

# Assessing the effectiveness of the correctional sex offender treatment program

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**Abstract:** The Sex Offender Treatment Program at prisons in Japan (herein after referred to as the “Program”) is a cognitive behavioral therapy program designed to target factors that are empirically known to be related to sexual offending behavior. The Program is provided at high, moderate, and low intensity. In order to evaluate the effectiveness of the Program, specifically, whether participation in the Program while in prisons will lead to a reduction in recidivism of sexual offenders after being released to the community, we conducted an empirical survey. The observation period was limited to a maximum of three years. The Treated Group ( $n=1,198$ ) participated in the Program at an attendance rate of 90 percent or more. The Poor/No-attendant Group ( $n=949$ ) did not participate in the Program (or their attendance rate was below 90%) because of the grounds for exclusion (e.g., length of prison term). As a result, the effectiveness of the Program in preventing recidivism of all types could be observed in a statistically significant manner. However, the Program in preventing sexual recidivism could not be observed in a statistically significant manner. From these, we can infer that the Program has been effective in correcting anti-social orientation, but there is room to improve the effectiveness of correctional interventions for those with deviant sexual interests.

**Keywords:** sex offender, cognitive behavioral therapy, recidivism, effectiveness, prison

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## Introduction

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The Sex Offender Treatment Program at prisons in Japan (hereinafter referred to as the “Program”) was introduced at prisons in 2006. Based on the program established by the Correctional Service of Canada, it is a cognitive behavioral therapy program designed to target factors that are empirically known to be related to sexual offending behavior. The goal of the Program is to help sex offenders achieve and maintain a state of abstinence from offending (Table 1). Each group consists of eight or so inmates and two or three officers. The Program is provided

at high, moderate, and low intensity. The intensity level applicable to each offender is determined based on the results of the assessment. The assessment is composed of three components: (a) static risk, (b) dynamic risk, and (c) responsivity. With each group session lasting 100 minutes, participants in the high-intensity course normally take one class per week or two classes per two weeks over a period of eight months, and those in the moderate- and low-intensity courses over a period of six months and three months.

Correctional Service Canada (2008) compared to a group of untreated offenders, a group of treated offenders had lower rates

Table 1. Contents of the Program

Item	Details	Method	High intensity	Moderate intensity	Low intensity
Orientation	<ul style="list-style-type: none"> <li>&gt;Help participants understand the structure of the training and the purpose of its implementation</li> <li>&gt;Guide them to self-regulate their behavior by explaining problematic behavior that tends to contribute to risk factors for sexual recidivism</li> <li>&gt;Reduce their anxiety</li> </ul>	Lecture	Mandatory	Mandatory	Mandatory
Main curriculum					
Module 1: Self-control	<ul style="list-style-type: none"> <li>&gt;Help participants to get into an appropriate frame of mind for receiving the Program and enhance their motivation to participate</li> <li>&gt;Help them to do extensive soul-searching and identify factors that led to their crimes</li> <li>&gt;Help them to develop intervention plans (self-management plans) to prevent the recurrence of the factors that led to their crimes</li> <li>&gt;Help them to acquire necessary skills to enable effective interventions</li> </ul>	Group work and individual sessions	Mandatory	Mandatory	Mandatory (Condensed version)
Module 2: Cognitive distortions and modification methods	<ul style="list-style-type: none"> <li>&gt;Help participants to understand how cognition affects behavior</li> <li>&gt;Help them to correct cognitive distortions and develop a more adaptive thinking style</li> <li>&gt;Help them to incorporate the process of cognitive restructuring into their self-management plans</li> </ul>	Group work and individual sessions	Mandatory	Elective	—
Module 3: Interpersonal relationships and intimacy	<ul style="list-style-type: none"> <li>&gt;Help participants to understand desirable interpersonal relationships</li> <li>&gt;Help them to correct their problems with interpersonal relationships and acquire necessary skills</li> </ul>	Group work and individual sessions	Mandatory	Elective	—
Module 4: Emotional control	<ul style="list-style-type: none"> <li>&gt;Help participants to understand how emotions affect behavior</li> <li>&gt;Help them to understand the mechanism of emotional control and acquire necessary skills</li> </ul>	Group work and individual sessions	Mandatory	Elective	—
Module 5: Empathy and understanding for victims	<ul style="list-style-type: none"> <li>&gt;Help them to increase their empathy for others</li> <li>&gt;Facilitate the development of empathy</li> </ul>	Group work and individual sessions	Mandatory	Elective	—
Maintenance	<ul style="list-style-type: none"> <li>&gt;Have participants go over the knowledge and skills they have learned and make them reconfirm their commitment to maintain a state of abstinence from offending after release</li> <li>&gt;Have them review their self-management plans</li> <li>&gt;Facilitate a smooth transition to a community-based treatment program</li> </ul>	Group work	Mandatory	Mandatory	Mandatory

of violent and general recidivism. A treated offenders also sexually recidivated less than would have been expected from their scores on an actuarial risk assessment tools. In order to evaluate the effectiveness of our Program, specifically, whether participation in the Program while in prisons will lead to a reduction in recidivism of sexual offenders after being released to the community, we conducted an empirical survey.

## Methods

### *Sample*

A follow-up survey of recidivism was conducted on those who had been released from prisons between July 1, 2007 and December 31, 2011. Although data were collected between July 1, 2007 and March 31, 2012, the observation period for the purpose of this study was limited to a maximum of three years. Of the sex offender inmates, those who participated in the Program at an attendance rate of 90 percent or more in the period from May 23, 2006 onward were defined as the Treated Group ( $n=1,198$ ) and compared to the others, referred to as the Poor/No-attendant Group ( $n=949$ ). The Poor/No-attendant Group did not participate in the Program (or their attendance rate was below 90%) because of the grounds for exclusion (e.g., length of prison term, motivation, learning disabilities) or they posed a relatively low risk of recidivism.

### *Follow-up survey*

The Correction Bureau lists the names of sex offenders released from prisons, whereas information on recidivism cases handled by the Public Prosecutors Office is conveyed to the Correction Bureau. Therefore, for the purpose of this study,

*recidivism* refers to cases handled by the Public Prosecutors Office.

### *Dataset development procedure*

Sampled offenders included those who committed multiple offenses after release. In such cases, the offense committed on the earliest date was taken as the case of recidivism in preparing data for the survival analysis to be discussed later. If a recidivist whose first post-release offense was a non-sexual offense later committed a sexual offense, the non-sexual offense was taken as the case of recidivism.

## Results

### *Basic data*

#### *Number of recidivists and time to recidivism*

Table 2 shows the numbers of recidivists among sex offender inmates and the length of time to recidivism by type of offense previously convicted and imprisoned for. For the purpose of this report, offenses for which offenders had been convicted and imprisoned were classified into the three broad categories: sexual offenses, non-sexual violent offenses, and other offenses. Of these, sexual offenses were further classified into five sub-categories: rape, forcible indecency, offenses for indecent purposes, prefectural nuisance ordinance violations, and other sexual offenses. We considered four categories of recidivism: all types of recidivism, sexual recidivism, non-sexual violent recidivism, and other recidivism.

#### *Comparison between the Treated Group and the Poor/No-attendant Group*

Characteristics of each group were shown in Table 3. The Treated Group, as compared to the other, was characterized by a smaller

Table 2. Number of recidivists and time to recidivism by type of offense of previous conviction

Type of offense of previous conviction	All types of recidivism	Sexual recidivism	Non-sexual violent recidivism	Other recidivism	Time to recidivism (Number of days)
Sexual offenses					
Rape (464)	54 (11.6%)	20 (4.3%)	10 (2.2%)	24 (5.2%)	335.9
Forcible indecency (1,118)	213 (19.1%)	116 (10.4%)	22 (2.0%)	75 (6.7%)	293.2
Offenses for indecent purposes (12)	2 (16.7%)	2 (16.7%)	0 (0.0%)	0 (0.0%)	777.5
Nuisance ordinance violations (208)	94 (45.2%)	74 (35.6%)	2 (1.0%)	18 (8.7%)	298.7
Violations of the Child Welfare Act, youth protection ordinances, etc. (175)	20 (11.4%)	3 (1.7%)	9 (5.1%)	8 (4.6%)	311.1
Non-sexual violent offenses (44)	8 (18.2%)	1 (2.3%)	1 (2.3%)	6 (13.6%)	236.0
Others (126)	32 (25.4%)	8 (6.3%)	3 (2.4%)	21 (16.7%)	224.9
Total	423 (19.7%)	224 (10.4%)	47 (2.2%)	152 (7.1%)	296.8

Table 3. Basic statistics and differences between Treated and Poor/No-attendant Groups

	Treated Group			Poor/No-attendant Group			$t$ or $\chi^2$
	Number of offenders	Average	Standard deviation	Number of offenders	Average	Standard deviation	
Number of times imprisoned	1198	1.6	1.5	949	2.2	2.4	-6.1**
Age at release	1198	38.5	11.7	949	42.0	13.0	-6.5**
Parole rate (%)	1198	65.0	-	949	37.8	-	157.2**
Number of days served	1198	917.6	435.5	949	1032.5	951.9	-3.4**
IQ-equivalent	1196	89.0	13.5	865	81.4	18.4	10.3**
Static risk score (RAT)	1198	3.9	2.0	949	4.4	2.0	-6.0**
Dynamic risk score	1198	6.5	1.9	874	6.9	2.1	-4.9**
Observation period	1198	604.2	352.7	949	620.2	379.3	-1.0

\*\* $p < .01$

Table 4. Estimated recidivism rates by type of recidivism

Type of recidivism	Treated Group	Poor/No-attendant Group	$\chi^2$ Significance level
All offenses	21.9%	29.6%	15.4**
Sexual offenses	12.6%	15.4%	2.3
Non-sexual violent offenses	2.6%	4.2%	3.3 <sup>†</sup>
Other offenses	8.0%	13.1%	13.6**

\*\* $p < .01$  <sup>†</sup> $p < .10$

amount of time imprisoned, younger age at release, higher parole rate, a smaller number of days served at penal institutes, higher IQ equivalent, lower static risk score, and higher dynamic risk score.

#### Rate of recidivism

We used the Kaplan-Meier estimator for our survival analysis. Recidivism rates

three years after release given by the survival function are shown in Table 4. The recidivism rates for the Treated Group were lower than those for the Poor/No-attendant Group, and the differences are presumably attributable to the effects of the Program. However, scores of static risk assessment were also lower for the Treated Group than for the Poor/No-attendant

Group above. Because recidivism rates for those in the Treated Group may have been low even if they had not participated in the Program, it was necessary to control for such differences in recidivism risk between the two groups in comparing the recidivism rates.

#### ***Predictive validity of Risk Assessment Tool***

Risk Assessment Tool (hereinafter referred to as the “RAT”) is used to determine the risk of sampled offenders by comprehensively examining the likelihood of recidivism as well as the degree of damage to victims and the magnitude of impact on society as a whole that would be caused in the event of recidivism. It also identifies factors that cannot be changed by the Program (static factors), such as being young and having a history of sexual offenses. The RAT applied in Japan was developed based on the Static-99 (Hanson & Thornton, 2000) used by correctional agencies of countries. It consists of 10 static items (e.g., Young, Ever Lived with an Intimate Partner, Index Non-sexual Violence, Prior Non-sexual Violence) and scores can range from 0 to 12. In order to test the predictive validity of RAT, we generated an ROC curve and calculated AUC. AUC stands for “Area Under the Curve” and is a numerical value representing the area under the ROC curve. ROC curve stands for “Receiver Operating Characteristic” curve and plot the relationship between the sensitivity and the pseudo-positive rate at various cut-off values in two-dimensional space (Morizane, 2004). An AUC value of 1.00 represents perfect predictability, whereas a value of .50 indicates a chance level of predictive accuracy.

In our analysis, predictive validity was found to be an AUC of .72 with a 95%

confidence interval (CI) of .69 to .75 for all types of recidivism, .74 (95% CI=.70-.77) for sexual recidivism, .62 (95% CI=.54-.69) for violent recidivism, and .65 (95% CI=.61-.70) for other offenses.

#### ***Effectiveness of the Program***

Analysis of all types of recidivism among all offenders in the sample

The log-rank test (hereinafter referred to as the “Log-rank”) was performed to examine whether the survival functions for the two groups differ from each other, and the results are shown in Table 5. The Treated Group has lower recidivism rates than the Poor/No-attendant Group.

Table 6 shows the results of the Cox proportional hazard model analysis (hereinafter referred to as the “Cox”) of treatment effects. For this analysis, we developed a model in which the risk of recidivism was entered as a covariate in order to control for potentially confounding factors that might influence recidivism. In this analysis, we considered the possibility that two groups may differ in the level of recidivism risk, as shown in Table 5. Specifically, we used RAT as a covariate to control for the influence of such differences, drawing on the approach taken by Correctional Service Canada (2008). RAT was entered as a covariate in Cox of treatment effects for all of the patterns to be discussed hereunder. Only RAT was used as a variable in Model 1, whereas both of the two variables—RAT and the status of participation in the Program—were used in Model 2. As shown in Table 6, RAT was statistically significant at the 1% level in both Model 1 and Model 2. The instantaneous probability of recidivism increased by 1.40 times for each one point increase in RAT. The difference was significant at the 5% level, and it was

Table 5. Estimated rates of “all types of recidivism” among all offenders in the sample

Type of recidivism	Treated Group	Poor/No-attendant Group	Test type	$\chi^2$	df	p-value
All types	21.90%	29.60%	Log-rank (Mantel-Cox)	15.36	1	.00**

\*\* $p < .01$

Table 6. Results of regression analysis of “all types of recidivism” among all offenders in the sample, using Cox proportional hazard models in which RAT scores and the status of participation in the Program are independent variables

Covariate	Model 1	Model 2
	Coefficient (Odds ratio)	Coefficient (Odds ratio)
RAT	.35** (1.41)	.34** (1.40)
Status of participation in the Program	-	-.22* (.80)

\*\* $p < .01$  \* $p < .05$

Table 7. Estimated rate of “sexual recidivism” among all offenders in the sample

Type of recidivism	Treated Group	Poor/No-attendant Group	Test type	$\chi^2$	df	p-value
Sexual offense	12.80%	15.40%	Log-rank (Mantel-Cox)	2.27	1	.13

Table 8. Results of regression analysis of “sexual recidivism” among all offenders in the sample, using Cox proportional hazard models in which RAT scores and the status of participation in the Program are independent variables

Covariate	Model 1	Model 2
	Coefficient (Odds ratio)	Coefficient (Odds ratio)
RAT	.41** (1.51)	.41** (1.51)
Status of participation in the Program	-	-.02 (.98)

\*\* $p < .01$

shown that the instantaneous probability of recidivism for the Treated Group was .80 times that for the Poor/No-attendant Group. Putting it the other way around, it was demonstrated that the instantaneous probability of recidivism for the Poor/No-attendant Group was 1.25 times greater ( $1 \div .80 \div 1.25$ ) than that for the Treated Group, thereby demonstrating the effectiveness of the Program.

#### Analysis of “sexual recidivism” among all offenders in the sample

Log-rank was not statistically significant, failing to demonstrate the effectiveness of the Program (Table 7).

Cox was shown that the instantaneous probability of recidivism increased by 1.51 times for each one point increase in RAT (Table 8). Variables for the status of participation in the Program were not statistically significant, failing to demonstrate the effectiveness of the Program.

#### Analysis of “non-sexual violent recidivism” among all offenders in the sample

Log-rank was shown a greater tendency toward a reduction in recidivism in the Treated Group than in the Poor/No-attendant Group, which is statistically significant at the 10% level, was observed

Table 9. Estimated rate of “non-sexual violent recidivism” among all offenders in the sample

Type of recidivism	Treated Group	Poor/No-attendant Group	Test type	$\chi^2$	df	p-value
Non-sexual violence	2.60%	4.20%	Log-rank (Mantel-Cox)	3.32	1	.07 <sup>†</sup>

<sup>†</sup> $p < .10$

Table 10. Results of regression analysis of “non-sexual violent recidivism” among all offenders in the sample, using Cox proportional hazard models in which RAT scores and the status of participation in the Program are independent variables

Covariate	Model 1	Model 2
	Coefficient (Odds ratio)	Coefficient (Odds ratio)
RAT	.22** (1.25)	.21** (1.23)
Status of participation in the Program	-	-.43 (.65)

\*\* $p < .01$

Table 11. Estimated rate of “other recidivism” among all offenders in the sample

Type of recidivism	Treated Group	Poor/No-attendant Group	Test type	$\chi^2$	df	p-value
Others	8.00%	13.10%	Log-rank (Mantel-Cox)	13.64	1	.00**

\*\* $p < .01$

Table 12. Results of regression analysis of “other recidivism” among all offenders in the sample, using Cox proportional hazard models in which RAT scores and the status of participation in the Program are independent variables

Covariate	Model 1	Model 2
	Coefficient (Odds ratio)	Coefficient (Odds ratio)
RAT	.29** (1.33)	.27** (1.31)
Status of participation in the Program	-	-.47** (.63)

\*\* $p < .01$

(Table 9).

Cox was shown that the instantaneous probability of recidivism increased by 1.23 times for each one point increase in RAT (Table 10). Variables for the status of participation in the Program were not statistically significant, failing to demonstrate the effectiveness of the Program.

#### Analysis of “other recidivism” among all offenders in the sample

Log-rank was statistically significant at the 1% level, showing that the Treated Group has lower recidivism rates than the Poor/No-attendant Group (Table 11).

Cox was shown that the instantaneous probability of recidivism increased by 1.31 times for each one point increase in RAT (Table 12). Variables for the status of participation in the Program were statistically significant at the 1% level, and it was shown that the instantaneous probability of recidivism for the Treated Group was .63 times that for the Poor/No-attendant Group. Putting it the other way around, it was demonstrated that the instantaneous probability of recidivism for the Poor/No-attendant Group was 1.59 times greater than that for the Treated Group, thereby demonstrating the effectiveness of the Program.

Table 13. Estimated rates of “all types of recidivism” among rape offenders

Type of recidivism	Treated Group	Poor/No-attendant Group	Test type	$\chi^2$	df	p-value
All types	11.90%	19.40%	Log-rank (Mantel-Cox)	2.90	1	.09 <sup>†</sup>

<sup>†</sup> $p < .10$

Table 14. Results of regression analysis of “all types of recidivism” among rape offenders, using Cox proportional hazard models in which RAT scores and the status of participation in the Program are independent variables

Covariate	Model 1	Model 2
	Coefficient (Odds ratio)	Coefficient (Odds ratio)
RAT	.24** (1.27)	.25** (1.28)
Status of participation in the Program	-	-.50 <sup>†</sup> (.61)

\*\* $p < .01$  <sup>†</sup> $p < .10$

Table 15. Estimated rates of “all types of recidivism” among forcible indecency offenders

Type of recidivism	Treated Group	Poor/No-attendant Group	Test type	$\chi^2$	df	p-value
All types	22.60%	27.90%	Log-rank (Mantel-Cox)	5.77	1	.02*

\* $p < .05$

Table 16. Results of regression analysis of “all types of recidivism” among forcible indecency offenders, using Cox proportional hazard models in which RAT scores and the status of participation in the Program are independent variables

Covariate	Model 1	Model 2
	Coefficient (Odds ratio)	Coefficient (Odds ratio)
RAT	.36** (1.43)	.36** (1.43)
Status of participation in the Program	-	-.22 (.81)

\*\* $p < .01$

### **Analysis by type of offense previously convicted**

#### **Offenders imprisoned for rape**

We divided them into two groups comprising 224 and 240 who had been imprisoned for rape. Log-rank showed no statistically significant difference (Table 13).

Cox was shown no statistically significant difference in variables for the status of participation. A greater tendency toward a reduction in recidivism in the Treated Group than in the Poor/No attendant Group, which is statistically significant at the 10% level, was observed (Table 14).

#### **Offenders imprisoned for forcible indecency**

We divided them into two groups comprising 724 and 394 who had been imprisoned for forcible indecency. Log-rank was statistically significant at the 5% level, showing that the Treated Group has lower recidivism rates than the Poor/No-attendant Group (Table 15).

Cox was shown no statistically significant difference in variables for the status of participation (Table 16).

#### **Offenders imprisoned for nuisance ordinance violation**

We divided them into two groups



Table 17. Estimated rates of “all types of recidivism” among nuisance ordinance violators

Type of recidivism	Treated Group	Poor/No-attendant Group	Test type	$\chi^2$	df	p-value
All types	60.00%	51.70%	Log-rank (Mantel-Cox)	2.00	1	.16

Table 18. Results of regression analysis of “all types of recidivism” among nuisance ordinance violators, using Cox proportional hazard models in which RAT scores and the status of participation in the Program are independent variables

Covariate	Model 1	Model 2
	Coefficient (Odds ratio)	Coefficient (Odds ratio)
RAT	.30** (1.35)	.30** (1.35)
Status of participation in the Program	-	-.30 (1.35)

\*\* $p < .01$ 

Table 19. Estimated rates of “all types of recidivism” among offenders against a child victim under 13 years of age

Type of recidivism	Treated Group	Poor/No-attendant Group	Test type	$\chi^2$	df	p-value
All types	21.00%	26.90%	Log-rank (Mantel-Cox)	4.76	1	.03*

\* $p < .05$ 

Table 20. Results of regression analysis of “all types of recidivism” among offenders against a child victim under 13 years of age, using Cox proportional hazard model in which RAT scores and the status of participation in the Program are independent variables

Covariate	Model 1	Model 2
	Coefficient (Odds ratio)	Coefficient (Odds ratio)
RAT	.30** (1.35)	.29** (1.34)
Status of participation in the Program	-	-.32 (.73)

\*\* $p < .01$ 

comprising 60 and 148 who had been imprisoned for nuisance ordinance violation. Log-rank was not statistically significant, failing to demonstrate the effectiveness of the Program (Table 17).

Cox was shown no statistically significant difference in variables for the status of participation (Table 18).

#### Offenders imprisoned for offense against a child victim under 13 years of age

We divided them into two groups comprising 295 and 237 who had been imprisoned for offense against a child victim under 13 years of age. Log-rank was statistically significant at the 5% level,

showing that the Treated Group has lower recidivism rates than the Poor/No-attendant Group (Table 19).

Cox was shown no statistically significant difference in variables for the status of participation (Table 20).

#### **Analysis by level of intensity of the Program**

Analysis of “all types of recidivism” among offenders assigned to the high-intensity Program

We divided them into two groups comprising 205 and 319 who had been assigned to the high-intensity Program. Log-rank was statistically significant at the 5% level, showing that the Treated Group has lower recidivism rates than the Poor/

Table 21. Estimated rates of “all types of recidivism” among offenders assigned to the high-intensity Program

Type of recidivism	Treated Group	Poor/No-attendant Group	Test type	$\chi^2$	df	p-value
All types	34.80%	46.40%	Log-rank (Mantel-Cox)	6.28	1	.01*

\* $p < .05$

Table 22. Results of regression analysis of “all types of recidivism” among offenders assigned to the high-intensity Program, using Cox proportional hazard models in which RAT scores and the status of participation in the Program are independent variables

Covariate	Model 1	Model 2
	Coefficient (Odds ratio)	Coefficient (Odds ratio)
RAT	.30** (1.35)	.30** (1.35)
Status of participation in the Program	-	-.43* (.65)

\*\* $p < .01$  \* $p < .05$

Table 23. Estimated rates of “all types of recidivism” among offenders assigned to the moderate-intensity Program

Type of recidivism	Treated Group	Poor/No-attendant Group	Test type	$\chi^2$	df	p-value
All types	20.00%	22.40%	Log-rank (Mantel-Cox)	.83	1	.36

Table 24. Results of regression analysis of “all types of recidivism” among offenders assigned to the moderate-intensity Program, using Cox proportional hazard models in which RAT scores and the status of participation in the Program are independent variables

Covariate	Model 1	Model 2
	Coefficient (Odds ratio)	Coefficient (Odds ratio)
RAT	.41** (1.51)	.41** (1.50)
Status of participation in the Program	-	-.02 (.98)

\*\* $p < .01$

No-attendant Group (Table 21).

Cox was shown that the instantaneous probability of recidivism for the Treated Group is .65 times that for the Poor/No-attendant Group. It has been demonstrated that the instantaneous probability of recidivism for the Poor/No-attendant Group is 1.54 times greater than that for the Treated Group, thereby demonstrating the effectiveness of the Program (Table 22).

#### Analysis of “all types of recidivism” among offenders assigned to the moderate-intensity Program

We divided them into two groups

comprising 627 and 456 who had been assigned to the moderate-intensity Program. Log-rank was not statistically significant, failing to demonstrate the effectiveness of the Program (Table 23).

Cox was found no statistically significant difference in variables for the status of participation (Table 24).

#### Analysis of “all types of recidivism” among offenders assigned to the low-intensity Program

We divided them into two groups comprising 220 and 65 who had been assigned to the low-intensity Program. Log-rank showed no statistically significant

Table 25. Estimated rates of “all types of recidivism” among offenders assigned to the low-intensity Program

Type of recidivism	Treated Group	Poor/No-attendant Group	Test type	$\chi^2$	df	p-value
All types	4.80%	12.60%	Log-rank (Mantel-Cox)	3.16	1	.08 <sup>†</sup>

<sup>†</sup>p<.10

Table 26. Results of regression analysis of “all types of recidivism” among offenders assigned to the low-intensity Program, using Cox proportional hazard models in which RAT scores and the status of participation in the Program are independent variables

Covariate	Model 1	Model 2
	Coefficient (Odds ratio)	Coefficient (Odds ratio)
RAT	-.06(.95)	-.02(.99)
Status of participation in the Program	-	-.92 <sup>†</sup> (.40)

<sup>†</sup>p<.1

difference between the two groups. However, a greater tendency toward a reduction in recidivism in the Treated Group than in the Poor/No-attendant Group, which is statistically significant at the 10% level, was observed (Table 25).

Cox was found no statistically significant difference in variables for the status of participation. A greater tendency toward a reduction in recidivism in the Treated Group than in the Poor/No-attendant Group, which was statistically significant at the 10% level, was observed (Table 26).

## Discussion

(1) Our analysis of all offenders found that the rate of recidivism of all types was 21.9% for the Treated Group compared to 29.6% for the Poor/No-attendant Group. The rate of sexual recidivism was 12.8% for the Treated Group and 15.4% for the Poor/No-attendant Group. Hanson, Gordon, Harris, Marques, Murphy, Quinsey and Seto (2002) showed that the rate of recidivism of all types was 27.9% for the treated compared to 39.2% for the Poor/No-attendant, and the rate of sexual recidivism

was 12.3% for the treated and 16.8% for the Poor/No-attendant. Although the definitions of recidivism and the lengths of observation periods are different, our findings are consistent with those of Hanson et al. (2002). The Program was found to be effective in all types of recidivism. Earlier research (Hanson & Morton-Bourgon, 2005) showed that an effective treatment program can have an impact not only on problematic sexual behavior but also on criminality in general, and the same conclusion can be drawn from our study. The effectiveness of the Program in preventing sexual recidivism could not be observed in a statistically significant manner in our study. However, in earlier research (Hanson et al., 2005) which examined the characteristics of sex offenders and factors associated with sexual recidivism, deviant sexual preferences, anti-social orientation, and unstable lifestyles were identified as dynamic risk factors particularly associated with sexual recidivism, of which anti-social orientation was cited as the primary factor associated with all types of recidivism. From these, we can infer that the Program has been effective in correcting anti-social orientation, but there is room to improve the

effectiveness of correctional interventions for those with deviant sexual interests. Regarding the latter, Hanson et al. (2005) showed that deviant sexual orientation, a lack of intimacy, and particularly, the struggle with desire to be sentimentally identified or build intimate relationships with children are also associated with sexual recidivism. Therefore, it is necessary to consider ways to improve correctional interventions, for instance, by focusing more on the areas cited above.

(2) In our analysis by type of offense previously convicted for, the Program was shown to be effective in reducing recidivism among rape offenders but we could not obtain statistically significant evidence showing the effectiveness of the Program vis-à-vis of forcible indecency offenders, nuisance ordinance violators, and offenders against a child victim under 13 years of age. According to earlier research (Hanson et al., 2005), rape offenders have stronger anti-social orientation than sex offenders against children, which again indicates that the Program has been effective in correcting anti-social orientation as discussed above. In addition to aforementioned deviant sexual preferences, hostile feelings and unstable lifestyles are perceived to be associated with sexual recidivism in which children are victims. It will be necessary to pay attention to these factors. The majority of nuisance ordinance violators are those charged with molestation on train. Typically, they have a long list of criminal records but their prison terms tend to be short. Thus, even though they are found to be high or moderate risk in sex offender assessment, their prison terms are not long enough to complete the Program appropriate for their risk level. Currently, we are assigning them to a shortened version of the Program to which they would have been assigned if

they had time.

(3) The high-intensity Program was found to be effective and the low-intensity Program to have a statistically significant tendency to be effective in reducing recidivism. It is particularly encouraging that the effectiveness of the high-intensity Program, which is targeted at those assessed to be at high risk of relapse, was demonstrated. The effectiveness of the moderate-intensity Program could not be demonstrated in a statistically significant manner. This may be because it covered the largest number of participants, and therefore recidivism risk factors were diverse across participants. The Program is designed in such a way that participants attend modules deemed necessary depending on the problems they have. We may have failed to select appropriate modules to address diverse dynamic risk factors within a limited period of time. In this regard, it is necessary to consider developing a model curriculum to set a standard, while at the same time improving instructors' skills so that they can respond flexibly to dynamic risk factors of each participant.

(4) Going forward, it is necessary to conduct further surveys by overcoming the constraints faced and other matters that need to be addressed. Specifically, with respect to the scope of recidivism data on those subjected to the follow-up survey, only those from the period between release and the first subsequent recidivism event were examined and reflected in our analysis results. Also, we were unable to obtain information on those who received treatment in the community after completing the Program at a prison.

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