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Using focus groups to investigate the educational needs of female injecting heroin users in Taiwan in relation to HIV/AIDS prevention

Tony Szu-Hsien Lee[1,3], Li-An Fu[2] and Paul Fleming[2]

Abstract

This study investigated educational needs of female injecting heroin users in Taiwan relating to HIV/AIDS prevention via six focus group discussions in a prison. All sessions were audiotaped with respondents' consent and the discussions transcribed verbatim. The findings indicated that respondents had adequate knowledge about HIV/AIDS, but held misconceptions regarding the modes of HIV transmission. Many respondents who did not perceive themselves susceptible to AIDS rarely used condoms and occasionally shared needles. Stigma surrounding AIDS is pervasive among respondents and they considered contracting cancer would be preferable to having AIDS; the latter could precipitate suicide. Lastly, many respondents had no confidence in assurances of confidentiality regarding HIV testing. Issues of misconceptions, high-risk behaviors, stigma surrounding AIDS and confidentiality of HIV testing must be addressed in appropriate HIV/AIDS education programmes with respect to the needs of female injecting heroin users.

[1]Department of Humanities and Social Sciences, National Defense Medical Center, National Defense University, Taipei 114, Taiwan and [2]Faculty of Life and Health Sciences, University of Ulster, Newtownabbey, Co. Antrim BT37 0QB, UK
[3]Correspondence to: T. S.-H. Lee;
E-mail: tonylee@mail.ndmctsgh.edu.tw

Introduction

HIV is the causative agent for AIDS, which is fatal. Although a number of treatments exist, 50–80% of infected people will still die within 10 years of initial infection. In addition, the drugs for treatment of HIV/AIDS are expensive and only widely available in developed countries. Therefore, prevention through education and behavioral changes is of major importance in the management of HIV/AIDS epidemics in countries such as Taiwan (Ting and Chen, 2000).

HIV infection rates related to drug injection rose rapidly in a short period of time in many countries (UNAIDS, 1999; WHO, 2000). Injecting drug users (IDUs) are not only at risk of HIV infection through unprotected sexual intercourse, but also through sharing injecting equipment during intravenous drug use. Indeed, injecting is a more potent method of spreading HIV than sexual intercourse (UNAIDS, 2000). In Bangkok, HIV infection rates among IDUs increased from 2 to 40% in just 2 years. In Mykolayev in the Ukraine, the prevalence of HIV among IDUs leapt dramatically in 1995, from 2 to 57% (WHO, 1998). A similar trend of the AIDS epidemic has recently been found in Taiwan.

HIV transmission in Taiwan has taken a new and worrying direction in the last 3 years, moving from primarily unsafe sexual contact to injecting drug use. At the end of 2004, a total of 6762 HIV-infected cases were reported (Center for Disease Control Taiwan, 2005). Although the percentage of cumulative HIV infection related to IDU is currently 8.9%, the numbers of new infections associated with injecting drug use have increased dramatically in the last 3 years. In 2002, 1.2% of

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new diagnoses of HIV were IDU related, this being followed by figures of 4.7% in 2003 and 31.9% in 2004, respectively (Center for Disease Control Taiwan, 2005). This trend manifests an imperative to focus on preventive measures against HIV infection for the IDU population.

Infection rates in women are also increasing in Taiwan, where they accounted for 7.5% of 1541 new cases in 2004, in contrast to 4.1% of 879 cases in 2003 (Center for Disease Control Taiwan, 2005). Some studies show that female drug users engage in high-risk behaviors relating to HIV infection, including having sex partners who also inject drugs, having unsafe sex with multiple partners and exchanging sex for drugs (Freeman *et al*., 1994; Weissman *et al*., 1995; Grella and Anglin, 1997; Loxley *et al*., 1998; Rhodes *et al*., 1998). Needle sharing is also a frequent phenomenon (Lee, 1999, 2005; Iguchi *et al*., 2001). All of these factors can be causes of increased rates of HIV infection. However, very limited data is available which focuses on HIV and other public health issues among female drug users in Taiwan.

Studies conducted elsewhere have shown that female IDUs may be at elevated risk of HIV transmission through their increased likelihood of being in sexual relationships with drug-injecting men (Barnard, 1993; Davies *et al*., 1996). Also, many studies have indicated that the factors leading to drug addiction, the physical and psychological effects of drugs, and approaches to abstinence from drugs are different in females (Davies and Dinitto, 1996; Fiorentine *et al*., 1999). In contrast to men, women who inject drugs were more likely to report higher rates of sharing needles and syringes, have a history of sexual and physical abuse, and were more likely to have a partner who injected drugs (Donoghoe, 1992; Fiorentine *et al*., 1999).

Agencies that provide HIV prevention programmes for female IDUs depend upon gender-sensitive and culturally appropriate strategies (Nemoto *et al*., 2003), but are challenged by the paucity of appropriate research findings in Taiwan. The emphasis placed on social order as well as the control of emotions and feelings has been noted as being highly valued by members of traditional Asian cultures (Hirayama and Hirayama, 1986). In addition, the culture in Taiwan is patriarchal and conservative, which means that women are restricted in sexual expression and reluctant to talk about sexuality. If consideration is not given to how female IDUs respond to the HIV pandemic, education on safer practices that prevent HIV infection may not be appropriately designed. In this paper, we aimed to specifically explore the needs for HIV prevention of a neglected subgroup of women: female heroin IDUs in Taiwan. This target group typically lacks visibility in Taiwanese society, but their public health needs are nonetheless imperative.

Methods

This study adopted an essentially phenomenological approach (Hastings, 1990) using focus groups as they permit the exploration of a specific set of issues (Kitzinger, 1994), in this case the exploration of educational needs related to HIV/AIDS among female IDUs in the prison context. Focus groups have the capacity to generate explanatory or descriptive information (McDaniel and Bach, 1996) by obtaining data through group interaction (Vaughn, 1996); this permits freedom of expression (Tilford and Delaney, 1992) which might be difficult to generate in an individual interview (Kingry, 1990; Stewart and Shamdasani, 1990). Because the focus groups in this study were conducted within the same prison, it was difficult to ensure that members of the groups were not known each other and it is acknowledged that expression may as a result have been inhibited. In this article, focus group discussion refers to a discussion in a group, led by a moderator on the basis of a prearranged interview guide.

The research setting

There are about 13 prisons in which women are detained for criminal activities in Taiwan. Presently, health information and health promotion activities related to HIV infection and AIDS are up-to-date in the schools, but not in Taiwanese

prisons. The educational efforts directed towards IDUs are delivered through one or two lectures a year by staff from the Centre of Disease Control Taiwan. The principal content of lectures in prisons, in general, emphasizes the means of infection, and the benefits derived from abstinence from sex and drug use.

Every prisoner convicted of illegal drug use will have to attend specified health education classes and identify whether s/he is willing to submit to HIV testing. Unfortunately, prisoners are not informed and counseled in relation to their risk behaviors unless the serostatus is positive. Those who are tested positive are treated by a medical practitioner within the prison and are isolated in a designated cell, in order to both stem the spread of HIV and also prevent potential harm by other inmates.

We selected the biggest female prison in northern Taiwan as our research setting. About 7% of the incarcerated persons in Taiwan are females (Department of Justice Taiwan, 2002) and illicit drug-using prisoners comprised about 50% of female prisoners in this prison, the latter group being our potential study respondents.

Recruitment of respondents and data collection

A purposive sample (DePoy and Gitlin, 1994; Robinson, 1999) was designed which, while recognizing that the results of the study would not be generalizable to a wider prison population, nonetheless attempted to reflect the female heroin IDU population. This had the effect of creating data that could be used in identifying key health promotion issues and would inform further research in the area.

To recruit female heroin IDUs, a social worker from the prison was asked to identify women who would be interested in participating in a focus group. For those who were interested in participating, the social worker matched their records with the selection criteria, these being: age over 18, literate, a history of heroin injecting and no severe psychiatric symptoms at present. We did not include women with severe mental illness because we presumed that they might not cognitively be able to participate in discussions and/or become easily distressed.

Given the sensitivity of the subject matter and the vulnerability of the study population, approval for the study was obtained from the relevant authorities, and informed consent was obtained from each participant before the focus groups were conducted. No incentive was offered to the respondents.

A semistructured interview outline used in all groups included: (1) acceptability and personal evaluation of health education materials/strategies in Taiwan, (2) perceptions and personal evaluation of prison-based health education for female drug users, (3) knowledge and health beliefs of the sample relating to HIV/AIDS, (4) relationships between HIV/AIDS and drug use, (5) issues relating to HIV testing resources, (6) HIV/AIDS preventive behaviors and strategies, and (7) HIV/AIDS issues specific to women (e.g. mother-to-child transmission through breast feeding).

The number of female heroin IDUs participating in the focus groups varied by group from six to eight persons. A total of 40 female heroin IDUs participated during the first 2 weeks of July 2002. Each session was facilitated by a skilled moderator and lasted 60–80 min. The interview environment was a room located within the women's prison. Respondents were aged between 20 and 43; over half having begun using drugs before they were 20 years old. Half of the respondents had high school education and half had a lesser level at education. More than half of the respondents had children.

Data analysis

Each session was audio-taped, with respondents' permission, and the data transcribed verbatim by the moderator and subjected to content analysis (Parahoo, 1997). Due to the fact that the research team was international, the transcripts were also translated into English to facilitate inter-rater checks (Presley, 1991). Further measures to ensure rigor included participant checks (Sandelowski, 1993), reflexive analysis by the researchers (Parahoo, 1997) and assurance of data saturation by the end of the data gathering process (DePoy and Gitlin, 1994).

The content analysis began with reading through the transcribed interviews and listening to the audio records. Data were then assigned to units of meaning which were subsequently organized into emergent themes. The thematic areas were respondents' knowledge about the routes of HIV transmission, specific reasons as to why respondents did or did not avail themselves of HIV testing, underlying attitudes towards HIV/AIDS and adoption of safer practices.

This qualitative study has specific limitations deriving from the study design as well as the research paradigm. It should be acknowledged that since the data from focus groups are open to multiple interpretations, comments from the respondents should be interpreted within the social and environmental context in which they were provided. In this study, the interview environment was a room in the prison under the supervision of prison staff. In addition, some respondents had known each other well since they lived together in this prison. This may have meant that respondents were somewhat inhibited in their expression and comments since they were afraid that the conversation might be disclosed to inmates or videotaped by officers to use against them.

Results

A number of emergent themes were identified concerning educational needs regarding HIV/AIDS among the study population. Quotations from the focus groups illustrate the findings. However, it should be noted that these are translated from Mandarin and Taiwanese in a manner which gives the best possible rendering in English, and are therefore not literal translations.

HIV/AIDS and health education

In relation to respondents' experiences prior to being incarcerated, a number of issues arose regarding health information and knowledge about HIV/AIDS. Respondents had seen public health advertising or had read AIDS pamphlets in hospitals. They thought the information was useful in introducing them to health issues of which they were previously unaware.

> When we go to the hospital for outpatient services, we can get some health education leaflets or pamphlets. I felt this information was useful, because we are always careless about our health, especially AIDS.

> Through the health education...I understand more about some health issues which I never knew.

A small, but noteworthy, minority believed that their lifestyle prevented such exposure to health information. Some stated that they usually neglected their health, either because they did not have any particular health problem or because heroin is used a panacea for the problem. They only paid attention to health information when they were afraid of either themselves or their family becoming infected, or after they developed symptoms of illness.

> I think people like us never have a chance to see AIDS education information. We never go out because we inject drugs at home all the time.

> ...Heroin is like a panacea; when you feel sick, you just inject it then you won't have any pain...you don't need to see a doctor or go to the hospital.

All respondents had attended health education classes in the prison and felt these were important for them. Many stated that they had increased their understanding of HIV/AIDS and, consequently, paid more attention to it. As one participant remarked:

> I felt the health education class in the prison was important because I had no idea about HIV/AIDS before I came into the prison. Now, I understand more about HIV and other diseases than before.

This frequently expressed view was echoed by another participant who said:

> I think the health education class is practical. Before the class, I didn't know 'needle sharing' is a route of HIV transmission.

Knowledge about the modes of HIV infection

Respondents correctly understood the routes of HIV transmission, which included multiple sexual partners, unprotected sex, needle sharing, mother-to-child transmission and blood transfusion. Sex with multiple partners without condom use and sharing injecting equipment were the modes of infection most commonly named in the focus groups. Respondents also indicated adequate knowledge of prevention techniques relating to HIV/AIDS transmission. Several quotes illustrate these perspectives.

> I know people can be infected with HIV via body fluids, sexual intercourse with multiple sexual partners. People who use heroin like us may be infected with HIV through needle sharing.

> I know the major routes of HIV transmission... sexual contact, exchanging blood or body fluids and mother-to-child....

It was noticeable that, while respondents could demonstrate knowledge of the correct routes of transmission, there was also confusion caused by erroneous perceptions of other potential routes of HIV transmission. Such misconceptions included:

> ...I think mosquitoes might bite someone who is HIV-positive...and then transmit HIV to you when they bite you.... Moreover, a puppy or other pets...if their breeder is HIV-positive...they play with you all the time...I think HIV maybe transmitted through animals...I'm not sure...

> The swimming pool is a dangerous place...because if someone is infected...there is an opportunity to be infected with HIV while we are swimming....

Overall, given that correct knowledge of HIV/AIDS was often held in tandem with misconceptions, there was a learning issue in relation to the signs and symptoms of infection. It can therefore be inferred that while the health education classes emphasized HIV prevention techniques and the routes of HIV transmission, they also failed to adequately address misconceptions relating to erroneous perceptions of transmission routes. This indicated that future classes should address both misconceptions and also focus on the fear factor relating to HIV/AIDS.

High-risk groups

Respondents demonstrated low perception of their susceptibility to HIV infection, believing they would not become infected with HIV at all as high risk groups were perceived as homosexuals, commercial sex workers and 'Sugar Girls' who sell sex for drugs.

> I don't know anyone who has AIDS because of injecting drugs...so I am not going to get AIDS.

> My friends and partner do not have Sugar Girls either.... I have no chance of contracting HIV/AIDS.... Otherwise, they would tell me....

Respondents thought that 'Sugar Girls' had the highest chance of contracting HIV. Every focus group considered 'Sugar Girls' as high risk.

> Sugar Girls look for the drug dealers...they exchange sex for drugs...when the drug dealer is dead or tired of her, they look for another one....

> I think Sugar Girls are a high-risk group of HIV infection...because they exchange sex for drugs...they change sexual partners frequently....

> Once Sugar Girls need heroin...they have no choice about condom use or not...they re-use the needles that the drug dealers use to inject heroin....

There was some resentment that, although they did not perceive themselves at high risk, the respondents felt that society in general condemned them and automatically associated them with HIV infection.

> Because we use drugs, society thinks 'drugs', 'HIV/AIDS' and 'promiscuity' are highly associated with each other....

However, as promiscuity and needle sharing are common phenomena among respondents, they are also, unknowingly, at high risk of HIV infection. A number of respondents indicated the reasons why they would engage in high-risk behaviors.

> I think female drug users tend to have multiple sexual partners...because they come to be promiscuous after they use drugs....
>
> We know needle sharing is a route of HIV infection...but sometimes we shared needles...because of the overwhelming need for an instant drug fix...everybody tries to escape reality while they are using drugs...maybe you are the next HIV-positive, who knows?
>
> I didn't pay any attention to information related to HIV...because I didn't think I would be infected with HIV/AIDS.

The female IDUs demonstrated during the interviews that, although they had good level of knowledge about the routes of HIV infection, they were somewhat ambivalent about their risky behaviors. A few respondents underestimated their own risk of becoming infected with HIV, although they acknowledged that the drug-using behavior was associated with promiscuity.

Attitudes towards the HIV infection

Deeply negative attitudes to HIV/AIDS were detected in that respondents stated they would rather have cancer than be infected with HIV/AIDS. Cancer could not be transmitted to significant others, would not subject them to discrimination and would not cast them in the role of prostitute.

> If you have cancer, people will sympathize with you...on the other hand, if you are infected with HIV/AIDS, people will think you deserve it... because of your promiscuity...you must be having sexual affairs...so, your personal life must be corrupt and debauched.

All respondents stated that they would be disgraced if they were infected with HIV/AIDS thus creating a scandal in their life. Many expressed that they would commit suicide if they became infected with HIV/AIDS.

> If I am infected with HIV, I will dress up and then commit suicide before I develop signs and symptoms....

Stigma about AIDS

Social perceptions of how people get AIDS were very important for the respondents. The social stigma and stereotypes surrounding HIV/AIDS are the main reasons for their fear of HIV/AIDS. A blame culture, which targets people with AIDS, is still a problem within this population. Some respondents felt that society stigmatizes drug users as being promiscuous; drug use and promiscuity are highly correlated. Some respondents stated that the fear of stigma led them to engage in protective measures to protect themselves from HIV infection.

> I think HIV-positive patients are unfortunate... because he or she might be infected with HIV via blood transfusion...but society treats them as freaks....
>
> People think all drug users are promiscuous.... No one would give you support if you get AIDS.

HIV testing

Undertaking HIV testing is not easy for female IDUs. Many respondents doubted the assurances of confidentiality and were unsure that voluntary HIV testing services could guarantee anonymity. Some revealed previous negative experiences.

> I am afraid of going for an HIV test...people in the hospitals will ask why you're taking an HIV test and, then, follow you to your home and community, even if you are HIV negative.... One of my friends went for HIV testing.... A few days later, an officer phoned her home and left a message requesting her to take another HIV test.... She was not home at that time....

Respondents had heard that people were asked a lot of personal questions during the HIV testing process, decreasing their motivation and making them very reluctant to use the services. This was increased when there was fear that consequences of testing could include involvement with the law enforcement agencies, a not inconceivable possibility.

> They will ask you a lot of personal questions before you do voluntary HIV testing...we will feel embarrassed during the procedure....

> I want to have voluntary HIV testing, but I am afraid that the police will come to arrest me because I am a drug user....

Besides confidentiality and anonymity, many respondents also indicated a fear of HIV testing in case they were diagnosed as HIV-positive.

> If I thought I was infected with HIV, I wouldn't have the HIV test...because I'm afraid of knowing the results.... I cannot face the reality....
>
> ...If you've had a voluntary HIV test previously and your result showed positive...then you will be isolated...your family or friends will be notified because they have to be tested too.... We are afraid to have voluntary HIV testing because we don't want to be kept under surveillance....

Social stigma and the stereotypes of those with HIV/AIDS made respondents afraid to engage in voluntary HIV testing.

> I have seen the HIV testing van in my community, but I did not go there because I'm afraid that neighbors will gossip about why I might be going into the HIV testing van.
>
> ...TV programmes present HIV as tantamount to promiscuity...therefore, if I have an HIV test, people will think I am a promiscuous girl....

In summary, reasons for not accessing testing included (1) decreased lack of motivation due to doubts regarding perceived lack of confidentiality and anonymity, (2) respondents were afraid of testing HIV-positive, and (3) the social stigma and stereotyping of HIV/AIDS sufferers made them afraid to have voluntary HIV testing.

Safer practices

Knowing that an infected needle can transmit HIV led, in a number of cases, to respondents intending to adopt safer drug-using practices. A few respondents mentioned that buying clean needles was not difficult in Taiwan.

> I bought a box of needles because I don't want to use a contaminated needle...if my friend wants a fix without a clean syringe, I will give them a sterile needle and syringe....

Compared to positive reactions to avoiding the reuse of needles and syringes, respondents expressed reservations regarding condom use, feeling that using a condom creates a barrier with partners, especially regular partners. Respondents expressed embarrassment in discussing sex and indicated a lack of confidence in communicating with intimate partners.

> I am embarrassed to talk about it [sex] too.... I just can't....
>
> I think men are likely to have many affairs...have a lot of sexual partners...but you cannot ask your husband to use a condom, right? He is your husband...they will say 'Do you think that I have a disease?'....
>
> My partner will suspect that I am very sick.... Otherwise, why would I insist using condoms....

Other main reasons expressed for not using condoms were reduction in sensation, implications for trust in a relationship and inconvenience.

> I asked my partners to use condoms, but they always refused...I don't know [what to do]...because they always said they don't have 'arousal' if they use a condom during sex....

The strategy of preventing AIDS by the Centers for Disease Control Taiwan is 'to have condoms ready all the time'. However, many respondents are afraid to carry condoms, as they fear that policemen often question their motives, implying that they are prostitutes.

> I have a criminal record, and if I want to practice safer sex, carrying a condom all the time...the police will think I am on my way to sell sex for drugs or money....

Regarding the use of condoms, the focus groups revealed that respondents had difficulties in communicating on such sex-related issues with their partners, were concerned about reduction of sensation and also feared diminishing the intimate trust between partners. Attitudes in the focus groups

towards condom use in terms of HIV prevention were less positive than using a clean needle.

Discussion

This study aimed to ascertain and understand the educational needs of incarcerated women who use heroin in relation to HIV/AIDS in Taiwan. The main findings indicate that while most respondents could indicate correct routes of HIV/AIDS transmission, they were confused about other incorrect potential routes of HIV transmission. This finding is congruent with a previous study (Lee, 2002). Therefore, future HIV education interventions must clearly address misconceptions related to HIV transmission routes.

Attendance at health education classes is compulsory in this female prison, and all respondents felt that these were both essential and beneficial; a number of respondents had obtained information they had not known previously. This is similar to a study finding (Malinowsaka-Sempruch, 2002) that stated that HIV/AIDS prevention programmes in prisons had been successfully conducted in Central/Eastern Europe and the former Soviet Union. It would seem, therefore, that health education interventions in prisons are a useful strategy for addressing health issues among prisoners.

As this study indicates, respondents are not fully informed about HIV/AIDS. While they perceive themselves able to prevent HIV infection, they do not clearly understand what they should do if they suspect they have become infected. In other words, an appropriate HIV education programme for drug users should not only focus on transmission and prevention strategies, but also provide a complete HIV/AIDS information package. This should include identification of risk situations and communication skills. The findings on risk-taking behaviors were consistent with previous studies which have shown that sex in exchange for drugs or money and needle sharing are common among IDUs (Loxley *et al.*, 1998; Rhodes *et al.*, 1998; Iguchi *et al.*, 2001; Lee, 2005).

The focus groups revealed that 'Sugar Girls', a slang term in the drug-using community for women who are mobile and exchange sex for drugs as a short-term solution to their addiction, are a common phenomenon in Taiwanese society. This particular group in Taiwan has not yet been adequately studied, but the fact that they are at high risk of HIV infection cannot be ignored. Future study should investigate Sugar Girls risk-taking behaviors and their attitudes towards HIV/AIDS; the need for developing an HIV prevention programme for this vulnerable group is indisputable.

There seem to be some contradictions in the respondents' perception that they themselves are not promiscuous and yet talking about how drug use may, nonetheless, lead them to be promiscuous. Most respondents were not able to perceive themselves at risk because of their unprotected sexual behavior with their primary sexual partners. Indeed, some studies have concluded that it is very difficult to encourage condom use in primary relationships. For example, Sibthorpe (Sibthorpe, 1992) concluded, on the basis of a review of a number of studies on condom use by IDUs and of her own research in Portland, Oregon, that 'the greatest gains in safer sex practices can be expected in those relationships that only minimally reaffirm social bonds' and that 'the likelihood of a significant increase in safer sex practices within conjugal and paraconjugal relationships is not strong'. Nonetheless, the issue of the relationship of drug use and promiscuity must be studied further for women in the IDU population.

Some respondents observed that female IDUs should have access to HIV testing. This is not a surprising finding. A study (Cotton-Oldenburg *et al.*, 1999) found that 71% of a sample of 805 female prison inmates in North Carolina accepted voluntary HIV testing, especially those who had exchanged sex for money or drugs, or those convicted of drug crimes. The reasons for taking HIV tests included the perception that these women were at high risk of HIV infection and that they suspected that they might have been infected during drug injection. On the other hand, according to the focus groups in this study, having the intention to access HIV testing may not result in actual action. The possibility of becoming HIV infected was not a great concern because of low perceptions of susceptibility to HIV infection and fear of discovery of an HIV-positive status.

In addition, despite the policy of free and anonymous HIV testing in Taiwan, many respondents stated that they were reluctant to access HIV testing because they were afraid of how Taiwan society reacts to the stereotype of people with AIDS. A survey by Lee (Lee, 2002) of 1185 women drug users in Taiwan showed that the main barrier to HIV testing is the stereotype of HIV/AIDS sufferers which made them afraid to access this service. Moreover, results showed that respondents in Lee's study lacked understanding of HIV testing services, and slightly less than 20% of them knew that HIV testing services in hospitals are free and anonymous.

Ignorance and fear underlie HIV-related stigma. The findings indicated that inadequate understanding of the modes of HIV transmission leads to fear of transmission from casual contact. Results also found that HIV-related stigma has increasingly become the single greatest challenge to slowing the spread of HIV/AIDS. Many respondents in this study who did not know their serostatus lived in fear of facing stigma and discrimination should they contract the disease. If HIV infection was confirmed, respondents would choose to end their lives instead of looking for medical care. Prevention programmes should emphasize that female IDUs need to be actively encouraged, in the absence of structural and social support, to take responsibility for their own health.

A trust relationship plays an important role in the promotion of reducing HIV risk with sexual partners among female IDUs. One of the findings showed that respondents were afraid of communicating with their sexual partners about condom use because their partners may doubt their loyalty to their relationship. This indicates that the balance of power and control is in the hands of men in this patriarchal culture. The design of prevention programmes has to include the communication and assertiveness skills which will consequently result in higher self-efficacy. However, our study did not examine the influence of gender and relationships. Future studies should investigate how the interplay of intimate relationships, and control of money and drugs, influence changes relating to HIV risk behaviors.

Suggestions for HIV/AIDS education

The fact that a box of clean needles can be purchased at little expense at any drug store in Taiwan was disclosed in the focus groups. This finding has important policy implications in that provision of sterile syringes and needles may not be the key issue in Taiwan compared with countries whose citizens have difficulties in obtaining injecting equipment. What is needed for stemming HIV prevention of female heroin IDUs may be the knowledge and skills of relating to the sterilizing of injecting equipment where no clean needle is available—this is particularly pertinent when they need a 'quick fix', e.g. during the night.

HIV prevention strategies not only focus on preventing needle sharing, but also on how drug effects and sexual practices influence each other. Therefore, some suggestions elicited from the findings are now explored for their potential to increase the rate of condom use by women IDUs. First, low self-efficacy decreases condom use among female heroin users and hence HIV prevention interventions should focus on increasing self-efficacy to enable women to discuss the use of condoms without embarrassment. Second, a HIV-positive diagnosis can increase a respondent's motivation for condom use; therefore, HIV testing is important in changing sexual behavior. Third, most respondents were not cognizant of the fact that unprotected sexual behavior with their regular sexual partners could be risky. Therefore, HIV prevention programmes should be developed that focus on risk factors in both steady relationships and casual sexual encounters. Finally, HIV education programmes should enhance respondents' communication and negotiation skills related to condom use, to empower them to have safer sex with their sex partners.

Conclusion

Given the limited resources and funds, the recent trend in new HIV infections indicated that HIV prevention should be focused on IDUs, especially in developing countries such as Taiwan. In addition, safer sex should be regarded of equal importance

to safe injecting techniques in pursuing HIV harm reduction for drug users. While it has no direct effect in reducing injecting drug use, it may be far easier to promote the use of clean needles and condoms. The development of an effective harm reduction programme on safer sex and safe injection at prisons could make a substantial contribution to HIV prevention and control.

Stigma, perceived low susceptibility to infection and fear about AIDS exist in the Taiwanese female heroin IDU prison population, even though knowledge about routes of HIV transmission has been well understood. There are specific challenges in HIV/AIDS prevention among Sugar Girls and female heroin IDUs on the basis of our findings. The main fears about HIV/AIDS were related to social stigma, the stereotypes surrounding HIV/AIDS and discrimination against people with AIDS. All of these influence the likelihood of accessing HIV testing and health-care services, as does uncertainty relating to confidentiality. Therefore, future HIV/AIDS education programmes also need to focus on decreasing the social stigma of HIV/AIDS, thus reducing the stereotypes associated with HIV/AIDS and empowering high-risk groups to access health-care services.

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References

Barnard, M. (1993) Needle sharing in context: patterns of sharing among men and women injectors and HIV risks. *Addiction*, **88**, 805–812.

Center for Disease Control Taiwan (2005) *National Statistics of Reported HIV/AIDS Cases from 1984 to 2005*. Center for Disease Control Taiwan, Taipei. Available: http://www.cdc.gov.tw/En/.

Cotton-Oldenburg, N.U., Jordan, B.K., Martin, S.L. and Sadowski, L.S. (1999) Voluntary HIV testing in prison: do women inmates at high risk for HIV accept HIV testing? *AIDS Education and Prevention*, **11**, 28–37.

Davis, D.R. and Dinitto, D.M. (1996) Gender differences in social and psychological problems of substance abusers: a comparison to nonsubstance abusers. *Journal of Psychoactive Drugs*, **28**, 135–145.

Davies, A.G., Dominy, N., Peters, J. and Richardson, A.M. (1996) Gender differences in HIV risk behavior of injecting drug users in Edinburgh. *AIDS Care*, **8**, 517–527.

Department of Justice Taiwan (2002) *National Statistics about Illicit Drug Offenders*. Department of Justice Taiwan, Taipei. Available: http://www.moj.gov.tw/f7_frame.htm.

DePoy, E. and Gitlin, L.N. (1994) *Introduction to Research*. Mosby, St Louis, MO.

Fiorentine, R., Pilati, M.L. and Hillhouse, M.P. (1999) Drug treatment outcomes: investigating the long-term effects of sexual and physical abuse histories. *Journal of Psychoactive Drugs*, **31**, 363–372.

Freeman, R.C., Rodriguez, G.M. and French, J.F. (1994) A comparison of male and female intravenous drug users' risk behaviors foe HIV infection. *American Journal of Drug and Alcohol Abuse*, **20**, 129–157.

Grella, C.E. and Anglin, M.D. (1997) HIV risk among women arrestees in California: opportunities for intervention. Paper presented at the *Meeting of the National Conference on Women and HIV*, Los Angeles, CA.

Hastings, G.B. (1990) Qualitative research in health education. *Journal of the Institute of Health Education*, **28**, 118.

Hirayama, H. and Hirayama, K. (1986) The sexuality of Japanese Americans. *Journal of Social Work and Human Sexuality*, **4**, 81–93.

Iguchi, M.Y., Bux, D.A., Jr, Kushner, H. and Lidz, V. (2001) Correlates of HIV risk among female sex partners of injecting drug users in a high-seroprevalence area. *Evaluation Programme Planning*, **24**, 175–185.

Kingry, M.J. (1990) Focus groups: a research technique for nursing. *Nursing Research*, **39**, 124–125.

Kitzinger, J. (1994) The methodology of focus groups: the importance of interaction between research respondents. *Sociology of Health and Illness*, **16**, 105.

Lee, T.S.-H. (1999) Initiation and maintenance of HIV risk reduction: a prospective study among injection drug users. *Doctoral dissertation*. University of Pennsylvania.

Lee, T.S.-H. (2002) *Using the PRECEDE Model on Voluntary HIV Testing among Female Drug Users*. Center for Disease Control Taiwan, Taipei.

Lee, T.S.-H. (2005) Prevalence and related factors of needle-sharing behavior among female prisoners. *Journal of Medical Sciences*, **25**, 27–32.

Loxley, W., Bevan, J. and Carruthers, S. (1998) Sex, gender, drugs and risk: the Australian study of HIV and injecting drug use. *International Journal of Drug Policy*, **9**, 255–262.

Malinowsaka-Sempruch, K. (2002) Harm reduction in prisons is crucial to the reduction of HIV in Eastern Europe and the former Soviet Union. *International Journal of Drug Policy*, **13**, 1–3.

McDaniel, R. and Bach, C. (1996) Focus Group research. The question of scientific rigor. *Rehabilitation Nursing Research*, **5**, 53–59.

Nemoto, T., Operario, D., Takenaka, M., Iwamoto, M. and Le, M.N. (2003) HIV risk among Asian women working

at massage parlors in San Francisco. *AIDS Education and Prevention*, **15**, 245–256.

Parahoo, A.K. (1997) *Nursing Research: Principles, Process and Issues*. Macmillan, Basingstoke.

Presley, A.S. (1991) Common terms and concepts in nursing research. In Cormack, D.F.S. (ed.), *The Research Process in Nursing*, 2nd edn. Blackwell Science, Oxford, pp. 40–46.

Rhodes, T., Millson, M., Bueno, R., Myers, T., Hunter, G.M. and Stimson, G.V. (1998) Differences in sexual behavior and condom use among cocaine and opioid injectors in Santos, Toronto and London. *International Journal of Drug Policy*, **9**, 449–460.

Robinson, N. (1999) The use of focus group methodology—with selected examples from sexual health research. *Journal of Advanced Nursing*, **29**, 905–913.

Sandelowski, M. (1993) Rigor or rigor mortis: the problem of rigor in qualitative research. *Journal of Nursing Scholarship*, **3**, 161–166.

Stewart, D.W. and Shamdasani P.N. (1990) *Focus Groups: Theory and Practice*. Sage, Newbury Park, CA.

Sibthorpe, B. (1992) The social construction of sexual relationships as a determinant of HIV risk perception and condom use among injection drug users. *Medical Anthropology Quarterly*, **6**, 255–270.

Tilford, S. and Delaney, F. (1992) Qualitative research in health education. *Health Education Research*, **4**, 451–455.

Ting, C.Y. and Chen, S.S. (2000) Prevention is the best policy—the public's belief of AIDS and STDs control and attitudes towards condom use in Taiwan. *Chinese Journal of Public Health*, **19**, 180–191.

UNAIDS (1999) *Sexual Behavioral Change for HIV: Where Have Theories Taken Us?* UNAIDS, Geneva.

UNAIDS (2000) *Preventing the Transmission of HIV among Drug Abusers: A Position Paper of the United Nations System. Annex to the Report of 8th Session of the ACC Subcommittee on Drug Control*. UNAIDS, Geneva.

Vaughn, E. (1996) *Focus Group Interviews in Education and Psychology*. Sage, London.

Weissman, G., Melchioe, L. and Huba, G. (1995) Women living with drug abuse and HIV disease: drug abuse treatment access and secondary prevention issues. *Journal of Psychoactive Drugs*, **27**, 401–410.

WHO (1998) *Report on the Global HIV/AIDS Epidemic: June 1998*. WHO, Geneva. Available: http://www.unaids.org/epidemic_update/.

WHO (2000) *Human Immunodeficiency Virus and Acquired Immune Deficiency Syndrome (HIV/AIDS)*. WHO, Geneva. Available: http://www.who.int/health-topics/hiv.htm.

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