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FOLLOW-UP OF A SOCIAL SKILLS TRAINING FOR JUVENILE DELINQUENTS: EFFECTS ON REOFFENDING

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ABSTRACT

OBJECTIVES

To examine (1) the long-term effects on reoffending of an individual SST for juvenile delinquents in the Netherlands and (2) whether effects differ by demographic and offense history characteristics.

METHODS

The present study is a follow-up of a matched control study comparing post-treatment effects of $N = 115$ juveniles receiving Tools4U, an SST with a parental component, to $N = 108$ control group juveniles receiving treatment as usual (TAU). Analyses were conducted separately for delinquents and truants. Effects in terms of recidivism were assessed using official delinquency data after 6 and 12 months and 1.46 years after SST termination. Percentage of recidivists, number of re-arrests, and violent recidivism were outcome variables.

RESULTS

Overall, 39% of the juveniles reoffended, and there were no differences between Tools4U and TAU on any of the selected recidivism outcomes. Additionally, demographic and delinquency characteristics and post-treatment effects did not moderate effectiveness.

CONCLUSIONS

Tools4U was not more effective than TAU in preventing recidivism, which may be explained by a generally low percentage of recidivists. With established treatment integrity, and a lack of well-researched effective treatment alternatives, Tools4U could still be a reasonable treatment option for adolescent onset juvenile offenders, although more research is needed to confirm this.

INTRODUCTION

Juvenile delinquency interventions generally aim at reducing reoffending by decreasing (dynamic) risk factors that put juveniles at higher risk for delinquency. Juvenile offender social skills training (SST) is thought to reduce reoffending by targeting social skills deficits (Lipsey et al., 2010). However, there are few empirical studies showing that improving (post-treatment) dynamic risk factors leads to a reduction of reoffending (Andrews & Bonta, 2010b; Douglas & Skeem, 2005). Furthermore, although existing research on the effectiveness of SST on related, generally broader, target populations of adolescents with emotional and behavioral disorders shows promising outcomes that could reduce reoffending (e.g., Ang & Hughes, 2002; Cook et al., 2008; Maag, 2006), most studies examined outcomes after a limited follow-up duration (< 6 months), using a waiting list or placebo control group instead of treatment as usual (TAU). The present study therefore examined whether an SST for juvenile delinquents that has been shown to be effective in changing (post-treatment) dynamic risk factors (Van der Stouwe et al., 2016) is effective in reducing long-term recidivism.

The present study is a follow-up of a recent study that examined the implementation and post-treatment effectiveness of SST Tools4U, an outpatient individual SST for juvenile delinquents imposed as a penal sanction in the Netherlands (Van der Stouwe et al., 2016). This matched control study on 223 juvenile offenders showed that Tools4U was more effective than TAU (i.e., a community service order or another behavioral training sentence) in decreasing impulsivity ($d = .31$) and cognitive distortions ($d = .28 - .41$), and improving social information processing ($d = .42$) as well as parenting skills (only for caretakers of girls, $d = .73$). However, no treatment effects were found on social problem-solving and behavioral adjustment, and Tools4U juveniles reported significantly less social acceptance ($d = -.28$) and self-worth ($d = -.30$) than juveniles receiving TAU.

Because 17% of the juveniles referred to Tools4U were truants, and truancy is technically not a criminal offense, we conducted the analyses on (re)offending for offenders and truants separately. In addition to investigating long-term offending outcomes, we examined the influence of gender, age, and ethnicity, because Tools4U has shown differential post-treatment effects for age and gender (Van der Stouwe et al., 2016). This is in line with previous research indicating that treatment effectiveness may differentiate between different gender, age, and ethnic groups (Huey Jr & Polo, 2008; Van der Put et al., 2013; Zahn et al., 2009). Second, we examined moderator effects for offense history characteristics, because these are important predictors of general (re)offending (Andrews & Bonta, 2010b; Van der Put et al., 2013) and can help determine for which (type of) offenders Tools4U is the most effective and appropriate. Finally, given the large research base showing that impulsivity, cognitive distortions, and social information processing are important risk factors for delinquency (Helmond et al., 2015; Nas et al., 2005; Veltri et al., 2014), treatment effects on these outcomes should arguably lead to a reduction in reoffending. We tested this hypothesis by examining mediation effects of post-treatment impulsivity, hostile intent attribution, self-centering, and assuming the worst.

We hypothesize that Tools4U would be more effective in reducing recidivism than TAU, in particular for girls, and juveniles under 16 years old. We would expect larger treatment effects than in previous studies, because the intervention has addressed several suggested causes for limited treatment effects

(see, e.g., Ang & Hughes, 2002; Cook et al., 2008; Gresham, 2002; Maag, 2006). That is, Tools4U has shown to have sufficient treatment integrity (Van der Stouwe et al., 2016), is delivered individually (which would prevent deviancy training, Dishion, McCord, & Poulin, 1999), and has included parents in treatment, to ensure generalization of treatment effects to daily life and over time (Albrecht & Spanjaard, 2011).

METHODS

PARTICIPANTS

The treatment group consisted of all juveniles ($N = 115$) who received SST Tools4U in the Netherlands between May and August 2012. This treatment group was matched to a control group ($N = 108$) of juveniles with a community service order or another behavioral training order (treatment as usual, TAU) between June 2013 and February 2014. The comparison group was a subsample, derived from $N = 354$ control group juveniles by means of propensity score matching based on gender, age, ethnicity, and all pre-test social skills questionnaire scales. After matching, no differences on any of the included pre-test characteristics were found, except in degree of urbanization and self-perception of behavioral adjustment (for an elaborate description, see Van der Stouwe et al., 2016 or Appendix A)

The sample consisted of a majority of boys ($n = 159$, 72%) with an average age of $M = 15.71$ ($SD = 1.54$), and half of the juveniles was from an ethnic minority background ($n = 112$, 50%). Most juveniles (35%, $n = 79$) committed a property offense, while 23% ($n = 50$) of the juveniles received their sentence for only truancy, and participants had committed on average .91 ($SD = 1.61$) offenses. By separating offenders and truants, only a difference between groups in degree of urbanization remained for truants, and not for any of the other characteristics (see Appendix B).

TREATMENT CONDITIONS

Juveniles in the treatment group received Tools4U, an outpatient individual SST imposed as a (penal) sanction for juveniles who have committed an offense (Albrecht & Spanjaard, 2011). The - 8 to 12 weeks - weekly training is intended for delinquent juveniles (12 to 18 years) with a moderate risk of reoffending for whom lack of cognitive and social skills is related to delinquent behavior. Control group juveniles received any usual treatment other than Tools4U. The vast majority (94%, $n = 102$) received a community service order, and the remaining juveniles received another behavioral training sentence (6%, $n = 6$) with duration, training hours, and training intensity similar to Tools4U (i.e., individual aggression regulation or substance abuse training).

OUTCOMES AND MEASURES

Recidivism was measured through official recidivism data from the Dutch Judicial Information Service (JustiD). Formal consent for requesting these data was obtained from the Netherlands Ministry of

Security and Justice. The records were released in February 2016 and coded using the Recidivism Coding System (RCS) of the Research and Documentation Centre (Wartna, El Harbachi, & Van der Laan, 2005; Wartna, Blom, & Tollenaar, 2011). Recidivism was defined in terms of frequency (dichotomous variable: at least one arrest; and continuous variable: number of arrests), and violent recidivism at 6 months, 12 months, and the maximum available follow-up duration available for all juveniles, which was 1.46 years. Truancy was not included as reoffending, because it is technically not a criminal offense, and registration in the judicial system took significantly longer for truancy compared to other offenses (truancy: $M = 292.72$ days, $SD = 148.11$; other offenses: $M = 99.98$ days, $SD = 117.12$; $t = -14.93$, $p < .001$). Judicial records could be traced for all but one control group juvenile, resulting in a control group for analysis of $n = 107$ matched control group juveniles.

ANALYTIC STRATEGY

All (re)offending analyses were conducted for delinquents ($N = 172$) and truants ($N = 50$) separately. For offenders, we examined (violent) reoffending at a follow-up of 6 months, 12 months, and 1.46 years. Due to a limited number of (violent) offenders at the early assessment waves, analyses for truants were only conducted for general offending at the maximum follow-up time of 1.46 years, while no moderator analyses were performed for this group. The degree of urbanization was included as a covariate in all analyses, because the treatment groups differed on this variable after matching. In addition, to improve statistical power of the analyses, we included variables that are highly predictive of general recidivism (Cottle, Lee, & Heilbrun, 2001) as covariates in the offender analyses: the number of previous arrests and the type of index offense.

The effects for percentage recidivists and violent recidivists were examined using logistic regression analysis. The number of rearrests was examined using Poisson regression analysis. In addition, we conducted Cox regression analysis to examine the differences in survival curves between Tools4U and TAU. The covariates were added into the model at step 1, while condition was added in the second step. A Chi-square difference test shows whether condition predicts survival length over duration to follow-up.

For the moderator analyses, the same Cox regression analyses were conducted, but the moderator and the interaction between the moderator and condition were added to the equation at 6 months, 12 months, and 1.46 years. Following this, we examined whether reoffending was moderated by the interaction condition \times gender, condition \times age, condition \times ethnicity, condition \times more than one previous offense, and condition \times violent offender. In addition, we examined whether reoffending was moderated by post-treatment scores on impulsivity, attributing hostile intent, self-centering, and assuming the worst (i.e., outcomes that Tools4U has shown post-treatment effects on, Van der Stouwe et al., 2016). In addition to the post-treatment score and the interaction between post-treatment score and condition, the pre-treatment score on the outcome was added as a covariate to control for pre-treatment differences.

RESULTS

INTERVENTION EFFECTS

Results of the analyses of the intervention effects on (violent) (re)offending at 6 months, 12 months, and 1.46 years post-treatment are presented in Appendices C and D. Overall, 39% of the offenders reoffended, and 20% of the truants committed an offense within 1.46 years after treatment. Treatment condition did not predict (re)offending, violent reoffending, or the number of (re)offenses on any of the follow-up assessments. Furthermore, there were no differences in survival curves between Tools4U and TAU after 6 months ($HR = 1.17, p = .67, 95\% \text{ Confidence Interval [CI]} = .59, 2.30$), 12 months ($HR = 1.32, p = .31, 95\% \text{ CI} = .77, 2.26$), and 1.46 years (delinquents: $HR = 1.19, p = .50, 95\% \text{ CI} = .73, 1.94$, see Figure 2; truants: $HR = .44, p = .28, 95\% \text{ CI} = .10, 1.95$, see Figure 3). Juveniles receiving Tools4U did not recidivate more or less often, frequent, or violent than juveniles receiving TAU.

Figure 2 Delinquents: Survival curve for Tools4U and TAU separately at 1.46 years

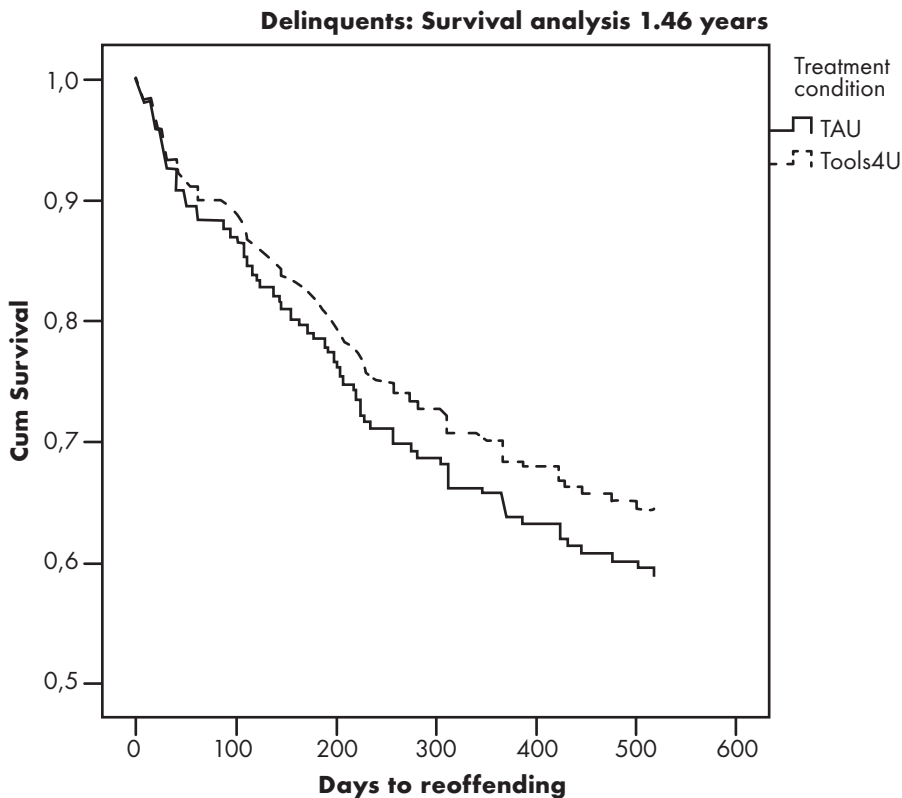
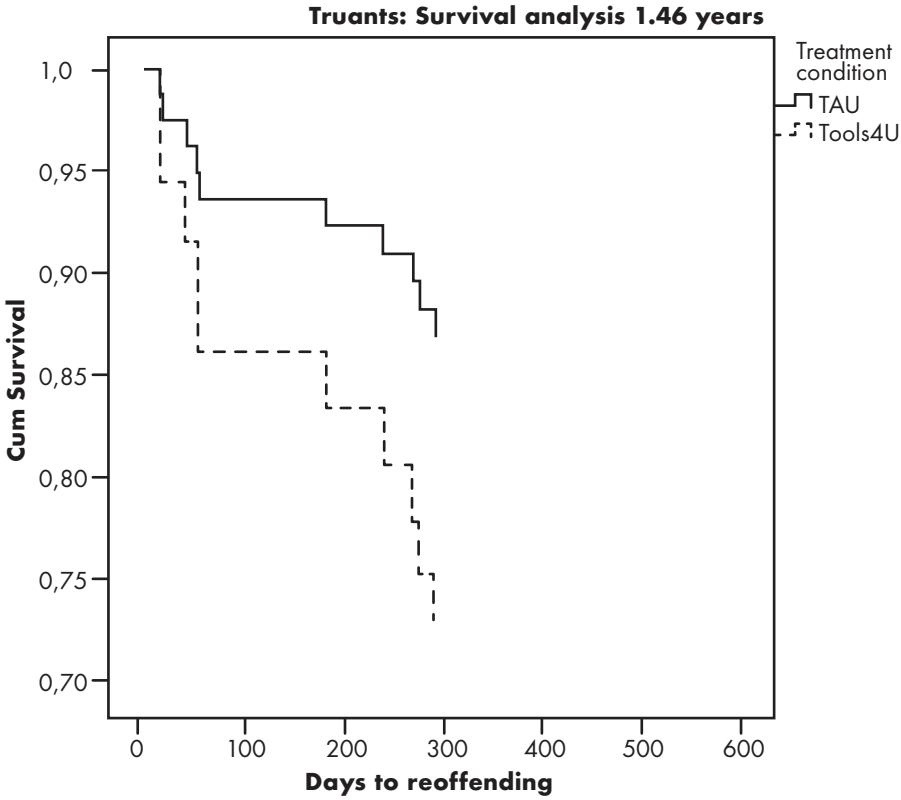


Figure 3 Truants: Survival curve for Tools4U and TAU separately at 1.46 years



MODERATORS OF EFFECTIVENESS

Demographic characteristics. We conducted moderator analyses to examine the influence of gender, age, and ethnicity on treatment effects. To examine age, participants were divided into a group of juveniles younger than 16 years of age ($n = 95$) and 16 years and older ($n = 127$). To investigate the influence of ethnicity on treatment effects, participants were divided into two ethnic groups: Dutch natives ($n = 111$) and juveniles with an ethnic minority background (one or both parents not born in the Netherlands, $n = 111$).

No significant moderating effects were found for gender, age, or ethnicity at 6 months, 12 months, and 1.46 years (see Appendix E). There were no differential effects of Tools4U for gender, age, and ethnic groups.

Offense history characteristics. Moderator analyses were conducted to investigate the influence of being a violent offender and having committed more than one previous offense on treatment effects. Juveniles convicted for a violent offense were considered violent offenders ($n = 65$), the number of previous offenses was used to construct two groups of juveniles with one or no previous offense versus more frequent offenders ($n = 55$). There were no significant moderating effects for violent offending or having committed more than one previous offense after 6 months, 12 months, and 1.46 years (see Appendix E).

Post-treatment skills. Moderator analyses were conducted to investigate the influence of the post-treatment skills that showed treatment effects immediately after Tools4U. There were no significant moderating effects for impulsivity, attributing hostile intent, self-centering, and assuming the worst after 6 months, 12 months, and 1.46 years (see Appendix E).

DISCUSSION

The current study examined the effects of SST Tools4U for juvenile delinquents on recidivism based on official judicial data. We expected the small-to-medium positive post-treatment effects on dynamic risk factors that were found in our previous study (Van der Stouwe et al., 2016) to result in a reduction of recidivism. However, Tools4U was not more or less effective than TAU in preventing general recidivism, nor in the frequency, or severity of recidivism at 6 months, 12 months, and 1.46 years for offenders or truants. Moreover, there were no differences in effects between demographic and offender subgroups, and post-treatment effects showed no influence on reoffending.

These outcomes are in line with existing research that has found limited long-term effects of SST (Ang & Hughes, 2002), and other behavioral interventions targeting delinquency, which have been implemented in the Netherlands (Asscher et al., 2014; Brugman & Bink, 2011; Helmond, Overbeek, & Brugman, 2015). Moreover, using a TAU control group instead of a minimal/no treatment control group (as was the case in the majority of previous studies, Ang & Hughes, 2002), and conducting the study under clinically representative conditions could have limited finding treatment effects in the present study. However, the present outcomes could also indicate that (post-treatment) improvements on social skills do not generalize to less criminal behavior.

The target population may provide the best explanation for the lack of treatment effects of Tools4U. The present sample shows an overall recidivism rate of 37% after almost 1.5 years, which is similar to the national juvenile recidivism rate (i.e., 36%, Wartna et al., 2012), and lower than recidivism rates in more severe target populations (49% – 79%, see, e.g., Asscher et al., 2014; Helmond et al., 2015; Wartna et al., 2012). By successfully referring moderately severe *adolescent onset* or *adolescent limited* delinquents to Tools4U (Loeber et al., 1998; Moffitt, 1993), a majority of the sample would not reoffend regardless of any intervention, which decreases the chances of finding significant treatment effects. Such a floor effect could also be an explanation for the limited sustained effects of SST in previous studies (see Cook et al., 2008; Maag, 2006).

Interestingly, we found no moderating effects for age, gender, ethnicity, violent offending, or frequent offending. Given that Tools4U showed post-treatment effects on positive parenting only for parents of girls, and on behavioral adjustment only for younger juveniles (Van der Stouwe et al., 2016), the lack of differential effects on recidivism depending on gender and age is unexpected. Moreover, post-treatment effects on social skills did not have the hypothesized influence on reoffending.

The results of this study need to be interpreted in light of some limitations. First, due to practical considerations, the present study could not meet the ‘golden standard’ of random assignment to a treatment and control condition (Farrington, 2003). Therefore, some unmeasured characteristics of juveniles may have been responsible for differences in treatment effects. Second, the statistical power for the

moderator analyses was only sufficient to detect moderate subgroup effects, which could result in an underestimation of the effects of demographic and offense history characteristics. Finally, by using only official judicial data to measure delinquency, we measured “the tip of the iceberg” of actual reoffending, because only a small part of offenses leads to actual registration or conviction (Farrington & Ttofi, 2014). This may have limited the percentage of reoffenders, decreasing the power to find significant treatment effects.

In sum, the present study found no treatment effects for SST Tools4U in reducing recidivism in juvenile offenders. More specifically, post-treatment effects on dynamic risk factors and sufficient treatment implementation did not lead to the expected long-term effects on recidivism. However, the lack of treatment effects (i.e., failure to reject the null hypothesis) does not prove that Tools4U is ineffective (i.e., accept the null hypothesis, Weisburd, Lum, & Yang, 2003), and no negative effects were found. Tools4U thereby might reach a “minimal level of program effectiveness” (Weisburd et al., 2003, p. 43), although more research is needed to confirm this. With established treatment integrity, and a lack of well-researched effective treatment alternatives, Tools4U could still be a reasonable treatment option for *adolescent onset* juvenile offenders.

APPENDICES

APPENDIX A

Method: Propensity score matching

Juveniles in the treatment group were matched to juveniles in the control group with a similar propensity to receive Tools4U based on:

- Gender;
- Age;
- Ethnicity;
- Pre-test social skills:
 - » Impulsivity;
 - » Social problem-solving: confrontation and seeking social support;
 - » Social perspective-taking: attributing hostile intent and cognitive empathy;
 - » Critical reasoning: self-centering, blaming others, minimizing/mislabeling and assuming the worst;

After the matching procedure, differences between the Tools4U and control groups were found in degree of urbanization ($\chi^2 = 20.52, p < .00$), which was coded as more or less urban, based on the degree of urbanization of the juveniles' residential town, and self-perception of behavioral adjustment, with control group juveniles being more positive than Tools4U juveniles ($t = -1.99, p = .04$). There were no differences in any of the other characteristics and measures.

APPENDIX B

Treatment group characteristics and differences between groups

	Offenders (N = 172)				Truants (N = 50)									
	Tools4U (n = 95)		TAU (n = 77)		Tools4U (n = 20)		TAU (n = 30)							
	M	or n	SD	or %	M	or n	SD	or %	M	or n	SD	or %	χ^2 / t	
Gender													.58	1.09
Male	75	79	57	74	9	45	18	60						
Female	20	21	20	26	11	55	12	40						
Age	15.73	1.55	15.43	1.56	-1.25	15.75	1.55	16.37	1.27	1.54				
Ethnicity minority													.03	2.63
Yes	47	50	37	48	12	60	11	37						
No	48	51	40	52	8	40	19	63						
Index offense													2.74	
Property	48	51	31	40										
Public order	16	17	20	26										
Violence	23	24	20	26										
Other	8	8	6	8										
Number of previous offenses	.98	1.34	1.16	2.17	.63	.40	.94	.40	.72	.00				
Degree of urbanization	2.51	1.30	2.27	1.13	-1.24	2.75	1.21	1.30	.53	-5.05				
Self-perception of behavioral adjustment	12.24	3.25	13.08	2.92	1.76	12.45	3.97	13.17	3.03	.72				

Note. *** = $p < .001$

APPENDIX C

Summary of Logistic Regression Analysis for the Influence of Tools4U on (Violent) (Re)Offending for Delinquents (n = 172) and Truants (n = 50) at 6 months, 12 months, and 1.46 years, Controlling for Background Variables

Follow-up	Delinquents (n = 172)			Truants (n = 50)		
	B	SE B	e ^B	B	SE B	e ^B
Offending						
6 months						
Constant	-.23	.39	.79			
	-.71	.63	.49			
χ^2		4.43				
df		6				
% (re)offenders		20				
12 months	-.42	.34	.66			
Constant	-.68	.57	.51			
χ^2		4.57				
df		6				
% (re)offenders		31				
1.46 year	-.27	.33	.76	.98	.92	2.66
Constant	-1.19	.56	.30	-.38	.79	.68
χ^2		6.15			2.82	
df		6			2	
% (re)offenders		39			20	
Violent offending						
6 months	.12	.77	1.13			
Constant	-1.58	1.47	.21			
χ^2		9.62				
df		6				
% (re)offenders		5				
12 months	.60	.69	1.82			
Constant	-2.34	1.37	.10			
χ^2		9.10				
df		6				
% (re)offenders		6				
1.46 year	.82	.66	2.26			
Constant	-3.01	1.33	.05			
χ^2		8.60				
df		6				
% (re)offenders		8				

Note. Controls are degree of urbanization, number of previous arrests (only for delinquents), and type of index offense (only for delinquents). All test statistics were non-significant.

APPENDIX D

Summary of Poisson Regression Analysis for the Influence of Tools4U on Number of (Re)Offenses for Delinquents ($n = 172$) and Truants ($n = 50$) at 6 months, 12 months, and 1.46 years, Controlling for Background Variables

Follow-up	Delinquents ($n = 172$)			Truants ($n = 50$)		
	B	SE B	e^B	B	SE B	e^B
6 months						
Intercept	-.01	.20	.99			
	-.09	.26	.91			
χ^2		44.43***				
df		6				
M (SD) (re)offenses		.62 (2.18)				
12 months						
Intercept	-.10	.18	.91			
	.25	.22	1.28			
χ^2		55.60***				
df		6				
M (SD) (re)offenses		.81 (2.21)				
1.46 year						
Intercept	-.03	.16	.97	.37	.58	1.45
	-.01	.21	.99	.47	.57	1.60
χ^2		47.21***			8.71*	
df		6			2	
M (SD) (re)offenses		.93 (2.22)			.38 (1.03)	

Note. Controls are degree of urbanization, number of previous arrests (only for delinquents), and type of index offense (only for delinquents). * = $p < .05$; *** = $p < .001$.

APPENDIX E

Summary of Cox Regression Moderator Analyses for Delinquents at 6 months, 12 months, and 1.46 Years Follow-up, Controlling for Background Variables

Interaction condition x ...	HR	p	95% CI	
			Lower bound	Upper Bound
6 months				
Gender	1.55	.69	.18	13.02
Age	1.03	.97	.26	4.03
Ethnic minority	.60	.46	.15	2.33
Violent offender	.84	.81	.20	3.50
> 1 Previous offense	.44	.27	.10	1.88
Post-treatment score on				
Impulsivity	3.87	.07	.90	16.67
Attributing Hostile Intent	.98	.84	.81	1.19
Self-centering	.88	.76	.39	1.99
Assuming the worst	.99	.98	.41	2.41
12 months				
Gender	.44	.35	.08	2.47
Age	1.85	.29	.59	5.76
Ethnic minority	1.04	.94	.36	3.04
Violent offender	.91	.87	.29	2.86
> 1 Previous offense	.52	.29	.15	1.74
Post-treatment score on				
Impulsivity	2.75	.07	.91	8.31
Attributing Hostile Intent	.96	.64	.82	1.13
Self-centering	.75	.37	.39	1.41
Assuming the worst	.82	.57	.40	1.66
1.46 years				
Gender	.38	.26	.07	2.07
Age	2.23	.14	.77	6.43
Ethnic minority	1.02	.98	.38	2.72
Violent offender	.90	.85	.31	2.58
> 1 Previous offense	.61	.37	.21	1.80
Post-treatment score on				
Impulsivity	2.65	.06	.96	7.30
Attributing Hostile Intent	.94	.43	.82	1.09
Self-centering	.76	.37	.42	1.38
Assuming the worst	.81	.55	.41	1.61

Note. Controls are degree of urbanization, number of previous arrests, type of index offense, and the examined moderator. All test statistics were non-significant.