SUPPLEMENTAL MATERIAL

EVALUATION OF INTERVENTIONS FOR REDUCING THE RISK OF REOFFENDING: BASIC CONCEPTS AND RESEARCH EXAMPLES IN JAPAN

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I. INTRODUCTION

This article reflects on practical considerations in conducting evaluations and in interpreting the results of evaluations of interventions for reducing the risk of reoffending. Several studies conducted in Japan are introduced briefly to illustrate these considerations. In order to prevent reoffending, it is important to demonstrate what practices and treatment programmes are efficient and effective at preventing crime and rehabilitating offenders. Efforts have been developed to focus on “interventions” to prevent crime and delinquency and to examine the effects of interventions based on whether or not the recidivism rate has been reduced. There is a field of study called "programme evaluation" in which knowledge about methods are accumulated. Programme evaluation mainly includes (1) programme improvement, (2) knowledge generation and (3) accountability as its purposes (Rossi, Lipsey, & Freeman, 2004). *Programme improvement* has the purpose of identifying problems and points that can be improved by evaluation and taking steps to improve the effectiveness of the intervention. *Knowledge generation* has the purpose of obtaining knowledge that contributes to future interventions in the process of evaluating the intervention actually performed. *Accountability* is to publicly explain whether the intervention was implemented effectively, efficiently and within budget.

These demands for interventions in the prefectural and local governments have intensified recently in Japan. For example, in July 2012, the “Comprehensive Measures for Preventing Recidivism” were agreed upon at the Ministerial Conference on Crime Control, setting numerical targets for 2022. Accordingly, the need for policy evaluation in the field of crime prevention and criminal justice is growing.

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II. NECESSARY STEPS FOR EVALUATION

In order to examine the effectiveness of any intervention, two main questions must be answered: (1) Is programme effectiveness only due to the intervention, and (2) is programme effectiveness due to the intended intervention? Moreover, it is important to take into account the data collection plan before conducting the intervention on the assumption that an evaluation of effectiveness will be performed.

A. Is Programme Effectiveness Only Due to the Intervention? (Ensure That the Intervention's Effectiveness Was Not Influenced by Bias)

When conducting an evaluation, researchers should focus on the impact of the intervention itself. The effects of intervention can be considered to be factors related to intervention (content and frequency). Other relevant factors include the attributes and environment of implementation, the motivation of the target person, psychological characteristics and state, etc. In other words, even if the person does not reoffend, it is unclear whether this is due to the intervention or other psychological characteristics. Without understanding why the person does not reoffend, we cannot discuss effectiveness of the intervention itself. Thus, the evaluation process includes the exclusion of factors other than the intervention in order to clarify that the intervention itself had some effect. The possibility that known or unknown variables other than the intervention caused the observed effect is called "bias" (Torgerson & Torgerson, 2008).

I am going to touch on *selection bias* and *dropout bias* as forms of bias that threaten the validity of verification, and I will introduce an evaluation of a sex offender treatment programme conducted in prisons in Japan as a study where these forms of bias can be seen. First, *selection bias* occurs when offenders who are likely to succeed in the intervention are selected over other offenders who are less likely to succeed. Those who are likely to succeed in the first place may have a naturally lower recidivism rate than other offenders. As a result, even if the recidivism rate is lower, the effectiveness of the intervention cannot be proved. *Dropout bias* means that those who drop out of a certain intervention may have unique problems associated with criminality and social adaptability, and when those persons are removed from the treatment group, the apparent effect is that the recidivism rate of the treatment group is lower than that of the control group. Referring to the report on the effectiveness of the sex offender treatment programme in Japan (Yamamoto & Mori, 2016), static and dynamic risk scores indicate that recidivism risk is higher in the control group (poor/no attendance) than in the treated group (see Table 1).

Table 1. Basic Statistics and Differences between the Treated Group and Control Group								
	Treated Group			Control Group				
	Number of offenders	Average or %	Standard deviation	Number of offenders	Average or %	Standard deviation	*t or χ2*	
Number of times imprisoned	1198	1.6	1.5	949	2.2	2.44	-6.055	**
Age at release	1198	38.5	11.67	949	42	12.99	-6.466	**
Parole rate	1198	65.0%	-	949	37.8%	-	157.23	**
Number of days served	1198	917.6	435.53	949	1032.5	951.93	-3.445	**
IQ-equivalent	1196	89	13.49	865	81.4	18.38	10.275	**
Static risk score	**1198**	**3.9**	**1.96**	**949**	**4.4**	**2.04**	**-6.007**	**
Dynamic risk score	**1198**	**6.5**	**1.88**	**874**	**6.9**	**2.11**	**-4.893**	**
Observation period	1198	604.2	352.67	949	620.2	379.25	-.997	
$^{**}p < .01$								
Note: Emphasis added by author								

The reason is that those who did not attend the programme due to problematic behaviour in the facility did not enter the treatment group (selection bias), and those who were highly problematic dropped out if they participated in the programme (dropout bias). Since it is not possible to accurately evaluate the programme by simply comparing the recidivism rates of both groups as is, this evaluation was dealt with by using the quasi-experiment method. A method was used in which the treatment group and the control group were compared in the case where test scores of static risk (covariates) are the same (see Table 2).

Table 2. Results of regression analysis of "all types of recidivism" among all sex offenders in the sample, using Cox proportional hazard models in which the static risk score and the status of participation in the programme are independent variables

	Model 1	Model 2
Covariate	Coefficient (Odds ratio)	Coefficient (Odds ratio)
Static risk score	.35**(1.41)	.34**(1.40)
Status of participation in the programme	-	-.22*(.80)

$^{**}p < .01$, $^{*}p < .05$

Note: It was shown that the instantaneous probability of recidivism for the Treated Group was 0.80 times that for the Control Group Putting it the other way around, it was demonstrated that the instantaneous probability of recidivism for the Control Group was 1.25 times greater(1/.80=1.25) than that for the Treated Group, thereby demonstrating the effectiveness of the programme.

If these biases are eliminated and more accurate evaluation results are sought, measures such as planning a randomized controlled trial (RCT) may be considered at the stage of introducing the intervention. Even if it is impossible to introduce an RCT, it is necessary to collect covariate data in order to perform analysis by using the quasi-experiment method. Also, it is important to address these biases when interpreting the results.

B. Is Programme Effectiveness Due to the Intended Intervention? (Ensure That the Intervention Was Performed as Intended)

When conducting an evaluation, researchers should determine whether the intervention was conducted as intended. Theoretically, the evaluation of effectiveness can be explained as the process of clarification of the series of relationships leading to the reduction of the recidivism rate (outcome) as being directly caused by the intervention (input). It is also important to clarify whether or not the intervention was carried out as intended. If the expected effect was not obtained from the intervention, it would be

unclear whether there was a problem with the execution of the intervention or with the theory itself. For example, by examining this, we may sometimes find that the number of staff was insufficient, or the content of the intervention was difficult for the target person to understand.

As a specific research example, Yamamoto & Mori (2015) measured changes in coping skills before and after drug programmes, determining that the recidivism rate was reduced by obtaining coping skills (see Table 3 and Table 4, below).

Table 3. Result of *T*-test change before and after treatment

	Score
Treatment Programme	
before	28.75 (6.43)
after	31.35 (6.15)
t (*df*)	-4.74 (108)
p	.00 ***

****p* <.001

Note: It was shown that the score of the coping skill was significantly higher after treatment than before.

Table 4. Result of regression analysis using Cox proportional hazard models in which age at the beginning of treatment, the number of times imprisoned, and the coping-skills score at the end of treatment

Covariances	*β coefficient*	Odds ratio	*Wald*	*p-value*
age at the beginning of treatment	.01	1.01	.14	.71
number of times imprisoned	.38	1.46	4.09	.04 *
coping-skills score at the end of treatment	-1.12	.33	6.32	.01 *

**p* <.05

Note: It was demonstrated that the instantaneous probability of recidivism for the group with low coping-skills scores was 3.03 times greater (1/.33=3.03) than that for the group with high coping-skills scores at the end of treatment.

This is a suitable example to demonstrate that by understanding the change of psychological factors caused by the programme and confirming that the recidivism rate had fallen, it was possible to verify that the programme was working as intended. That is, by examining whether changes in psychological factors occur as a result of the treatment programmes and whether those changes contribute to the reduction of reoffending, it is possible to identify psychological factors that impact reoffending and to improve treatment programmes (see Figure 1, below).

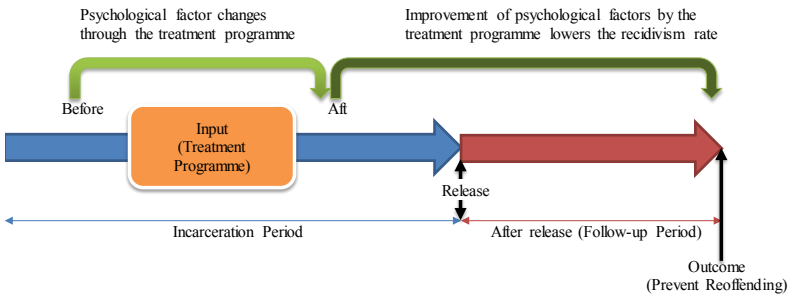

Figure 1. Logic model of the study conducted by Yamamoto & Mori (2015)

C. Interpreting the Results of Evaluation

I would like to touch upon some important points in interpreting the results of evaluation. First, although many studies have pointed out the effectiveness of psychological interventions in recidivism studies, the longer the follow-up period (the follow-up period after being issued), the worse the result. Therefore, for example, it is important to analyse areas for improvement and to make changes for subsequent treatment instead of concluding that the treatment was ineffective due to reoffending within X years. As a result, if the period until the next offence has been X + α years, it is necessary to analyse what has and has not been done while understanding what was different from the time of the previous crime.

Second, when evaluation is conducted on the basis of recidivism, there are many cases in which a positive result occurred but cannot be seen. It is a difficult task to prevent recidivism, and it may not be possible to detect the effect in the process of examining each and every intervention. In such cases, it is necessary to establish a system that can construct an effective intervention through trial and error. As a result of evaluation, there is a possibility to argue that the intervention may be determined to be ineffective and a wasteful allocation of budgetary resources, but it should be kept in mind that interventions into the lives of offenders may not always be overnight solutions. What is most important is to understand the results of evaluation objectively and use the results in the next step.

D. Conducting Research in Correctional Environments

Perennial issues associated with conducting research within a rigid environment, like the correctional environment, can stymie research projects and the enthusiasm to undertake them. Field, Archer, & Bowman (2019) identified problems and provided solutions, where possible, to challenges routinely encountered in prison-based research, including:

> [1] Overly hasty data collection, where a focus on getting as many responses as possible in a limited timeframe predominates, is likely to produce poor quality and incomplete data. It is important to remember that it is not easy, and often not possible, to correct or complete poor quality data. . . . In addition, the corrections environment is a fluid one in which inmates are often relocated or released. In light of these difficulties, precision and patience in data collection are encouraged, and the need to realistically plan for data collection by allowing a generous amount of time to collect sound and complete responses is emphasized. A comprehensive orientation for data collectors and other research staff who may not have experience working in a corrections environment is indispensable. (Field et al., 2019, p. 9)
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> . . . .
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> [2] Perhaps the biggest issue associated with collecting data from inmates relates to the accuracy of self-report data. In particular, it can be difficult for inmates to accurately estimate behavior prior to incarceration. This problem understandably increases with the length of time a person has been in prison and as their memories of many aspects of their life in the community fade. Inmates may also be reluctant to respond accurately to questions relating to specific topics, such as their offending history or the likelihood they will

recidivate, as doing so may have serious repercussions for them. Certain aspects of prison life have also proven difficult to explore due to inmate reluctance to self-report. (Field et al., 2019, p. 10)

. . . .

[3] Inmates may also be circumspect because they do not trust researchers. This may be due to an authoritarian and often dangerous environment. Trust can be gained when inmates are approached honestly, with respect, and when the purpose of research is explained to them in meaningful ways. Whenever researchers engage with inmates, researchers should make a point of introducing themselves. (Field et al., 2019, p. 11)

. . . .

[4] Full disclosure regarding the purpose of the study and the use of data, and the assurance that they may withdraw from participation at any time and their data will be destroyed puts to rest the majority of concerns participants may have. (Field et al., 2019, p. 11)

. . . .

[5] Researchers have to build productive relationships with organizations and individuals working within the corrections environment and to ensure that procedures are in place to ensure proper oversight and clear, appropriate feedback. (Field et al., 2019, p. 12)

According to Field et al., these factors should be considered before the research is conducted. They concluded by stating that "undertaking research in the corrections environment is by no means easy, it remains, for those who undertake it, an exceptionally rewarding experience". (Field et al., 2019, p. 12-13)

III. CONCLUSION

Although it is a positive change that reference to evaluation has become commonplace, it is necessary to avoid neglecting important points as a result of seeking rapid results. Therefore, it is important to establish a common understanding that evaluation effectiveness of interventions for offenders involves various difficulties and is a challenging task.

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