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Within-Prison Drug Injection among HIV-infected Male Prisoners in Indonesia: A Highly Constrained Choice

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Abstract

Background—In Indonesia, incarceration of people who inject drugs (PWID) and access to drugs in prison potentiate within-prison drug injection (WP-DI), a preventable and extremely high-risk behavior that may contribute substantially to HIV transmission in prison and communities to which prisoners are released.

Aims—This mixed method study examined the prevalence, correlates, and social context of WP-DI among HIV-infected male prisoners in Indonesia.

Methods—102 randomly selected HIV-infected male prisoners completed semi-structured voice-recorded interviews about drug use changes after arrest, drug use cues within prison, and impact of WP-DI on HIV and addiction treatment. Logistic regression identified multivariate correlates of WP-DI and thematic analysis of interview transcripts used grounded-theory.

Results—Over half (56%) of participants reported previous WP-DI. Of those, 93% shared injection equipment in prison, and 78.6% estimated sharing needles with 10 other prisoners. Multivariate analyses independently correlated WP-DI with being incarcerated for drug offenses (AOR=3.29, 95%CI=1.30–8.31, $p=0.011$) and daily drug injection before arrest (AOR=5.23, 95%CI=1.42–19.25, $p=0.013$). Drug availability and proximity to drug users while incarcerated were associated with frequent drug craving and escalating drug use risk behaviors after arrest. Energetic heroin marketing and stigmatizing attitudes toward methadone contribute to WP-DI and impede addiction and HIV treatment.

Conclusions—Frequent WP-DI and needle sharing among these HIV-infected Indonesian prison inmates indicate the need for structural interventions that reduce overcrowding, drug supply, and

needle sharing, and improve detection and treatment of substance use disorders upon incarceration to minimize WP-DI and associated harm.

Keywords

HIV; prisons; drug injection; methadone; antiretroviral therapy; Indonesia

1 Introduction

Indonesia's HIV epidemic is expanding rapidly. Annual new infections rose 48% from 51,300 to 76,000 between 2008 and 2013, a period when HIV incidence decreased or stabilized in most other Asia-Pacific countries (Joint United Nations Programme on HIV/AIDS, 2013; Ministry of Health, 2008). Despite recent evidence of a transitioning epidemic (National AIDS Commission, 2012), people who inject drugs (PWID) comprise the largest proportion of people living with HIV (PLWH) in Indonesia (Ministry of Health, 2009) and provide a bridge to other high risk groups and the general population (National AIDS Commission, 2012).

HIV prevalence among the estimated 73,000-200,000 PWID in Indonesia ranges from 31.4-67.9% (Joint United Nations Programme on HIV/AIDS, 2013; Ministry of Health, 2009; United Nations Office on Drugs and Crime, 2013). Indonesia's response to the HIV epidemic among PWID which includes universal access to methadone maintenance therapy (MMT), needle-syringe programs (NSPs), and primary care through non-governmental organizations and community health centers (Afriandi et al., 2009; Mesquita et al., 2007; National AIDS Commission, 2012), has contributed to decreasing HIV prevalence among PWID (National AIDS Commission, 2012; United Nations Office on Drugs and Crime, 2013); although, HIV prevalence rose sharply in subgroups of PWID, notably new injectors in Jakarta (National AIDS Commission, 2012).

Drug policies, including new laws (Law No. 27/2009), make little distinction between drug users and traffickers (Nasir, 2011), and have generally proved counterproductive to HIV control (Joint United Nations Programme on HIV/AIDS, 2013). Drug enforcement has spawned police brutality against PWID (Davis et al., 2009), itself a social determinant of unsafe injection among PWID in the community (Hayashi et al., 2013; Ti et al., 2014), and increased criminal convictions and incarceration rates among PWID (HIV Cooperation Program for Indonesia, 2013; Morineau et al., 2012). Conservatively, 8-13% of Indonesian prisoners are PWID and official estimates of HIV prevalence among prisoners range from 1.1-13.9% (Directorate of Corrections, 2010a, 2012; Nelwan et al., 2010), with the highest prevalence being in specialized narcotics prisons which house inmates sentenced for drug-related crimes (including drug possession), although prisoners with substance use disorders (SUDs) are detained throughout the prison system (National AIDS Commission, 2010).

Among Indonesian PWID, incarceration, SUDs, and HIV are syndemic (Morineau et al., 2012; Nelwan et al., 2010; Singer and Clair, 2003). Studies outside Asia suggest that needle sharing during incarceration contributes greatly to this syndemic (Calzavara et al., 2003; Pollini et al., 2009; Small et al., 2005; Werb et al., 2008; Wood et al., 2005), particularly needle sharing among HIV-infected prisoners (Izenberg et al., 2014). Environmental factors

like overcrowding of PWID, access to drugs, and limited access to NSPs and MMT, facilitate within-prison drug injection (WP-DI) and transmission of blood-borne pathogens (Dolan et al., 2007; Dolan et al., 2014). In Indonesia, prisons therefore may serve as amplifying reservoirs, contributing to HIV transmission in prisons and in communities where prisoners are released (Mathers et al., 2008; Prasetyo et al., 2013). Limited data about WP-DI in Indonesia are available. Existing studies suggest that WP-DI is generally a rare occurrence (0.07-1.3% of male prisoners), but that it occurs more frequently in narcotics prisons and is associated with high levels of injection equipment sharing, drug injection initiation, and HIV infection (Directorate of Corrections, 2010a, 2012; National AIDS Commission, 2012). No studies, however, have specifically examined WP-DI among PLWH—the only people who can transmit virus to others—nor have they examined barriers to evidence-based MMT strategies that could thwart HIV prevention and treatment efforts among prisoners. To address this unmet need, we undertook a mixed methods study to understand better *why* HIV-infected prisoners engage in WP-DI, how they weigh the potential risks, and gain insight into how MMT expansion might benefit this especially vulnerable and high-risk group.

2 Methods

2.1 Ethics Statement

This study was conducted in accordance with international standards for research with prisoners (Lazzarini and Altice, 2000). Participation resulted in neither benefit nor punishment. Ethics review boards at Yale University and University of Indonesia approved the study. This study was authorized by The Ministry of Research and Technology, and the Directorate General of Corrections, Ministry of Law and Human Rights, Republic of Indonesia. For their contributed time, participants received a snack and toiletry kit.

2.2 Study Design

In this study, we examined prevalence and correlates of WP-DI and explored its socio-environmental context. We therefore chose, an emergent mixed-method study design (Cresswell and Plano Clark, 2011) commonly used in studies of drug injection and other high-risk behaviors (Scrimshaw et al., 1991; Stimson et al., 2006) to permit both a statistical analysis of variables derived from semi-structured interviews as well as a thematic analysis of interview transcripts to explore social-contextual factors that influence WP-DI, using a grounded-theory approach (Corbin and Strauss, 1990; Strauss and Corbin, 1990). Through a review of the existing literature, we developed an interview guide, consisting of open- and close-ended questions about participants' experiences with and attitudes toward WP-DI, formatted for qualitative, in-depth interviewing (Spradley, 1979; Yeo et al., 2014). The interview guide was edited extensively by an expert in survey design before being translated into *Bahasa Indonesia* by 3 native English- and Indonesian-speaking researchers using a direct translation method (Behling and Law, 2000). We piloted the interview guide with 15 study participants and made minor changes. Interviews were conducted by 5 researchers fluent in Indonesian. Each interview lasted about 60 minutes.

2.3 Indonesian Prison Context

A national strategy expands access to clinical services and MMT for Indonesia's ~164,000 prisoners (Directorate of Corrections, 2010b; Directorate of Corrections, 2015; Winarso et al., 2006), almost a quarter of whom are convicted of a drug-related offense, and incarcerated in one of 16 specialized narcotics prisons (National AIDS Commission, 2010). Overcrowding, TB transmission, and delayed HIV diagnosis and treatment are persistent problems that contribute to especially high mortality among incarcerated PLWH (Djauzi, 2009; Nelwan et al., 2009) and PWID (National AIDS Commission, 2010). Improved access to HIV testing and ART in prisons have gradually reduced AIDS-related deaths among prisoners (National AIDS Commission, 2010), although access to harm reduction services remains extremely limited (Directorate of Corrections, 2012), due in part to resistance of prison personnel (Blogg and Shenman, 2014). Among 460 prisons and detention centers nationwide, only 11 provide MMT, 1 provides condoms and bleach for sterilizing injection equipment, and none have NSPs.

2.4 Study Sites

Selected prisons included one narcotics and one non-narcotics prison in the Special Capital Region of Jakarta which has the largest number of PWID (~27,000) and PLWH (~42,880) in Indonesia, (Ministry of Health, 2009), and one the largest prison populations (~15,600) (Directorate of Corrections, 2015). Table 1 shows characteristics of the two prisons. Both prisons are extremely overcrowded and have estimated HIV prevalence considerably higher than national averages. At Central Jakarta Prison, HIV screening occurs at intake, while at Jakarta Narcotics Prison, HIV testing is provider-initiated based on symptoms or risk assessment. Both sites provided ART. Prisoners meeting diagnostic criteria for opioid dependence, using heroin in the last year, and not within 3 months of their release date were eligible for MMT at Jakarta Narcotics Prison where 50 inmates were receiving MMT at the time of the study.

2.5 Recruitment

From November 2013 to April 2014, we recruited 102 HIV-infected male prisoners who were: age 18 years; HIV-infected; fluent in *Bahasa Indonesia*; willing to participate in a voice-recorded interview; and able to give informed consent. In order to generate a sampling frame representative of known PLWH, the prison physician compiled a list of all documented HIV-infected patients, stratified by CD4 cell count and ART treatment status, and assigned a unique identifier; a computer program (www.random.org) randomly selected 60 patients per site to be invited for study participation. Proportionate stratification involved ART prescription (or not) within each of five CD4 cell count categories: <200 cells/mm³, 200-350 cells/mm³, 351-500 cells/mm³, >500 cells/mm³, and undefined (18%-33% of prisoners had not undergone CD4 testing). Selected prisoners were brought to a private medical clinic room where a researcher introduced the study, screened, and performed informed consent procedures. Prison staff was never present during consent or interview procedures. Of 120 prisoners selected for screening, 7 were released, 2 died, 1 was in solitary confinement, and 1 escaped before screening. Two were ineligible after screening.

Five of the remaining 107 refused further participation after screening, leaving 102 participants in the final sample.

2.6 Study Measures

Within-prison drug injection (WP-DI) was defined as having ever injected drugs in jail or prison. We defined *needle sharing* as having shared a needle/syringe with another person in prison, without differentiating between receptive and distributive syringe sharing. Those who shared were asked how many people had used the same syringe before or after injection, with or without cleaning. Participants reporting 10 needle-sharing partners also reported difficulty providing precise estimates of their needle-sharing partners due to large network size and third-party needle distribution. We therefore categorized needle sharing as *extreme* if they had shared needles with 10 other prisoners. To examine the socio-environmental context of WP-DI, we asked participants to describe typical situations in which they experienced drug craving or used drugs while incarcerated.

Pre-incarceration drug use was assessed with 15 items focused on drug use patterns (3 months before current incarceration), recurring consequences (physical, social, and emotional), and withdrawal symptoms, adapted from the TCU Drug Screen II, (Texas Christian University, 2007) used widely in correctional settings to assess drug dependence (Simpson et al., 2012).

HIV-related symptoms were assessed using a modified Revised HIV Symptom Checklist, a validated 45-item scale measuring frequency and intensity of self-reported HIV-related signs/symptoms (Holzemer et al., 1999). Changes included adding a *lymphadenopathy* subscale; substituting a *weight loss* subscale for one measuring *lipodystrophy*, and creating separate items for “bloody sputum” and “bloody saliva” in the *bleeding* subscale. Final symptom scale consisted of 48 items and 12 subscales. Symptoms in the last 2 weeks were rated as “none”, “mild” (noticed that symptom), “moderate” (bothered by that symptom), or “severe” (interfered with 1 usual activity). Reliability of the modified scale was high ($\alpha=0.85$). Self-reported *ART adherence* was assessed over the previous 7 days.

2.7 Analytical Plan

Using SPSS Statistical Package (Version 19.0. Armonk, NY: IBM Corp), bivariate correlations of WP-DI, the dependent variable, were conducted and independent variables with an initial association of $p<0.10$ (*prison type, income from drug dealing, HIV symptoms, pre-incarceration drug use, injection drug use, heroin use, polysubstance use, drug use frequency, withdrawal after arrest, methadone use in prison*) were entered into successive multivariate models. Collinearity was observed between *polysubstance use* and *HIV-related symptoms*, especially the *fear, fatigue, and weight loss* subscales, and was maintained in the final model based on goodness-of-fit assumptions. *Current methadone use* was not retained in the final model since MMT was provided at only one site. Variance inflation factor for all remaining variables was less than 5, representing low collinearity. Selection of the final model was based on goodness-of-fit, using Akaike Information Criteria (AIC) (Bozdogan, 1987).

Interviewers underwent a structured debriefing immediately after each interview to summarize responses. Voice-recorded interviews were transcribed verbatim, translated, and analyzed simultaneously by three coauthors (GJC/MI/APM), utilizing NVivo Qualitative Data Research Software (QSR International Pty Ltd. Version 10, 2012) to organize data. Using a grounded-theory approach (Corbin and Strauss, 1990; Strauss and Corbin, 1990), researchers reviewed transcripts in *Bahasa Indonesia* to inductively analyze language used by participants to describe socio-environmental, normative attitudinal, and behavioral influences of WP-DI, and applied a set of preliminary descriptive codes. Transcripts were then reviewed in a constant comparative process (Charmaz, 2014) and codes assigned based upon emergent topics including changes in drug use after arrest, cues to use drugs in prison, and impact of WP-DI on HIV and addiction treatment, which we explored further in subsequent interviews. Analytic memos were written to refine codes and group them into 4 broad themes: drug availability, needle-sharing, drug use normalization, and methadone stigmatization. To support these over-arching themes, we selected quotes that illustrated relationships within the risk environment, including: circumstances that structure WP-DI; participants' routine or strategic responses to these events; and outcomes of these actions/interactions. Finally, implicit quantification (Neale et al., 2014) was used to indicate the relative strength of participant perspectives.

3 Results

3.1 Sample Characteristics

WP-DI was highly correlated with recruitment from Jakarta Narcotics Prison where about half (53%) of study participants were incarcerated. Table 2 describes bivariate correlations for the 100 participants who provided responses about WP-DI. A majority (68%) was diagnosed with HIV during the current incarceration. Pre-incarceration health service utilization was low among those already aware of their status. Participants recruited from Jakarta Narcotics Prison were more likely to meet CD4 criteria for AIDS, undergo CD4 testing, and be prescribed ART in prison. Mean HIV-related symptoms were higher among narcotics prisoners (1.13 v. 0.78, $p=0.019$) and those reporting WP-DI.

3.2 Pre-incarceration Drug Use

Nearly all (98%) participants reported drug use and two-thirds (66%) reported daily drug injection before incarceration. Table 3 describes measures of pre-incarceration drug use. Heroin and methamphetamine were the drugs most commonly reported and half (52%) reported polysubstance use. Narcotics prisoners were more likely than non-narcotics prisoners to report daily drug use (92% v. 60%, $p=0.001$) and attempts to cut back or stop using drugs (81% v. 60%, $p=0.016$). For all other drug use indices, however, differences among participants from the two prisons were non-significant. Compared to the generally safer injection practices seen among Indonesian PWID (HIV Cooperation Program for Indonesia, 2013; Joint United Nations Programme on HIV/AIDS, 2013), participants reported more unsafe injection practices, including sharing needles, injecting alone, or in congregate settings; although many accessed NSPs in the community.

3.3 Within-Prison Drug Injection (WP-DI)

Over half of study participants (56%) reported a history of WP-DI. Figure 1 shows prevalence of WP-DI and needle sharing. Narcotic prison participants were more likely to report WP-DI, needle sharing, and extreme needle sharing. Participants only reported injecting heroin. Drug injection was more common in the 3 months before incarceration than during incarceration. Compared to the 3 months before incarceration, however, injectors reported markedly higher rates of needle sharing (94.5%) and greater numbers of needle-sharing partners while incarcerated, with 80% of those reporting WP-DI estimating their total number of needle-sharing partners to be “more than 10”, “hundreds”, or “countless”. Table 4 shows correlates of WP-DI in a final multivariate model ($R^2=0.317$, $df=7$, $N=100$, $p<0.001$), with pre-incarceration daily drug injection (AOR=5.23; 95%CI=1.42-19.25) and incarceration in a narcotics prison (AOR=3.29; 95%CI=1.30-8.31) being significantly correlated with WP-DI.

3.4 WP-DI Social Context: Drug Availability and Needle-sharing

Most participants described jails and prisons in which they had been incarcerated as settings where drugs and drug-use triggers were abundant but means to reduce drug use-associated harm were mainly absent, leading to a widely-shared perception that drug use was unavoidable, needle-sharing inevitable, and disease transmission not preventable. Accepting these seemingly fatalistic beliefs “normalized” drug use and escalating drug-related risk behaviors including initiation of drug injection, needle sharing, and heroin use within prison, as described in Table 5, quotations A1-A3.

Frequent contact with prisoners using drug triggered drug craving. “We can find drugs easier inside the prison. In every corner, people are using. So I can not bear the craving.” Another observed, “In here there’s a lot of prisoners still using narcotics. I get cravings when I see my cellmates using it or when other prisoners visit our cell to use. When I see it, I want to use it.” Some participants described unsuccessful attempts to cope with injection triggers, for example smoking drugs or assisting others to inject, and believed that relapse in prison was inevitable. High-risk drug injection started soon after arrest in police lock-up and jails as a way to treat symptoms of opioid withdrawal. A few participants who had not injected heroin in the community, started to inject heroin after incarceration because of increasing drug tolerance or because heroin was seen as an affordable alternative to methamphetamine.

Nearly all participants reporting WP-DI described needle sharing as a highly constrained choice during incarceration because the only needles typically accessible were second-hand syringes rented by other prisoners (quotations B1-B3). Rarely, a new needle could be obtained from a family member, purchased from an inmate or prison officer, or scavenged from the prison clinic. One participant reflected, “I used to have my own needle, a new needle. But then I sold it because I needed the money.”

Because needles were scarce, these participants saw no practical way to reduce their needle-sharing partners. A few tried to limit their needle-sharing to prisoners who appeared healthy. Participants who reported needle sharing frequently used expressions like ‘hundreds’ or ‘thousands’ to estimate their within-prison needle-sharing partners. One participant

explained, “Uncountable. The model is like a rental, with at least 500 people, maybe 1,000. You know the capacity of the jail. And heroin users are 80-90% of them.”

Most participants who reported sharing needles while incarcerated believed needle sharing carried intrinsic risks. Many described attempting to clean injection equipment by rinsing syringes in water, bleach solution, floor cleaner, or fabric softener before injecting, while a few reported ineffective disinfectant methods like spraying the outside of the syringe with bleach. Some expressed doubt about the efficacy of “cleaning”, pointing to large needle-sharing networks and high HIV prevalence as reasons why bleach cleansing was at best a partial solution (quotations B4 and B5).

3.5 A Crocodile's Mouth: Stigmatizing Methadone in the Drug Economy

WP-DI is a product of the wider prison drug economy that organizes life in prison to promote drug use and weaken methadone's acceptability. For traffickers, methadone may be perceived as undermining the prison drug economy and therefore deeply stigmatized. Social cues, including ritualized drug use, normalized drug dependency, encouraged inmates to associate with drug users, and to shun methadone users (quotations C1-C3). Prison culture rewarded heroin users with camaraderie and occasional free drugs, but ostracized methadone users. Prisoners prescribed methadone were segregated from other inmates and required to wear distinct t-shirts that identified them as methadone patients. Messages passed among prisoners warning against “mixing” of ART with methadone or heroin, fueled participants' apprehension about MMT safety, discouraged ART initiation, and kept them immersed in drug culture (quotations D1-D7). Finally, institutional policies requiring family member consent before starting methadone were perceived to limit access to MMT and contributed to the perception that MMT was potentially dangerous and a morally charged decision. Some participants were prevented from accessing methadone because they were unable to reach family members, ashamed to disclose drug dependence, or because family members refused to consent (quotations D8-D10).

4 Discussion

This mixed-method study provides empirical and contextual insights into WP-DI among incarcerated PLWH in Indonesia. Our findings document an extraordinarily high prevalence of WP-DI (56%) among PLWH – the only ones capable of transmitting HIV. WP-DI reported by PLWH in the narcotics prison (66%) was nearly twice as high (37%) as previously reported (Directorate of Corrections, 2012), and vastly higher compared to the general Indonesian male prison population (Directorate of Corrections, 2010a). While we were unable to disentangle if WP-DI contributed to participants becoming HIV–infected or whether they acquired HIV infection before incarceration, our findings show that WP-DI among these inmates has major implications for primary and secondary prevention in Indonesia.

WP-DI involves a complex array of socio-environmental factors that appear to cause psychological distress among participants and imbue fatalistic perceptions that WP-DI and HIV are inevitable. Ultimately, WP-DI stems from the institutional failure to adequately assess and treat opioid dependence as soon as inmates are incarcerated. Pre-trial detention

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facilities appear to be especially high-risk environments because although considerable risk activities occur there, drug treatment (including MMT) is mostly absent in these settings, resulting in two-thirds (66%) of those who used drugs before arrest experiencing withdrawal symptoms upon entry. By the time inmates reached drug treatment in prison (a process that can take up to 18 months), the harm from WP-DI and institutionalized behaviors had already occurred. The finding that daily opioid injection before incarceration and withdrawal symptoms immediately after arrest were highly correlated with WP-DI, is consistent with other research showing that abstinence symptoms upon incarceration are a powerful trigger for WP-DI (Izenberg et al., 2014), and underscores the need to objectively assess drug use and craving immediately during intake and front-load interventions to treat SUDs. Medication-assisted therapies including methadone and buprenorphine are recommended by the WHO, UNODC, UNAIDS and the World Bank as part of an evidence-based treatment package for opioid dependence among prisoners (World Health Organization, 2014) and have gained international acceptance as the standard of care for treating prisoners with SUDs (Larney and Dolan, 2009) based on their effectiveness for reducing risky drug injection (Larney, 2010), increasing uptake of ART among PWID (Altice et al., 2011; Uhlmann et al., 2010), improving post-release retention in care (Wickersham et al., 2013b) and HIV treatment outcomes (Springer et al., 2010; Springer et al., 2012). Methadone expansion in these Jakarta prisons would greatly enhance efforts to expand community methadone in West Java as part of a regional HIV prevention strategy (Wammes et al., 2012)

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WP-DI appears to be inextricable from a wider social context in these Indonesian prisons that is characterized by a fundamental asymmetry between the accessibility of drugs and the inaccessibility of drug treatment (Sarang et al., 2006). The perception that WP-DI, though fraught with extraordinary risks is nevertheless inevitable, points to an imbalance in resources for HIV prevention and assets promoting drug use that perpetuates high-risk WP-DI and underpins prisoners' decisions about drug treatment and HIV care. Prison-based MMT has consistently been documented to reduce WP-DI and improve overall health with few negative consequences (Stallwitz and Stover, 2007) Yet, entrenched negative attitudes about MMT among prisoners (Bachireddy et al., 2011; Zamani et al., 2010), prison personnel (Gjersing et al., 2007; Polonsky et al., 2015) and family members (Liu et al., 2013), and fear of being ostracized by other prisoners still influence drug treatment decisions among opioid-dependent prisoners. Compounding these are concerns about “mixing” of methadone with life-preserving ART (Altice et al., 2001), which are in part accurate since most first-line ART in Indonesia includes a non-nucleoside reverse transcriptase inhibitor, which causes symptoms of withdrawal in a third to half of prisoners on methadone unless methadone doses are escalated soon after ART initiation (Altice et al., 2010; Gruber and McCance-Katz, 2010).

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This study builds on older qualitative work on the dynamics of syringe sharing and HIV risk in prisons (Mahon, 1996; Sarang et al., 2006; Seal et al., 2004; Small et al., 2005) confirming that drug injection and needle sharing in these Indonesian prisons are still perceived as highly constrained choices due to an abundance of psychological triggers, negative attitudes about treatment, and social imperatives to consume drugs in the absence of NSPs. Prisoners resort to WP-DI and needle sharing, despite perceived negative health consequences, because social circumstances present these as the only practical choices for

managing withdrawal. Concentration of HIV-infected PWID, boredom in the prison setting, easier access to drugs, fatalism instilled by the environment, limited access to MMT, and unavailability of NSPs - factors unique to incarceration and outside the inmate's control - contribute to the social structural facilitation of HIV risk in prisons (Rhodes et al., 2005). These settings accentuate the potential harm associated with drug injection by limiting resources for even rudimentary risk reduction including NSPs – evidence-based HIV prevention strategies that have been successfully implemented in over 60 prisons in 10 countries across Europe, Central Asia and Iran (Harm Reduction International, 2012), found to pose no unintended negative consequences, such as increased drug use or the use of needles as weapons (Dolan et al., 2003), and significantly reduce needle sharing among PWID (Harm Reduction Coalition, 2007).

The profoundly negative influence of the drug culture over decisions concerning methadone represents another facet of the social structural perpetuation of HIV risk in these Indonesian prisons – a “perfect storm” involving a well-established prison drug economy (MacDougall, 2014) whose purveyors vigorously defend their territory by stigmatizing methadone and institutional policies that further restrict MMT by limiting autonomy for medical decisions, raising unrealistic fears about MMT safety, and segregating prisoners on methadone. Findings suggest these prisons are fertile grounds for a relatively open drug economy that provides unimpeded access to opioids, and serve as sites for recruiting new addicts and introducing users, including those that previously only used amphetamines, to much riskier activities. There appears to be a concerted effort among some prisoners to stigmatize methadone and fuel misconceptions so that drug-dependent inmates forego MMT. Data from nearby Malaysia where MMT was initially perceived as negative (Bachireddy et al., 2011) may provide strategies useful to Indonesia, including social marketing of methadone to inmates and prison personnel, non-segregation of MMT patients, providing effective MMT dosing (Wickersham et al., 2013b), proactively adjusting MMT dose when ART is introduced, and allowing inmate autonomy (i.e. not involving family members) when deciding about MMT initiation (Wickersham et al., 2013a).

Finally, achieving HIV treatment as prevention goals for incarcerated PLWH requires increased coordination between addiction treatment and HIV care. First, too few participants had their CD4 monitored, causing them to miss this initial step toward starting ART based on CD4 thresholds. Second, partially unjustified attitudes about the mixing of MMT and ART and resultant withdrawal symptoms erode ART acceptance among HIV-infected PWID. Third, underutilization of ART and ongoing WP-DI undoubtedly contribute to further transmission. Last, WP-DI impedes access to MMT and ART by immersing PWID in an environment where they are preoccupied with financing drug use and unduly influenced by other prisoners to reject ART.

4.1 Limitations

Findings from this mixed-method study point urgently to the need for multipronged action to reduce WP-DI. This study is subject, however, to some important limitations. First, our inability to distinguish past from current WP-DI does not allow us to associate HIV status with WP-DI. Some participants, however, described ongoing WP-DI and needle sharing

despite knowing their HIV status during the interviews and about two-thirds of narcotics prison inmates in a previous study who reported any WP-DI also reported current WP-DI (Directorate of Corrections, 2012). Second, though WP-DI was under-reported due to potential concerns about retribution by prison authorities, we tried ethically to remove this obstacle by not asking specifically about current WP-DI. Nonetheless, WP-DI reporting was impressively high, nearly twice as high as was reported in previous studies (Directorate of Corrections, 2012), lessening this concern. Third, uncertainty exists as to whether the prevalence of WP-DI observed can be generalized to other prisons in Indonesia given that we sampled from only two Indonesian prisons. Last, our sample, though not large, represents the largest mixed-method assessment of WP-DI among HIV-infected prisoners to date.

5 Conclusions

In Indonesia, frequent WP-DI and needle sharing among HIV-infected prison inmates may contribute significantly to intra-prison and community HIV transmission. Normalization of drug injection and stigmatization of methadone in these prisons point to the need for structural interventions, like social marketing and removal of unwarranted restrictions to expand MMT and introduce NSPs throughout the criminal justice system in order to reduce WP-DI and ongoing HIV transmission. In closed prison settings where PLWH share needles with many other PWID, expanded ART as part of HIV treatment as prevention should be a mainstay of prison-based HIV prevention strategies.

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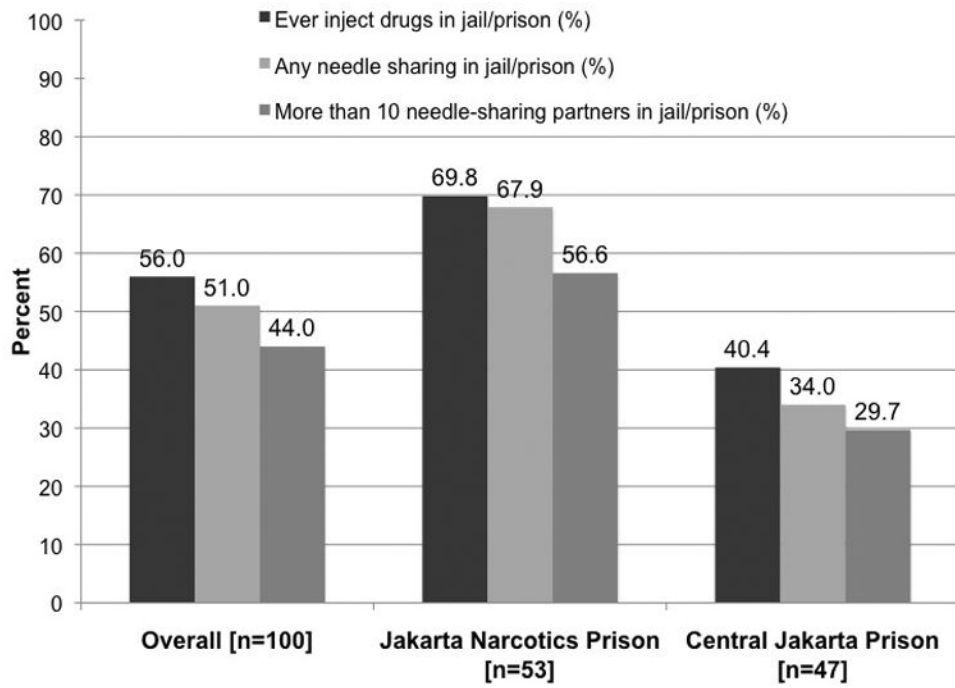


Figure 1. Within-Prison Drug Injection and Needle Sharing Among HIV-infected Prisoners

Table 1
Description of selected prisons and prisoners at Jakarta research sites

Characteristic	<i>Jakarta Narcotics Prison N (%)</i>	<i>Central Jakarta Prison N (%)</i>
Population (% over capacity)	3,131 (415)	1,865 (306)
Prisoners on methadone maintenance therapy	50 (1.6)	None
HIV prevalence among male prisoners (estimate for prison type)	6.5%	1.1%
HIV prevalence among male prisoners (prison-specific estimate)	13.9%	11.2%
Known HIV cases	136 (4.3)	99 (5.3)
Prescribed ART	60 (44.1)	35 (35.0)

Legend: ART=antiretroviral therapy

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Table 2
Bivariate demographic and medical associations with within-prison drug injection

Characteristic	N (%) (n=100)	Within-Prison Drug Injection		p-value
		Yes (n=56) N (%)	No (n=44) N (%)	
Jakarta Narcotics Prison	53 (53.0)	37 (66.1)	16 (36.4)	0.003
Mean age years (SD)	31.3 ± 5.7	30.7 ± 5.2	31.9 ± 6.3	0.315
Mean length of current incarceration in months (SD)	27.5 ± 11.9	28.1 ± 13.3	26.3 ± 10.0	0.460
Married before current incarceration	69 (69.0)	39 (69.9)	30 (68.2)	0.875
Finished high school	45 (45.0)	26 (46.4)	19 (43.2)	0.746
Main source of income drug dealing, trafficking, or theft	35 (35.0)	25 (44.6)	10 (22.7)	0.023
Mean number of years since HIV diagnosis (SD)	3.2 ± 2.9	3.2 ± 3.1	3.3 ± 2.7	0.903
Diagnosed during incarceration (previous or current)	77 (77.0)	45 (80.0)	32 (72.7)	0.368
Diagnosed before current prison term	32 (32.0)	16 (28.6)	16 (36.4)	0.407
Engaged in medical care 3 months before arrest	12 (12.0)	4 (7.1)	8 (18.2)	0.240
Taking ART 3 months before arrest	6 (6.0)	0 (0)	6 (13.6)	0.017
Underwent CD4 testing during current incarceration	78 (78.0)	48 (85.7)	30 (68.2)	0.036
CD4 350 cells/mm ³	47 (47.0)	29 (51.8)	18 (40.9)	0.279
CD4 200 cells/mm ³	25 (25.0)	15 (26.8)	10 (22.7)	0.345
Prescribed ART in prison	49 (49.0)	29 (51.8)	20 (45.5)	0.530
No missed doses of ART during last 7 days	41 (41.0)	24 (42.9)	17 (38.6)	0.670
Mean HIV related symptom score (SD)	0.9 ± 0.7	1.1 ± 0.7	0.8 ± 0.6	0.045

Legend: ART=antiretroviral therapy; SD=standard deviation

Table 3
Bivariate pre-incarceration drug use and needle-sharing associations with within-prison drug injection

Characteristic	N (%) (n=100)	Within-Prison Drug Injection		p-value
		Yes (n=56) N (%)	No (n=44) N (%)	
Pre-incarceration drug use (previous 3 months)				
Any drug use	98 (98.0)	56 (100)	42 (95.5)	0.107
Daily drug use	80 (80.0)	53 (94.6)	27 (64.3)	< 0.001
Used heroin or other opioid (e.g. subutex)	67 (67.0)	44 (78.6)	25 (56.8)	0.020
Used amphetamine	49 (49.0)	27 (48.2)	22 (50.0)	0.859
Polysubstance use	51 (51.0)	33 (58.9)	18 (40.9)	0.074
Alcohol use	47 (47.0)	29 (51.8)	18 (40.9)	0.279
Drug injection	66 (66.0)	44 (78.6)	22 (50.0)	0.003
Daily drug injection	57 (57.0)	41 (73.2)	16 (36.4)	< 0.001
Sharing needles	36 (36.0)	22 (39.3)	14 (31.8)	0.440
2 needle sharing partners	28 (28.0)	17 (30.4)	11 (25.0)	0.554
Attempted to cut back or stop using	70 (70.0)	38 (67.9)	32 (76.2)	0.366
Experienced withdrawal symptoms	68 (68.0)	42 (75.0)	26 (61.9)	0.164
Needed help to cut back or stop using	35 (35.0)	22 (39.3)	13 (31.0)	0.380
Tried to get help to cut back or stop using	30 (30.0)	18 (32.1)	12 (28.6)	0.487
Ever participate in drug treatment	20 (20.0)	12 (21.4)	8 (19.0)	0.497
Withdrawal after last arrest	65 (65.0)	44 (78.6)	21 (47.7)	0.001
Currently receiving MMT in prison	16 (16.0)	15 (26.8)	1 (2.3)	0.001

Legend: MMT=methadone maintenance therapy

Table 4
Independent and multivariate correlates of within-prison drug injecting

Variable	UOR	95% CI	p-value	AOR	95% CI	p-value
Jakarta Narcotics Prison	3.40	1.49 - 7.78	0.004	3.29	1.30 - 8.31	0.011
Pre-incarceration drug use (previous 3 months)						
Daily injection drug use	4.78	2.03 - 11.22	<0.001	5.23	1.42 - 19.25	0.013
Heroin or other opioid use	2.78	1.16 - 6.67	0.021	0.42	0.09 - 1.94	0.270
Polysubstance use	2.07	0.92 - 4.62	0.075	2.27	0.88 - 5.82	0.088
Withdrawal after arrest	4.01	1.68 - 9.58	0.002	2.54	0.83 - 7.81	0.102
Final model AIC = 129.2						

Legend: UOR=unadjusted odds ratio; AOR=adjusted odds ratio, CI=confidence interval, AIC=Akaike Information Criteria;

Table 5
WP-DI social-contextual themes and representative participant quotations

Theme	Quotation
Drug availability	A1 We use drugs here in the open space. It's normal. It can be anywhere. If there's a guard, then we hide. It's freer here to use drugs than outside. In here, we can use anywhere. But outside, it's not like that. We have to find a room outside.
	A2 Two days ago I went to my friend's cell. I saw another prisoner in the corner and apparently they were using. That's when I got cravings, and I injected.
	A3 I was already taking methadone outside (in community). But before I could get back onto methadone in prison, I was having withdrawal. So I started injecting in jail and kept injecting in prison.
Needle sharing	B1 When I was diagnosed, I was surprised. I did not expect it because outside I used needles but never shared. Inside [the jail] I saw people were using and I got craving. We have to use needles because snorting doesn't cover the craving. So like it or not, I had to use worn-out needles.
	B2 In here we can rent needles. I can use it for a while and afterwards somebody else will use it - like queuing. One needle is for a thousand people. If you are using in prison, you will have used that needle. From morning until evening it's used non-stop.
	B3 Before I was arrested, I didn't share needles. Only after I got arrested...and was transferred to the jail where I started sharing needles. There was one rental needle that I shared with about 10 other people.
	B4 There are a lot of them newly infected in here. Sometimes people say with bleach you can clean the needle. I don't know if it's true or not.
	B5 It is not possible for someone who is using narcotics not to get HIV - especially here. There are only three needles for all the junkies that are shared. So not getting [HIV] is not possible - it's certain.
Normalizing drug use	C1 I did not use [heroin] before. Then I heard a lot of rumors from people outside, people at home; they got into fights and stuff. So I started to hang out with heroin kids. I saw how they're just having fun. They use [drugs] in the afternoon, then they bring food back to their cells - that's it. I thought, how enjoyable.
	C2 If someone gets released his friends will give him money and let him use for free. It's like a tradition inside. Because they already spend years inside this is like a memento.
	C3 I use about 100,000 rupiah per day. It's only to cover the body so it will not ache. If I want to get high, it will cost me 300,000-400,000 rupiah every day. And that's only for drugs. Not to mention food and other things.
Stigmatizing methadone	D1 I'm embarrassed to use methadone. There are lots of methadone kids that got dissociated. I don't know why. Their circle is small when they get into methadone.
	D2 I really want to join methadone. But my main reason is because they will transfer me to the methadone cells, along with all the methadone kids.
	D3 Using methadone is like going from a lion's mouth to a crocodile's mouth.
	D4 Methadone will stop the craving, but will kill you quicker. It's better just to take heroin.
	D5 My friends told me if I want to quit [drugs], do it all the way. Don't use methadone. Why stop using poison with another poison? You will die using methadone!
	D6 I was still using drugs inside the prison. I was supposed to start taking ART. But in the end I decided not to take it [ART] because I learned the withdrawal [from MMT but caused by ART] is so severe.
	D7 After I get out, I will try to take care of my HIV. But in here...maybe later. It's useless because I'm still using [drugs]. Maybe the ART is lost from the heroin.
	D8 I want to [start MMT]. I want to quit [drugs]. But my family can't come here. My older siblings are married and spread far away. I can't get into the program without a guardian. And my mom is so old. It's difficult for her to walk. Without a guardian, I have to pay. But if my family comes they will bring money and pay the fee.
	D9 I want to use it (methadone) but the doctors won't let me because they are afraid there will be mistakes. If anything happens to me while I'm consuming methadone the doctors would be responsible.
	D10 My parents said you don't need to get into methadone. They are afraid that I will be addicted to it. It's like our body organs have signed a contract.

Legend: MMT = methadone maintenance therapy; ART = antiretroviral therapy