Advances in Health Sciences Research, volume 25
2nd Sriwijaya International Conference of Public Health (SICPH 2019)

Injection Drug Abuse Risky HIV Infection Among Indonesian Prisoners (Data Analysis IBBS 2015)

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Abstract----Prisoners are one of the community groups that are vulnerable to HIV/AIDS. Prison put people in high-risk situations for the spread of HIV, because of the risky practice behavior. The purpose of this study was to analyze the effect of injection drug abuse with HIV infection among Indonesian prisoners. This study used a cross- sectional study design. The data used are secondary data of Integrated Biological Behavior Survey (IBBS) 2015 with a sample of 2,000 respondents in Indonesia. Data analysis was done by univariate, bivariate, and multivariate using logistic regression test of risk factor model. The results of this study showed there was 2.9% of prisoners affecting HIV. The bivariate analysis showed that the variables effected HIV infection among Indonesian prisoners are injection drug abuse (p-value=<0.0001), age (p-value=0.044), criminal history (p-value=<0.0001), risky injection (p-value=<0.0001), tattoo (p-value=0.014) and intervention (p-value=<0.0001). The results of the multivariate analysis showed there is a significant effect between injection drug abuse with HIV infection after being controlled by duration of drug use and risky injection (p-value <0.0001; PR 4.8; 95% CI 2.211-10.464).

Keywords: HIV infection, injection drug abuse, prisoner

I. INTRODUCTION

The Millennium Development Goals (MDGs) that have been implemented during the 2000-2015 period have been successfully achieved by Indonesia. Some indicators that measure targets in the health sector need special attention, one of which is related to the prevalence of HIV and AIDS. Indonesia as one of the countries committed to achieving the Sustainable Development Goals (SDGs). One of the 17 goals of the SDGs is to achieve health and well-being for all people (goal number three). To achieve this goal, one of the targets is to end the AIDS epidemic as a public health threat by 2030.

HIV has been identified as a major health problem for prisons around the world [1]. Prisons have often been neglected in the global response to the threat of HIV infection [2]. Prisons are places of an expectedly higher prevalence of blood borne and sexually transmitted infections (BBSTDI) compared to the general community [3]. The severity of HIV/AIDS pandemic linked to injecting drug use is one of the most worrying medical and social problems throughout the world in recent years [4]. The prevalence of HIV and other bloodborne infections is generally higher among prisoners than in the general community because of the over-representation of injecting drug users (IDUs) in prisons [5].

Inmates often come from marginalized populations, such as injecting drug users (IDUs) and persons with high-risk sexual behaviors (including sex workers), who are already at an increased risk for these infections [6]. Sharing of contaminated injecting equipment has driven the HIV epidemic in Indonesia [7]. Numerous researchers have documented that high-risk HIV transmission behaviors occur inside prison. Research conducted on inmates in Bangkok, Thailand revealed that injecting drug use was a dominant factor in HIV infection. Injecting drug use increases the risk 2.3 times (95% CI = 1.91 - 2.77) for HIV infection compared to not using injecting drugs [8].

Inside prison, high risk behaviours for transmitting HIV include homosexual activity, intravenous (IV) drug use, and the use of contaminated cutting instruments. Conditions of overcrowding, stress and malnutrition compromise health and safety and have the effect of worsening the overall health of all inmates, and particularly those living with HIV or AIDS. Gang activity also increases the incidence of tattooing and violence between prisoners, both of which can create the risk of HIV transmission [9]. This study provides behavioural

and biological data about prisoners in Indonesia. Infection may occur before or during imprisonment, we conducted this study to evaluate the effect of injecting drug abuse with HIV infection among Indonesian prisoners.

II. METHOD

This study is a quantitative study using secondary data, Integrated Biological and Behavioral Survey (IBBS) 2015. The study design used a cross-sectional study. The sample in this study were all prisoners who were sampled at IBBS of 2,000 respondents. Data analysis in this study was conducted univariate, bivariate, and multivariate using a logistic regression test of risk factor models. The dependent variable of this study is HIV infection, the main independent variable is injection drug abuse, and other variables are age, education, HIV/AIDS knowledge, criminal history, duration of drug use, risky injection, tattoos, risky sexual behavior, and intervention.

III. RESULTS

The frequency distribution of factors that effect of HIV infection among Indonesian prisoners can be seen in the following table:

TABLE I
Univariate Analysis of Factors Affecting HIV Infection among Indonesian Prisoners

Variable	Categories	n	Percentage
HIV Infection	Positive	59	2.9
	Negative	1941	97.1
Injection Drug Abuse	Yes	198	9.9
	No	737	36.9
	Missing	1065	53.3
Age	> 25 years old	1505	75.3
	≤ 25 years old	477	23.8
	Missing	18	0.9
Education	High	829	41.4
	Low	1171	58.6
HIV/AIDS Knowledge	Less	866	43.3
	Good	1134	56.7
Criminal History	Ever	588	29.4
	Never	1412	70.6
Duration of Drug Use	≥ 3 years	380	19.0
	< 3 years	236	11.8
	Missing	1384	69.2
Risky Injection	Yes	15	0.8
	No	1984	99.1
	Missing	1	0.1
Tattoo	Yes	169	8.5
	No	1831	91.5
Risky Sexual Behaviour	Yes	394	19.7
	No	1606	80.3
Intervention	Yes	1408	70.4
	No	360	18.0
	Missing	232	11.6

Based on univariate analysis, from 2,000 respondents there are several variables that have missing data, it is injecting drug abuse (53.3%), age (0.9%), duration of drug use (69.2%), risky injection (0.1%), and intervention (!1.6%). In this study will enter the missing data available for analysis. Table I positive status, the proportion of injecting drug abuse is 9.9%, aged >25 years is 75.3%, highly educated 41.4%, having less knowledge of 43.3%, had a criminal history of 29.4%, used drugs ≥3 years by 19%, had an injection of risk at 0.8%, had been tattooed while in prison 8.5%, had a risky sexual behavior of 19.7%, and did not receive intervention while in prison 70.4%.

TABLE II
Bivariate Analysis of Factors Affecting HIV Infection among Indonesian Prisoners

Variable	HIV Infection				Total	*p-Value*	*PR (95% CI)*
	Positive		Negative				
	n	%	n	%			
Injection Drug Abuse							
Yes	23	11.6	175	88.4	198	<0.0001	4.756 (2.619-8636)
No	18	2.4	719	97.6	737		
Age							
> 25	51	3.4	1454	96.6	1505	0.044	2.309 (1.055-5.054)
≤ 25	7	1.5	470	98.5	477		
Education							
High	26	3.1	803	96.9	829	0.779	1.113 (0.671-1.846)
Low	33	2.8	1138	97.2	1171		
HIV/AIDS Knowledge							
Less	18	2.1	848	97.9	866	0.060	0.575 (0.333-

Good	41	3.6	1093	96.4	1134		0.994)
Criminal History							
Ever	30	5.1	558	94.9	588	<0.0001	2.484 (1.505-4.101)
Never	29	2.1	1383	97.9	1412		
Duration of Drug Use							
≥ 3 years	23	6.1	357	93.9	380	0.210	1.786 (0.812-3.926)
< 3 years	8	3.4	228	96.9	236		
Risky Injection							
Yes	5	33.3	10	66.7	15	<0.0001	12.25 (5.71-26.25)
No	54	2.7	1930	97.3	1984		
Tattoo							
Yes	11	6.5	158	93.5	169	0.014	2.483 (1.315-4.690)
No	48	2.6	1783	97.4	1831		
Risky Sexual Behavior							
Yes	14	3.6	380	96.4	394	0.533	1.268 (0.703-2.287)
No	45	2.8	1561	97.2	1606		
Interventions							
Yes	26	1.8	1382	98.2	1408	<0.0001	0.214 (0.129-0.356)
No	31	8.6	329	91.4	360		

The results of statistical analysis using the chi- square test showed that there is a significant effect between injecting drug abuse (p-value = <0.0001), age (p-value = 0.044), criminal history (p-value = <0.0001), risky injection (p-value = <0.0001), tattoos (p-value = 0.014), and interventions (p-value = <0.0001) with HIV infection among Indonesian prisoners.

TABLE III
Multivariate Analysis of Factors Affecting HIV Infection among Indonesian Prisoners

Variable	***p-value***	**$PR_{adjusted}$**	**95% CI**
Injection Drug Abuse	<0.0001	4.810	2.211-10.464
Duration of Drug Use	0.315	1.550	0.660-3.644
Risky Injection	0.020	7.482	1.367-40.969

The final model of multivariate analysis showed that the main independent variable namely injection drug abuse has a significant effect with HIV infection after being controlled by the variable of drug use and risky injection among Indonesian prisoners in 2015. Prisoners who drug abuse increases risk 4.8 times to experience HIV infection compared to prisoners who did not do injection drug abuse after being controlled by the variable duration of drug use and risky injection.

IV. DISCUSSION

1. HIV Infection

Based on the results of the study, prisoners was positive of HIV infection by 2.9%. in the epidemiological phase, the development and level of HIV epidemic among Indonesian prisoners in 2015 is at a low level epidemic. Although the prevalence of HIV levels are still very low in the Asia-Pacific region, the potential risk of spread of HIV infection among injection drug users and the risk of spread of infection from them to thers is worrisome [4]. The prevention of HIV transmission in prison has more to do with improving prison conditions in general than with specifically addressing HIV. Overcrowding, corruption, and gangs are the primary culprits behind rape, assault and violence in prisons, and this environment is horrify ing even without the risk of HIV infection. Security and the provision of safe custody must be a priority [9].

Prisoners can become infected with HIV before entering prison, but do not rule out they get it while incarceration. Prisons have characteristics that can increase the risk of HIV transmission. Data collection usually occurs on entry to prison, but collection can also occur when prisoners are released. Matching entry and exit data can give an indication of the level of HIV transmission within prison. Rather than testing every new inmate, it might be more feasible in some countries to test a random

selection of prisoners, or to undertake cohort studies in which incidence can be measured [5].

2. Injection Drug Abuse

In this study 935 people had valid data and 1065 people were missing data. Based on the results of the study obtained 36.9% of prisoners who did not abuse injecting drugs and 9.9% committed injecting drug abuse. Prisoners who injected drug abuse, there were 50 people (25.3%) returning to use injecting drugs while serving time in prison. The results of the bivariate analysis stated that there was an influence between injecting drug abuse on HIV infection. Based on the results of multivariate analysis, there is a significant effect between injecting drug abuse on HIV infection after being controlled by variable duration of drug use and risk injection. Prisoners who abused injecting drugs increased the risk 4.8 times to get infected with HIV compared to prisoners who did not abuse injecting drugs. Injecting drug abuse is a risk factor for HIV infection among prisoners.

HIV infection was strongly associated with injecting drug use [10]. IDU is the main factor driving the epidemic in Indonesia, and patients are generally diagnosed at a very late stage of disease [11]. The results of this study are in line with study conducted in Iran. They revealed that the most important risk factor for HIV infections is IDU (OR, 4.48; 95% CI, 2.89–6.93) [12].

Many drug users stop using and injecting drugs when imprisoned. For other prisoners though, some will commence drug use orswitch the route of drug administration if their preferred drug is unavailable [13]. A way to reduce the level of drug injecting in prison is to provide methadone maintenance treatment during incarceration. There is abundant evidence that community based methadone treatment reduces injecting, crime and the subsequent incarceration of drug users [14].

Most programs to reduce HIV transmission among IDUs only focus on unsafe injecting behavior, but there are cases that IDU also buys sex. Drug use also influences sexual behavior. Sexual IDU partners are not always IDUs, they are not always open about drug use behavior with their sexual partners and they also inject in other cities along with other IDUs. The complexity of injecting sexual networks that have the potential to spread to the general population is identified through permanent and temporary sexual relations. Permanent couples include partners on the basis of marriage and boyfriend, while temporary partners are not always commercial partners but also sexual relations in shorter periods and are non- permanent [15].

3. Duration of Drug Use

There are 616 people who have valid data and the remaining 1384 people are missing data. The results showed that the majority of prisoners used drugs for ≥ 3 years at 19%. Bivariate analysis showed no influence between duration of drug use with HIV infection. Based on multivariate analysis it was found that there was no effect between duration of drug use and HIV infection. However, there is a change in prevalence ratio >10%, so that the variable duration of drug use is a confounding variable of injection drug abuse with HIV infection among prisoners in Indonesia. The HIV epidemic may have slowed down somewhat as injectors with shorter injection history had alower HIV prevalence and a higher proportion were accessing clean needles from the NSP than those injecting for a longer duration [16].

4. Risky Injection

Risky injection in this study consisted of 3 aspects namely sharing syringes, cleaning syringes, and syringe washing material. It is said to be risky if the respondent sharing syringes and does not clean the scyringe or the respondent sharing syringes, then cleans the syringe, but uses the wrong material when cleaning the syringe. 99.1% prisoners did not have risk injection and the remaining 0.8% had risk injections. There are 1.2% prisoners who sharing syringes. The results of the bivariate analysis of this study indicate that there is an influence between risky injection with HIV infection (p-value<0.0001). Multivariate analysis shows that there is a significant effect between risky injection and HIV infection. Prisoners who did the injection risk increased the risk of 7.48 times to get infected with HIV compared to prisoners who did not do the risk injection. The risk injection variable is

a confounding variable of injection drug abuse with HIV infection among prisoners in Indonesia.

In a state of urgency or withdrawal and do not carry sterile syringes, an IDU will still be willing to use used needles that have been used by other IDUs. The practice of alternating injections contaminated with the HIV virus is the main type of HIV transmission to IDUs [13]. Sharing syringes among IDUs has contributed significantly to HIV endemic events. Transmission of the virus through a contaminated syringe can occur when the syringe is used interchangeably. Some studies report that IDUs often do not clean needles or even do not know how to clean needles before re-use. Most of them also often share needles despite knowing that HIV is transmitted through needles [17].

Sentencing practices for drug-related offenses can lead to an extremely high incarceration rate amongst drug users and addicts, particularly in countries where drug policy emphasises criminalisation over rehabilitation. While in prison, addicts will find ways to continue their habit, but are less likely to obtain clean syringes or disinfectants and thus needle sharing is a widespread practice [9]. The risk of transmission is higher if a tool is used to puncture the skin, is contaminated with HIV positive blood, and is then immediately used on another prisoner. The risk for HIV transmission from use of contaminated cutting instruments will depend on the amount of blood involved and the time elapsed between uses, as well as the viral load of the infected person and certain biological attributes of the non-infected person [18].

V. CONCLUSION

There is an effects between injecting drug abuse, age, criminal history, risky injections, tattoos and interventions with HIV infection. There is a significant effect between injecting drug abuse with HIV infection among Indonesian prisoners after being controlled by the variable of duration of drug use and risk injection.

REFERENCES

[1] UNAIDS, "AIDS Epidemic Update December 2002," Geneva, 2002.
[2] Jurgens R, "Is the World Finally Waking Up to HIV/AIDS in Prison? Report From the XV International AIDS Conference. Infect Dis Corrections Rep," 2004.
[3] Chu S & Peddle K, "Under the Skin: A People's Case for Prison Needle and Syringe Programs." Canadian HIV/AIDS Legal Network, Toronto, 2010.
[4] L. A. Swe, K. K. Nyo, and A. K. Rashid, "Risk Behaviours among HIV Positive Injecting Drug Users in Myanmar: A Case Control Study," *Harm Reduct. J.*, 2010.
[5] K. Dolan, B. Kite, E. Black, C. Aceijas, and G. V. Stimson, "HIV in Prison in Low-Income and Middle-Income Countries," *Lancet Infectious Diseases*. 2007.
[6] G. Niveau, "Prevention of Infectious Disease Transmission in Correctional Settings: A Review," *Public Health*, 2006.
[7] Republic of Indonesia National AIDS Commission, "National Action Plan 2007–2009," Jakarta, Indonesia, 2007.
[8] H. Thaisri *et al.*, "HIV Infection and Risk Factors among Bangkok Prisoners, Thailand: A Prospective Cohort Study," *BMC Infect. Dis.*, vol. 3, no. 1, p. 25, 2003.
[9] K. . Goyer, *HIV/AIDS in Prisons: Problems, Policies, and Potential*. 2003.
[10] E. J. Nelwan *et al.*, "Human Immunodeficiency Virus Hepatitis B and Hepatitis C in an Indonesian Prison: Prevalence, Risk Factors and Implications of HIV Screening," *Trop. Med. Int. Heal.*, vol. 15, no. 12, pp. 1491–1498, 2010.
[11] D. D. Celentano *et al.*, "Time to Initiating Highly Active Antiretroviral Therapy among HIV- Infected Injection Drug Users," *AIDS*, 2001.
[12] M. Pourahmad, A. Javady, I. Karimi, B. Ataei, and N. Kassaeian, "Seroprevalence of and Risk Factors Associated with Hepatitis B, Hepatitis C, and Human Immunodeficiency Virus among Prisoners in Iran," *Infect. Dis. Clin. Pract.*, vol. 15, p. 1, 2007.
[13] S. Fazel, P. Bains, and H. Doll, "Substance Abuse and Depedence in Prisoners: A Systematic Review," *Addiction*. 2006.

[14] K. Dolan, B. Moazen, A. Noori, S. Rahimzadeh, F. Farzadfar, and F. Hariga, "People Who Inject Drugs in Prison: HIV Prevalence, Transmission and Prevention," *International Journal of Drug Policy*. 2015.
[15] A. P. I. Ignatius Praptoraharjo, Wayne W. Wiebel, Octavery Kamil and A. P. I. Ignatius Praptoraharjo, Wayne W. Wiebel, Octavery Kamil, "Sexual Networks and Risk Behavior for Injection Drug Users: Another Episode of HIV Spread in Indonesia," *Community Med. News*, vol. 23, no. 3, Jun. 2007.
[16] G. Morineau, L. J. M. Bollen, R. I. Syafitri, N. Nurjannah, D. E. Mustikawati, and R. Magnani, "HIV Prevalence and Risk Behaviours among Injecting Drug Users in Six Indonesian Cities Implications for Future HIV Prevention Programs," *Harm Reduct. J.*, vol. 9, no. 1, p. 5, Sep. 2012.
[17] I. Afriandi, T. Y. Aditama, D. Mustikawati, M. Oktavia, B. Alisjahbana, and P. Riono, "HIV and Injecting Drug Use in Indonesia: Epidemiology and National Response," *Acta Med. Indones.*, 2009.
[18] L. Highleyman, "Sexual Transmission in the Era of New Treatments," *Bull. Exp. Treat. AIDS*, p. 1, 1999.