Targeting recidivism : an evaluation study into the functioning and effectiveness of a prison-based treatment program

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7 Recidivism after a prison-based treatment program

7.1 Introduction

In the course of the last few decades, the correctional climate has changed dramatically in many Western countries (Lynch & Sabol, 1992; 2000). The decline of the rehabilitative ideal (Allen, 1981), starting in the 1970s, has led to a major increase in prison populations worldwide; some scholars even speak of *mass-incarceration* (Garland, 2001). This is evidenced by both growing inmate populations, and increases in length of confinement (Sutton, 2004; Tonry, 2007; Western, 2006). The substantial growth in imprisonment rates has resulted in a large number of ex-inmates returning to communities, often doing so under far from optimal life circumstances, facing physical, psychological and economic difficulties (Bushway, 2006; Dirkzwager, Nieuwbeerta & Fiselier, 2009; Geller & Curtis, 2011; Hagan & Dinovitzer, 1999; Lynch & Sabol, 1992; 2001; Petersilia, 2000; Rose & Clear, 1998; Travis, Solomon & Waul, 2001).

Studies that have explored post-release re-offending rates among ex-detainees have indicated that prisons fail to turn offenders away from future criminal behavior. Re-offending rates among ex-detainees are high, both in the United States and Europe. In the U.S. and U.K, research has shown that well over sixty percent of ex-prisoners are re-arrested within two to three years after release (Hughes & Wilson, 2002; Langan & Levin, 2002; SEU, 2002). In The Netherlands, studies have shown that over seventy percent of released prisoners were reconvicted within six years after having left a Dutch penitentiary institution. Almost fifty percent of them were re-sentenced to prison in that same period of time (Wartna et al., 2010).

For a long time, the general belief was that correctional treatment did not help to reduce re-offending among ex-detainees (Lipton, Martinson & Wilks, 1975; Martinson, 1974). However, with the introduction of meta-analytic methods during the 1980s and 1990s, factors were identified that were associated with a decrease in recidivism. This shifted criminal justice thinking from *nothing* works to *what* works (Andrews, 1995; Andrews & Bonta, 1994; Andrews et al., 1990; Gendreau, 1996; Gendreau, Little & Goggin, 1996; Lipsey & Wilson, 1993; MacKenzie, 2000; 2006). Within this context, several Western – initially particularly Anglo-American – countries started to focus on reducing post-release re-offending rates by better preparing detainees for re-entry into society. Consequently, prison-based rehabilitation programs aimed at lowering chances of future criminal behavior and improving the life-circumstances of ex-detainees have been developed and implemented

throughout the Western World (Bonta & Andrews, 2007; Hannah-Moffat, 2005; Jolley & Kerbs, 2010; McSweeney, Turnbull & Hough, 2008). In The Netherlands, this has led to the nation-wide implementation of an integration approach to prison-based rehabilitation: The Prevention of Recidivism Program (Van der Linden, 2004).

Correctional rehabilitation efforts can and should be, just as medical interventions, evidence based (Latessa et al., 2002). In the last decades, a large number of empirical studies have focused on examining factors that influence the effectiveness of correctional programs. This has resulted in a framework that has been the basis of many (prison-based) correctional rehabilitation programs. A lot is still unknown however about the effectiveness of prison-based rehabilitation programs (Latessa, Cullen & Gendreau, 2002; Latessa, 2004). While it is vital that we know which factors have influenced the effectiveness of correctional programs in past empirical studies, to help further the field of correctional rehabilitation research and practice, it is important that we continue to empirically evaluate rehabilitation programs in various populations in different geographic regions – especially since most research has been conducted in Canada, the US and UK – and that we advance our understanding of the mechanisms through which effective interventions work (Lipsey & Cullen, 2007; Pawson & Tilly, 1997; 1998). The current study therefore aims to assess to what extent the national Dutch Prevention of Recidivism Program is effective in reducing six-month post-release re-offending rates among ex-detainees. To date, no such study has been conducted.

7.2 Correctional rehabilitation in The Netherlands

As mentioned, prison-based treatment efforts in The Netherlands are embedded within a national *Prevention of Recidivism Program*. This is an intramural rehabilitation program, implemented in 2007, meant for detainees with a prison sentence of at least four months (i.e. remaining after being sentenced by a judge).[1] The Prevention of Recidivism Program aims to lower re-offending rates amongst participants by offering the offender a chance to follow an individualized treatment program that addresses the specific criminogenic needs of the individual offender (Dutch Prison Service & Dutch Probation Organizations, 2007). Participation in this program is voluntary. However, detainees who decide not to take part are not gradually placed in prison facilities with a lower security level (where they can be granted more freedom) and have no ability to go on leave. They are also not

1 Note that the program was replaced by a new policy measure that was implemented in March 2014, which uses the same risk/need based approach, but in which offenders can only take part of they have earned the right to engage, by expressing their willingness to change their criminal ways, and by showing pro-social behavior for a minimum of 6-weeks straight.

eligible to spend up to one third of their sentence at home, under supervision of the Dutch Probation Organization. So there is a strong incentive to participate.

Each year, around five thousand Dutch inmates meet the length-of-sentence criterion and are therefore eligible for participation in the program. This amounts to eleven percent of the total inflow of detainees in Dutch correctional institutions (Bosma, Kunst & Nieuwbeerta, 2013). A computerized registration system automatically selects offenders after their sentence has been imposed based on their remaining prison sentence (> 4 months) and objective criteria (certain groups of detainees are excluded, such as offenders who are sentenced to prison for life, offenders who were placed in psychiatric facilities or penitentiary hospitals and illegal aliens). If an offender qualifies for program entry, subjective criteria (motivation and sufficient Dutch language skills) are verified and the offender is officially asked to participate in the program. If an offender decides to participate, a risk assessment instrument is administered. This instrument is based on and highly comparable to the British Offender Assessment System (OASys) (Howard, Clark & Garnham, 2003). With this instrument an offender's risk for recidivism is determined, and criminogenic needs are assessed concerning twelve specific subdomains: (1) offending history; (2) current offence and pattern of offences; (3) accommodation; (4) education; work; and training; (5) financial management and income; (6) relationships with partner and relatives; (7) relationships with friends and other acquaintances; (8) drug misuse; (9) alcohol misuse; (10) emotional well-being; (11) thinking and behavior and (12) attitudes/orientation (Adviesbureau van Montfoort & Reclassering Nederland, 2004). Based on an offender's risk for recidivism, and criminogenic needs, a customized rehabilitation program is formed, discussed with the offenders, and finally executed.

This individualized rehabilitation program can, if indicated by risk and need scores, contain specific treatment programs. In Dutch corrections, behavioral interventions can only be applied after being accredited by the "Ministry of Justice Accreditation Committee for Behavioral Interventions".[2] This committee (modeled after the British accreditation panel; see Maguire, Grubin, Losel & Raynor, 2010) was set up in 2005 and assesses the potential effectiveness of behavioral interventions (Boone, 2011). At the moment, the two main types of prison-based behavioral interventions that have been accredited and are applied within the scope of the Prevention of Recidivism Program are *Cognitive Skills Training*, and *Lifestyle Training*.

Cognitive Skills training is a Dutch version of Enhanced Thinking Skills (ETS) program (Clark, 2000); a program that was developed for offenders who experience difficulties with the cognitive skills that are necessary to independently function in life, and aims to improve cognitive skills that are necessary in order to independently live, develop and function in society,

2 Note that the *Judicial Behavioral Intervention Accreditation Committee* was replaced by the *accreditation committee interventions* in 2015 (Parliamentary Papers, 2014/15).

by focusing on four key-objectives: impulse-control, perspective taking, problem solving and moral insight. Cognitive skill training is offered as a standard version and a plus version, which was designed for offenders with limited mental capacities. The standard version consists of 22 group sessions for 10 to 12 participants. The plus version consists of 32 group meetings. The course was designed to target offenders with (at least) a moderate to high recidivism risk, evidenced by a risk assessment score of at least 32; who have shown impaired cognitive skills (evidenced by a weighted score on the RISc-scale thinking and behavior of at least 4); and who were not excluded based on additional grounds, which are: not being able to function in a group because of severe psychiatric problems (evidenced by a score of at least 2 on the RISc-item 10.2 or 10.4); great difficulties in family functioning (evidenced by a score of 2 on item 6.3); and severe drug- and or alcohol-misuse (evidenced by a score of 2 on scale 8.2 and or 9.2; Ministry of Justice, 2007).

Lifestyle Training is an addiction treatment program designed to help offenders cope with alcohol-, drug- and/or gambling addiction(s). The training relies on a cognitive behavioral approach, and focuses on motivation, self-control and relapse prevention. There are two versions, a regular version that consists of 15 sessions, and a longer version meant for offenders with more severe addiction problems, consisting of 21 group-meetings. The training aims to target offenders with drug-, alcohol- and or gambling-abuse problems (evidenced by a score on the RISc-scales drug misuse of at least 3, and/or alcohol misuse of at least 2, and or financial management and income of at least 5, combined with a score of 2 on item 5.4); not excluded on additional grounds, which are a negative attitude towards the sanction imposed (evidenced by a score of 2 on the item 12.2); severe psychiatric problems (evidenced by a score of 2 on the scale 10.2); and being able to function in group-treatment (evidenced by a score of 2 on the scale 11.3; SVG Verslavingsreclassering, 2009).

Other accredited and available trainings are Job Skill training, meant to help offenders with getting or maintaining a job and Aggression Replacement Training, to help offenders cope with violence and anger problems. However, research has shown that these types of training are applied sparsely, combined only taking up about seven percent of the total number of executed treatment programs in The Netherlands (Bosma, Kunst & Nieuwbeerta, 2013). Depending on risk and need scores, some offenders may not qualify for any of these treatment programs. If this is the case, they can participate in the Prevention of Recidivism Program without allocation to any treatment-module.

7.3 Theoretical framework

Rehabilitation theories start from the premise that the purpose (or at least one of the purposes) of punishment is rehabilitation, turning law-breaking citizens into law-abiding ones, as opposed to retribution, incapacitation, or

deterrence, which is primarily characterized by getting even with an offender, removing an offender from society to prevent further criminal behavior, or the use of imprisonment to discourage offenders from committing further crimes. The rehabilitative viewpoint is reinforced by a massive amount of empirical studies that suggest that treatment programs can be an effective instrument to help decrease recidivism, if they are directed at factors that are the cause of re-offending behavior (see e.g. Andrews, 1995; Andrews & Bonta, 1994; Andrews et al., 1990; Cullen & Gendreau, 2001; Day & Howells, 2002; Gendreau, 1996; Gendreau, Little & Goggin, 1996; Lipsey & Cullen, 2007; Lipsey & Wilson, 1993; Palmer, 1992). This decrease in re-offending rates could theoretically be explained by two (rehabilitation) theories: the Risk-Need-Responsivity- (Andrews & Bonta, 1994; Andrews, Bonta & Hoge, 1990), and Good Lives Model (Ward & Brown, 2004).

Risk, Need, Responsivity

The Risk-Need-Responsivity [RNR] model of crime prevention and correctional rehabilitation is a theoretical framework that outlines some general principles that are believed (based on empirical studies) to influence the outcomes of correctional rehabilitation programming; risk, need and responsivity (Andrews & Bonta, 1994; Andrews, Bonta & Hoge, 1990). The *risk* principle asserts that treatment intensity should be adjusted to the extent to which there is risk for re-offending. The *need* principle suggests that correctional programs should address criminogenic needs, that is, dynamic characteristics (such as substance abuse) associated with repeated-offending. And finally, the *responsivity* principle indicates that interventions should match an offender's characteristics, such as his/her learning style and treatment readiness. In other words, the model suggests *who* should be treated (risk), *what* should be treated (need) and *how* it should be treated (responsivity) (Andrews & Bonta, 2010; Andrews, Bonta & Wormith, 2006; Andrews et al, 1990; Andrews & Dowden, 1999; Lowenkamp & Latessa, 2005).

Besides defining some general principles that influence the effectiveness of correctional treatment, the work of Andrews and Bonta (1994; 1998; 2003; 2006; 2010) also addresses some of the central causes of persistent criminal behavior (Polaschek, 2012). This makes the RNR-model not only useful to explain *whether* correctional programs work, but also indicates its value in explaining *how* programs work. The RNR-model is theoretically grounded in the *General Personality and Cognitive Social Learning Perspective of Criminal Behavior* (Andrews & Bonta, 2006), which is largely based on a social learning perspective of criminal behavior. According to Andrews and Bonta (2006), criminal behavior is *learned* within a social context, and is the result of balancing the (expected) rewards and costs of behavior. This cost-benefit analysis assumed to be influenced by interactions between biological and personality characteristics, cognitions, and emotions. An individual can adopt antisocial sentiments, goals and behaviors by interacting with others, through a combination of learning processes, such as classical conditioning (learning through innate responses; Pavlov, 1927), operant conditioning

(learning through reinforcement and punishment; Skinner, 1938), and observational learning. If an individual sees that antisocial behavior is reinforced for others (if the benefits surpass the costs), antisocial sentiments, goals, and behaviors are strengthened (Andrews & Bonta, 2003), and vice versa. To exemplify this: if a person sees that a friend or relative benefits greatly from crime (for example by earning a lot of money from it, getting a huge kick out of it, or by receiving a lot of positive reinforcement from others), this strengthens his or her attitude towards crime. The costs and benefits of criminal behavior can be derived from various sources: They can be delivered by others (such as family members), can stem from within the person (such as feeling of pride), or can be automatically provided by the criminal behavior itself (such as a financial reward; see Andrews & Bonta, 1998; 2006; Bonta, 2002; Bonta & Andrews, 2007). Personal and circumstantial characteristics of individuals can encourage or discourage criminal behavior, by influencing cost- and benefit analyses. These personal and circumstantial characteristics are, according to Andrews and Bonta, *risk factors* (such as cognitive skill deficits or substance abuse problems; Andrews, Bonta & Wormith, 2011).

In line with the above described, a correctional treatment program that focuses on modifying or eliminating risk factors (i.e., criminogenic needs – factors that influence future re-offending) can effectively decrease the chances for future criminal behavior. In this manner, prison-based treatment programs can effectively reduce post-release re-offending.

The good lives model

A different but related model that aims to explain how rehabilitation can be effective in reducing recidivism rates is the *Good Lives Model* [GLM] of offender rehabilitation (Ward & Brown, 2004). This theory starts from the premise that a focus on risk-reduction is not enough to get people motivated to alter their behavior. The model therefore focuses on personal goals, and is more strength-based (Whitehead, Ward & Collie, 2007) in nature compared to the RNR-model. The GLM suggests that future criminal behavior can be reduced if an offender's capability's to reach *primary* human goals are enhanced (Ward & Stewart, 2003). These personal goals are activities; experiences; states of affairs; and states of mind that every individual wants to achieve, and that increase our wellbeing if fulfilled (Ward & Brown, 2004). For example, a primary goal might be work satisfaction or having a loving relationship. These goals can be realized by means of *secondary* goods. For example, if an individual wants to have a relationship (a primary goal), he or she needs a partner (a secondary good) in order to achieve this.

The GLM further proposes that an offender's capacity to achieve these personal goals depends on his or her internal capabilities (skills, attitudes, beliefs) and external conditions (opportunities, support). Reaching a primary goal can be frustrated or blocked by the presence of risk factors (criminogenic needs; factors that influence future re-offending) (Ward & Gannon, 2006; Ward, Melser & Yates, 2007; Ward & Stewart, 2003). For example, a severe substance abuse problem (a risk factor) may make it difficult to get

and maintain a job, making it impossible to achieve the goal of achieving work satisfaction.

Consistent with the GLM model, an effective correctional treatment program should focus on broadening an offender's capacities to attain secondary goods and primary goals. Goals can however only be reached, according to Ward and Brown (2004), if risk factors are attenuated or eliminated (since these can frustrate or block attaining secondary and primary goods). In this manner, a prison-based treatment program can effectively reduce post-release re-offending by enhancing an offender's skills to acquire primary goals and secondary goods, and by modifying or eliminating risk factors that prevent this.

Summarizing, based on both the RNR-model and the GLM we expect that prison-based treatment programs will reduce post-release criminal behavior. This decrease in re-offending is reached by addressing risk factors and by stimulation of protective factors. We therefore expect that ex-detainees who have been engaged in a prison-based rehabilitation program will have lower re-offending rates, compared to offenders who were not engaged in treatment during imprisonment.

Theoretically, the effectiveness of the Prevention of Recidivism Program, a program aimed to target an offenders risk for recidivism and criminogenic needs by applying behavioral modules designed to target an offenders criminogenic needs, can be explained by the above mentioned (rehabilitation) theories. The specific treatment modules applied (cognitive skill training and lifestyle training) do, theoretically, however rely on their own set of theoretical fundaments. It was shown that there is a fundamental difference between effective and ineffective programs, dependent on the model of change on which a program relies and through which it is supposed to reach its aims (Fabiano, Porporino & Robinson, 1990).

Theoretical basis for cognitive skill training

Cognitive skill training relies on a theoretical framework that is grounded in social learning theory (Bandura, 1986; Ross & Fabiano, 1985), and cognitive social learning theory (McGuire, 2004). In essence, these models rely on the notion that, in interaction with environmental influences and opportunities for crime, a number of individual factors (or characteristics) is associated with persistent involvement in juvenile and adult criminal behavior. These factors include: adherence to antisocial attitudes and beliefs; a pattern of deficits in (social-interactive) problem-solving; a lack in social perspective; and problems concerning self-management (Andrews & Bonta, 2003; McGuire, 2004; Ross & Fabiano, 1990). According to Ross and Fabiano (1990), these different types of inadequacies in cognitive skills lead to behavioral tendencies that hinder an offender to function in a pro-social matter, with specific deficits leading to specific (criminal) tendencies. First, adherence to anti-social attitudes and believes, which can manifest in deeply rooted beliefs with respect to antisocial behavior, the law and criminal justice system, can prohibit offenders from reflecting on their own anti-social or

criminal behavior. The inability to critically reflect on their own behavior can also cause offenders to often blame others for their own actions. Second, inadequacies in (social-interactive) problem solving cause offenders to lack the ability to see that problems can develop (instead of just appear), and make it difficult for offenders to resolve problems and to visualize ways in which they can do so. Instead, offenders accept situations, even if those situations involve great risk. Third, deficits' relating to social perspective causes delinquents to lack empathy, misinterpret social situations, be unaware of other human beings' feelings and cannot differentiate between their own needs and needs of another person. And fourth, problems with respect to self-management cause a tendency towards action-oriented behavior and impulsive behavior.

Cognitive skill training was developed to target deficiencies or shortcomings with respect to these four problem areas. If cognitive patterns with respect to antisocial attitudes and beliefs, problem solving, social perspective, and self-management are altered, pro-criminal tendencies and conducts are expected to reduce. Therefore, it is expected that cognitive skill training will reduce post-release criminal behavior among offenders with cognitive-skill deficits.

Theoretical basis for lifestyle training

Lifestyle training (treatment directed at addictive behavior) is based on the notion that addictive behavior (as well as criminal behavior) is learned in a social environment, and is determined by biological, psychological and social factors and consequences. It aims to reduce the odds of future criminal behavior, by decreasing problematic substance abuse, and aims to do so relying on the relapse prevention model (Marlatt & Gordon, 1985). Three types of models can be cited to describe the association between substance abuse and crime.

The first perspective asserts that *substance use leads to crime*. This can be explained by referring to the psychopharmacological properties of drugs and alcohol, stating that intoxication (undermining judgment and self-control, causing paranoid thoughts or distorting inhibitions and perceptions) may lead to aggression (due to, for example, withdrawal or sleep deprivation; Virkkunen & Linnoila, 1993) and can cause criminal behavior (Collins, 1981; Fagan, 1990; Withe & Gorman, 2000). It can also be clarified by referring to the economic motivation to get drugs or alcohol, in which drug and alcohol users are inevitable designated to non-legally acquired income to supply in their (often growing) demand (frequently referred to as pharmacological determinism, which asserts that people who were once exposed to drugs, often require this in increasing amounts; Alexander, 1984). Lastly, it can be explained by a systemic model (Goldstein, 1985), which draws on the fact that substance abuse is fundamentally connected with violent crime. The second perspective assumes that *crime leads to substance abuse*. This explanation claims that involvement in a criminal subculture provides the context, reference group and situations that increase the odds of coming

into contact with drugs (White, 1990; White & Gorman, 2000). Additionally, aspects of a professional criminal lifestyle may be linked to heavy drinking and drug use, because of the unstructured nature of criminal activity, the lack of ties (such as a marriage or children), and geographically mobility (Collins & Messerschmidt, 1993; Walters, 1994). The third and final perspective to explain the link between substance abuse and criminal behavior refers to a model in which a relation is explained by *a shared common cause*, such as personality traits, antisocial personality disorder, parental drug and/or alcohol misuse, and poor relations with parents (White, 1990; White, Brick & Hansell, 1993), which cause both substance abuse and criminal conduct.

As mentioned, lifestyle training aims to influence an offender's problematic addictive behavior, in order to reduce odds of future criminal re-offending. This mainly draws to the first theoretical perspective of substance abuse and criminal behavior, the assumption that substance abuse causes crime. Based on this model, it is expected that lifestyle training will reduce post-release criminal behavior among offenders with substance abuse problems.

7.4 Previous studies

Studies on prison-based treatment in general

Based on two theoretical (rehabilitation-) models presented we anticipated that prison-based rehabilitation programs can effectively reduce post-release re-offending rates among ex-detainees. A large amount of empirical work has focused on the effectiveness of such treatment programs. Literarily hundreds of studies have been conducted investigating the effects of a broad range of treatment modalities on recidivism among both juvenile and adult offenders in both residential and community settings (Andrews & Bonta 2006; Andrews et al., 1990; Bonta & Andrews 2007; French & Gendreau, 2006; Garret, 1985; Gendreau & Ross, 1987; Gendreau, Smith & French, 2006; Landenburger & Lipsey, 2005; Lipsey & Cullen, 2007; Lowenkamp, Latessa & Holsinger, 2006; Polaschek, 2012; Sherman et al., 1997).

To combine the results of this enormous (and diverse) body of work, and to identify patterns among study results, meta-analytic studies have been conducted. A broad overview of such meta-analytic studies on the effect of (various types of) correctional interventions can be found in Lipsey and Cullen (2007), in which a systematic review of meta-analytic studies is presented. This systematic review of meta-analytic studies has shown that rehabilitative correctional interventions, on average, have shown positive (but small to moderate) results, while supervision and sanctioning have shown more moderate or – in some instances – negative (small to moderate) results.

Four of the meta-analyses included in the Lipsey and Cullen (2007) review have specifically focused on the effect of treatment in general (Andrews et al., 1990; Cleland, Pearson, Lipton & Yee, 1997; Illescas, Sanchez-Meca & Genovés, 2001; Petrosino, 1997), as opposed to the effect of pro-

grams and trainings for a specific type of offenders, such as a sex-offender programs, or specific treatments or training programs, such as boot-camps or cognitive behavioral therapy, and are therefore considered interesting in light of our current study. Firstly, in a meta-analytic study by Andrews and others (1990), in which 88 studies were included (juveniles and adults, community and residential settings) positive treatment effects were found. Reductions in re-offending rates for offenders who received treatment were relatively small (around 14 to 22 percent) but significant. The study also showed that the magnitude of impact upon re-offending was mainly dependent on the extent to which service was in line with the principles of risk, need, and responsivity (Andrews et al., 1990). A second meta-analysis, the Petrosino (1997) study, which covered 115 previously conducted studies (including juveniles and adults, community, and residential settings), found a similar treatment effect. However, larger effects were found for rehabilitation programs focusing on reducing recidivism for juvenile offenders in comparison to effects on adult offender re-offending (Petrosino, 1997).

These higher drops in re-offending rates for juvenile offenders were confirmed by a meta-analysis by Cleland and others (1997). This study included 515 previous studies on both juveniles and adults, in community, and residential settings. Although recidivism drops for juvenile offenders were larger, this study also confirmed that adult offenders who received treatment re-offended less compared to adult offenders who had not received treatment (Cleland et al., 1997). The last meta-analytic study that focused on the effects of treatment in general was conducted by Illescas, Sanchez-Meca and Genovés (2001). This study included 22 empirical studies (including juveniles and adults, community, and residential settings), and again confirmed that correctional treatment could effectively reduce re-offending rates among adult offenders (Illescas, Sanchez-Meca & Genovés, 2001).

Studies on specific programs: cognitive skill- and substance abuse treatment

Second, based on more specific theories explaining the mechanism through which cognitive skill training an lifestyle (substance abuse) training were believed to reach recidivism reductions, the expectation was brought up claiming that cognitive skill training and lifestyle training can effectively reduce post-release re-offending rates offenders in need of these types of treatment (i.e. offenders with cognitive deficits and/or substance abuse problems). These assumptions can be supported by previous work that has focussed on the effectiveness of these specific types of correctional treatment programs.

Studies focusing on the effectiveness of cognitive skills programs in reducing the reoffending of ex-prisoners have found a significant treatment effect (see e.g. Friendship, Blud, Erikson & Travers, 2002; Lipsey, Chapman & Landenburger, 2001; Robinson, 1995; Sadlier, 2010; Travers, Wakeling, Mann & Hollin, 2013; Joy Tong & Farrington, 2006; 2008). For example, a review study conducted by Lipsey Chapman and Landenburger (2001), in which studies were included that met standards 4 and 5 of the Maryland

Scientific Methods Scale (i.e. an experimental, or quasi-experimental design; Farrington, Gottfredson, Sherman & Welsh, 2002), revealed that recidivism rates for program participants were approximately four-fifths of that for control samples. In light of our theoretical framework, it was also shown that structured programmatic interventions that relied on principles derived from cognitive social learning theory (McGuire, 2004), showed to achieve the largest and most consistent effect sizes in reducing criminal recidivism (Goggin & Gendreau, 2006; McGuire, 2005).

With respect to the effectiveness of substance abuse treatment, a meta-analysis was conducted (Irvin, Bowers, Dunn & Wang, 1999) that included studies assessing the effectiveness of substance abuse programs that relief on relapse prevention (Marlatt & Gordon, 1995), a model on which lifestyle training was based. Results showed that relapse prevention was effective in increasing the psychosocial functioning of offenders, and (although in lesser extent) was able to decrease substance abuse among program participants, especially with regards to those addicted to alcohol and poly drug-addictions.

In conclusion, the results of these meta-analytic studies have confirmed our previously stated hypothesis, that correctional rehabilitation programs can effectively reduce re-offending rates among ex-detainees. For adult offenders, participating in correctional treatment programs can lead to small but relevant reductions in criminal re-offending (around 14 to 22 percent drops were reported; Andrews et al., 1990; Cleland et al., 1997; Illescas, Sanchez-Meca & Genovés, 2001; Petrosino, 1997). Our hypotheses concerning the premise that cognitive skill training and substance abuse treatment can contribute to reducing re-offending among program participants in need of such specific treatment modules were also confirmed by previous work conducted. However, these large-scale meta-analytic studies have mainly included studies that were conducted in Anglo-Saxon/common law countries; it must be empirically assessed if similar results are found in other geographic regions or countries, with perhaps a different legal, socio-economical and/or cultural context, such as The Netherlands.

7.5 The current study

The purpose of the current study was to examine the effectiveness of the Prevention of Recidivism Program: A national prison-based treatment program in The Netherlands that aims to lower re-offending rates among participants by administering an individualized treatment program that addresses the criminogenic needs of an individual offender. A previously conducted literature review (Bosma, Kunst & Nieuwbeerta, 2013) revealed that (parts of) this program has been subjected to nine empirical evaluation studies (Barendregt & Wits, 2014; Balogh & Jans, 2009; Ferwerda, Van Wijk, Arts & Kuppens, 2009; Fischer, Captein & Zwirs, 2012; Inspectorate of Security and

Justice, 2010; Kuppens, Van Wijk & Klőne, 2012; Nas, Van Ooyen-Houben & Wieman, 2011; Schoenmakers, Van Leiden, Bremmers & Ferwerda, 2012; Van Bostelen, Davio, Mehlkopf & Woerlee, 2005; Van Poppel, Tackoen & Moors, 2005). These studies have however mainly focused on program integrity, and merely aimed to assess the implementation and execution of (parts of) prison-based rehabilitation efforts in The Netherlands. No study evaluated the effectiveness of the national Prevention of Recidivism Program. Therefore, based on the current state of empirical research, it is unknown if this program is effective in reducing post-release re-offending rates among participants. The following research question was therefore addressed: To what extent was the Prevention of Recidivism Program effective in reducing 6, and 24-month post-release re-offending rates among program participants? This research question was studied by analyzing official prison data, risk assessment data, and re-offending records of a large population-based sample of males that were incarcerated in The Netherlands. To study re-offending among our research sample, two analytical approaches were applied. First, group differences between the several research-groups central in this dissertation were analyzed, after which post-release re-offending was studied by use of logistic regression analyses. Second, the current study applied a propensity score method (proportional weighting within strata) to rule out any concerns regarding selection effects that may have occurred and could perhaps not be properly accounted for by use of regression analyses.

7.6 Methods

Data

To study the effect of rehabilitation efforts on incarcerated offenders in The Netherlands, a research sample was drawn from the Prison Project, a large scale, national population-based longitudinal research project, studying the effect of imprisonment on the life of detainees and their families in The Netherlands. The Prison Project included the total population of male detainees put in pre-trial detention in The Netherlands between October 2010 and March 2011. Additional inclusion criteria were that offenders had to be between the age of 18 and 65 and were born in The Netherlands (see Bosma et al., 2014). A number of 3.983 offenders met these qualifications and were included in the Prison Project (Dirkzwager & Nieuwbeerta, 2016).

Several sources of information on the persons included in the sample were gathered to answer the research question proposed. First of all, the *Dutch Custodial Institutions Agency* provided registration data from several prison registration systems on all persons in the sample, including data on background characteristics (Prison Registration System), in depth information regarding rehabilitation trajectories (Prevention of Recidivism Registration System), and incarceration details such as in and outflow, transfers between prisons, departments, and cells (Prison Registration System). Second, risk assessment data on the persons in the sample were made available

by the *Dutch Probation Service*. Third, the *Research and Documentation Centre* of the Dutch Ministry of Security and Justice provided data from the General Documentation Files (GDF) of the Criminal Record Office. These data contain detailed information on all registered crimes and convictions up to December 2015, and provide information about the offender's criminal history, current offence and registered re-offending behavior six months after release. Finally, information on the sentencing process and outcomes was made available by the Dutch Prosecution Office. These data contained trial information and (sentencing) outcomes on each detainee's criminal case.

As mentioned, 3.981 offenders were part of the Prison Project research sample. Because we study recidivism over a (maximum of) 24-month follow-up period in this study, and recidivism data were only available until the end of December 2015, only those detainees were only included in the current study that had left prison before the end of December 2013. This way, each offender has been released from prison for (at least) 24 months. Consequently, 145 offenders had to be excluded from the sample. Additionally, 1 offender was excluded from the sample because data from the General Documentation Files (GDF) of the Criminal Record Office was missing, which meant no criminal record information was available. By removing these offenders, 3.835 offenders formed the current study's sample (see Figure 1).

Dependent variables

The dependent variable used in the current study was registered criminal re-offending within 6- and 24 months after release. This was measured by including charges that were drawn from the General Documentation Files. All criminal charges were included except for those that ended in acquittal or were dismissed. This resulted in two dichotomous variables (0 = not charged within 6 / 24 months post-release, 1 = charged within 6 / 24 months post-release).

Independent variable: treatment group

Treatment groups were based on data retrieved from the official Prevention of Recidivism Registration System. This administrative database, which is accessible and used in every prison in The Netherlands, provides in-depth information on all activities (including program status) regarding the Prevention of Recidivism Program. Information regarding an offender's status could therefore easily be retrieved, without having to interpret or recode variables. The registration system also provides information regarding reasons for non-participation and non-completion. By consulting this database, 9 treatment groups could be distinguished (determinants of each of which had already been studied in the preliminary chapters): (1) program non-candidates; (2) program non-participants: organizational reasons; (3) program non-participants: refused; (4) program completers: standard treatment program; (5) program completers: standard program plus cognitive skill training; (6) program completers: standard program plus lifestyle training; (7) program completers: standard program plus cognitive skill and lifestyle

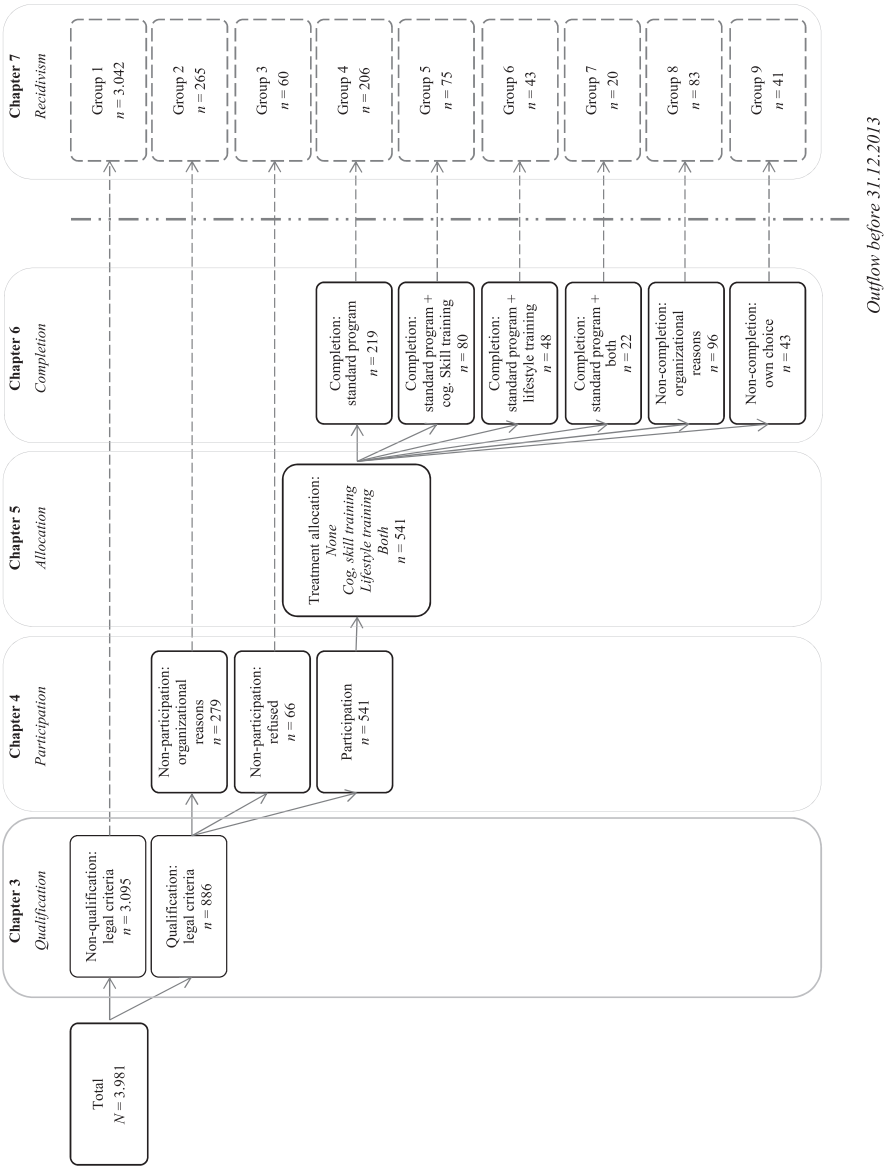

Figure 1. Overview of research sample

training; (8) non-completers: organizational reasons; and (9) non-completers: own choice (see Figure 1). To further clarify our treatment groups, case descriptions of fictive group-members were included in Appendix A.

Since some program completers have been assigned a rehabilitation program, which was not in line with their risk, and need assessment outcomes (as shown in Chapter 5), program completers (group 4, group 5, group 6 and group 7) were divided in offenders who were correctly classified, and offenders who were incorrectly classified. This was done by determining if an offender was allocated to criminogenic need-specific treatment in line with their risk and need assessment outcomes (similar to our assessment of correct allocation described in Chapter 5). This resulted in two groups, offenders who were correctly assigned (1), and offenders who were not (0).

Covariates

In studying the impact of treatment on post-release re-offending rates, it is important to take into account other factors that could have potentially also influenced treatment, as well as post-release recidivism. Fortunately, the various registration files that were available made it possible to include a wide range of covariates in our analyses. We incorporated a long list of variables that may have influenced treatment group membership and/or re-offending behavior, which were grouped under demographics, criminal history, current offence, and risk assessment outcomes.

Demographics accounted for in the current study included age and ethnic background. Age (in years) was calculated from the prison registration systems by subtracting date of birth from the date of their prison entry. Ethnic background (non-native vs. native; Statistics Netherlands defines a person as having a non-native background if at least one of his/her parents was born abroad) was obtained from municipal data, and if not available, was subtracted from risk assessment data.

Several variables related to criminal history were also included in the analyses, namely the age of onset; number of prior convictions for a violent crime (ever and in the last five years); number of prior convictions for a property crime (ever and in the last five years); number of prior convictions for other crimes (ever and in the last five years); and number of previous prison sentences (ever and in the last five years). All criminal history variables were extracted from General Documentation Files (GDF) of the Criminal Record Office.

To control for the influence of an offenders current offence, the type of offence (violent; sex; violent property; property; damage; drug related or other/unknown) and total imposed sentence (duration, not including a conditional sentence) was included. Offence type was drawn from the General Documentation Files (GDF) of the Criminal Record Office and imposed sentence length was drawn from data provided by the Dutch prosecution office.

Finally, variables used to indicate an offender's criminogenic needs were also incorporated. In Dutch corrections, risk and needs are determined using the Dutch-language Recidivism Assessment Scales (RISc).

This instrument, which is based on the British Offender Assessment System (OASys) (Howard, Clark & Garnham, 2003), screens offenders on twelve risk domains: (1) offending history and (2) current offence and pattern of offences; (3) accommodation; (4) education, work, and training; (5) financial management and income; (6) relationships with partner, family, and relatives; (7) relationships with friends and acquaintances; (8) drug misuse; (9) alcohol misuse; (10) emotional wellbeing; (11) thinking and behavior; and (12) attitudes and orientation (Van der Knaap, Leenarts, Born & Oosterveld, 2012). Weighted scores on each of the twelve risk domains were included in the propensity score analyses. Including these risk assessment variables provide a unique opportunity to control for the selection criteria that are also used to refer offenders to treatment.

7.7 Analyses

The main objective of the current study was to determine the extent to which participation in the prison-based Prevention of Recidivism Program reduced 6- and 24-month post-release re-offending rates among program participants. In order to study the effectiveness of the Prevention of Recidivism Program among our entire research sample, two analytical approaches were applied. The first involved the entire research sample of 3.835 offenders who were divided in nine treatment groups. Group recidivism rates were analyzed, after which the effect of treatment on post-release re-offending was studied by use of logistic regression analyses. Because it was shown in previous chapters that participating offenders were in some cases incorrectly allocated to treatment, it was also studied if recidivism rates of correctly classifies program participants (offenders that completed a program that was in line with their risk- and need assessment outcomes) were different from those who were incorrectly classified (those who completed a program that was not in line with their risk- and need assessment outcomes).

Second, offenders that completed treatment were compared to a group of offenders that did not. A simple comparison between post-prison re-offending rates of the treatment group with the control groups would however not be sufficient, because treatment group membership may be confounded with factors that affect both treatment inclusion, but also influence post-release re-offending. Also, selection effects that may have occurred could perhaps not be properly accounted for by use of regression analyses. The current study therefore assessed the effectiveness of treatment by applying a propensity score method (proportional weighting within strata) to eliminate the influence of measurable pre-treatment covariates that may have otherwise influenced results (Austin, 2011; Posner & Ash, 2012). By obtaining balance between groups in covariates, any differences in post-imprisonment re-offending outcomes can be assumed to be the result of a treatment effect (Winship & Morgan, 1999). This method will be described in detail below.

Treatment and control condition selection

First, a group of offenders was identified that had successfully completed the Prevention of Recidivism Program (the treatment group, consisting of offenders that had completed a standard program, or a standard program with cognitive skill training, lifestyle training or both see Figure 1; treatment group 4, 5, 6 and 7), which consisted of 344 offenders. These offenders were, based on their remaining prison sentence at the moment of conviction (> 4 months), selected as a program candidate, had decided to participate and had completed an individualized treatment program that had addressed their specific criminogenic needs.

In light of the current study, the treatment group was compared to an appropriate control group. In several previous quasi-experimental (treatment) effect studies, a control group of offenders was created by selecting offenders who decided not to participate (see e.g. McGrath, Cumming, Livingston & Hoke, 2003; Worling & Curwen, 2000), or dropped-out during treatment (see e.g. Wexler et al., 1999). This, however, is not an optimal control condition, since previous studies have shown that offenders who do not engage in or complete treatment can generally be seen as a high risk group of offenders (Polaschek, 2010; Wormith & Olver, 2002). Selecting these potentially high-risk offenders as a control group may therefore lead to over-estimating treatment effects (McMurran & Theodosi, 2007; Polaschek, 2010; Wormith & Olver, 2002).

The current study therefore selected a control-group consisting of offenders that were, based on the program's inclusion criteria (the most important of which being a remaining sentence length of at least four months at the moment of conviction), assigned a candidate for the program, but could not participate due to organizational reasons (for example caused by a lack in available treatment places, or staff shortages). This was determined based on information included in the official Prevention of Recidivism Registration System. This control group consisted of 265 offenders (see Figure 1; treatment group 2).

Imposed prison-sentences can vary greatly in length, (usually) based on the crime committed by and the criminal history of the individual offender. Offenders with lower prison sentences will generally have committed less serious crimes, resulting in less severe penalties and possible indicating a lower criminal propensity. Although offenders included in our sample were not imprisoned for longer than 38 months (inflow was only after October 2010, outflow before January 2014), the average duration of their prison sentence differed greatly. To rule out as much variety as possible between our treatment and control condition, resulting in comparable groups regarding crime severity, sentence type and duration, the current study added an additional legal inclusion criterion to select offenders for the treatment and control condition. In The Netherlands, criminal cases can be referred to two types of criminal courts: single judges and multi judge-panels. Multi-judge panels, consisting of at least three judges, generally rule on more complex and severe cases, whereas less complicated cases are referred to a single

judge. A criminal case is only referred to a multi judge-panel if the public prosecutor proposes a prison sentence of at least 12 months. If shorter prison sentences (or alternative sanctions or fines) are demanded, offenders are referred to a single-judge panel (De Jongste & Decae, 2010; Ten Velden & De Wilde, 2013). Therefore, to achieve comparable groups, the current study only selected those offenders whose criminal case was referred to and sentenced by a multi judge-panel. This (legal) inclusion criterion was believed an accurate way to include cases that are relatively equal concerning offence severity and sentencing outcome. After selecting offenders sentenced by a multi-judge panel, the treatment group consisted of 322 offenders (15 offenders of 344 were referred to a single judge and were therefore removed, for 7 the type of judge(s) was unknown, these offenders were therefore also removed from the treatment group), and the control group consisted of 189 (69 offenders of 265 were referred to a single judge and were therefore removed, for 7 the type of judge(s) was unknown, these offenders were also removed).

Offenders in our treatment condition each completed a different treatment program (i.e. a standard program, a standard program plus cognitive skill training, a standard program plus lifestyle training, and a standard program plus both), this provided a perfect opportunity to not only asses the effectiveness of the Prevention of Recidivism Program, but to also address if program effectiveness differed among groups of offenders that completed different types of treatment. Accordingly, three treatment groups were formed: (1) offenders that completed a standard program (n = 188); (2) offenders that completed a standard program plus cognitive skill training (n = 93); and (3) offenders that completed a standard program plus lifestyle training (n = 61).[3] These groups were each compared to an appropriate control group of offenders, for whom potential treatment module candidacy was determined based on their risk for recidivism and criminogenic needs (in line with the inclusion criteria for cognitive skill and lifestyle training, described in this chapter). This resulted in three control conditions; (1) offenders that qualified for a standard program (n = 99); (2) offenders that qualified for a standard program plus cognitive skill training (n = 59); and (3) offenders that qualified for a standard program plus lifestyle training (n = 54).

Propensity score analysis

The first step in our propensity score analyses involved an assessment of group differences on background characteristics. Table B1, B2 and B3, presented in Appendix B, show the results of an un-weighted comparison on variable means that were included in the current study, for our treatment and control group referred to (or qualified for) a standard program, a stan-

3 Offenders that completed both (n = 20) represent such a minor treatment group that statistical analyses would proof to be difficult. Therefore, these offenders were added to both the cognitive skill training treatment group, as well as the lifestyle training treatment group.

dard program plus cognitive skill training, and a standard program plus lifestyle training. Group differences between the treatment and control group were statistically tested for significance using appropriate techniques (Chi-Square, T-Test and ANOVA).

As shown in Table B1, the treatment group and control group (standard program) differed significantly regarding their age, ethnicity (unknown), the number of prior other convictions in their criminal history, and risk assessment outcomes concerning the scales relationships with partner and relatives, emotional wellbeing, and thinking and behavior, and the total prison sentence imposed. Regarding group differences between our second treatment group and control group (standard program plus cognitive skill training) results, which are presented in Table B2, show that these groups differ with respect to the risk scales financial management and income, and emotional wellbeing, and also with regards to the total prison sentence imposed. Table B3 shows a final comparison, made between the current study's third treatment group and control group (standard program plus lifestyle training), which showed that group differences were reported with respect to the number of prior other convictions in the last 5 years, type of offence (violent), and the total prison sentence imposed.

In conclusion, the characteristics on the un-weighted data presented in Table B1, B2 and B3, indicate that there are group differences between our three treatment conditions and control conditions. In order to be able to compare the re-offending rates of offenders that received either of three types of programs, with offenders in our control condition, balance needed to be created on covariates. This procedure involved several steps. The first step was to generate predicted probabilities of treatment versus control group membership by applying a logistic regression analysis, the results of which are presented in Appendix B (see Table B4, B5 and B6).[4]

A second step (that was executed for treatment and control group 1, 2 and 3) involved sorting data into ten strata, based on each subjects so-called propensity score (i.e. the predicted probability obtained from the logistic regression analyses in step 1). The number of observations within each group was then calculated and a weight was assigned to each observation within each group (the weight within each stratum is equal to the proportion of observations in that stratum group [treatment or control group] relative to the total number of observations in that stratum; see Austin, 2011; Posner & Ash, 2012)). The final step was to rescale the weights so that the sum of all weights within each treatment group was equal to the total sample size of each treatment group.

4 Because group differences regarding sentence length were relatively large, this variable was not included in the propensity score model, but was controlled for in a multiple logistic regression analyses.

After applying this technique, weighted means of the characteristics were calculated (also presented in Table B1, B2 and B3) to once again compare the three treatment- and control groups on each propensity score variable, and to assess if balance was created using the proportional weighting technique. A group comparison on weighted means between our first treatment group and control condition (standard program) shows that balance on all covariates was created, with the exception of ethnicity. There were no weighted group differences reported on the other included pre-treatment covariates, indicating an appropriate control condition with minimal (observable) confounding of covariates that may have influenced results. Concerning the group comparison between our second treatment group and control condition (standard program plus cognitive skill training) balance was lacking on the covariates number of prior property convictions ever and the risk scale accommodation. Again, this control group seemed appropriate, with minimal (observable) confounding of covariates. With respect to a group comparison between our third treatment group and control condition (standard program plus lifestyle training), it was shown that no weighted group differences were reported on any of our pre-treatment covariates included. This indicated an appropriate control condition, with no (observable) confounding of covariates.

By use of our weighting technique, the current study was able to account for a large number of covariates that may have influenced both treatment group membership as well as post-release re-offending outcomes. Group differences regarding sentence length were however considered relatively large and were therefore not included in the propensity score models. In order to properly account for sentence length, a set of logistic regression analyses were performed in which sentence length in months was included and controlled for. Unfortunately, balance was not created on some of our covariates included. Therefore, in order to rule out influence of these covariates, these were included and controlled for by use of logistic regression analyses, the outcomes of which are presented in the result section.

7.8 Results

Studying program effectiveness by use of regression analysis

As mentioned, the first method applied to determine the effectiveness of the Prevention of Recidivism Program was to study the post-release re-offending rates among our entire research sample of 3.835 offenders. These offenders were divided in nine treatment groups, based on their program candidacy status: (1) program non-candidates; (2) program non-participants: organizational reasons; (3) program non-participants: refused; (4) program completers: standard treatment program; (5) program completers: standard program plus cognitive skill training; (6) program completers: standard program plus lifestyle training; (7) program completers: standard program plus

cognitive skill and lifestyle training; (8) non-completers: organizational reasons; and (9) non-completers: own choice.

First, it was assessed if our treatment groups differed with respect to 6- and 24-months post release re-offending (shown in Table 1 and visually represented in Figure 2). As shown, both 6- and 24-month post-release re-offending rates were shown the highest for program non-candidates (treatment group 1). Furthermore, it was shown that program non-participants and non-completers reported slightly higher re-offending rates. Offenders in treatment group 4 (who completed a standard program) re-offended the least often in the 6- and 24-months following their release (except for offenders in treatment group 7, who reported exceedingly low 6-months post-release recidivism rates), followed by offenders in treatment group 5 (who completed a standard program plus cognitive skill training), and treatment group 7 (who completed a standard program plus cognitive skill and lifestyle training). In general, it appeared that program completers re-offended slightly less in the 6- and 24-months post-release, compared to offenders that did not qualify for, participate in or complete treatment.

Table 1. 6- and 24-month post-release recidivism rates treatment group 1 to 9 (n=3.835)

		6-month post-release recidivism (yes)	24-month post-release recidivism (yes)
	n	%	%
Group 1: non-qualification	3.042	35.3	65.8
Group 2: non-participation: organizational reasons	265	27.2	55.8
Group 3: non-participation: refused	60	26.7	65.0
Group 4: completion: standard program	206	17.5	40.3
Group 5: completion: standard program plus cognitive skill training	75	18.7	50.7
Group 6: completion: standard program plus lifestyle training	43	30.2	58.1
Group 7: completion: standard program plus both	20	5.0	50.0
Group 8: non-completion: organizational reasons	83	24.1	59.0
Group 9: non-completion: own choice	41	17.1	56.1
Total	3.835	32.6	63.0
Sig.		*** 1/2 1/4 1/5 1/7 1/8 1/9 2/4 2/7 6/7	*** 1/2 1/4 1/5 2/4 3/4 4/6 4/8

Note: Behind significant levels it is demonstrated which groups differed. For example: 1/2 means post-hoc analysis showed there was a significant difference between group 1 and 2
* $p < .05$ ** $p < .01$ *** $p < .001$.

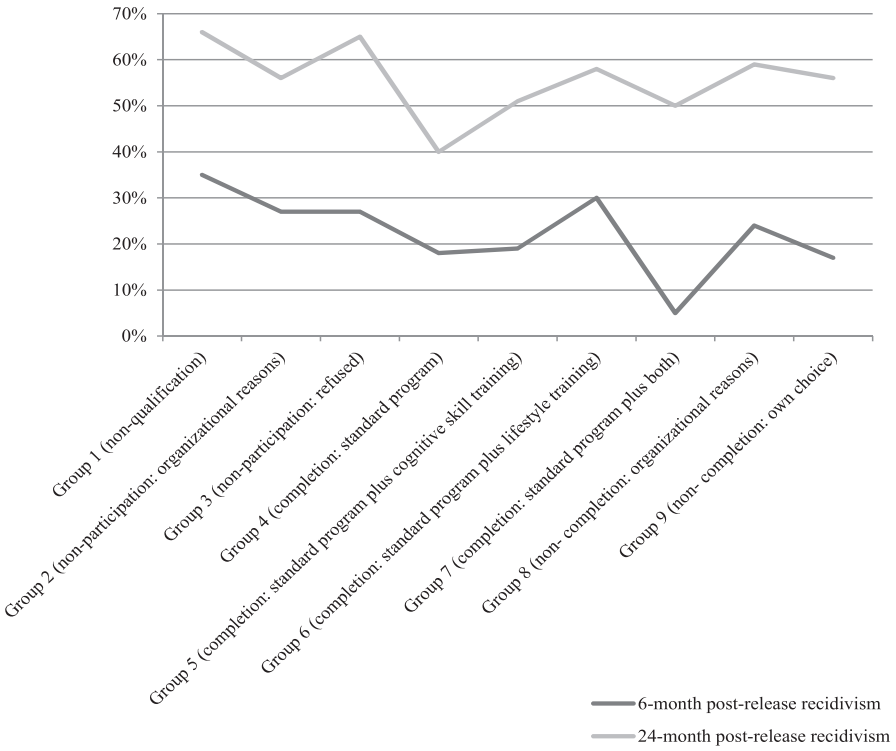

Figure 2. 6- and 24-month post-release recidivism rates treatment group 1 to 9 (n=3.835)

As it was shown in previous Chapters, program completers had not always been correctly included in the program (see chapter 3), and were not always allocated to appropriate treatment modules, in line with risk and need assessment outcomes (see Chapter 5). Because this could potentially influence treatment outcomes (in which case we would have to distinct between correctly and incorrectly classified offenders in further analyses), it was first assessed if correctly and incorrectly classified offenders (treatment groups 4, 5, 6 and 7) differed with respect to 6- and 24-months post release re-offending rates. As shown in Table 2, this is not the case. Correctly and incorrectly classified program completers did not differ in registered re-offending behavior, both 6- and 24-month post-release. This indicates that groups do not need to be separately analyzed.

Table 2. 6- and 24-month post-release recidivism rates correctly and incorrectly classified program completers (n=344)

	Correctly classified program completers (*n*=163)	Incorrectly classified program completers (*n*=181)	**Total** (*N*=344)	
	%	%	%	Sig.
6-month post release recidivism (yes)	19.6	17.1	18.6	n.s.
24-month post release recidivism (yes)	43.6	47.0	45.3	n.s.

As shown in Table 1, 6- and 24-month post-release re-offending rates differed between our treatment groups. This does however not mean that treatment was (in-) effective, since it could very well be the case that these differences in post-release re-offending rates were caused by other (confounding) factors. Therefore, group differences on a large number of background characteristics were analyzed, the results of which are presented in Table 3. As shown, group differences were reported regarding age; ethnicity; the age of onset (age at which an offender was first convicted); the type of offence committed; and the risk assessment scales offence history and current offence; education, work and training; financial management and income; relationships with friends and acquaintances; drug misuse; alcohol misuse; emotional wellbeing; attitudes and orientation; and lastly, the total prison sentence imposed.

With respect to demographics, it was shown that offenders in treatment group 5, 6, and 9 were slightly younger than average, while offenders in treatment group 2, 3, and 4 were slightly older than average. Concerning ethnic background, it was shown that treatment group 4 and treatment group 7 consisted if more offenders with a native ethnic background compared to other treatment groups. Regarding the age at which an offender had first been convicted, it was shown that offenders in treatment group 4 were slighter older than average, whilst offenders in treatment group 5 up to treatment group 9 were somewhat younger. Concerning type of offence committed, results have indicated that offenders in treatment group 6 and 7, and in lesser extent treatment group 9, were more often incarcerated for having committed a violent offence, and were underrepresented in other (perhaps less serious in nature) type of offences. There were also group differences reported regarding nine risk assessment scales, namely offending history and current offence; education, work and training; financial management and income; relationships with friends and acquaintances; drug misuse; alcohol misuse; emotional wellbeing; thinking and behavior; and attitudes and orientation. However, differences do not seem to follow a distinct pattern, in some cases, offenders who were not eligible, took part in treatment, or completed treatment scored higher, while in other cases offenders who did complete treatment scored higher. Finally, the total prison sentence imposed also differed between our treatment groups. Perhaps as expected, since sentence length is the main inclusion criteria for entry in the Prevention of Recidivism Program, offenders in treatment group 1 showed the lowest scores, while offenders who were eligible and took part in treatment reported the highest scores.

Table 3. Group characteristics treatment groups 1 to 9† (n=3.835)

	Group 1 (*n*=3.042)	Group 2 (*n*=265)	Group 3 (*n*=60)	Group 4 (*n*=206)	Group 5 (*n*=75)	Group 6 (*n*=43)	Group 7 (*n*=20)	Group 8 (*n*=83)	Group 9 (*n*=41)	Total (*n*=3.835)	
	M(SD)/%	*M(SD)*/%	*M(SD)*/%	*M(SD)*/%	*M(SD)*/%	*M(SD)*/%	*M(SD)*/%	*M(SD)*/%	*M(SD)*/%	*M(SD)*/%	Sig.
Covariate: Demographics											
Age	30.6 (10.8)	32.0 (10.2)	31.1 (12.3)	31.2 (11.0)	26.2 (8.5)	26.9 (7.7)	30.1 (10.1)	30.6 (10.6)	27.2 (10.3)	30.6 (10.7)	**
Ethnicity (native vs. non-native/unknown)	41.9	53.2	45.0	67.5	48.0	46.5	65.0	57.8	48.8	44.8	***
Covariate: Criminal history											
Age of onset	17.4 (6.4)	17.3 (6.5)	17.4 (7.3)	18.3 (7.8)	15.6 (3.3)	15.4 (2.9)	16.2 (4.4)	15.9 (4.7)	15.3 (2.9)	17.3 (6.4)	**
Nr. prior violent conv. last 5 y	0.5 (0.9)	0.5 (0.9)	0.5 (0.9)	0.5 (1.0)	0.4 (0.9)	0.3 (0.7)	0.8 (2.0)	0.5 (1.0)	0.4 (0.7)	0.5 (0.9)	n.s.
Nr. prior property conv. last 5 y	1.3 (2.6)	1.4 (2.6)	1.4 (2.1)	0.9 (2.6)	0.8 (1.7)	1.3 (2.5)	0.6 (1.4)	1.3 (2.8)	1.5 (2.2)	1.3 (2.6)	n.s.
Nr. prior other conv. last 5 y	0.6 (1.1)	0.8 (1.2)	0.9 (1.5)	0.7 (1.2)	0.4 (0.9)	1.0 (1.3)	0.6 (0.9)	0.7 (1.2)	0.7 (1.4)	0.7 (1.2)	n.s.
Nr. prior prison sentences last 5 y	1.2 (2.6)	1.4 (2.9)	1.6 (2.6)	1.0 (2.7)	0.7 (2.1)	1.1 (2.3)	1.1 (2.5)	1.3 (2.8)	1.1 (1.9)	1.2 (2.6)	n.s.
Covariate: Current offence											
Type of offence											***
Violent	40.2	44.2	51.7	58.3	57.3	72.1	70.0	56.6	63.4	43.1	
Property	38.4	32.1	28.3	18.0	17.3	16.3	15.0	24.1	19.5	35.4	
Damage	6.8	3.4	0.0	1.9	2.7	2.3	5.0	3.6	2.4	5.9	
Drug-related	10.6	14.3	13.3	17.0	18.7	7.0	10.0	13.3	7.3	11.4	
Other	4.0	6.0	6.7	4.9	4.0	2.3	0.0	2.4	7.3	4.2	
Risk factors											
Offence hist. & current offence	18.1 (12.3)	17.8 (12.4)	21.9 (13.9)	16.3 (12.8)	19.9 (12.6)	21.2 (14.6)	16.6 (9.5)	19.5 (11.7)	22.2 (11.7)	18.2 (12.4)	*
Accommodation	3.9 (3.9)	4.0 (4.2)	5.1 (4.3)	4.2 (4.5)	3.7 (3.9)	4.0 (3.7)	3.4 (4.0)	4.3 (4.4)	3.9 (3.8)	3.9 (4.0)	n.s.
Education, work & training	10.5 (7.0)	9.9 (6.8)	11.0 (7.4)	8.8 (6.9)	9.6 (6.1)	10.0 (6.1)	6.5 (6.6)	9.8 (6.3)	11.2 (6.3)	10.3 (6.9)	**
Financial management & income	4.5 (3.6)	4.8 (3.7)	4.5 (3.6)	4.6 (3.9)	6.1 (3.5)	5.8 (4.1)	5.4 (3.8)	4.5 (3.4)	5.3 (3.5)	4.6 (3.6)	**
Relationship partner and relatives	2.8 (1.8)	2.8 (1.8)	3.1 (1.8)	2.6 (1.8)	2.3 (1.5)	3.0 (1.7)	2.1 (1.7)	2.8 (1.9)	2.8 (1.4)	2.8 (1.8)	n.s.
Relationship friends and acquaintances	6.0 (4.5)	6.1 (4.4)	6.6 (4.8)	5.8 (4.5)	7.4 (4.0)	6.7 (4.1)	7.3 (4.2)	6.5 (4.0)	7.6 (4.4)	6.1 (4.5)	*
Drug misuse	6.4 (5.5)	6.6 (5.7)	5.9 (6.0)	5.2 (5.4)	5.4 (4.9)	8.8 (4.4)	7.0 (4.8)	6.3 (5.1)	6.6 (4.9)	6.3 (5.4)	**

Alcohol misuse	1.9 (1.9)	1.8 (1.9)	1.4 (1.7)	1.6 (1.9)	1.0 (1.6)	2.2 (2.2)	2.4 (2.0)	2.0 (1.9)	1.6 (1.8)	1.8 (1.9)	**
Emotional wellbeing	2.6 (1.8)	2.6 (1.9)	2.4 (1.7)	2.4 (1.8)	1.8 (1.3)	2.4 (1.5)	1.8 (1.4)	2.2 (1.8)	2.3 (1.3)	2.5 (1.8)	*
Thinking and behavior	8.1 (3.4)	7.7 (3.3)	8.7 (3.1)	7.1 (3.4)	8.3 (2.4)	8.3 (2.9)	8.1 (2.9)	8.5 (2.5)	9.3 (2.4)	8.0 (3.3)	**
Attitudes and orientation	6.7 (4.8)	6.1 (4.6)	7.9 (4.6)	5.7 (4.7)	6.2 (4.1)	6.5 (4.4)	6.3 (4.7)	6.9 (4.8)	8.5 (4.6)	6.6 (4.8)	**
Sentence length											
Total sentence imposed (in months)	3.1 (6.4)	9.1 (9.9)	12.8 (12.6)	17.5 (14.3)	19.9 (12.9)	14.3 (13.3)	23.1 (17.1)	15.8 (12.9)	21.8 (9.6)	5.6 (9.7)	***

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

† Groups: (1) non-qualification; (2) non-participation: organizational reasons; (3) non-participation: refused; (4) completion: standard program; (5) completion: standard program plus cognitive skill training; (6) completion: standard program plus lifestyle training; (7) completion: standard program plus both; (8) non-completion: organizational reasons; and (9) non-completion: own choice.

In order to assess the influence of treatment group membership, on 6- and 24-months post-release re-offending, while controlling for a large set of background variables, a logistic regression analysis was conducted, the results of which are shown in Table 4.

With respect to *6-month* post-release re-offending rates, the results indicated that the covariates age of onset, number of prior prison sentences in the last five years, offence type, and several risk assessment scales (offending history and current offence; education, work and training; and alcohol misuse) and total sentence imposed were shown significantly to post-release re-offending behavior. With respect to age of onset it was shown that offenders who started their criminal career at a later age were less likely to re-offend in the 6-months after release from prison (OR=0.97). Furthermore, having a higher number of previous prison sentences was shown to increase odds of recidivism in the 6 months post-release (OR=1.09). Concerning type of offence, results indicated that having committed a violent offence, increases chances of re-offending behavior in the 6 months after release from prison (OR=1.47). With respect to the risk assessment domains offending history and current offence; education, work and training; and alcohol misuse, it was shown that higher scores increased chances of recidivism in the 6 months following release (OR=1.01; OR=1.02; OR=1.06). And finally, it was shown that a longer imposed prison sentence slightly decreased odds of future criminal behavior in the 6 months after release, evidenced by odds ratio statistics of 0.98.

Taken into account these covariates, it was shown that treatment group membership was in most cases not related to 6-month post-release re-offending behavior. Offenders who completed a standard treatment program did not differ significantly from other treatment groups, except for offenders who did not qualify for treatment, who were shown more likely to re-offend in the 6-months following release (OR=2.27), compared to offenders who completed a standard treatment program. No other group-differences were reported; indicating that engagement in the Prevention of Recidivism Program had no effect on post-release recidivism rates in the 6 months following release from prison.

Looking at the influence of our covariates included on *24-month* post-release re-offending, it was shown that age, age of onset, the number of property convictions in the last 5 years, offence type, and the risk scales offending history and current offence and attitudes and orientation, and sentence length had influenced post-release recidivism. First, concerning age, it was shown that an older age negatively influenced post-release re-offending. In other words: offenders who were older were less likely to re-offend in the two years after they had been released from prison, as evidenced by an odds ratio statistic of 0.98. Second, concerning factors relating to criminal history, results had indicated that an older age of onset negatively influenced post release re-offending, which means that offenders who had started their criminal career at an older age were less likely to re-offend post-imprisonment (OR=0.97). With respect to the number of property con-

viction in the last 5 years it was shown that these positively influenced post-release re-offending. Offenders convicted of more property crimes in the last 5 years, were more likely to have re-offended in the 24-months after having been released from prison (OR=1.13). Third, the type of offence committed (violent vs. non-violent) influenced recidivism. Offenders, who had been incarcerated for having committed a violent offence, were more likely to have re-offended post-incarceration, compared to offenders who were imprisoned for a non-violent offence, evidenced by an odds ratio statistic of 1.40. Fourth, two risk scales appeared salient in determining post-release re-offending. It was shown that a more serious offending history and current offence increased chances of recidivism in the 24 months following release (OR=1.02), while more severe problems regarding attitudes and orientation also increased 24-month post-release re-offending rates (OR=1.04). Finally, our covariate sentence length was also shown a significant predictor of post-release re-offending among our research population. A longer prison sentence (in months) appeared to slightly reduce chances of recidivism following imprisonment, evidenced by odd ratio statistics of 0.98.

These factors taken into account, our independent variable included in the multivariate model explaining post-release recidivism, was shown statistically significant. This indicated that treatment group membership appeared to be related to 24-month post-release re-offending. Compared to our reference group of offenders who had completed a standard treatment program, offenders who were not eligible for treatment were more likely to have re-offended after release, evidenced by an odd ratio statistic of 2.75. Again compared to standard program completers, offenders who had been eligible for treatment but could not participate for organizational reasons or because they refused to do so, were also more likely to re-offend (OR=2.03, and OR=2.95). And finally, offenders who had participated in treatment, but could not complete the program for organizational reasons were also shown more likely to have re-offended in the two years following release (OR=1.99), compared to program completers with a standard program. Overall, it appears that engagement in the Prevention of Recidivism Program did influence post-release re-offending among participants with a standard program. However, engagement in a criminogenic need-specific treatment module was not found to decrease odds of recidivism above and beyond completion of a standard treatment program.

Table 4. Logistic regression analysis on 6- and 24-months post-release recidivism rates

	6-month post-release recidivism (yes vs. no)			24-month post-release recidivism (yes vs. no)		
	OR	CI	*p*	OR	CI	*p*
Covariate: Demographics						
Age (in years)	1.00	[0.99 – 1.02]	n.s.	0.98	[0.97 – 1.00]	**
Non-native/unknown (vs. native)	1.00	[0.97 – 1.03]	n.s.	1.01	[0.97 – 1.05]	n.s.
Covariate: Criminal history						
Age of onset	0.97	[0.95 – 0.99]	**	0.97	[0.94 – 0.99]	**
Nr. prior violent conv. last 5 y	1.06	[0.94 – 1.19]	n.s.	1.11	[0.96 – 1.28]	n.s.
Nr. prior property conv. last 5 y	1.01	[0.94 – 1.09]	n.s.	1.13	[1.03 – 1.25]	*
Nr. prior other conv. last 5 y	1.01	[0.94 – 1.10]	n.s.	1.00	[0.92 – 1.09]	n.s.
Nr. prior prison sentences last 5 y	1.09	[1.01 – 1.19]	*	1.10	[0.98 – 1.22]	n.s.
Covariate: Current offence						
Offence type (violent vs. non-violent)	1.47	[1.19 – 1.80]	***	1.40	[1.14 – 1.73]	**
Covariate: Risk assessment outcomes						
Offending history and current offence	1.01	[1.00 – 1.02]	**	1.02	[1.00 – 1.03]	**
Accommodation	1.02	[1.00 – 1.05]	n.s.	1.02	[0.99 – 1.06]	n.s.
Education, work and training	1.02	[1.00 – 1.04]	*	1.02	[1.00 – 1.04]	n.s.
Financial management and income	1.02	[0.99 – 1.06]	n.s.	1.01	[0.98 – 1.05]	n.s.
Relationship with partner and relatives	0.97	[0.91 – 1.04]	n.s.	1.00	[0.93 – 1.07]	n.s.
Relationship with friends and acquaintances	1.00	[0.98 – 1.03]	n.s.	1.00	[0.97 – 1.03]	n.s.
Drug misuse	0.99	[0.97 – 1.01]	n.s.	1.00	[0.98 – 1.02]	n.s.
Alcohol misuse	1.06	[1.01 – 1.12]	*	1.04	[0.99 – 1.11]	n.s.
Emotional wellbeing	1.01	[0.95 – 1.08]	n.s.	0.98	[0.91 – 1.05]	n.s.
Thinking and behavior	1.01	[0.96 – 1.06]	n.s.	1.01	[0.97 – 1.06]	n.s.
Attitudes and orientation	1.01	[0.99 – 1.04]	n.s.	1.04	[1.01 – 1.07]	**
Sentence length						
Total sentence imposed (in months)	0.98	[0.97 – 0.99]	*	0.98	[0.97 – 1.00]	**
Treatment group membership						
Group 1 (non-qualification)	2.27	[1.43 – 3.59]	***	2.75	[1.87 – 4.05]	***
Group 2 (non-participation: organizational reasons)	1.70	[0.99 – 2.89]	n.s.	2.03	[1.28 – 3.21]	***
Group 3 (non-participation: refused)	1.69	[0.78 – 3.64]	n.s.	2.95	[1.38 – 6.29]	**
Group 4 (completion: standard program)	*Ref.*	*Ref.*	*Ref.*	*Ref.*	*Ref.*	*Ref.*
Group 5 (completion: standard program plus cognitive skill training)	1.56	[0.54 – 2.49]	n.s.	1.58	[0.86 – 2.91]	n.s.
Group 6 (completion: standard program plus lifestyle training)	2.08	[0.92 – 4.68]	n.s.	1.85	[0.88 – 3.89]	n.s.
Group 7 (completion: standard program plus both)	0.24	[0.03 – 2.03]	n.s.	1.84	[0.66 – 5.13]	n.s.
Group 8 (non- completion: organizational reasons)	1.49	[0.74 – 2.98]	n.s.	1.99	[1.10 – 3.60]	*
Group 9 (non- completion: own choice)	0.81	[0.30 – 2.19]	n.s.	1.45	[0.68 – 3.10]	n.s.

Note: Overall 6-month model Wald χ^2 (304.419, 29), p <.000, Cox and Snell R^2 = .125, Nagelkerke R^2 = .173.
Note: Overall 24-month model Wald χ^2 (429.768, 29), p <.000, Cox and Snell R^2 = .170, Nagelkerke R^2 = .237.
* p <.05 ** p < .01 *** p < .001

Studying program effectiveness by use of propensity score methodology
Although our logistic regression model did seem to indicate that (standard-) treatment group membership was related to re-offending in the two years following release from prison, it is perhaps unjustified to compare groups that differ so much concerning a broad range of characteristics, criminal history, current offences, risk and need scores, sentence length imposed and perhaps therefore, criminal propensity. A different method of testing treatment effectiveness was therefore also applied in this study. Based on propensity score methodology, a group of program completers referred to a standard program was compared to a control group of offenders who had been eligible for a standard treatment program, but who could not participate for organizational reasons. Second, a group of program completers referred to a standard program plus cognitive skill training was compared to a control group of offenders who had been eligible for a standard treatment program plus cognitive skill training, but who could not participate for organizational reasons. And third, a group of program completers referred to a standard program plus lifestyle training was compared to a control group of offenders who had been eligible for a standard treatment program plus lifestyle training, but who could not participate for organizational reasons. After our weighting procedure (described in great detail in the method section of this chapter), a chi-square test could be carried out to assess if there was an un-weighted and weighted effect of treatment group membership on 6- and 24-month post-release re-offending rates for each of our three groups defined, the results of which are presented below (an overview of weighted and un-weighted recidivism rates was shown in Table 11).

The impact of a standard treatment program
First (as shown in Table 5) an un-weighted comparison of 6- and 24-months post-release re-offending rates of offenders in the treatment group that completed a standard program, and control condition (offenders who were eligible for treatment but were excluded for organizational reasons) appeared to indicate that offenders in the treatment group were less often re-charged in the 6- and 24-months post imprisonment (15.4% and 36.2%), compared to those in the control condition (23.2% and 46.5%). A treatment effect (-7.8% and -10.3%) that was not statistically significant. Next, a weighted comparison between the treatment- and control group (standard program) was conducted, which again appeared to show that offenders in the control condition were re-charged more often 6- and 24-months post imprisonment (23.5% and 48.0%), compared to offenders that had not received treatment (15.4% and 36.2%). Although the 6- months post-release treatment effect (-8.1%) was not statistically significant, the 24-month post release treatment effect (-11.8%) was.

Because the average sentence length differed between offenders in our treatment and control condition, which may have affected post-release re-offending behavior, a logistic regression analyses was performed in which sentence length was added as a covariate (as shown in Table 6). Addition-

ally, since our weighting procedure had not been able to create equal groups regarding ethnic background, this variable was also added in our logistics regression model. Outcomes showed that, after controlling for sentence length and ethnicity, there was no significant (weighted) treatment effect of standard program treatment group membership in the 6-months following release. However, completing a standard treatment program did affect re-offending rates 24-months post-release (odds ratio = 0.54).

Table 5. Un-weighted and weighted treatment effect, 6- and 24-month post-release, treatment group (standard program, n = 188) vs. control group (standard program, n = 99)

	Un-weighted				Weighted		
	Treatment group	Control group	Treatment effect	Odds Ratio	Control group	Treatment effect	Odds Ratio
6-month post-release recidivism	15.4	23.2	– 7.8 %	.603 (n.s.)	23.5	– 8.1 %	.595 (n.s.)
24-month post-release recidivism	36.2	46.5	– 10.3 %	.653 (n.s.)	48.0	– 11.8 %	.613 (*)

Note: * p = <.05; ** p = <.01; *** p = <.001

Table 6. Weighted logistic regression analyses on post-release recidivism, standard program

	6-month post-release recidivism (yes vs. no)			24-month post-release recidivism (yes vs. no)		
	OR	CI	p	OR	CI	p
Ethnicity						
Native	*Ref.*	*Ref.*	*Ref.*	*Ref.*	*Ref.*	*Ref.*
Non-native	1.10	[0.56 – 2.15]	n.s.	1.18	[0.70 – 2.00]	n.s.
Unknown	0.60	[0.16 – 2.21]	n.s.	0.31	[0.10 – 0.95]	*
Total sentence imposed (in months)	0.98	[0.95 – 1.00]	n.s.	0.99	[0.97 – 1.01]	n.s.
Treatment group membership	0.18	[0.33 – 1.23]	n.s.	0.54	[0.32 – 0.91]	*

Note: Overall 6-month model Wald χ^2 (7.094, 4), p <.05, Cox and Snell R^2 = .025, Nagelkerke R^2 = .041.
Note: Overall 24-month model Wald χ^2 (10.978, 4), p <.05, Cox and Snell R^2 = .038, Nagelkerke R^2 = .052.
* p <.05 ** p < .01 *** p < .001

The impact of a standard treatment program, plus cognitive skill training

Table 7 shows the un-weighted comparison of 6- and 24-months post-release re-offending rates of offenders in the treatment group that completed a standard program plus cognitive skill training, and control condition eligible for a standard program plus cognitive skill training.

As shown, offenders in the treatment group were less often re-charged in the 6- and 24-months following release (16.1% and 50.5%), compared to those in the control condition (41.3% and 58.9%), which indicated a 6-month post-release treatment effect of 25.2%, which was statistically significant, but not significant 24-month post-release treatment effect. A weighted comparison between the treatment group (standard program plus cognitive skill training) and control group (standard program plus cognitive skill training) was also conducted. Results of this weighted comparison pointed out that

offenders in the control condition were re-charged more often 6-months post release (41.0%), compared to offenders that did receive treatment (16.1%), indicating a significant treatment effect of -24.9%. A weighted comparison on 24-month post release re-offending rates did not show any treatment effect.

Again, a logistic regression analyses was performed in which sentence length was added as a covariate, as well as the variables number of prior convictions and the risk scale accommodation (since balance could not be achieved in our weighting procedure regarding these variables), the results of which are presented in Table 8. Outcomes showed that, after controlling for sentence length, prior convictions, and the risk scale accommodation, a significant (weighted) treatment effect of standard program plus cognitive skill training, on re-offending rates in the 6- and 24-month following release, was not reported. This indicated that engagement in the Prevention of Recidivism Program, in which an offender was allocated to cognitive skill training, had no effect on the re-offending behavior of program completers.

Table 7. Un-weighted and weighted treatment effect, 6- and 24-month post-release, treatment group (standard program plus cognitive skill training, n = 93) vs. control group (standard program plus cognitive skill training, n = 56)

	Un-weighted				Weighted		
	Treatment group	Control group	Treatment effect	Odds Ratio	Control group	Treatment effect	Odds Ratio
6-month post-release recidivism	16.1	41.3	– 25.2 %	.274 (***)	41.0	– 24.9 %	.276 (**)
24-month post-release recidivism	50.5	58.9	– 8.4 %	.712 (n.s.)	56.2	– 5.7 %	.795 (n.s.)

Note: * p = <.05; ** p = <.01; *** p = <.001

Table 8. Weighted logistic regression analyses on post-release recidivism, standard program plus cognitive skill training

	6-month post-release recidivism (yes)			24-month post-release recidivism (yes)		
	OR	CI	p	OR	CI	p
Nr. prior property convictions ever	1.24	[1.13 – 1.37]	***	1.30	[1.12 – 1.51]	**
Risk scale: Accommodation	0.89	[0.76 – 1.03]	n.s.	1.00	[0.91 – 1.11]	n.s.
Total sentence imposed (in months)	0.99	[0.95 – 1.03]	n.s.	0.97	[0.94 – 1.01]	n.s.
Treatment group membership	0.67	[0.23 – 1.97]	n.s.	1.84	[0.79 – 4.27]	n.s.

Note: Overall 6-month model Wald χ^2 (53.363, 4), p <.000, Cox and Snell R^2 = .300, Nagelkerke R^2 = .439.
Note: Overall 24-month model Wald χ^2 (36.394, 4), p <.000, Cox and Snell R^2 = .216, Nagelkerke R^2 = .288.
* p <.05 ** p < .01 *** p < .001

The impact of a standard treatment program, plus lifestyle training

The un-weighted comparison of 6- and 24-months post-release re-offending rates of offenders in the treatment group that completed a standard program plus lifestyle training, and control condition eligible for a standard program

plus lifestyle training is shown in Table 9. As reported, offenders in the treatment group were re-charged just slightly more in the 6- and 24-months after being released from prison (21.3% and 54.1%), compared to those in the control condition (22.2% and 53.7%), a treatment effect (-0.9% and +0.4%) which was not shown statistically significant. Next, a weighted comparison between the treatment group (standard program plus lifestyle training) and control group (standard program plus lifestyles training) was also conducted. The results of this weighted comparison also indicated that offenders in the control condition were re-charged slightly less often in the 6-months post-release (22.7%) and slightly more often in the 24-months post imprisonment (53.0%), compared to offenders that did receive treatment (54.1%). This did not represent a statistically significant treatment effect.

Because the group differences with respect to sentence length were considered excessively large, a logistic regression analyses was performed in which sentence length was added as a covariate. The results of this analysis are presented in Table 10, in which it is shown that, after controlling for sentence length, a significant (weighted) treatment effect of standard program, plus lifestyle training was not reported. This accounted for recidivism rates in the 6-months post release, as well as re-offending behavior 24-months after release from prison. These results indicate no effect of engagement in the Prevention of Recidivism Program, if this included being allocated to lifestyle training.

Table 9. Un-weighted and weighted treatment effect, 6- and 24-month post-release, treatment group (standard program plus lifestyle training, n = 61) vs. control group (standard program plus lifestyle training, n = 54)

	Un-weighted				Weighted		
	Treatment group	Control group	Treatment effect	Odds Ratio	Control group	Treatment effect	Odds Ratio
6-month post-release recidivism	21.3	22.2	– 0.9 %	.948 (n.s.)	22.7	– 1.4 %	.920 (n.s.)
24-month post-release recidivism	54.1	53.7	+ 0.4 %	1.016 (n.s.)	53.0	+ 1.1 %	1.046 (n.s.)

Note: * p = <.05; ** p = <.01; *** p = <.001

Table 10. Weighted logistic regression analyses on post-release recidivism, standard program plus lifestyle training

	6-month post-release recidivism (yes)			24-month post-release recidivism (yes)		
	OR	CI	p	OR	CI	p
Total sentence imposed (in months)	0.97	[0.93 – 1.02]	n.s.	0.95	[0.92 – 0.99]	*
Treatment group membership	1.28	[0.93 – 1.02]	n.s.	1.74	[0.76 – 4.00]	n.s.

Note: Overall 24-month model Wald χ^2 (1.784, 2), p <.05, Cox and Snell R^2 = .016, Nagelkerke R^2 = .024.
Note: Overall 24-month model Wald χ^2 (8.797, 2), p <.05, Cox and Snell R^2 = .075, Nagelkerke R^2 = .100.
* p <.05 ** p < .01 *** p < .001

Table 11. Overview of weighted and un-weighted 6- and 24-month post-release recidivism rates, treatment and control groups

		6-month post-release recidivism (yes vs. no)		24-month post-release recidivism (yes vs. no)	
		Un-weighted	Weighted	Un-weighted	Weighted
	n	%	%	%	%
Treatment group 1: standard program	188	15.4	–	36.2	–
Control group 1: standard program	99	23.2	23.5	46.5	48.0
Treatment group 2: standard program and cognitive skill training	93	16.1	–	50.5	–
Control group 2: standard program and cognitive skill training	56	41.3	41.0	58.9	56.2
Treatment group 3: standard program and lifestyle training	61	21.3	–	54.1	–
Control group 3: standard program and lifestyle training	54	22.2	22.7	53.7	53.0

7.9 Discussion

The purpose of the current study was to examine to what extent the Dutch Prevention of Recidivism Program is effective in reducing post-release re-offending among program participants. The research question was addressed by analyzing various sources of data on a population-based sample of males that were incarcerated in The Netherlands. To optimally rule out concerns regarding selection effects that may have occurred by confounding covariates, treatment effectiveness was studied by applying two analytic approaches: regression analysis; and propensity score methodology (proportional weighting within strata) applied.

The effectiveness of the Prevention of Recidivism Program

Based on the theoretical framework brought forward, it was expected that ex-detainees who had engaged in the prison-based Prevention of Recidivism Program would re-offended less post-incarceration, compared to offenders that had not engaged in treatment during their time in prison. Additionally, it was expected that for offenders in need of treatment (i.e. cognitive skill training or lifestyle training), would benefit from engagement in criminogenic need-specific treatment modules aimed to reduce their post-release recidivism rates by decreasing their criminogenic needs relating to cognitive skill-deficits and/or addiction problems.

As shown by the current study, 63 percent of our total research sample (n = 3.835) was charged for a new crime within two years after being released from prison. A group comparison between our nine categorized research groups seemed to indicate that offenders who received treatment, re-offended less in the 6- and 24-months following release, compared to offenders

not eligible for treatment, or compared to offenders that had not taken part, or dropped-out. A multivariate model that controlled for a large number of covariates indicated that treatment group membership was indeed shown related to 24-month post-release re-offending (and in a lesser extent to 6-month post-release re-offending rates). Compared to offenders who had completed a standard treatment program, offenders who were not eligible for treatment were more likely to have re-offended after release, as was the case for offenders who had been eligible for treatment but could not participate for organizational reasons or did not because they had refused to do so, and offenders who had participated in treatment, but could not complete for organizational reasons. Overall, it appears that engagement in the Prevention of Recidivism Program did influence post-release re-offending among participants with a standard program. However, criminogenic need-specific treatment modules did not appear to influence post-release recidivism rates (above and beyond standard program completion).

To strengthen our research design, the group of program completers was also compared to an appropriate control group of offenders that were eligible for treatment, but could not participate due to organizational circumstances, by use of propensity score methodology. In order to test if the type of treatment program attained was shown to impact outcomes, a group of program completers that completed a standard program was compared to a control group of offenders that were, based on risk and need scores, eligible for a standard program, while program participants that completed a standard program plus cognitive skill training were compared to a control group consisting of offenders eligible for standard treatment plus cognitive skill training, and finally, a group of offenders that completed a standard program plus lifestyle training were compared to a group of non-participants that were eligible for standard program plus lifestyle training.

A weighted analysis between these groups showed no significant treatment effect for offenders who completed a standard program plus cognitive skill training, and for offenders who completed a standard program plus lifestyle training. However, a significant treatment effect was found for offenders who completed a standard treatment program; they were shown to re-offend significantly less in the 24 months post-release, compared to offenders in the control condition. The above-mentioned results lead to the conclusion that participation in the prison-based Prevention of Recidivism Program appears to have a positive influence on re-offending behavior in the 24-months following release from prison, for offenders who had engaged in a standard program that did not include any behavioral treatment modules.

The overall effect, with respect to the impact of a prison-based treatment program was partly as hypothesized, since a significant decrease in re-offending rates was found when comparing program completers to other treatment groups in a regression analysis, and since a weighted effect of treatment (standard program) was found when a group of completers was compared to an appropriate control group. These results were not in line

with studies that have consistently indicated that a risk and needs based approach can positively influence post-release re-offending rates among program participants (Andrews & Bonta 2006; Andrews et al., 1990; Bonta & Andrews 2007; French & Gendreau, 2006; Garret, 1985; Gendreau & Ross, 1987; Gendreau, Smith & French, 2006; Irvin et al., 1999; Lipsey & Cullen, 2007; Lipsey, Chapman & Landenburger, 2001; Lowenkamp, Latessa & Holsinger, 2006; Polaschek, 2012; Sherman et al., 1997). The fact that that risk and need-oriented programs were unsuccessful could not be explained by the fact that treatment allocation in light of the Prevention of Recidivism Program was not always in line with risk an need assessment (as shown in Chapter 5), since no post-release differences were found between correctly and incorrectly classified offenders. This was also not in line with previous work, which indicated that proper treatment allocation was a vital component for treatment success (Andrews, Bonta & Wormith, 2004; 2006; Bosker, 2015; Latessa, Cullen & Gendreau, 2002).

In conclusion, the current study did not appear to provide any evidence concerning the hypothesized relationship between prison-based treatment and post-release re-offending. Findings were inconsistent with premises made based on the Risk-Need-Responsivity model of crime prevention and correctional rehabilitation (Andrews & Bonta, 1994; Andrews, Bonta & Hoge, 1990) and the Good Lives Model [GLM] of offender rehabilitation (Ward & Brown, 2004), as well as previous studies.

The question rises as to why the Prevention of Recidivism did not reach a (larger) treatment effect. A few possible explanations (though these may not be exhaustive) can be thought of. First of all, previous studies have indicated that adhering to the principles of risk, need, and responsivity is important to reach an optimal treatment effect. However, previous work also stated that a rehabilitation program should be implemented and conducted in practice as it was designed – the principle of treatment integrity (Andrews & Dowden, 2005; Hollin, 1995; Leschied, Bernfeld & Farrington, 2001; Moncher & Prinze, 1991). As the Prevention of Recidivism Program was designed in line with the RNR model, a positive treatment effect was expected. However, a lack in program integrity (optimal selection of participants, proper referrals to treatment, proper trained treatment staff) may have caused the absence of a larger effect. A second possible explanation for the current study's moderate findings may lie in the fact that the criminal justice system in The Netherlands differs from those in other parts of the (Western) world. Many correctional rehabilitation programs had been developed and studied in countries with a different sentencing system, where conditions of confinement may be different and where prison sentences may be a lot longer than is the case in The Netherlands (about sixty percent of all offenders in Dutch prisons are incarcerated for a period of less than three months, over seventy percent return home after having spent less than six months in a Dutch prison; see Linckens & De Looff, 2015). Consequently, incarceration circumstances in The Netherlands may be different compared to offenders in other parts of the world. And positive prison-based treat-

ment effects found in other geographic regions may therefore not translate to the specific situation (and criminogenic needs and risk for re-offending of offenders incarcerated) in The Netherlands. A third possibility, explaining the considerably small/and lack in treatment effect found, may be the fact that the control group, offenders that were eligible but could not participate because of organizational circumstances, may have been engaged in treatment activities after they had been (conditionally) released. This could have potentially caused a decline in recidivism rates among the control group (although engagement. However, previous research had indicated that treatment is only imposed for a rather modest proportion of conditionally released detainees (Jacobs, Van Kalmthout & Von Bergh, 2006), making it perhaps improbable that a large proportion of our control group had been engaged in post-release treatment. However, certain influence of post-release treatment programs cannot be ruled out.

Limitations and directions for future research questions

The current study investigated the effectiveness of the Prevention of Recidivism Program in The Netherlands. Such a study has, to date, not been conducted and this work therefore represents a major advancement in the field of correctional (prison-based) rehabilitation research. Also, a statistical technique was applied that made it possible to optimally account for confounding covariates, so that comparable control groups could be created. There are, however, some limitations that are worthy to be mentioned and that deserve attention in future research.

A first shortcoming lies in the study's quasi-experimental design, which has limitations due to the fact that subject were not randomly assigned to the treatment and control conditions. And although the current study applied two analytic approaches, and was able to account for, and create balance on, a large number of covariates, it cannot be ruled out that other (unobservable) factors have influenced treatment group membership as well as post-release re-offending outcomes. A second limitation that may have hampered the current study was the fact that we were not able to fully take into account the matter of program integrity. The Prevention of Recidivism Program is tailored to the specific needs of each offender, but some specific programs may have been executed better than others. Large differences in program integrity may have had an influence on post-release re-offending outcomes, which we did not include in the current study. A previous study has indicated that there are some implementation and execution issues that hamper an optimal performance of the Prevention of Recidivism Program (Inspectorate of Security and Justice, 2010), but since we were not able to include measures of integrity, these factors could not be taken into account. And finally, the results of the current study only apply to male detainees in The Netherlands, who were incarcerated for a maximum time of 38 months. The results can therefore not be transferred to, for example, offenders with a longer prison sentence.

To overcome concerns mentioned, a future study with a similar aim should optimally have a randomized controlled design. It should cover a large enough research sample and should include some measures with regard to program integrity.

To conclude, this study does not provide substantial evidence concerning the effectiveness of a nation-wide prison-based rehabilitation program implemented in The Netherlands. The results merely seem to indicate that participation in this program leads to a moderate decrease in post-release re-offending rates among offenders that completed a standard program, i.e. a program that did not include any risk and need oriented treatment modules. However, as mentioned, the current study was the first to ever look into the re-offending behavior of program participants. Besides the fact that only one study has been conducted, the current study may have been hampered by some limitations caused by design and data availability. Far-reaching policy implications therefore are premature. It appears essential to further examine the effectiveness of prison-based treatment in The Netherlands in future studies.