The effect of a social reintegration (parole) program on drug-related prison inmates in Japan: A 4-year prospective study

Abstract

Social reintegration has been known to protect against recidivism, but its effects against drug-use relapse have previously remained unclear. To address this gap, the present study sampled 196 inmates imprisoned for drug-related offenses in Japan. We examined the protective effects of a social reintegration (parole) program against recidivism and drug-use relapse using a 4-year prospective design. During the 4-year follow up, 79 (40.3%) of the participants reoffended and 61 (31.1%) relapsed into drug use. The results suggest that the parole program was significantly associated with a decreased risk of recidivism, even if participants' age, sentence length, number of prison terms, educational levels, and gang membership were controlled for. However, the effects of the parole program on drug relapse disappeared when the above variables were controlled for. To decrease the risk of relapse, drug-related inmates may need both prosocial communities and rehabilitative environments. The Japanese criminal justice system needs to introduce drug treatment courts for drug users.

Keywords: Social reintegration (parole) program; Inmates; Illegal drug use; Japan; Drug treatment court

Introduction

Drug-related offenses[1] are a serious problem worldwide. In 2012, around 243

million individuals (5%) of the world's population aged 15-64 used an illegal drug

(United Nations Office on Drugs and Crime 2014). Illegal drug use also increased the

risk of violent behavior with weapons, such knives and guns (Brook, Brook,

Rubenstone, Zhang and Saar 2011). Furthermore, drug-related offenses have high

recidivism rates. For example, 28.9% of first-time offenders who used stimulants

relapsed within two years of their release in Japan (Research and Training Institute of

the Ministry of Justice 2007). Drug-related offenders constituted between 25 and 30%

of male inmates in the United States (Durose, Cooper and Snyder 2014) and in Japan

(Research and Training Institute of the Ministry of Justice 2012); thus, improving their

recidivism and relapse rates could decrease total recidivism rates and contribute to a

drug-free society in many places. The present study aims to clarify the protective effects

of social reintegration (parole) programs against recidivism and relapse among Japanese

drug-related inmates. We used social integration theory (Berkman, Glass, Brissette and

Seeman 2000; Crittenden et al. 2014; Durkheim 1915; Hawkins and Weis 1985) as the

theoretical basis for the program.

Social Integration Theory

Bronfenbrenner (1986) demonstrates that people are embedded in social networks.

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[1] Our study defined drug-related offenses as trafficking, possession, and/or use of illegal drugs. Any offense committed under the influence of drugs was considered a drug-related offense because offenders were using the drug. For example, theft under the influence of cannabis is drug-related offense. However, an offense indirectly related to illegal drugs is not drug-related offense. For example, theft of money because the thief needed it to buy illegal drugs is not considered a drug-related offense because the person did not truck, possess, or use illegal drugs.

Their social networks are associated with not only their health status (Berkman et al. 2000; Crittenden et al. 2014; Durkheim 1915) but also their criminal behaviors (Hawkins and Weis 1985; Patterson, DeBaryshe and Ramsey 1989). In other words, people's antisocial networks appear to increase the risk of criminal behaviors, whereas prosocial networks decrease the risk of recidivism. For example, people with gang member friends and siblings were more likely to become gang members than those without such friends and siblings (Kissner and Pyrooz 2009). Unsurprisingly, gang membership also increases the risks of misconduct and reconviction (Huebner, Varano and Bynum 2007). On the other hand, people who are employed in general society have a decreased risk of recidivism (Skardhamar and Telle 2012). Furthermore, one national study suggested that inmates with family and friends[2] who resumed their social life after release showed less recidivism risk than inmates without such a life (Research and Training Institute of the Ministry of Justice 2012). Elderly prisoners who were embedded in multiple prosocial networks were also less likely to reoffend than those who were not (Kamigaki and Yokotani 2014).

Although the protective effects of prosocial networks against general criminal behaviors are clear from previous studies, possible protective effects against illegal drug use have been unclear. This is because some networks decrease the risk of illegal drug use, whereas other networks increase the risk. On the one hand, family and medical networks are generally protective against drug-use relapse. For example, people living with a partner (a significant other) were at less risk for cannabis use than those living alone (Redonnet, Chollet, Fombonne, Bowes and Melchior 2012). Living with someone

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[2] For this study, thorough background checks were done for the offender's family and friends to confirm that no families or friends were involved with criminal activities.

also prompted drug users to receive treatments for their drug use in a hospital (Fortier et al. 2015). Drug offenders who received outpatient (or inpatient) treatment with a case manager showed a lower risk of drug-use relapse than those who were imprisoned in general prisons (Rempel, Green and Kralstein 2012). Moreover, those who have harmonious relationships with family members showed a lower risk of relapse after their release than those who do not (Ellis, Bernichon, Yu, Roberts and Herrell 2004).

Conversely, a number of studies have shown that drug networks, peer networks, and certain romantic networks prompt drug users to relapse. For example, drug users whose friends also used illegal drugs were more likely to be repetitive users than those whose friends did not (Zhang, Liu and Huang 2013). Elementary school children whose friends smoked frequently also had more risk of illegal smoking than those whose friends did not smoke, even though most of the children and their friends belonged to prosocial groups (Fujimoto and Valent 2012). Furthermore, adolescents who were popular in their classrooms had a higher risk of illegal smoking than those who were not (Lakon and Valente 2012). Some spouses of drug users also provide a house for the drug users and pay their bills for them. Thus, thanks to spousal enabling, the users can buy drugs on the street (Falkin and Strauss 2003). Therefore, even though their spouses might try to stop their drug using, their drug using was at least passively supported by the spouses (Rotunda, West and O'Farrell 2004).

Aims of the present study

According to previous findings concerning social integration theory, reintegrating prisoners into a prosocial community could decrease their recidivism risk. Prosocial communities also include drug-free networks (Redonnet et al. 2012; Rempel et al. 2012) so that a person's reintegration might decrease his or her risk of relapse, but the

relationship between such networks is still unclear because the prosocial community

also includes drug-related networks (Falkin and Strauss 2003; Fujimoto and Valente

2012; Lakon and Valente 2012). To address this gap, our study focused on Japanese

drug-related prisoners who were in a parole program, having been released several

months before their expected release day. The parole programs in Japan always embed

prisoners into prosocial communities and monitor their living in such communities.

These characteristics are suited to examining the effects of social reintegration programs

and social integration theory in Japan. Actually, Japanese parole programs require

prisoners to live in the same house with prosocial people and to meet a parole officer

and another parole volunteer regularly for several months (Ohta 2011). Hence, parolees

were embedded in prosocial networks after their release.

Furthermore, people imprisoned for drug-related offenses in Japan between 2001

and 2005 were mostly (97%) individual users (Research and Training Institute of the

Ministry of Justice 2007). They were also repetitive drug users. This is because

first-time drug-related offenders from 1948 to 2006 usually receive only suspended

prison sentences (95%), whereas repetitive drug-related offenders tended to receive

sentences that are not suspended (79% of second-time reoffenders and 93% of

third-time reoffenders; Research and Training Institute of the Ministry of Justice 2009).

As a result, the majority of Japanese who are imprisoned for drug-related offenses are

likely to be repeat users of illegal drugs with severe drug-related problems.

We hypothesized that drug-related inmates who are placed on parole in Japan

(released several months before their expected release day) would show a lower risk of

recidivism than those not in the program (i.e., who had been released on their expected

days; Hypothesis 1). Prisoners who participated in the program in Japan also would

show a lower risk of drug-use relapse than those who did not (Hypothesis 2). We controlled for participant age, educational level, number of prison terms, and gang membership (Yakuza) in Japan (Kawasaki 2010). Previous studies have suggested that, on the one hand, older age (Durose et al. 2014; Research and Training Institute of the Ministry of Justice 2007) and a higher level of education (Joo and Jo 2015a; Lockwood, Nally, Ho and Knutson 2012) decrease the risk of recidivism. On the other hand, a greater number of prison terms (Durose et al. 2014; Research and Training Institute of the Ministry of Justice 2012) and current membership in a gang (Huebner et al. 2007; Research and Training Institute of the Ministry of Justice 2009, 2012) increase the risk of recidivism. We controlled for these variables.

Method

The participants were male inmates housed in a local Japanese prison as repeat offenders. Among 849 male inmates in the prison, we sampled 223 of the participants who received drug-related-offense terms in November 2010. We followed them until December 2014, but 27 of them were not usable: 17 of them were still imprisoned in December 2014, eight were deported, one died in prison, and one had no record in the national correctional system. Hence, these 27 were excluded. Finally, we analyzed 196 participants who were imprisoned in November 2010, released before December 2014, and allowed to stay in Japan. Of those 196 participants, 193 were originally from Japan, while the remaining three were from other countries.

Evaluative procedures during imprisonment

Japanese prison staff members investigate participants individually to assess their

suitability for treatment in the prison, using legal documents and the correctional

information system to verify participants' stories. Table 1 shows their basic

characteristics. They were all male, with an average age of 41.8 (SD = 10.8). Most of

them had only finished junior high school (9 years) or dropped out of high school (less

than 12 years of education). On average, they had already entered the adult prison 3.5

times, receiving sentences that averaged 3.2 years in November 2010. Twenty-six

percent of them were current members of a Japanese gang. All participants had served at

least one previous prison term for a drug-related offense. Eighty-three percent of them

were imprisoned mainly because of drug-related offenses (i.e., they had violated the

Stimulants [Methamphetamine or/and Amphetamine] Control Act [n = 154], Cannabis

Control Act [n = 4], Poisonous and Deleterious Substances [mainly paint thinner]

Control Act [n = 4], or other acts [n = 2]). The remaining participants were also

imprisoned mainly because of drug-free offenses under the influence of drug use, such

as theft (n = 13), robbery (n = 3), injury to others (n = 3), or other crimes (n = 13).

Predictor variables

 Social reintegration (parole) program

  Participants for the social reintegration (parole) program were determined according

to five steps. First, prisoners wrote down[3] one individual name and address as a

potential housing provider.[4] Second, the correctional staff mailed a note to the address

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[3] In the past, Japan has shown the highest literacy rate in the world (97.9% [1951] and 97.8% [1960]; Saito 2012). No one among the participants requested to have someone else write down the name and address they were asked to provide. All of the participants in this study could write their own names and read several Japanese books without any difficulty.

[4] Around half (56.4%) of housing providers are parolees' family members, such as a partner or mother and father (Research and Training Institute of the Ministry of Justice 2009). Around one-third of providers (33.9%) are official parole providers (Research

to ask whether the potential provider was willing to accept the prisoner in his or her

house after his release. Third, the correctional staff collected written informed consent

forms by way of return mail from the potential providers. Fourth, the correctional staff

visited the potential providers' houses individually and conducted an extensive

background check on the providers to assess their living environments and social

networks. Fifth, staff members also checked whether prisoners were likely to stay

reliably in the provider's house without misconduct.

Finally, 85 of the prisoners were put into the parole program and released several

months before their anticipated release day, whereas the remaining 111 did not go into

the parole program and were released on their expected day. Those in the parole

program were released an average of 150 days before their expected release date ($SD =$

97.6, Max = 607, Min = 30).

A parole officer continued to meet with them and to check their drug use at least two

times per month until they completed their prison term in free society. The same officer

had provided social support and private counseling for them during their prison terms.

Volunteers from the parole office also continued to meet them, either at the volunteers'

houses or in their homes at least one time per month. The volunteers, mentors from

local communities, averaged 64 years of age (Research and Training Institute of the

Ministry of Justice 2012).

Other predictors

We used the participants' age, gang membership, number of prison terms, and years

of education as the other predictors.

Follow-up procedures

and Training Institute of the Ministry of Justice, 2009).

After the participants' release, the Japanese correctional information system tracked all of their criminal records. These records were all legal documents produced by the prison staff. If the participants were caught and imprisoned again, the staff members added the participants' recidivism data to the information system.

Outcome variables

In the case of a relapse, drug agents gather evidence of participants' illegal drug use. The evidence includes pharmacological data from their bodies, physical evidence from their houses, and communication records from their mobile phones. According to the accumulated evidence, Japanese prosecutors try them for suspected drug-related offenses. All suspects stand trial in a Japanese criminal court (Research and Training Institute of the Ministry of Justice 2009).[5] For purposes of this study, the suspects who were convicted for a drug-related crime are defined as "drug-related reoffenders" (relapsed participants). Those who were not convicted for a drug-related crime we regarded as relapse-free survivors. The same process applies to criminal offenses: the Japanese police gather evidence of the suspects' criminal activities, and they are prosecuted according to the evidence. We defined suspects who were convicted for any criminal offenses as "reoffenders" and those who were not convicted as "crime-free survivors."

Definition of event-free and relapse-free survival of drug-related offenders

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[5] A Japanese judge imposes imprisonment for simple illegal drug use (Research and Training Institute of the Ministry of Justice, 2009). The judge also imposes imprisonment without suspension for repeated drug use (Research and Training Institute of the Ministry of Justice, 2009). All of our participants were repeat illegal users; thus, their drug use will always result in a return to prison without suspension. If the evidence supports their drug use, they cannot escape prison.

We defined an "event" as a reoffending incident.[6] "Event-free survival" is defined the duration during which the participants committed no offense after their release. An upward trend in the survival curve in terms of event-free survival might show that the person had achieved a crime-free life in free society. We also defined "relapse" as a drug-related offense after their release. Hence, "relapse-free survival" is the duration during which the participants did not have a drug-related relapse. An upward trend in relapse-free survival curve, likewise, might indicate a drug-free life in society.

Analysis method

The Kaplan-Meyer survival method was used to obtain two types of survival curve estimates. The first type is the event-free survival curve. For those who reoffended in terms of either a drug-related or drug-free crime or both, we calculated their survival duration in free society based on the dates of their release and imprisonment. For those who did not reoffend, their survival durations were treated as censored data. We used the same method to estimate relapse-free survival curves, except for the drug-free reoffenses. For those who committed drug-free offenses, the survival duration was treated as censored data on the date of their drug-free offense. Participants began to be released in November 2010. We accessed the correctional information network system and confirmed their criminal records in December 2014. The follow-up duration was 2.9 years on average (See Table 1).

Ethical considerations

For the present study, we used documents from a local prison in November 2010

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[6] A reoffending incident includes both drug-free offenses (such as murder) and drug-related offenses (such as drug use).

and digital data from the Japanese correctional system in December 2014. The research committee in the prison, as well as an ethical committee at a local Japanese university, approved the present study.

Results

Descriptive results

We checked the correlations among participants' parole statuses (Yes: 1, No: 0), age, years of education, gang membership, and number of prison terms. An older age was positively correlated with the number of prison terms ($r = .684$; $p < .01$, $df = 194$). Parole status was negatively correlated with the number of prison terms ($r = -.259$; $p < .01$, $df = 194$) and current gang memberships ($r = -.214$; $p < .01$, $df = 194$). Except for those correlations, these predictor variables did not show significant correlations.

The follow-up duration was not significantly correlated with these predictor variables. Still, follow-up duration was negatively correlated with the present sentence length ($r = -.28$, $p < .01$ $df = 194$). Gang members received longer sentences than non-gang members ($r = .20$, $p < .01$ $df = 194$).

Effects of the social reintegration (parole) program on recidivism

Among the 196 participants, 79 reoffended (40.3 percent) within 3 years of their release, on average (Table 1). Although drug-use relapse was the most frequent offense among them ($n = 61$), they also committed theft ($n = 8$) and injury to others ($n = 2$). The reoffenders survived for 465.4 (*S.D.* = 296.5, $n = 79$) days in free society, on average (n

= 79), and reentered the prison with a 963.9-day sentence, on average (*S.D.* = 485.4, *n* = 75; the sentence length for four of the reoffenders was undecided).

Compared to those who did not enter the parole program, the recidivism risk decreased by 46% at the unadjusted level and by 30% at the adjusted level, on average, for the recipients of the parole program (Table 2). Figure 1 also shows the event-free survival curve for drug-related offenders. Recipients of the parole program survived longer in free society than non-recipients (log-rank test $\chi^2 = 6.34$, $p < 0.5$).

Educational length was also associated with the decreased risk of recidivism. When we compare the recidivism between junior high school graduates (9 years of school) and high school graduates (12 years), the high school graduates' recidivism risk was 66% (3 by 22) lower than the junior high school graduates' risk in the unadjusted figures. When we adjusted other variables, the high school graduates' recidivism risk was still 60% (3 by 20) lower, on average, than that of the junior high school graduates (Table 2).

On the other hand, the number of prison terms was associated with an increased risk of recidivism. In the unadjusted figures, inmates who had experienced six prison terms showed a 70% (5 by 14) higher recidivism risk than first-time prisoners. When we adjusted for the other variables, they showed a 145% (5 by 29) higher recidivism risk than the first-time prisoners did (Table 2).

The inmates' age was associated with a decreased risk of recidivism at an adjusted but not unadjusted level. When we adjusted for other variables, an inmate's recidivism risk was 5% less than for an inmate who was a year younger.

Effects of social reintegration (parole) program on relapse

Among the 196 participants, 61 (31.1%) relapsed within 3 years of their release, on average (Table 1). Of these, 56 violated the stimulant acts and the remaining five violated the poisonous and deleterious substances acts. They were free from relapse for 450.6 (SD = 314.1, n = 61) days on average and reentered the prison with a 980-day sentence (SD = 320.1), on average (n = 59, with two sentence lengths that were undecided).

A Cox-propositional hazard analysis shows that recipients of the parole program decreased their relapse risk by 42% at the unadjusted level. However, the effects disappeared when we adjusted for other variables (Table 2). Figure 2 shows the relapse-free survival curve for drug-related offenders. Those in the parole program survived with a drug-free life longer than non-recipients did (log-rank test χ^2 = 4.64, p < 0.5), as long as we did not control for other variables.

The number of prison terms was associated with an increased risk of relapse. Inmates who experienced six prison terms showed a 70% (5 by 14) higher relapse risk than the first-time prisoners at unadjusted levels. When we adjusted for other variables, they showed a 140% (5 by 28) higher relapse risk than first-time prisoners, on average (Table 2).

Length of education and age showed mixed results. High school graduates' relapse risk was 51% (3 by 17) lower than junior high school graduates' risk in unadjusted figures. However, when we adjusted for other variables, the differences disappeared. Furthermore, without adjustment, age was not significantly associated with the relapse risk. Yet, when we adjusted for other variables, each inmate's relapse risk decreased by

4% compared to inmates who were a year younger (Table 2).

Discussion

Our study examined the protective effects of a social reintegration (parole) program against recidivism and relapse in Japan. As social integration theory (Bronfenbrenner 1986; Hawkins and Weis 1985; Patterson et al. 1989) and previous findings predicted (Berg and Huebner 2011; Hawkins and Weis 1985; Huebner et al. 2007; Kamigaki and Yokotani 2014; Kissner and Pyrooz 2009; Skardhamar and Telle 2012; Zhang et al. 2013), inmates who were put into the parole program showed less recidivism risk than those who were not. Even if we controlled for participants' age, gang membership, number of prison terms, and educational level, those in the parole program showed a decreased recidivism risk over those who were not. These findings support the protective effects of Japanese parole programs against recidivism in drug-related inmates, similar to the protective effects against recidivism of general inmates in Japan (Research and Training Institute of the Ministry of Justice 2012).

The Japanese parole program involves cooperation at all times among three prosocial forces: parole officers, parole volunteers, and housing providers. Most of the parole volunteers (93%) reported that official counseling is important for the parolee's stable employment (Research and Training Institute of the Ministry of Justice 2012). Most of the prisoners (88.6%) also reported that official counseling is important for their employment (Research and Training Institute of the Ministry of Justice 2012). An

earlier study also reported that ex-prisoners who lived with their families showed lower recidivism rates than those who had no home (Research and Training Institute of the Ministry of Justice 2009). In sum, the three prosocial forces combined may each have a protective effect against recidivism.

The parole program also involves mutual communication among parole officers, volunteers, and housing providers. Officers and volunteers usually confer with one another about the ex-prisoners in their charge (Research and Training Institute of the Ministry of Justice 2005). They also derive information from the housing providers about any changes in ex-prisoners' daily lives. These communication networks among them may foster a flexible approach for the ex-prisoners and prevent them from reoffending. Hence, both individual prosocial members and frequent communication among the members may have protective effects on the ex-prisoners' recidivism.

Participants' low educational level was also associated with the increased risk of recidivism. Many prisoners were junior high school graduates or high school dropouts in our study. These data suggested that some of them might have intellectual and/or cognitive disabilities (Baldry, Clarence, Dowse and Trollor 2013). Their disabilities might make it difficult for them to carry out their daily lives in free society so that they might find it easier to return to prison (Baldry, Dowse and Clarence 2012).

Although the parole program was effective in reducing the recidivism risk, it did not seem to be effective for reducing the drug-use relapse risk in our study. The parole program was seemingly effective against drug-use relapse at the unadjusted levels, but the effects of the program disappeared after we controlled for other variables. The

reason is that the characteristics of participants in the parole program were significantly different from the characteristics of non-participants. First-time prisoners and non-gang members were more likely to be parolees than repetitive prisoners and current gang members. In actuality, a high number of prison terms was associated with increased relapse risk in both our study and a previous study (Durose et al. 2014). Hence, recipients' experiences could influence the effects of the parole program. An increase in the number of inmates' prison terms, for example, could result in enriching their drug-related networks, which might then have adverse effects on their relapse risk.

Implications for future study

Our study presents quantitative data concerning drug-related prison inmates in Japan. Asian criminology has limited prospective design data, compared to American and European criminology (Liu 2009), so the present findings may contribute a prospective dataset to the accumulated findings in Asian criminology. Furthermore, inasmuch as Asian criminologists retain this quantitative dataset, it may prove substantially useful for comparing the recidivism and relapse risks in nearby Asian countries, which could foster mutual understanding between countries concerning drug-related problems (Le and Lauchs 2013; Windle 2012).

Our study also examined one general theory about crime in an Asian context. General theories about crime have been advanced in studies by European and American researchers, even though crime has been rampant in Asia (Windle 2012) and Australia

(Le and Lauchs 2013). Hence, the applicability of these general theories to Asian offenders was still unclear, constituting a major issue in Asian criminology (Liu 2009). Our study examined the applicability of the social integration theory into drug-related inmates in Japan and added prospective data about relapse survival curves into Asian criminologists' findings.

The present study focused on male drug users; therefore, future study is needed to examine similar issues for female drug users. Previous studies have suggested that female drug-related prisoners use harder drugs than their male counterparts (Langan Pelissier 2001; Wickersham et al. 2015). They also show more severe mental disorders, such as schizophrenia and major depression, than are present in male drug users (Abram, Teplin and McClelland 2003). Furthermore, female drug users react differently to stress than do male users (Potenza et al. 2012), and there are female-specific problems, such as drug use during pregnancy (Greenfield et al. 2007). A recent study suggested that female drug-related prisoners showed more improvement in specific rehabilitative environments than did male drug users (Somers, Rezansoff and Moniruzzaman 2013). These studies suggest that female drug-related prisoners have different outcomes from their male counterparts in terms of drug-related problems and treatment. Future study is needed to examine drug-related problems and treatments for females in the Asian context (Wickersham et al. 2015).

Implications for criminal justice practices

Our study found that Japanese parole programs have protective effects against recidivism risk in the crimes of drug-related inmates, but not against drug-use relapse risk. As social integration theory predicts (Berg and Huebner 2011; Fortier et al. 2015; Hawkins and Weis 1985; Kamigaki and Yokotani 2014), when a Japanese parole program incorporates inmates into prosocial networks, the network can be effective in reducing antisocial behaviors (e.g., misconduct). However, prosocial networks are not necessarily rehabilitative environments. In actuality, prosocial networks can sometimes encourage drug use (Falkin and Strauss 2003; Fujimoto and Valente 2012; Lakon and Valente 2012; Rotunda et al. 2004). In Japanese parole programs (Ohta 2011), parole officers may serve as rehabilitators if they maintain confidentiality concerning the participants' drug use because it is legal for participants to receive private counseling regardless of their drug use. However, the same officers may inhibit rehabilitation if they disclose information concerning participants' drug use to the police, as participants would then be obliged to stop any drug-related therapy and reenter prison. Hence, the rehabilitative function of parole officers may differ according to their notions of rehabilitative discipline.

To improve the rehabilitative function of parole programs, the Japanese correctional system needs to provide rehabilitative environments for drug users. For example, Drug Treatment Court (DTC) provides drug users two options: punishment or rehabilitation (Wexler and King 2011). If drug users choose punishment, they enter prison normally as offenders for several years. However, if they choose rehabilitation, they receive therapy as clients for the same number of years. One meta-analysis found that DTC was more

effective in reducing drug-related recidivism than traditional punishment-only courts (Mitchell, Wilson, Eggers and MacKenzie 2012). Another meta-analysis reported that DTC was also effective for juvenile drug-related offenders (Stein, Deberard and Homan 2013). Furthermore, many countries have introduced DTC, including Argentina, Colombia, Jamaica, Mexico, Belgium, Canada, and the United States (Justice Programs Office et al. 2013). These studies, which have reported the effectiveness of DTC, could serve as reference materials for introducing DTC into Japan and other Asian countries. Reintegrating drug users into rehabilitative environments could have a more protective effect against drug-use relapse than if they were sent back to prison (Rempel et al. 2012).

Limitations

Our study had three limitations. First, those who entered the parole program were biased, given that the number of parolees' prison terms was significantly lower than the number for non-parolees. Hence, the effects of parole on recidivism and relapse were mixed. Parolees' crime-free survival could be explained through the effects of both the parole and the recipients' personal characteristics. To clarify the program effects, we would need to use a randomized controlled design to investigate the parole program.

Second, the outcome measure was based on legal documents. Hence, it is possible that some ex-inmates had been arrested for misconduct that was not recorded in the documents because they were not arrested by Japanese police. In the same way, some

ex-inmates might have used illegal drugs without its being recorded because they were not arrested. These missing data weaken our findings.

Third, we could not gather data concerning the situations of ex-prisoners once they got out of prison. Hence, our study is not a close examination of the effects of prosocial networks. We noted that parole officers' counseling and the frequent communication between the officers and parole volunteers could be effective in reducing ex-prisoners' recidivism, but we do not have the data to support this discussion. A future study needs to collaborate with parole officers to gather these data.

Conclusion

Despite these limitations, the present study used a 4-year longitudinal design to examine the protective effects of a social reintegration (parole) program in drug-related inmates. We found that social integration theory was applicable to Japanese inmates, as those embedded in prosocial communities were less likely to commit crime again than those who were not (Berg and Huebner 2011; Kamigaki and Yokotani 2014; Skardhamar and Telle 2012). Hence, the social reintegration (parole) program appears to have been effective in reducing recidivism risk in Japan but not for reducing the risk of drug-relapse. This lack of effectiveness may stem from factors or people in the prosocial networks who could have increased inmates' relapse risk (Fujimoto and Valente 2012; Lakon and Valente 2012). To reduce the drug-relapse risk, the Japanese correctional justice system needs to introduce DTC and embed parolees in rehabilitative

environments (Mitchell et al. 2012; Somers et al. 2013; Stein et al. 2013). The system

needs to be especially customized for drug-related inmates. The parole staff members

also need special training for meet parolees in a rehabilitative context. Such specialized

systems and trained staff could reduce the relapse risk and contribute to improving

drug-related problems in Japan (Research and Training Institute of the Ministry of

Justice 2007, 2009). Solutions for Japan might, in turn, help in solving such problems in

neighboring Asian countries (Le and Lauchs 2013; Windle 2012), because drug-related

problems and solutions are always geographically connected (United Nations Office on

Drugs and Crime 2014).

Compliance with ethical standards

Conflict of interest

The first author declares that he has no conflict of interest. The second author also

declares that he has no conflict of interest.

Ethical approval

All procedures performed in the present study involving human participants were in

accordance with the ethical standards of the institutional research committee and with

the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent

The present study abbreviated informed consent because of five reasons. First, informed consent created a number of disadvantages for participants. Most of participants were ex-prisoners. If researchers got informed consent from them, the researchers had to remind them about prison, which could make them unpleasant. Furthermore, our contact from the prison to the participants could leak information about the links between the participants and our prison. The leak of information could disadvantage them in free society. Second, participants' informed consent and researchers' will do not affect our sampling methods. This is because our electrical data are based on daily activity logs in Japanese prisons. Regardless of the participants and researchers' will, Japanese prison sampled participants and recorded their data as their professional tasks. Third, most of participants were out of prison, so the results of our data could not affect ex-prisoners directly. Fourth, if we analyzed only those who could get informed consent in prison, the data could be biased strongly and cannot be a representative data of drug-related offenders in a Japanese prison. Fifth, correct recidivism rate was only calculated through our prospective design. The correct recidivism rate was essential to clarify and prevent recidivism.

Following these reasons, we abbreviated informed consent. Abbreviation of informed consent was frequent in epidemiological study (e.g., Information about influenza and Ebola virus was frequently used without informed consent from patients). The present study was also acknowledged by an ethical committee in a local university and a research committee in a local prison in Japan.

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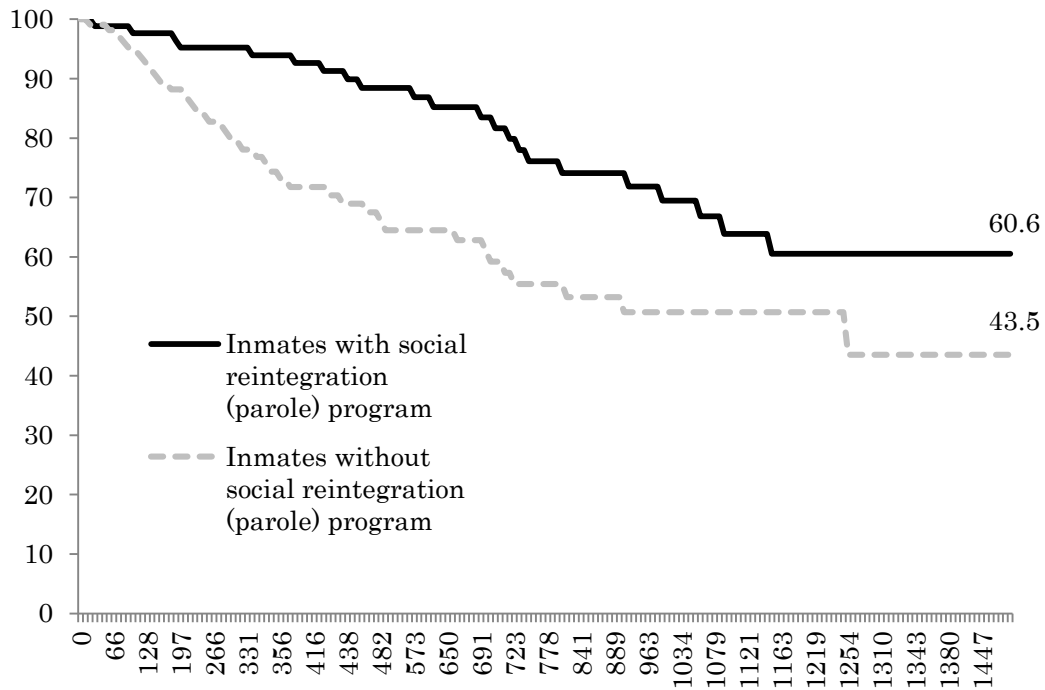
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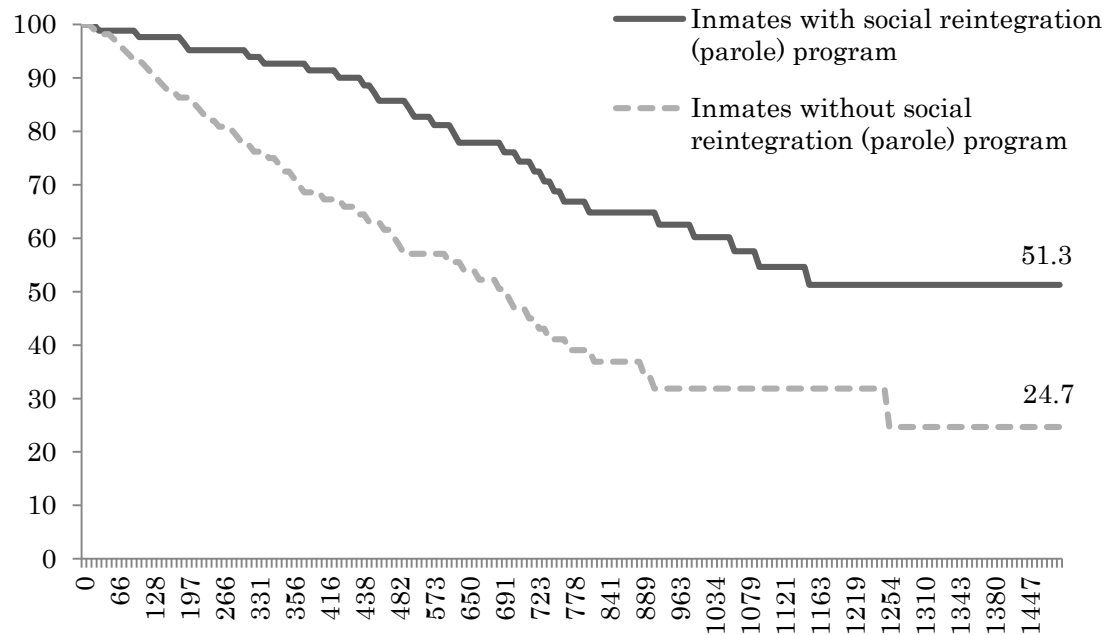
Comparison of crime-free survival curve of drug-related inmates in free society between those with and without social reintegration (parole) program

Note. The vertical line represents the accumulated percentage of ex-inmates who were not reoffended. The horizontal line represents the length of days after ex-inmates were released.

Figure 2

Comparison of relapse-free survival curve of drug-related inmates in free society between those with and without social reintegration (parole) program

Note. The vertical line represents the accumulated percentage of ex-inmates who were not relapsed. The horizontal line represents the length of days after ex-inmates were released.

Table 1

Male participants' characteristics

	Average	S.D.	n
Age	41.8	10.8	196
Years of Education	9.9	1.2	192[a]
Number of prison terms	3.5	2.4	196
Length of sentence (Months)	39.1	19.6	196
Length of follow up (Months)	34.9	11.1	196
	Yes	percent	n
Reoffending	79	40.3	196
Drug-related relapse	61	31.1	196
Current gang membership (Yakuza)	51	26.0	196
Recipient of social reintegration (parole) program	85	43.3	196

Note. [a]: The four did not know their educational levels.

Table 2

Cox's proportional-hazard regression analysis for reoffending and relapse among drug-related inmates within four-year follow up

Analysis on reoffending	Crude hazard ratio [95% CI]			p	Adjusted hazard ratio [95% CI]			p
Social reintegration (parole) program (Yes: 1, No: 0)	0.54	[0.46	0.65]	***	0.70	[0.50	0.98]	*
Age (years)	0.99	[0.97	1.01]		0.95	[0.92	0.98]	**
Gang membership (Yes: 1, No: 0)	0.86	[0.72	1.03]		0.77	[0.54	1.10]	
Number of prison terms	1.14	[1.06	1.23]	***	1.29	[1.14	1.47]	***
Education (years)	0.78	[0.69	0.90]	***	0.80	[0.66	1.00]	*
Analysis on relapse								
Social reintegration (parole) program (Yes: 1, No: 0)	0.58	[0.50	0.69]	***	0.78	[0.53	1.15]	
Age (years)	1.00	[0.97	1.02]		0.96	[0.92	0.99]	*
Gang membership (Yes: 1, No: 0)	0.87	[0.74	1.03]		0.81	[0.55	1.19]	
Number of prison terms	1.14	[1.05	1.24]	**	1.28	[1.11	1.48]	***
Education (years)	0.83	[0.72	0.95]	**	0.84	[0.67	1.05]	

Note. *** $p < .001$, ** $p < .01$, * $p < .05$