was conducted in a private location such as a local CHC office or the participant's home. Each assessment took about 45 to 60 minutes to complete. All participants were paid 80,000 dong (approximately U.S. \$5.00) for completing the survey.

Measures

In addition to demographic characteristics, several measurement scales were used. Some measures were used for both PWID and family members, as detailed below.

Depressive symptoms were measured for both PWID and family members using a short version of the Zung Self-Rating Depression Scale (Zung, 1965). The scale was composed of 10 items adapted from the original 20-item questionnaire based on cultural relevancy. The participants were asked the frequency of 10 situations, such as "I feel down-hearted and blue," and "I get tired for no reason." Response categories ranged from 1 (a little of the time) to 4 (most of the time). The overall score for depressive symptoms was the sum of the 10 items, with a higher score indicating a higher level of depressive symptoms ($\alpha = 0.84$ for PWID and $\alpha = 0.75$ for family members).

Family relations were also measured for both PWID and family members using the Family Functioning Scale (Bloom, 1985; Bloom & Naar, 1994). For this study, we adapted two subscales (family cohesion and family conflict) from the original 15 subscales to reflect family relationship. The two subscales contained 10 statements, with participants evaluating how true each statement was for their family on a four-point Likert scale from 1 (very untrue) to 4 (very true). Sample statements included "Family members really help and support one another." The statements in the family conflict subscale were reverse coded so that a higher score indicated better family relations ($\alpha = 0.80$ for both PWID and family members).

Internalized shame perceived by PWID was assessed using a nine-item subscale adapted from Herek and Capitanio (1993). The subscale has been validated in an Asian population in previous studies (Li et al., 2009). The participants were asked to evaluate if they agree with statements such as "I am a disgrace to society," and "My life is filled with shame."

Response categories ranged from 1 (strongly disagree) to 5 (strongly agree). Summative composite scores were created so that a higher score implied a higher degree of internalized shame ($\alpha = 0.85$).

Drug use by PWID was determined using the Addiction Severity Index (ASI), a widely used clinical research instrument to quantify addictive behavior (McLellan et al., 1992). The PWID participants reported their frequency and severity of using illicit substances in the previous 30 days. The substances queried included heroin, other opiates/analgesics, amphetamines, cocaine, or hallucinogens. A drug composite score was constructed based on the responses to these questions, with a higher score indicating more severe drug using problem (McGahan et al., 1986).

Caregiver burden perceived by family members was assessed using the Perceived Caregiver Burden Scale (Stommel et al., 1990), which has been used in our previous studies (Lee et al., 2010). This 21-item scale assessed family members' perception of having a drug-using relative and its impact on health, finances, and feelings of entrapment. Responses to individual items ranged from 0 (never) to nearly always (4). A higher summed score reflected a higher level of burden perceived by family members ($\alpha = 0.85$).

Statistical Analysis

Descriptive statistics and frequencies for PWID and family member demographics and other measures of interest are summarized in Table 1. We examined differences in categorical and continuous variables between the PWID and family members using Chi-square (or Fisher) tests and *t* tests (or Wilcoxon rank tests), respectively. Next, Pearson's correlations among five measures of interest were calculated. We also used linear multiple regression models, controlling for age, years of education, and number of children to assess each of the following relationships independently: whether internalized shame or drug use reported by PWID were associated with their own and their family members' depressive symptoms or family relations, and whether caregiver burden reported by family members was associated with their own and PWID depressive symptoms or family relations. Estimated regression coefficient (β) and its 95% confidence interval (CI) are presented. Lastly, since depressive symptoms and family relations were reported by both PWID and their family members, it was highly probable that these two measures were correlated within the family. Thus, we used a bivariate linear mixed model (Weiss, 2005) that includes random effects and independent measurement error to properly account for the paired measures to examine whether family relations reported by PWID and their family members were associated with their own reported depressive symptoms. The model, with and without the covariates mentioned above, was implemented (unadjusted and adjusted, respectively). All analyses were conducted using SAS 9.3 software (SAS Institute, Cary, NC).

RESULTS

The means and standard deviations of the levels of depressive symptoms, family relations for PWID and family members, internalized shame and drug use measures for PWID, and caregiver burden for family members are shown in Table 1. All of the PWID participants were men, and most of their family members recruited in this study sample were women. The PWID were, on average, about 10 years younger than family members ($p < 0.0001$). The majority (64%) of PWID were younger than 35, while roughly 60% of family members were older than 35. No significant difference in years of education between the PWID and family members was found. A lower level of family relations was reported by PWID than by family members (30.1 vs. 32.4; $p < 0.0001$). However, comparable levels of depressive symptoms between PWID and family members were observed.

Correlation coefficients for the five measures of interest are presented in Table 2. Both drug use and internalized shame reported by PWID were significantly associated with depressive symptoms and family relations reported by themselves and their family members. The linear regression results for each of these relationships of interest are shown in Table 3. Controlling for age, number of children, and years of education, we observed that caregiver burden reported by family members was significantly associated with their own depressive symptoms ($\hat{\beta}=0.28$, 95% CI: 0.16, 0.40; $p < 0.0001$) and family relations ($\hat{\beta}= - 0.11$, 95% CI: -0.22 , -0.01 ; $p = 0.029$). Also, PWID drug use was significantly associated with their own reported depressive symptoms ($\hat{\beta}=37.6$, 95% CI: 23.7, 51.5; $p < 0.0001$) and family relations ($\hat{\beta}= - 20.1$, 95% CI: -29.2 , -11.0 ; $p < 0.0001$) as well as their family members' depressive symptoms ($\hat{\beta}=14.6$, 95% CI: 1.38, 27.8; $p = 0.031$) and family relations ($\hat{\beta}= - 11.3$, 95% CI: -21.3 , -1.21 ; $p = 0.029$). Furthermore, the internalized shame reported by PWID was significantly associated with higher depressive symptoms reported by both PWID ($\hat{\beta}=0.46$, 95% CI: 0.27, 0.65; $p < 0.0001$) and by their family members ($\hat{\beta}=0.19$, 95% CI: 0.004, 0.37; $p = 0.046$). Similarly, internalized shame reported by PWID was negatively associated with family relations reported by both PWID ($p = 0.017$) and by their family members ($p = 0.027$). None of the potential confounders were found to be significant in the above regression models, except that years of education was found to be significantly associated with depressive symptoms reported by PWID ($\hat{\beta}= - 0.61$, 95% CI: -1.07 , -0.15 ; $p = 0.010$) in the presence of their internalized shame measure.

Results from the bivariate linear mixed model without covariates indicated that the family relations reported by PWID and family members were significantly positive correlated ($p = 0.35$; $p = 0.004$). Given this, we found that the level of family relations reported by both PWID and their family members was negatively associated with their own levels of depressive symptoms. The association reported by family members ($\hat{\beta}= - 0.13$, 95% CI: -0.27 , 0.01) appeared to be stronger than that reported by PWID ($\hat{\beta}= - 0.08$, 95% CI: -0.20 , 0.05), but the difference did not reach significance. The overall association between family relations and depressive symptoms estimated from the unadjusted model was statistically significant ($\hat{\beta}= - 0.10$, 95% CI: -0.20 , -0.005 ; $p = 0.040$). There was a trend toward significance for the overall association estimated from the adjusted model ($\hat{\beta}= - 0.09$, 95% CI: -0.19 , 0.01; $p = 0.085$), and none of the covariates were significantly associated with family relations.

DISCUSSION

Our results demonstrate the deep connectedness of PWID and their family members. Drug using is individual behavior, but it also impacts other members of a family. One of the basic premises within the family structure is the idea of collective identity (i.e., the drug-using behaviors of an individual reflect badly on all family members) (Dean, 1999). A PWID cannot discard his or her personal responsibilities to the family, nor can the family member(s). These attributes are reflected in our findings on the correlations between PWID and family members in terms of family relations and depressive symptoms. Our study provides further evidence that PWID drug use and negative emotion (e.g., internalized shame) are associated with the depressive symptomatology of family members as well as their own, suggesting that drug use poses the risk of exposing the entire family to psychological distress and related challenges.

Our study revealed that family member caregiving burden was associated with their own depressive symptoms and family relations. This finding was consistent with prior studies

that demonstrated that tensions in family relationships arise when families provided care for a family member with a substance use problem, mental disorder, or both (Cavaiola, 2000; Fals-Stewart et al., 2005; Padierna et al., 2012; Townsend et al., 2006). The tensions observed included worry, anger, guilt, shame, financial strain, physical effects of stress, and a diminished quality of life and hopefulness.

Our study also demonstrated that internalized shame reported by PWID is a source of distress for the family because social stigma is typically attached to not only a PWID but also to his or her family household. Feelings of shame may stem from community attitudes, beliefs from others, discrimination or rejection, as well as the possibility of losing or having “lost face” or dishonor. Therefore, PWID and family members may experience feelings of rejection from the community and from family members, which exacerbates psychological disturbances.

The notion of family is central to most traditional Asian families. Coping with illness and mishaps has been noted in Asian families as essentially a private and family affair, although duty and responsibility to the family is paramount (Lee & Bell, 2011; Li et al., 2008; Mok & Martinson, 2000; Zhang & Chen, 1996). The Vietnamese family is no exception to this rule. The family is the basic social unit of Vietnamese society. Considering most PWID in Vietnam live in their family homes, family members play an important role in the support of PWID, and they can also be mobilized to advance the country's drug control and treatment policies.

Several limitations to this study should be noted. First, the study was conducted in one province of Vietnam, so generalizations to populations in other geographic areas should be made with caution. Second, the sample size was not large enough to clearly identify some relationships. Third, the self-reported measures could be affected by social desirability and/or recall bias. Fourth, the findings might not be generalizable to PWID who did not receive routine health care from the CHC. Finally, causal interpretations of the findings could not be established due to the cross-sectional nature of the study. Despite these limitations, the study has policy implications. Existing literature tends to focus solely on individual responsibilities and the impact of PWID and their psychological vulnerabilities and other factors. This study and other recent work, however, points to the need to understand to what degree family members' experiences and perception interacts with those of PWID. Effective interventions may need to address both individual PWID and families in response to the deeply ingrained social factors in Vietnamese culture. In addition, a family-oriented intervention model has the potential to strengthen a family's ability to adjust to the needs of its members and to provide the long-term support needed to induce behavior change.

Acknowledgments

This study was funded by National Institute on Drug Abuse (NIDA/NIH) grant number R34DA029493. We would like to thank the project team members in Hanoi and Phú Thọ, Vietnam, for their contributions to this study.

REFERENCES

- Appel PW, Ellison AA, Jansky HK, Oldak R. Barriers to enrollment in drug abuse treatment and suggestions for reducing them: Opinions of drug injecting street outreach clients and other system stakeholder. *The American Journal of Drug and Alcohol Abuse*. 2004; 30(1):129–153. [PubMed: 15083558]
- Bloom BL. A factor analysis of self-report measures of family functioning. *Family Process*. 1985; 24:225–239. [PubMed: 4018243]
- Bloom BL, Naar S. Self-report measures of family functioning: Extensions of a factorial analysis. *Family Process*. 1994; 33:203–216. [PubMed: 7925929]

- Cavaiola AA. In search of a new metaphor for the impact of drug abuse on families. *Family Therapy*. 2000; 27(2):81–87.
- Clatts MC, Goldsamt LA, Giang le M, Colón-López V. Accelerated transition to injection among male heroin initiates in Hanoi, Vietnam: implications for early harm reduction interventions. *Journal of Community Health*. 2011; 36(6):999–1003. [PubMed: 21452028]
- Dean, P. *Family Life in Vietnam*. 1999. Retrieved March 12, 2013, from http://hsc.csu.edu.au/society_culture/change/focus_studies/2501/CCVietnamfamily.html#family
- Fals-Stewart W, O'Farrell TJ, Birchler GR, Cordova J, Kelley ML. Behavioral couples therapy for alcoholism and drug abuse: Where we've been, where we are, and where we're going. *Journal of Cognitive Psychotherapy*. 2005; 19:229–246.
- Food and Agriculture Organization of the United Nations. *Green Production and Trade to Increase Income and Employment Opportunities for the Rural Poor*. 2012. Retrieved March 12, 2013, from http://www.fao.org/asiapacific/vietnam/projects/detail/en/?project_uid=7
- Gaudine A, Gien L, Thuan TT, Dung DV. Perspectives of HIV-related stigma in a community in Vietnam. A qualitative study. *International Journal of Nursing Studies*. 2009; 47(1):38–48. [PubMed: 19729162]
- Hammett TM, Kling R, Van NT, Son DH, Binh KT, Oanh KT. HIV prevention interventions for female sexual partners of injecting drug users in Hanoi, Vietnam: 24-month evaluation results. *AIDS & Behavior*. 2012; 16(5):1164–1172. [PubMed: 22016330]
- Herek GM, Capitanio JP. Public reactions to AIDS in the United States: A second date of stigma. *American Journal of Public Health*. 1993; 83:574–1577. [PubMed: 8460738]
- Hoffman L, Nguyen HTT, Kershaw TS, Niccolai LM. Dangerous subtlety: Relationship-related determinants of consistency of condom use among female sex workers and their regular, non-commercial partners in Hai Phong, Viet Nam. *AIDS & Behavior*. 2011; 15:1372–1380. [PubMed: 20924782]
- Lee J, Bell K. The impact of cancer on family relationships among Chinese patients. *Journal of Transcultural Nursing*. 2011; 22(3):225–234. [PubMed: 21536787]
- Lee S-J, Li L, Jiraphongsa C, Rotheram-Borus MJ. Caregiver burden of family members of persons living with HIV in Thailand. *International Journal of Nursing Practice*. 2010; 16(1):57–63. [PubMed: 20158549]
- Li L, Wu ZY, Wu S, Jia MH, Lieber E, Lu Y. Impacts of HIV/AIDS Stigma on Family Identity and Interactions in China. *Families, Systems & Health*. 2008; 26(4):431–442.
- Li L, Lee S-J, Thammawijaya P, Jiraphongsa C, Rotheram-Borus MJ. Stigma, social support, and depression among people living with HIV in Thailand. *AIDS Care*. 2009; 21(8):1007–1013. [PubMed: 20024757]
- McCoy, AW. *The politics of heroin: CIA complicity in the global drug trade*. Lawrence Hill Books; NY: 1991.
- McGahan, PL.; Griffith, JA.; Parente, R.; McLellan, AT. *Addiction severity index: Composite scores manual*. The University of Pennsylvania; Veterans Administration Center for Studies of Addiction; Philadelphia, PA: 1986.
- McLellan AT, Kushner H, Metzger D, Peters R, Smith I, Grissom G, et al. The Fifth Edition of the Addiction Severity Index. *Journal of Substance Abuse Treatment*. 1992; 9:199–213. [PubMed: 1334156]
- Mehta SH, Sudarshi D, Srikrishnan AK, Celentano DD, Vasudevan CK, Anand S, et al. Factors associated with injection cessation, relapse and initiation in a community-based cohort of injection drug users in Chennai, India. *Addiction*. 2012; 107(2):349–358. [PubMed: 21815960]
- Mimiaga MJ, Safren SA, Dvoryak S, Reisner SL, Needle R, Woody G. We fear the police, and the police fear us”: Structural and individual barriers and facilitators to HIV medication adherence among injection drug users in Kiev, Ukraine. *AIDS Care*. 2010; 22(11):1305–1313. [PubMed: 20640954]
- Mok E, Martinson I. Empowerment of Chinese patients with cancer through self-help groups in Hong Kong. *Cancer Nursing*. 2000; 23:206–213. [PubMed: 10851771]

- Morita N, Naruse N, Yoshioka S, Nishikawa K, Okazaki N, Tsujimoto T. Mental health and emotional relationships of family members whose relatives have drug problems. *Nihon Arukoru Yakubutsu Igakkai Zasshi*. 2011; 46(6):525–541. [PubMed: 22413561]
- Nguyen VT, Scannapieco M. Drug abuse in Vietnam: a critical review of the literature and implications for future research. *Addiction*. 2008; 103(4):535–543. [PubMed: 18261190]
- Nyblade, L.; Hong, KT.; Anh, N,V.; Ogden, J.; Jai, A.; Stangl, A., et al. Communities Confront HIV Stigma in Viet Nam: Participatory Interventions Reduce HIV-Related Stigma in Two Provinces. International Center for Research on Women (ICRW); Institute for Social Development Studies (ISDS); Washington, DC: Hanoi, Vietnam: 2008.
- Ogden, J.; Nyblade, L. Common at its core: HIV-related stigma across contexts. International Center on Research for Women; Washington, DC: 2005.
- Padierna A, Martin J, Aguirre U, Gonzalez N, Munoz P, Quintana JM. Burden of caregiving amongst family caregivers of patients with eating disorders. *Social Psychiatry and Psychiatric Epidemiology*. 2012; 48(1):151–161. [PubMed: 22722535]
- Quan MV, Minh NL, Ha VT, Ngoc NP, Vu PT, Celentano DD, et al. Mortality and HIV transmission among male Vietnamese injection drug users. *Addiction*. 2010; 106:583–589. [PubMed: 21054619]
- Rudolph AE, Davis WW, Ha TV, Minh NL, Gregowski A, Salter M, et al. Perceptions of community- and family-level injection drug user (IDU)- and HIV-related stigma, disclosure decisions and experiences with layered stigma among HIV-positive IDUs in Vietnam. *AIDS Care*. 2012; 24(2): 239–244. [PubMed: 21777075]
- Salter ML, Go VF, Minh NL, Gregowski A, Ha TV, Rudolph A, et al. Influence of perceived secondary stigma and family on the response to HIV infection among injection drug users in Vietnam. *AIDS Education & Prevention*. 2010; 22(6):558–570. [PubMed: 21204631]
- Stommel M, Given CW, Given B. Depression as an overriding variable explaining caregiver burdens. *Journal of Aging and Health*. 1990; 2:81–102.
- Thanh DC, Hien NT, Tuan NA, Thang BD, Long NT, Fylkesnes K. HIV risk behaviors and determinants among people living with HIV/AIDS in Vietnam. *AIDS & Behavior*. 2009; 13(6): 1151–1159. [PubMed: 18787940]
- Thi MD, Brickley DB, Vinh DT, Colby DJ, Sohn AH, Trung NQ, et al. A qualitative study of stigma and discrimination against people living with HIV in Ho Chi Minh City, Vietnam. *AIDS & Behavior*. 2008; 12(4 Suppl):S63–70. [PubMed: 18360743]
- Townsend AL, Biegel DE, Ishler KJ, Wieder B, Rini A. Families of persons with substance use and mental disorders: A literature review and conceptual framework. *Family Relations*. 2006; 55:473–486.
- UNAIDS/WHO Epidemiological Fact Sheets on HIV and AIDS. Core data on epidemiology and response, Vietnam. 2008 update. 2008. Retrieved March 12, 2013 from http://www.aids-laenderberichte.de/wp/wp-content/uploads/2010/05/2008_fact-sheet-vietnam.pdf
- Weiss, RE. *Modeling Longitudinal Data*. Springer; New York, NY: 2005.
- World Health Organization. Good practice in Asia: Targeted HIV prevention for injecting drug users and sex workers. 2010. Retrieved June 1, 2013, from www.who.int/hiv/pub/idu/good_practice_aiaa_idu.pdf
- Zhang QY, Chen Q. Study and analysis of the psychological state of immediate family members of IDUs. *Chinese Journal of Drug Abuse Prevention and Treatment*. 1996; 5:23e5.
- Zung WW. A Self-rating Depression Scale. *Archives of General Psychiatry*. 1965; 12:63–70. [PubMed: 14221692]

Table 1

Sample characteristics

Parameter	PWID	Family Member	<i>p</i>
N	83	83	
Age (%)			
< 35	53 (63.9)	33 (39.8)	
36 – 45	24 (28.9)	11 (13.3)	
> 46	6 (7.23)	38 (45.8)	
Mean ± SD	33.7 ± 6.83	43.6 ± 16.0	< 0.0001 ^a
Male (%)	83 (100)	8 (9.64)	< 0.0001 ^b
Years of education (Mean ± SD)	10.6 ± 2.38	10.02 ± 4.12	0.1330 ^a
Depressive symptoms (Mean ± SD)	17.5 ± 5.32	18.41 ± 4.93	0.1786 ^a
Family relations (Mean ± SD)	30.1 ± 3.26	32.41 ± 3.44	< 0.0001 ^a
Internalized shame (Mean ± SD)	32.1 ± 5.44		
Drug use (Mean ± SD)	0.14 ± 0.07		
Caregiver burden (Mean ± SD)		53.3 ± 8.59	

^aWilcoxon Sign Rank Test

^bFisher Exact Test

Table 2

Correlation coefficients among selected variables.

	PWID					Family Member		
	Family Relations (FR)	Drug Use (DU)	Internalized Shame (IS)	Depressive Symptoms (DEP)	Family Relations (FR)	Caregiver Burden (CB)		
DEP	-0.163	0.546**	0.422**	0.225	-0.162	0.090		
FR		-0.429**	-0.269*	-0.070	0.362*	-0.136		
DU			0.317*	0.226*	-0.228*	0.160		
IS				0.231*	-0.272*	0.158		
Family Member								
DEP					-0.201	0.574**		
FR						-0.292*		

* $p < 0.05$

** $p < 0.0001$

Table 3

Multiple regression results for associations between depressive symptoms or family relations and caregiver's burden, drug use, or internalized shame

Predictor	Depressive Symptoms			
	PWID		Family Member	
	$\hat{\beta}$ (95% CI)	<i>p</i>	$\hat{\beta}$ (95% CI)	<i>p</i>
Caregiver's Burden	0.05 (-0.09, 0.19)	0.4597	0.28 (0.16, 0.40)	<.0001
Drug Use	37.6 (23.7, 51.5)	<.0001	14.6 (1.38, 27.8)	0.0308
Internalized Shame	0.46 (0.27, 0.65)	<.0001	0.19 (0.004, 0.37)	0.0455
Predictor	Family Relations			
	PWID		Family Member	
	$\hat{\beta}$ (95% CI)	<i>p</i>	$\hat{\beta}$ (95% CI)	<i>p</i>
Caregiver's Burden	-0.06 (-0.14, 0.03)	0.1905	-0.11 (-0.22, -0.01)	0.0290
Drug Use	-20.1 (-29.2, -11.0)	<.0001	-11.3 (-21.3, -1.21)	0.0285
Internalized Shame	-0.16 (-0.29, -0.03)	0.0165	-0.16 (-0.29, -0.02)	0.0266

Note: Participant age, years of education, and number of children were included in each of the regression models.