The course of recidivism risk among prisoners in a Penitentiary Psychiatric Center (PPC).

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Abstract

Mental disorders are common among prisoners in a Penitentiary Psychiatric Center (PPC) and are related to recidivism risk: individuals with a mental disorder are known to be at an elevated risk for criminal behavior. Reducing risk factors for criminal behavior is one of the goals of the PPC. However, it is currently unclear whether risk factors decrease during a stay and if therapy has an effect on this. Therefore, the aim of this study is to examine the course of recidivism risk during a stay in a PPC and the differences in this course between different types of therapy (individual therapy, pharmacotherapy and no therapy). In addition, the influence of the seriousness of the index crime on the recidivism risk will be investigated. The sample consisted of 515 prisoners (men and women). Recidivism risk was measured at two timepoints, using the clinical risk factors of the Historical, Clinical, Future-Revision (HKT-R), a risk assessment tool. Results show a decrease in recidivism risk in general during a stay in a PPC for all types of therapy. When the clinical risk factors were examined separately, 9 of the 15 specific items decreased between timepoints. There were no differences found between types of therapy in the course of recidivism risk. In addition, the seriousness of the index crime had no effect on the course of recidivism risk. The present study provides a clarifying overview regarding the course of the clinical risk factors for recidivism during a stay in a PPC, which can be responded to in clinical practice. The findings suggest that providing stability and structure, as is given in a PPC, may cause a decrease in recidivism risk. However, present study lacked a random allocation treatment group, which causes limited insight. More research is needed to investigate the relation between therapy and recidivism risk, in order to achieve a reduction in recidivism risk caused by therapy.

More than half (57%) of the prisoners in the Netherlands have a mental disorder (Bulten, Nijman & Van der Staak, 2009). Psychiatric disorders are more prevalent among prisoners compared to the general population (Fazel & Seewald, 2012). For example, a systematic review and meta-regression analysis reported that one in seven prisoners has a major depressive disorder or psychosis (Diamond, Wang, Holzer, Thomas, & Cruiser, 2001; Fazel & Seewald, 2012). Fazel and Danesh (2002) systematically reviewed 62 studies on the prevalence of major psychiatric disorders among delinquents: 10% suffers from major depressive disorder with 4% has a psychotic disorder. Apart from that, about 65% has a personality disorder, with the antisocial personality disorder being the most prevalent disorder (47% on average). These percentages are even higher in forensic psychiatry, where 84% suffers from a personality disorder (Van der Veeken, Bogaerts, & Lucieer, 2017).

Penitentiary Psychiatric Center (PPC)

To provide appropriate care to prisoners with psychiatric disorders in the Netherlands, the Penitentiary Psychiatric Center (PPC) was established in 2009. The PPC is a small scale ward in the prison. In this department, continuous psychiatric care is available for prisoners with psychiatric disorders, addiction, intellectual disability or a combination of these (Wesselius, 2013). The PPC has several tasks: stabilizing, diagnosing, motivating, mobilizing, securing and providing medical care and treatment. Hereby, it focuses on three main goals: providing responsible care, ensuring continuity of care and reducing risk factors for criminal behavior (Wesselius, 2013).

These three goals have been composed because the consequences of mental disorders among prisoners are high: prisoners are at increased risk of mortality, suicide, self-harm,

violence and victimization (Fazel, Hayes, Bartellas, Clerici, & Trestman, 2016). The relative risk of death by suicide in male prisoners is about 3-6 times that of the general population, and even higher in female prisoners (Fazel, Grann, Kling, & Hawton, 2011).

Recidivism risk

Another reason for establishing the PPC is because mental disorders are related to recidivism risk (Corrigan & Watson, 2005). Recidivism risk refers to the risk a person will relapse into criminal behavior, often after the person received sanctions for a previous crime (Bogaerts, Spreen, Ter Horst, & Gerlsma, 2018). For the safety of society and of the prisoners it is necessary to reduce this risk. According to the literature, mental disorders are associated with criminality (Fazel, Wolf, Palm, & Lichtenstein, 2014; Fazel, Wolf, Chang, Larsson, Goodwin, & Lichtenstein, 2015; Fisher, Silver, & Wolff, 2006). For example, in a study of over 672 mentally ill individuals who were newly admitted to community mental health treatment in California, 45% reported having had at least 1 arrest and 36% reported having 1 or more criminal convictions (Theirot & Segal, 2005). Additionally, research describes an association of medium effect size between having a psychiatric disorder and violent behavior (Lewis, Lovely, Yeager, & Della Femina, 1989; Corrigan & Watson, 2005).

Furthermore, research suggests a relation between the seriousness of the crime, the severity of the mental disorder and the level of recidivism risk. The direction of this effect is as follows: the more severe the mental disorder (for example high rates of comorbidity) or the more serious the index crime (the crime central to the conviction), the less decrease in the recidivism risk (Butler, Indig, Allnutt, & Mamoon, 2011; Chang, Lichtenstein, Larsson, & Fazel, 2015). On the bright side, studies have shown that mental health care has a positive effect on the reduction

of recidivism risk: an improvement in mental health is associated with a reduction in recidivism risk (Trawver 2011; Vermeiren, 2003; Robbé et al., 2014; Moller, 2018).

In order to achieve a change in recidivism risk, treatment must be based on the predictive factors of recidivism risk: risk factors. There is a difference between dynamic and static risk factors. Dynamic factors, in contrast to static factors (for example: age at first conviction), are characterized by the fact that they can change over time (Spreen, Brand, Horst, & Bogaerts, 2014). Examples of dynamic factors are: an antisocial personality structure, a criminal attitude, a negative social network, substance abuse, poor familial and marital relationships, the lack of prosocial relaxation activities and a poor performance or little satisfaction with school/work (Bonta & Andrews, 2007). The predictive validity of these seven factors is supported by various meta-analyzes (Bonta, Blais, & Wilson 2014; Gendreau, Little, & Goggin, 1996). In this study, the focus is on dynamic factors, as these provide starting points for interventions (De Vries Robbé, De Vogel, Douglas, & Nijman, 2014).

Treatment in PPC

Treatment options for mental health in PPCs include: pharmacotherapy, individual therapy and group therapy.

Individual therapy, for example cognitive behavioral therapy (CBT) and psycho-education, has a positive effect on risk factors as: anger, antisocial behavior, psychotic symptoms and sexual offending (Butler, Chapman, Forman, & Beck, 2006; Beck & Fernandez, 1998; Tarrier et al., 1998; Nagayama Hall, 1995). A meta-analysis shows that CBT reduces anger with a medium effect (Butler et al., 2006). Further, Beck and Fernandez (1998) reviewed 50 outcome studies on anger management and found that cognitive behavior therapy has a 76% success rate

in reducing anger scores and causes a decrease in antisocial behavior. CBT as well has positive effects on psychotic symptoms. Research by Tarrier et al (1998) showed that there are significant improvements in the severity of psychotic symptoms (a reduction) in patients treated with CBT in the general population. Furthermore, Nagayama Hall (1995) conducted a meta-analysis in which sexual offending recidivism before and after CBT was measured. The recidivism risk decreased significantly.

Psycho-education reduces, according to the literature, the following risk factors: problem insight, social skills and coping skills. Psycho-education increases the level of problem insight by providing information and educational materials or feedback/advice (Donker, Griffiths, Cuijpers, & Christenen, 2009). The importance of information about the psychological and social consequences is emphasized. The client learns about the possibilities for dealing with the problem and the ways in which they can get social support (Vallentine, Tapp, Dudley, Wilson, & Moore, 2010). This provides improvement in self-reliance and coping skills (Donker, Griffiths, Cuijpers, & Chrisitenen, 2009).

In addition to individual therapy, group therapy appears to be useful for reducing risk factors, notably antisocial behavior, social skills and coping skills. In group therapy, clients can learn from each other and be an example to each other. Interactions arise in a group context. This contributes to and stimulates social skills (Gresham, 2002). Regarding coping skills, group therapy ensures trust in sharing problems. "Seeking social support" is considered an effective coping mechanism (Pearlin & Schooler, 1978). Hence, it is suggested that group therapy leads to improved coping skills (Petrocelli, 2002).

Finally, a link was found between psychopharmaceutical therapy and the risk factors anger, impulsivity and psychotic symptoms (Citrome & Volavka, 2011). To regulate aggression

or psychotic symptoms, medication such as benzodiazepines and second-generation antipsychotics are prescribed. Both have been found effective to reduce aggression or reduce psychotic symptoms in forensic psychiatric settings. Mood stabilizers are found effective in cases of poor impulsivity and personality disorders in forensic psychiatry settings (Citrome & Volavka, 2011).

Present study

For both society and prisoners, it is important to ensure that the recidivism risk is reduced as much as possible during a stay in the PPC. Hence, it is necessary to investigate the course of the recidivism risk during a stay in a PPC. Additionally, the difference in this course for different types of therapy must be deepened. This to map the course of the recidivism risk in the current situation, ultimately to achieve the described goals. Future research can use the findings to optimize health care in PPCs and thus reduce recidivism risk. In addition, previous research suggests a relation between the seriousness of the index crime and recidivism risk. This relation has not been thoroughly explored, but can provide insight in the course of recidivism risk. Therefore, this study will try to answer the following questions: Q1) Is there a change in recidivism risk during the stay in a PPC? Q2) Is the course of recidivism risk influenced by the seriousness of the index crime? And Q3) Is there a difference between individual therapy, group therapy, pharmacotherapy and no therapy in the change of recidivism risk among prisoners in the PPC?

It is expected that the recidivism risk will decrease during the stay in a PPC. Prisoners will score significantly higher on the clinical items in the first measurement (T1) than in the second measurement (T2). In addition, it is expected that the course of recidivism risk will be

influenced by the seriousness of the crime. The expected direction of this effect is: the more serious the crime, the less decrease in recidivism risk. Finally, a difference is expected in effect of therapy on recidivism risk between individual therapy, group therapy, pharmacotherapy and no therapy among detainees in a PPC, wherein the conditions that receive therapy show more reduction in recidivism risk than the condition that receives no therapy.

Methods

Ethical Approval and Data Collection

The PPCs in the Netherlands (Vught, Zaanstad, Haaglanden and Zwolle) collect data of the following information: diagnostic and demographic information, criminal records, information on clinical symptoms, symptom severity, and the change in symptoms during admittance. This data is brought together by trained psychologists and collected in a common database. Ethical approval was given beforehand to all PPCs. For this reason, no informed consent was used.

Participants

Data was available from 801 prisoners (men and women) who were admitted to PPCs in the Netherlands (Vught, Zaanstad, Haaglanden and Zwolle) from May 2013 to November 2019.

To measure recidivism risk, the clinical items of the HKT-R were used at two time points. The first measurement (T1) was after 7 weeks, the following measurement a year after the first measurement. There is also a measurement upon discharge, which had to be performed at least 7 weeks after the previous measurement. This meant a participant has stayed at least 14 weeks in a PPC to participate in this study. In case of multiple measurements (for example two annual measurements), the last available measurement was used as the T2 and is called ‘second

measurement'. Furthermore, data from the most recent recording was used in the case of multiple PPC recordings. Prisoners with completely missing scores on the clinical items of the HKT-R or no available index crime were excluded from the analysis. In addition, outliers with a score of more than three times the interquartile range were excluded.

Measures

File information from the most recent PPC recording was used for information on demographic, clinical and offense characteristics. In addition, the clinical items of the Historical, Clinical, Future-Revision (HKT-R) are used as a measurement of recidivism risk (T1 and T2). Index crimes are categorized according to the BooG instrument. These are mentioned in the historical items of the HKT-R.

Recidivism risk: the Historical, Clinical, Future-Revision (HKT-R) (Spreen et al., 2014) is one of the most commonly used structured risk assessment tools in forensic psychiatry in the Netherlands. The HKT-R contains 12 historical, 14 clinical and 7 future items that are scored on a five-point Likert scale ranging from 0 to 4 ("respectively low", "low-moderate", "moderate", "moderate-high" and "high") with higher scores indicating that a particular risk factor is more present in the patient being assessed. The clinical item 'sexual preoccupation' was added in the version used by the PPCs. In this study, the 15 clinical items were used, because these are changeable over time and therefore could be used for treatment evaluation purposes (Horst et al., 2014; Vries & Spreen, 2012). The 15 items are: problem insight (C1), psychotic symptoms (C2), addiction (C3), impulsivity (C4), antisocial behavior (C5), hostility/anger (C6), social skills (C7), self-reliance (C8), contribute to treatment (C9), responsibility for the crime (C10), coping skills (C11), violation of terms and conditions (C12), work skills (C13), influence of social and/or

antisocial network members (C14) and sexual behavior/sexual preoccupation (C15). Research showed that the inter-assessor reliability of the clinical scale is good and the predictive validity of the HKT-R appears to be moderate to reasonable (Woenselse Poort, 2013). A more recent study displayed a reasonable construct validity as well as predictive value of the clinical scale in predicting aggressive behavior (Möller, 2018).

A modified version of the HKT-R is used in the PPCs, whereby all clinical items are scored regarding the patient's behavior during the past 6 to 8 weeks, instead of after 12 months. This is due to the short duration of stay of the prisoners (4 months on average).

Index crime: the seriousness of the index crime was scaled according to the Dutch BooG scale from 1-12 (1 = least serious, 12 = most serious)(Mulder et al., 2010): 1: Traffic violation and order disruption, 2: Drug-related offenses, 3: Destruction of property, 4: Offences against rights of property, 5: Minor assault and possession of weapons, 6: Offences against rights of property with assault , 7: Severe assault, 8: Sexual offences, 9: Morals (minor victim), 10: Manslaughter, 11: Arson, 12: Murder with premeditation.

Statistical analysis

IBM SPSS Statistics 25 was used for the statistical analyses. The dataset consisted of 801 participants. After exclusion, 515 participants remained. With this dataset Q1 (Is there a change in recidivism risk during the stay in a PPC?) was answered. The sum of the clinical items (T1 and T2) was used and compared. This was only possible for participants with complete scores on all clinical items (n = 402). Subsequently, it was investigated which clinical items increase or decrease significantly during stay. The number of participants differed per clinical item. A paired

samples t-test was used for both analyses. In addition to investigating statistically significant differences, the effect sizes, where relevant, were calculated using Cohen's d.

For Q2 (Is the course of recidivism risk influenced by the seriousness of the index crime?) participants without a known index offense were excluded. Repeated Measure ANOVAs was used for this analysis. The index offense has been added as a covariate. Partial eta squared is used for analyzing the effect size.

For testing Q3 (Is there a difference between individual therapy, group therapy, pharmacotherapy and no therapy in the change of recidivism risk among prisoners in the PPC?), Repeated Measures ANOVAs were used for the recidivism risk at measurement times T1 and T2. There were four conditions: individual therapy (n = 27), group therapy (n = 1), pharmacotherapy (n = 94) and no therapy (n = 65). For the condition 'group therapy', the power is too small. This condition has been excluded from the analysis. Partial eta squared is used for analyzing the effect size.

Design and procedure

This is a retrospective quantitative study. The research has a mixed design with three conditions: individual therapy (n = 27), pharmacotherapy (n = 94) and no therapy (n = 65). For ethical reasons, participants were not randomly assigned to a condition. The conditions were compared between subjects on the 15 clinical items of the HKT-R. In addition, first measurement and second measurement of the HKT-R were compared within subjects to investigate the course of recidivism risk (T1 and T2).

Results

Descriptive statistics

The sample consisted of 515 participants, of which 488 men (92.8%). Place of birth of the participants is spread over 44 countries, of which the most common are: the Netherlands = 355 (68.9%), the Netherlands Antilles = 21 (4.1%), Suriname = 14 (2.7%) and Morocco = 12 (2.3%). The most common index offense is 12: Murder with premeditation (132 = 25.6%), followed by 10: Manslaughter (84 = 16.3%) and 5: Minor assault and possession of weapon (70 = 13.6%). The average length of stay is 560.5 days. This average is relatively high since short stays cannot be included in the analysis. This is because the second measurement is after approximately 14 weeks.

The course of the clinical risk factors (recidivism risk) during a stay in a PPC (T1-T2)

It was expected that the recidivism risk will decrease during the stay in a PPC: prisoners will score significantly higher on the clinical items in the first measurement (T1) than in the second measurement (T2). A paired sample t-test was conducted to investigate whether there is a significant difference in recidivism risk between the two timepoints. This was done by comparing the sum of the clinical items of T1 with the sum of the clinical items of T2. Thereafter, the individual clinical items were compared separately by paired sample t-tests, to investigate the course of each clinical item during a stay in a PPC (T1-T2). See Table 1 for the scores and statistics. The assumption of normality and sphericity were not violated.

On average, in the first measurement (T1) participants had a significant higher score on the sum of the clinical items than in the second measurement (T2). The effect size can be defined as small. By investigating the course of the clinical items separately, a significant decrease was found for: problem insight (C1), psychotic symptoms (C2), antisocial behavior (C5), hostility /

anger (C6), social skills (C7), contribute to treatment (C9), responsibility for the offense (C10), coping skills (C11), work skills (C13) and influence of social and / or anti-social network members (C14) and a significant increase for addiction (C3) (See Table 1).

Table 1
The change in recidivism risk during a stay in a Penitentiary Psychiatric Center (PPC)

	Measuring moment				
	T1	T2			
Clinical item	M (*SD*)	M (*SD*)	*t*	*p*	*d*
C1 problem insight	2.24 (*1.36*)	1.87 (*1.34*)	5.49	<.001	.27
C2 psychotic symptoms	0.94 (*1.34*)	0.74 (*1.13*)	3.21	.001	.16
C3 addiction	0.23 (*0.60*)	0.37 (*0.83*)	-3.61	<.001	.19
C4 impulsivity	1.40 (*1.31*)	1.17 (*1.21*)	3.80	<.001	.18
C5 antisocial behavior	0.99 (*1.13*)	0.94 (*1.11*)	0.81	.42	
C6 hostility/anger	0.99 (*1.00*)	0.89 (*0.96*)	2.01	.045	.10
C7 social skills	1.55 (*1.05*)	1.42 (*1.03*)	2.47	.014	.12
C8 self-reliance	1.17 (*1.26*)	1.14 (*1.17*)	0.62	.539	
C9 contribute tot treatment	1.78 (*1.37*)	1.52 (*1.28*)	3.94	<.001	.20
C10 responsibility offence	2.20 (*1.33*)	1.78 (*1.35*)	5.82	<.001	.31
C11 coping skills	2.03 (*1.20*)	1.85 (*1.09*)	3.00	.003	.16
C12 violation terms	0.78 (*1.10*)	0.73 (*1.06*)	0.86	.39	
C13 work skills	1.53 (*1.59*)	1.20 (*1.46*)	4.22	<.001	.22
C14 influence network	1.01 (*1.00*)	0.78 (*0.98*)	3.96	<.001	.23
C15 sexual behavior	0.25 (*0.70*)	0.28 (*0.75*)	-0.60	.55	
Sum all clinical items	18.57 (*11.10*)	15.76 (*10.70*)	5.00	<.001	.26

The seriousness of the index crime as a moderator for the course in recidivism risk

It was expected that the course of recidivism risk will be influenced by the seriousness of the crime: the more serious the crime, the less decrease in recidivism risk. A repeated measures ANOVA was conducted to investigate the influence of the seriousness of the index crime on the

course of recidivism risk. This was done by using time as a within subject factor with 2 levels (T1 and T2) and the seriousness of the index crime as the between subject variable. The assumptions of normality and sphericity were not violated.

The results showed that the recidivism risk differs significantly over time. Main effect of time: $F(1, 388) = 9.407$, $p = .002$, $\eta^2 = 0.024$. The recidivism risk was significantly higher at T1 compared to T2. The variance is for 2,4% explained by time, showing a small effect. The main effect for index crime shows that conditions differ significantly from each other: $F(11, 388) = 9.592$, $p < .001$, $\eta^2 = 0.214$. The recidivism risk differs significantly per index crime. The effect size can be defined as large. However, there appeared to be no significant interaction effect between time and seriousness of the index crime: $F(11, 388) = 33.601$, $p = .892$. This means the change in recidivism risk was not moderated by the seriousness of the index crime.

The difference between type of therapy in the change of recidivism risk

A difference was expected in the effect of therapy on recidivism risk between individual therapy, pharmacotherapy and no therapy among detainees in a PPC, wherein receiving therapy causes more reduction in recidivism than no therapy. A repeated measures ANOVA was conducted to investigate the differences between individual therapy, pharmacotherapy and no therapy in the change of recidivism risk among prisoners in the PPC. This was done by using time as a within subject factor with 2 levels (T1 and T2) and the type of therapy as the between subject variable. The assumption of sphericity was not violated.

The results showed that the recidivism risk differs significantly over time. Main effect of time: $F(1, 141) = 5.695$, $p = .018$, $\eta^2 = 0.021$. The recidivism risk was significantly higher at T1 compared to T2. The effect size can be defined as small. The main effect for type of therapy

shows that conditions do not differ significantly from each other: $F(2, 141) = 3.013$, $p = .052$. The recidivism risk does not differ significantly per type of therapy. There appeared to be no significant interaction effect between time and type of therapy: $F(2, 141) = 0.534$, $p = .587$. To conclude, there was no difference between receiving individual therapy, pharmacotherapy and no therapy in the change of recidivism risk over time.

Discussion

The goal of the present study was 1) to investigate the course of the recidivism risk during a stay in a PPC, 2) to investigate whether this course is influenced by the seriousness of the index crime and 3) to investigate whether there is a difference in the course of the recidivism risk during a stay in a PPC between participating in individual therapy, group therapy, pharmacotherapy and no therapy. The present findings provided support for the hypothesis that the recidivism risk decreases during stay in a PPC. Results in the present study did not support the hypothesis that the seriousness of the index crime moderates the course of the recidivism risk. In addition, the results showed no differences between the different types of therapy and no therapy, and the course of recidivism risk.

The course of the clinical risk factors during a stay in a PPC

The present findings showed that the sum of the risk factors decreased over time, which is in line with the the hypothesis and literature: offering structure and/or therapy causes a decrease in risk factors (Durose, Cooper, & Snuder, 2014). When the clinical items were examined separately, only 9 of the 15 specific items decreased between timepoints, with 5 items remaining stable over time and even an increase of 1 item, namely addiction. This is a remarkable result considering

prisoners are not expected to use drugs, as it is prohibited in a PPC. In practice, however, it appears that this rule is difficult to achieve (Vandam, De Ruyver, & Van der Beken, 2010). A possible reason why addictive behavior of prisoners increased in time, assuming prisoners have access to drugs, can be found in the influence of the context of a prisoner. Literature shows that vulnerability to substance use is significantly related to social environment: the use of drugs increases when it is considered as normal or common in the environment (Arnett, 2005; Watters, Reinarman, & Fagan, 1985). The drug dependence in prison is relatively high: Fazel and colleagues (2006) describe in a systematic review that 25% of the male prisoners and 45% of the female prisoners suffer from drug dependence and regarding alcohol dependence: 26% in male prisoners, 20% in female prisoners. Whether the social environment has an influence on the addiction behavior in the PPC must be investigated.

The findings of this study are important as they show that a decrease in recidivism risk is in general achieved during a stay in the PPC. However, the results show that not all clinical risk factors decrease during stay. Extra attention can be paid to these items, in order to improve them. For example, cognitive behavioral therapy can be given to address impulsivity and antisocial behavior (Moeller, Baratt, Dougherty, Schmitz, & Swann, 2001). However, the effect sizes are small, making the clinical relevance of these results debatable.

The influence of the seriousness of the index crime on the course of the clinical risk factors

Results in the present study did not support the idea that the seriousness of the index crime influences the course of the recidivism risk, which is not consistent with the studies of Butler and colleagues (2011) and Chang and colleagues (2011). These studies showed that the more serious the index crime, the less decrease in the recidivism risk. In the study by Butler and colleagues

(2011), the seriousness of the crime was measured by the amount of violence that was used. In the present study however, we decided to measure the seriousness of the index crime according to BooG (Mulder et al., 2010) . This means that offenses are not categorized according to the degree of violence: a more serious index crime does not necessarily mean that more violence has been used. It must therefore be investigated whether the degree of violence during the index crime influences the course of the clinical risk factors.

Differences between types of therapy

There was not enough power to include the condition ‘group therapy’ in the analysis. As a result, the question could not be completely answered. No differences were found between individual therapy, pharmacotherapy and no therapy in the change of recidivism risk during a stay in the PPC. A possible explanation for the lack of difference between the different forms of therapy is that this study, due to ethical reasons, lacked a random allocation treatment group and did not control for possible confounding variables (e.g., prison location, length of stay, age, gender and diagnosis). These methodological limitations indicate that any observed differences could be due to natural changes in the participants over time rather than to effects of treatment (Chakhssi, De Ruiter, & Bernstein, 2010). Another explanation is that in this moment, therapy in the PPC is not specifically focused on the reduction of risk factors. Moreover, Bottoms and Wiles (2002) stated that a focus on stability and structure reduces certain risk factors such as impulsiveness, antisocial behavior and anger. A mediation study is recommended to investigate this relation in the PPC. The criminal justice system can provide a high degree of structure in a locked facility (Lamb & Weinberger, 2005). Gilligan (1996) argues that for some prisoners, the substantial safe and structured prison environment leads to relief from external negative living conditions.

Therefore, the prison builds not only a context of deprivation, but also for some inmates, prison causes an abolishment of their insecure and withdrawn living conditions outside the institution. Providing stability and structure may decrease risk factors, whereby therapy, at this time, does not accumulate this effect. It would be interesting to investigate whether the risk factors show a stronger decrease when therapy is specifically focused on this.

Strengths and limitations

A strength of the present study is that the data used is reliable, because the clinical items of the HKT-R are observed and administered by a psychologist. As a result, there was little missing data. Additionally, the present missing data was caused randomly. Moreover, the items used in the current study are not based on self-report, which increases the validity compared to studies with self-report questionnaires.

There are some limitations in the study that are worth mentioning. A limitation of this study is that the HKT-R is officially made for the TBS (*Ter beschikkingstelling*: involuntary admission by order of the state; De Ruiter & Trestman, 2007). TBS is a treatment order in the Netherlands imposed by the court on people who have committed serious crimes and suffer from a psychiatric disorder (Oei, 2011). The environment in a TBS clinic is different than in a prison. In addition, changes have been made to the instrument in order to make it more suitable for use in a PPC. The period between measurements is shorter and the item ‘sexual behavior’ is added. However, the psychometric qualities of the HKT-R have not been measured regarding use in the PPC, which may have an effect on the content validity and predictive validity. Future studies may consider using a more valid, alternative measuring instrument, which is tested in the PPC

for measuring recidivism risk. At present, the HCR-203V is recommended, given its good reliability and predictive validity (De Vogel, Vries Robbé, De Spa, & Wever, 2013).

Another limitation is that the sample of participants used is not completely representative of the population in the PPC. This is because ‘short stays’ could not be included in the analysis. In addition, the data set used includes few women. Follow-up research must focus on the course of recidivism risk during a ‘short stay’ by adding an extra measurement. This is relevant considering the average stay in a PPC is 4 months.

To conclude, the present study provides a clarifying overview regarding the course of recidivism risk during a stay in a PPC. The study provides insight into which risk factors in general decrease, remain the same or increase, which can be responded to in clinical practice. It is recommended to treat risk factors, in particular the items remaining stable over time or increasing, in order to reduce the recidivism risk. The study shows hopeful results that imply that providing stability and structure may cause a decrease in risk factors. However, more research is needed to investigate the relation between therapy and risk factors, in order to achieve a reduction in recidivism risk caused by therapy.

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