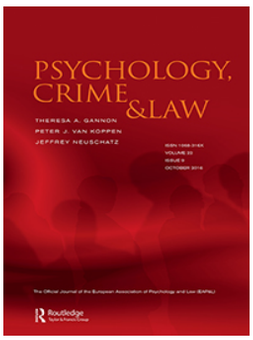

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Brief motivation enhancing intervention to prevent criminal recidivism in substance-abusing offenders under supervision: a randomized trial

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ABSTRACT

The goal of this study was to assess the effect of a brief motivation enhancing intervention (MEI) on criminal recidivism. This was a multi-site, cluster-randomized clinical trial in six addiction probation offices. We randomized 73 probation officers (37 to intervention, 36 to control) and followed 220 substance-abusing repeat offenders that were allocated to them (111 intervention, 109 control). We report three measures of recidivism rate (self-report, police records, and combination of either of the two) and time to re-offending (police records) during a 12-month follow-up period. The proportion of re-offending and time to re-offending was not significantly different between offenders that received supervision plus intervention and those that received supervision-as-usual (SAU, no intervention). Our findings provide no evidence that supervision plus a brief MEI is more effective than SAU.

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Recidivism; re-offending; motivation enhancing intervention; probation; substance abuse

Introduction

The main aim of correctional rehabilitation programmes is reducing recidivism. Empirical evidence shows that three principles are necessary for effective correctional rehabilitation, namely, the risk-needs-responsivity principles (Andrews & Bonta, 2010; MacKenzie, 2006). The risk principle pertains to the question of 'who' to target for programmes and posits that moderate- to high-risk offenders should be targeted. The needs principle pertains to the question of 'what' to target and posits that programmes should address offenders' 'criminogenic' needs, that is, the offenders' needs (such as substance use) that are associated with the likelihood of recidivism. The responsivity principle pertains to the question of 'how' to target offenders, and posits that programmes need to be delivered in a manner that matches the offenders' individual learning styles and needs. A key precept of the responsivity principle is motivation (Day & Howells, 2007), a factor identified to be important in offender programme engagement and, in turn, programme outcomes (Ginsburg, Mann, Rotgers, & Weekes, 2002; Harper & Hardy, 2000; McMurran, 2002).

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A lack of motivation to change behaviour is often prevalent among offenders (McMurran, 2002; Polaschek, Anstiss, & Wilson, 2010; Wong & Gordon, 2006). In the short term, the legal system can impose behaviour change by sanctions or external control on offenders, also known as extrinsic motivators. However, once the sanctions are lifted or the time period of active control is expired, offenders have to sustain any changes in behaviour without the assistance of such extrinsic motivators. For some offenders, the criminal justice event becomes a learning opportunity that facilitates the intentional behaviour change process. However, the level of recidivism in the criminal justice system indicates that consequences are not always effective teaching tools. The goal of criminal justice interventions is long-term protection of the public from crime as well as rehabilitation or sustained behaviour change on the part of the offender. Sustained behaviour change, even after sanctions have ended, seems to require a focus on the intentional process of change, also known as intrinsic motivation.

A potentially promising approach to facilitate the intentional change process involves the use of motivational interviewing (MI) techniques. MI is a client-centred method that focuses on enhancing an individual's motivation to engage in a particular behaviour, and his or her level of self-efficacy or confidence in the ability to engage in that behaviour (Miller & Rollnick, 2002). MI was developed by Miller and Rollnick (2002, 2013), originally as a method for motivating substance abusers to change, and has been shown to be effective in the field of substance abuse (Burke, Arkowitz, & Menchola, 2003; Dunn, Deroo, & Rivara, 2001; Hettema, Steele, & Miller, 2005; Rubak, Sandbœk, Lauritzen, & Christensen, 2005; Vasilaki, Hosier, & Cox, 2006). Given the high rate of substance use among offenders, it seems promising to apply this method to this population (Brookoff, O'Brien, Cook, Thompson, & Williams, 1997; Singleton, Farrell, & Meltzer, 1999). Among Dutch probationers, 55% have been identified as problematic drug users and 26% as problematic alcohol users. Furthermore, for judicial criminals, drug use (20%) and alcohol use (29%) played a part in the delinquent behaviour (Van Kalmthout & Tigges, 2008). Hence, MI could play a crucial role in the evidence-based treatment of offenders with problematic substance use.

In the years since MI was initially introduced (Miller & Rollnick, 1991), developers have incorporated its principles into interventions for a wide range of problem behaviours. Often referred to as motivation enhancing (ME) interventions, these methods are explicitly geared to implement the MI processes of engaging, focusing, evoking, and planning (Miller & Rollnick, 2013). Because ME approaches extend beyond simple information provision by targeting underlying attitudinal and motivational processes, they are particularly well suited for court-mandated individuals who tend to enter intervention programmes with high resistance and low motivation for change (Dill & Wells-Parker, 2006; Nochajski & Stasiewicz, 2006).

Past research has focused mostly on identifying risk factors and criminogenic needs. According to Andrews and Bonta's (2006) theory of criminal behaviour change, responsivity is necessary but not sufficient to reduce the risk of re-offending. Seen as a component of responsivity, a strong motivation to avoid re-offending is not viewed as likely to change directly dynamic criminogenic risk factors. However, a recent study by Anstiss, Polaschek, and Wilson (2011) demonstrated that a brief offending-focused MI intervention reduced the risk of recidivism in male prisoners with a variety of offences and criminal histories.

The MI principles are generally adhered to in Dutch offender rehabilitation programmes, but the training is limited (Van Kalmthout & Tigges, 2008). Thus, a large portion of the burden of preventing recidivism falls on the criminal justice system

through the use of sanctions and monitoring. A significant challenge for criminal justice interventions is how to create conditions whereby the offender perceives control mechanisms as aids to self-change rather than obstacles to overcome. Many researchers advocate active participation by offenders in their rehabilitation process (Taxman, 2004). It is assumed that if offenders are stakeholders in their process of change, they will assume a greater level of accountability. A protocolized approach that involves awareness of the intentional change process could provide probation officers with a tool for creating an opportunity for offenders to be involved in their rehabilitation and long-term behaviour change process (DiClemente, 2013). We developed a protocolized motivation enhancing intervention (MEI) that provides a method of working with reoffenders with problematic substance use. In criminological research, the effectiveness of MEIs in reducing recidivism rate is a crucial but still relatively underexplored area (McMurran, 2009).

The present study uses an intention to treat analysis to examine the effect of a protocolized MEI on recidivism rate and time to re-offending among substance using, judicially supervised reoffenders. In addition, we conducted a per-protocol (PP) analysis, excluding participants who did not complete the intervention. We hypothesized that the MEI sample (supervision plus intervention) would show significantly less re-offending and delayed time to re-offending compared to those in the supervision-as-usual (SAU) sample.

Methods

Design

We used a multi-site, two groups randomized controlled trial. Data were collected from offenders at baseline (on entry into the study supervision condition) and at 12 months follow-up. This article focuses on recidivism at 12 months post-entry into the study.

Randomization and allocation to supervision condition

Participating offenders were allocated to one of two supervision conditions by cluster randomization with the probation officer as the cluster variable. That is, probation officers were randomized to either SAU or to the protocolized MEI. Offenders were allocated to a probation officer following the usual procedure of the probation office, resulting in a MEI offender sample or a SAU offender sample, depending on which group the probation officer belonged to. A cluster-randomized design was used because it avoided interference with daily practice in which offender and probation officers are matched, and evoked less resistance in offenders and probation officers than individual randomization, thus maximizing participation and intervention integrity.

In total, 73 probation officers were randomized (37 to MEI and 36 to SAU). Officers were distributed as follows over 6 probation offices: 27 officers (12 MEI and 15 SAU), 16 officers (8 MEI and 8 SAU), 13 officers (6 MEI and 7 SAU), 7 officers (4 MEI and 3 SAU), 5 officers (3 MEI and 2 SAU), and 5 officers (4 MEI and 1 SAU).

Setting and participants

The Social Rehabilitation of Addicted Offenders (*Stichting Verslavingsreclassering* or SvG) is a private non-profit national probation organization in the Netherlands that targets a specific

group of offenders whose offences are supposedly related to their substance use. Offenders are referred to the SvG by the judicial system as (part of) their sentence. Eleven branch offices of the SvG deal with probation work and their primary aim is to reduce recidivism (Van Kalmthout & Tigges, 2008). Six of the eleven branch offices participated in the study.

Offenders supervised at the participating SvG branch offices were screened by their probation officer for eligibility using a 10-item checklist. Inclusion criteria were: (i) sufficient command of the Dutch language to understand interview questions and questionnaires; (ii) male; (iii) at least two sentences; (iv) regular use of alcohol and/or illicit drugs, that is, using the substance at least three days a week, and additionally for alcohol: consuming at least five or more glasses per day; (v) currently under a court-order supervision executed by a branch office of the SvG in a noncustodial setting. Exclusion criteria were: (i) a history of neurological problems or severe psychiatric disorders such as schizophrenia, psychotic disorder, or bipolar disorder; (ii) only convicted for driving under influence; (iii) illegal stay in the Netherlands. Eligible offenders were invited by their probation officer to participate in the study. Offenders who agreed to participate were contacted by a researcher for an appointment, usually at a probation office. Offenders were included in the study when they completed the baseline assessment.

Procedure

Five persons conducted the baseline and follow-up interviews: the principal and the second investigator, and three research assistants: a psychologist and two criminologists (with graduate degrees). The baseline assessment, which lasted between 90 and 120 minutes, began with obtaining written informed consent. In addition, contact information was collected to be able to trace participants for follow-up assessment. Participating offenders received a financial compensation at the end of the assessment (€15). Probation officers randomly assigned to the MEI condition started the MEI after the baseline assessment. Research staff contacted the probation officers in the MEI condition to monitor their progress using a five-item standardized questionnaire. Twelve months after the baseline interview a follow-up interview with the participating offenders was conducted that lasted approximately 60–90 minutes. For this interview, they received a monetary compensation (€20). Ethical approval for this study was provided by the Medical Research Ethics Committee of the Academic Medical Centre, University of Amsterdam.

Intervention

The protocolized MEI, called 'Step by Step' (*Stap voor Stap*, SvS), was developed for reoffenders with problematic substance use who are under probation supervision. The SvS module consists of a manual for the probation officer and an attractively designed and illustrated individual workbook for the offender that contains simple exercises for making a personal sketch of his situation. It is delivered individually to reoffenders with problematic substance use in 4–6 sessions of 15–20 minutes by probation officers who were trained in delivering the intervention applying a MI styled approach.

The overall goal of the SvS module was to enhance offenders' willingness to address their problematic substance use and criminal behaviour. The SvS module comprises seven steps that focus on the offender's willingness to collaborate (step 1), problem

recognition (steps 2 and 3), ambivalence to change (step 4), confidence in ability to change (steps 5 and 6), and commitment (step 7).

Each step has a number of main elements. The first step involves a discussion of the paradox between mandatory supervision and the choices that an offender can make while under supervision. Step two involves making an inventory of the current situation regarding substance use, criminal behaviour, and problems experienced by the offender (e.g. financial, social, mental, and physical). In step three, a substance use biography is drawn up: participants are guided in depicting their habits of using drugs and engaging in criminal acts over the years in a graph. This includes not only behaviour patterns, but also their experiences with stopping and reducing substance use and criminal acts. This helps them to observe their own roles (enhancing self-esteem), and those of others in the case of (temporary) success. Step four involves making a balanced score chart of pro's and con's of the current lifestyle, and of an imagined changed lifestyle, pertaining to both substance use and criminal behaviour patterns. Step five involves assessing and reinforcing the offender's attempts to change. Step six involves identifying the offender's beliefs about various forms of support and opportunities appropriate for him. Step seven involves reinforcing commitment language.

MI training

An eight-hour small group training provided by MINT-trained professionals was given to probation officers in both conditions. It consisted of a brief overview of MI, videos and a discussion of core MI skills and 'MI spirit', and skill-building practice. Both groups of probation officers were trained in MI to level out differences in general MI skills between the two groups and to be able to test specifically the effect of the implementation of the MEI. Probation officers randomized to the MEI condition were further given an eight-hour small group start-up training in working with the exercises in the protocol and in handling the booklets. This training of the MEI group was refreshed after four and eight weeks with a four-hour booster training session. All probation officers in the MEI condition attended the training.

Measures

Recidivism data

Recidivism was operationalized as any new offence during the 12 months post-entry into the study (i.e. after the offender completed the baseline assessment). We distinguished between three recidivism outcomes: self-reported recidivism, registered recidivism, and a combination of self-reported and registered recidivism. Moreover, we measured time to re-offending. Self-reported recidivism was obtained by several questions in the follow-up interview. Registered recidivism was operationalized as any new entry in the national police identification service system due to a criminal offence. Combined recidivism was operationalized as a combination of either reported or registered involvement in criminal activity. Time to re-offending was based on registered recidivism by the police, and defined as the number of days between date of entry into the study (baseline assessment) and the first re-offence date. For censored cases, this date was set at 365 days (12 months).

Data analysis

Differences in baseline demographic characteristics, substance use, and criminal behaviour variables between probationers in the MEI group and the SAU group were assessed with independent-samples *t* tests for continuous variables and χ^2 tests for categorical variables. Logistic regressions and a survival analyses were used to examine the effect of the MEI on recidivism outcomes (dichotomous data and survival time data). In addition, *post hoc* PP analyses were performed, including only offenders in the control group and offenders who completed all seven steps of the MEI. All analyses were conducted using SPSS Version 21 (SPSS Inc., Chicago, IL, USA). Significance was defined as $p < .05$.

Results

Recruitment and follow-up

Recruitment for the study took place from May 2010 to August 2012. Follow-up assessments were completed in July 2013. Given the feasibility issues related to recruiting and follow-up of this hard-to-reach population, we chose to terminate data collection with a final sample of 220 offenders. Figure 1 presents the recruitment and flow chart of offenders throughout the study.

Overall, 934 offenders were assessed for eligibility by their probation officer. Of the 548 offenders eligible for the study, 220 (40.1%) were included: 111 allocated to the MEI sample and 109 to the SAU sample. The overall retrieval rate for follow-up assessment was good, 73% ($N = 160$) of the participants completed both baseline and follow-up assessments, consisting of 77/111 (69.4%) for MEI, and 83/109 (76.1%) for SAU. Participants who completed follow-up were similar to those lost to follow-up regarding baseline demographic variables (age, ethnicity, and education), substance use, and criminal behaviour.

Baseline characteristics

There were no significant differences between the MEI and SAU sample in demographic characteristics, substance use, or criminal behaviour at baseline (Table 1). Baseline characteristics of the 48 offenders in the MEI sample who did not complete the protocolized intervention were also similar to those of offenders who completed the intervention ($n = 50$).

Integrity check

The adherence in providing the intervention was observed: on average the intervention group completed 4.8 (SD = 2.7) steps out of 7. The frequency of supervision contacts with offenders was equal in both MEI and SAU conditions (MEI 18 sessions versus SAU 15 sessions; $t(188) = 1.802$, $p = .073$), but differed between the 23 MEI completers and the offenders in the SAU condition ($t(142) = 4.0$, $p < .001$).

Effects of the intervention

As part of the intent-to-treat (ITT) analysis data were available on registered criminal activity (police reports) for all 220 offenders who entered the study. With respect to self-reported criminal activity, 60 offenders were lost to follow-up (34 from MEI leading to a retrieval sample of 77 and 26 from SAU leading to a retrieval sample of 83).

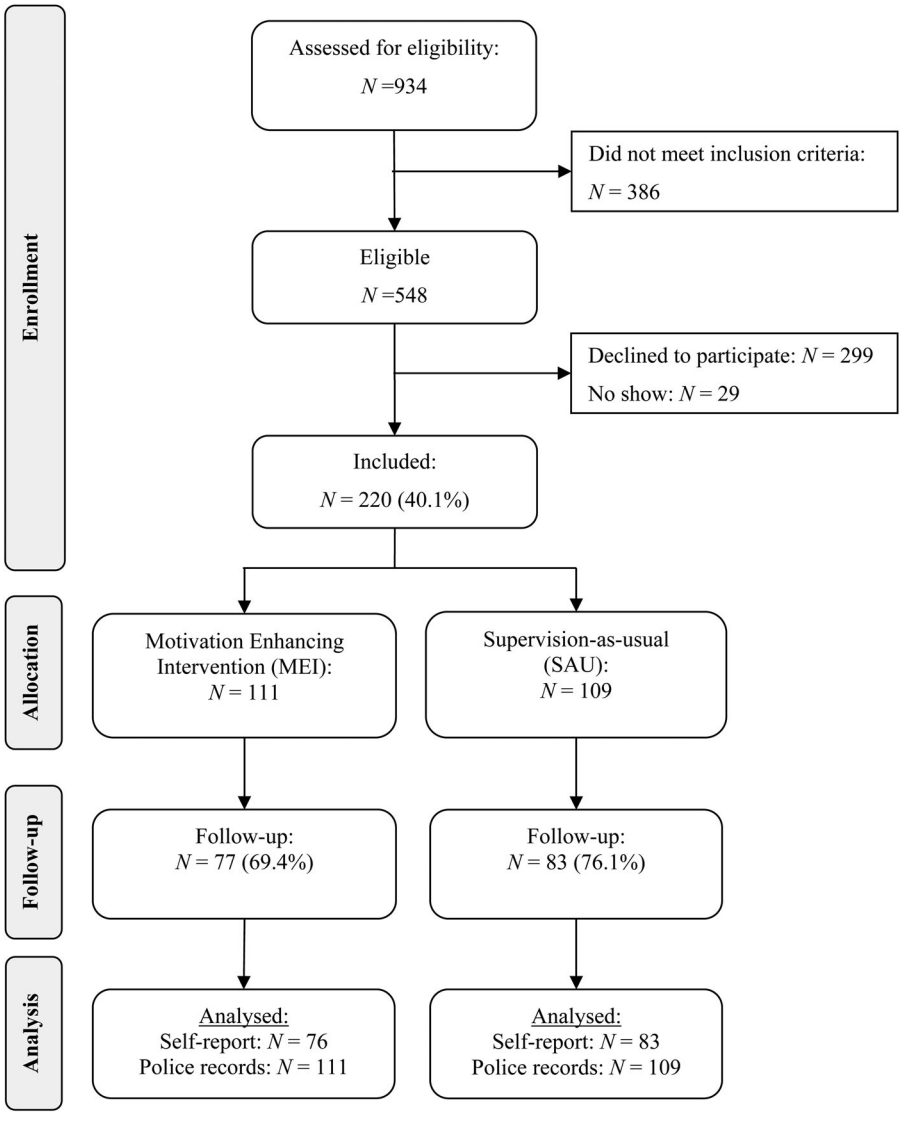


Figure 1. Flow chart.

Table 2 presents the effectiveness of the MEI on the three recidivism measures: self-reported recidivism, registered recidivism, and combined recidivism. The ITT analysis revealed no significant differences in self-reported recidivism (MEI: 51.3% versus SAU: 49.4%), nor in registered recidivism (MEI: 41.4% versus SAU: 45.0%), nor in combined recidivism (MEI: 56.8% versus SAU: 57.8%).

Figure 2 shows the Kaplan–Meier survival curve for the MEI and SAU samples for time to re-offending based on registered recidivism. We found no effect of the MEI on time to re-offending (MEI: 307 days versus SAU: 295 days; $\chi^2(1) = 0.008$, $p = .928$).

For the PP analysis data were available on intervention completion for 98 offenders (50 completers versus 48 non-completers) from the MEI sample of 111 (88.3%). For 13 (11.7%) participants data were missing on the number of steps completed. With regard

Table 1. Baseline demographic characteristics, substance use and criminal behaviour variables stratified by supervision condition.

Variable, % (*n*) or *M* (SD)	MEI (*n* = 111)	SAU (*n* = 109)	X^2 or *t*	*p*-Value
Demographic characteristics				
Mean age (years)	37.1 (11.31)	37.5 (10.66)	−0.322	0.748
Native, *% (n)*	65.5 (72)	68.8 (75)	0.279	0.667
Primary education or less, *% (n)*	83.5 (91)	92.6 (100)	4.266	0.058
Unemployed, *% (n)*	74.1 (80)	80.6 (87)	1.293	0.330
Substance use				
Any prior drug/alcohol treatment, lifetime	56.0 (61)	52.3 (58)	0.305	0.591
Primary substance used			0.657	0.897
Alcohol, *% (n)*	41.7 (45)	36.4 (39)		
Stimulating drugs, *% (n)*	37.0 (40)	39.3 (42)		
Cannabis, *% (n)*	13.9 (15)	15.9 (17)		
Opiates and other drugs, *% (n)*	7.4 (8)	8.4 (9)		
Problematic use at baseline[a]			0.529	0.925
No dependence or abuse, *% (n)*	17.3 (19)	21.1 (23)		
Dependence, *% (n)*	2.7 (3)	2.8 (3)		
Abuse, *% (n)*	24.5 (27)	22.9 (25)		
Dependence and abuse, *% (n)*	55.5 (61)	53.2 (58)		
Criminal behaviour				
Type of crime for under probation			0.588	0.766
Property, % (*n*)	30.6 (34)	33.9 (37)		
Violence, % (*n*)	52.3 (58)	52.3 (57)		
Drugs and other, % (*n*)	17.1 (19)	13.8 (15)		
Registered crimes in the year at risk prior to arrest, *M* (SD)	2.2 (2.63)	2.7 (4.4)	−0.864	0.389
Self-reported crimes in the year at risk prior to arrest, *M* (SD)	73.8 (189.37)	88.8 (163.22)	−0.566	0.572
Detained in the year prior to arrest, % (*n*)	39.6 (44)	37.6 (41)	0.095	0.783
Days detained in the year prior to arrest, *M* (SD)	75.5 (69.36)	91.4 (81.04)	−0.969	0.335
Current criminal thinking, at baseline, *M* (SD)	27.5 (8.70)	26.5 (9.42)	0.794	0.428
Historical criminal thinking, at baseline, *M* (SD)	27.5 (8.71)	26.5 (9.41)	0.795	0.428

Abbreviations: MEI: motivation enhancing intervention; SAU: supervision-as-usual.
[a]Substance abuse and dependence established with the MATE-Crimi questionnaire based on the CIDI 2.1 (DSM-IV criteria).

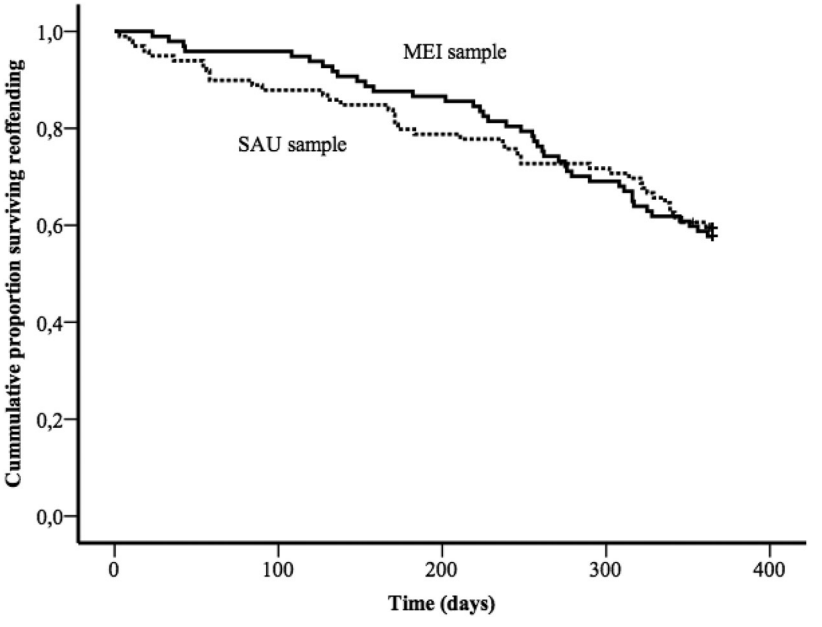
to self-reported recidivism, 24.0% (12/50) of the offenders that completed the MEI were lost to follow-up. Among the completers, 47.4% (18/38) and 49.4% (41/83) of the MEI and SAU offenders, respectively, reported that they reoffended in the 12-month follow-up period (Table 3). No significant differences were found between MEI completers and SAU on registered recidivism (MEI completers: 38.0% versus SAU: 45.0%) or combined recidivism (MEI completers: 56.0% versus SAU: 57.8%).

Figure 3 shows the Kaplan–Meier survival curve based on registered recidivism for offenders who completed the intervention (MEI completers) and SAU. No effect of

Table 2. Relation between MEI and re-offending (yes/no).[a]

	Recidivism						
	MEI, % (*n*)	SAU, % (*n*)	*β*	SE_β	OR	*p*	95% CI
Self-report[b]	51.3 (39/77)	49.4 (41/83)	.135	.320	1.145	.673	0.611–2.144
Police data	41.4 (46/111)	45.0 (49/109)	−.120	.275	0.887	.663	0.517–1.520
Combined[c]	56.8 (63/111)	57.8 (63/109)	.018	.275	1.019	.947	0.594–1.748

Abbreviations: MEI, motivation enhancing intervention sample; SAU, supervision-as-usual sample.
[a]Logistic regression analysis with re-offending (yes/no) as dependent and MEI (yes/no) as independent variables and propensity score as covariate to correct for criminal history. Propensity score was calculated based on the following four baseline variables: days detained in the year prior to arrest, registered arrests in the year at risk prior to arrest, self-reported arrests in the year at risk prior to arrest, type of crime for under probation.
[b]Missing follow-up self-report data for 60 offenders.
[c]Self-reported and/or police registered re-offending during follow-up period.



Abbreviations: MEI: motivation enhancing intervention; SAU: supervision-as-usual.

Figure 2. Cumulative proportion surviving re-offending for MEI and SAU.

intervention on time to re-offending was found (MEI completers: 328 days versus SAU: 295 days; $\chi^2(1) = 0.450$, $p = .502$).

Discussion

We assessed the effectiveness of a protocolized individual MEI in reducing recidivism among substance-abusing offenders under probation supervision. Both the ITT and PP analyses revealed no statistically significant difference in recidivism between the MEI and SAU groups regarding self-reported, registered, or combined recidivism. Further, survival analysis showed no difference in time to re-offending between the MEI and SAU offenders.

Our findings provided no support for a difference in recidivism between SAU and supervision plus a protocolized MEI in substance-abusing repeat offenders. There are

Table 3. Relation between completed MEI and re-offending (yes/no).[a]

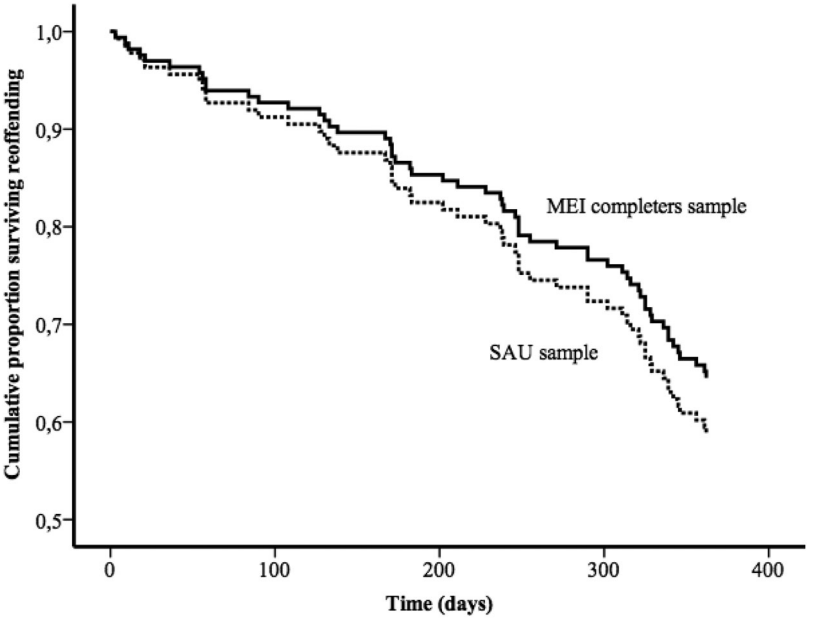
	Recidivism						
	$MEI_{completers}$, % (*n*)	SAU, % (*n*)	*β*	$SE_β$	OR	*p*	95% CI
Self-report[b]	47.4 (18/38)	49.4 (41/83)	−.034	.399	.967	.932	.442–2.113
Police data	38.0 (19/50)	45.0 (49/109)	−.204	.357	.816	.568	.405–1.641
Combined[c]	56.0 (28/50)	57.8 (63/109)	015	.351	1.015	.967	.510–2.019

Abbreviations: $MEI_{completers}$: motivation enhancing intervention sample that completed all seven steps of the intervention; SAU: supervision-as-usual sample.

[a]Logistic regression analysis with re-offending (yes/no) as dependent and MEI (yes/no) as independent variables and propensity score as covariate to correct for criminal history. Propensity score was calculated based on the following four baseline variables: days detained in the year prior to arrest, registered arrests in the year at risk prior to arrest, self-reported arrests in the year at risk prior to arrest, type of crime for under probation.

[b]Missing follow-up self-report data for 60 offenders.

[c]Self-reported and/or police registered re-offending during follow-up period.



Abbreviations: MEI: motivation enhancing intervention; SAU: supervision-as-usual.

Figure 3. Cumulative proportion surviving re-offending for MEI completers and SAU.

several possible explanations for these findings. One explanation is that, in line with the theory of criminal behaviour change (Andrews & Bonta, 2006), offenders' motivation to engage in change is a necessary but not sufficient factor to commence in actual change. However, a recent New Zeeland study by Anstiss et al. (2011) showed positive effects of a brief, individual MI intervention in reducing the risk of recidivism. In this study, prisoners who took part in a MI intervention had a significantly lower chance of re-offending than their treatment-as-usual counterparts, who did not receive an intervention. In our study, probation officers of both the protocolized MEI and SAU were trained in MI skills. Hence, our findings do not rule out the possibility that this was sufficient to have an effect on criminal behaviour change in both supervision conditions.

In the Netherlands, all probation officers dealing with offenders with problematic substance use are trained in MI skills (Van Kalmthout & Tigges, 2008). In addition, we trained all probation officers (control and intervention) in general MI skills to assess the effectiveness of the specific protocolized MEI delivered with MI. Hence, compared to other studies, the general use of MI by SAU probation officers in the control condition may have led to a smaller contrast between the intervention and control conditions. Previous research provided evidence for the effectiveness of MI and its adaptations to increase motivation to change in offenders (Anstiss et al., 2011; Austin, Williams, & Kilgour, 2011). An alternative explanation for our findings may therefore be that both supervision with a specific protocolized MEI and SAU with MI as a general method of approach have an effect on recidivism.

Another possible explanation for our findings concerns integrity, in particular probation officers' competence. As we did not monitor the abilities and skills of probation officers to carry out the intervention, we do not know how competent they were herein. An eight-hour training might not be enough. For some participants we had information on adherence,

that is, if they went through all the steps of the intervention as intended. We found, however, no difference between SAU and completers of the MEI. Still we cannot rule out that a limitation in the competence of carrying out the intervention underlied the results.

Overall, results suggest important recommendations for future research on the effect of a protocolized MEI for reducing re-offending in probation-supervised substance-abusing offenders. Our findings emphasize the importance of monitoring integrity in training and implementation of protocolized motivational interventions. It is particularly essential to consider probation officers' experience with the protocol. More experienced probation officers, that is, by training or practice in working with the protocol, might be more skilled at applying MI skills within a protocolized approach. A protocolized approach might be particularly suitable for probation officers who know the tricks of the trade of working with MI. In studying the effectiveness of a protocolized motivational approach, future research should account for implementation issues, such as probation officers' experience.

Conclusion

The results of this study provided no evidence for the effectiveness of a protocolized, brief, individual MEI in reducing re-offending and in delaying the time to re-offending among substance using offenders under probation supervision. Our findings suggest that there is no difference in the effect on recidivism rate between supervision including a protocolized MEI or SAU that includes general use of MI among substance-abusing repeat offenders.

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Disclosure statement

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