

# Young offenders in forensic institutions in the Netherlands after committing serious crimes: Contribution of mandatory treatment and reduction of reincarceration

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## Abstract

**Background:** In the Netherlands, young offenders who have been convicted of a particularly serious offence may be subjected to a so-called 'Placement in an Institution for Juveniles' (PIJ) measure if they are considered to pose a high ongoing risk to public safety. They form a rarely studied distinct group. Treatment in specialist forensic custodial institutions for young people (FYCI) is an intervention of last resort and costly. The most serious young offenders tend to be the hardest to rehabilitate while preventing further offending. Treatment is focussed on reducing risk of harm as well as improving health and other protective factors.

**Aims:** To explore the contribution of treatment in an FYCI under a forensic treatment order—the PIJ-measure—to the reduction of risk of reoffending.

**Methods:** In a pre-post intervention study, the *Juvenile Forensic Profile* (JFP) was used to score complete case files of 178 young offenders at the start and end of their placement in an FYCI under the PIJ-measure, 59% of those serving between the years 2013 and 2016 inclusive. The JFP covers risk and protective factors in seven domains encompassing

Juvenile Forensic Profile (JFP). In Dutch literature FPJ, In English literature JFP.

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criminal behaviour, family, environment, risk factors, psychopathology, psychology and behaviour during incarceration. Change or stability in scores was tested against reincarceration within 2 years of PIJ-measure completion.

**Results:** Impulse control and alcohol and drug use problems showed the greatest improvements. Behaviour that deteriorates during the stay is primarily related to obtaining more autonomy during reintegration efforts, including furlough. Reincarceration in the 2 years of community follow-up was unusual (13.5%). The two main variables associated with reincarceration were problematic behaviour during the pre-discharge year and lack of behavioural improvement during treatment.

**Conclusions:** Outcomes of mandatory treatment in this group of serious young offenders have not previously been studied in a rigorous pre-post intervention study design. We found evidence of an overall tendency to improvement over time in mental state and social skills, reflected by risk assessment scale scores. Continued substance use problems while incarcerated and continuing social skills deficits were most strongly associated with reincarceration suggests a possible need for review of these areas in the PIJ-measure programme. Results contribute to knowledge about risk assessment, treatment and preventions of harms by serious young offenders and may inform evidence-based policies and practices in the Netherlands and beyond.

#### KEYWORDS

forensic institutions, longitudinal development, risk factors, treatment outcomes, youth custody

## 1 | INTRODUCTION

Worldwide, a high prevalence of mental disorders and other psychiatric problems is found among young offenders under custodial detention (Fazel et al., 2008; Nowak, 2019; Teplin et al., 2002, 2012). Various problems are associated with reoffending (Janssen-de Ruijter, 2021; Teplin et al., 2002, 2012; Vermeiren et al., 2000; Vreugdenhil et al., 2003). Many boys and girls in detention are diagnosed with psychotic illness, major depression, conduct disorder, post-traumatic stress disorder (PTSD), attention deficit hyperactivity disorder (ADHD) and/or substance use disorders (Abram et al., 2004; Fazel et al., 2008; Teplin et al., 2012). In a large systematic review, it was reported that young detained offenders are 10 times more likely to suffer from psychosis than young people in the general population. Among girls, major depression was more prevalent (Fazel et al., 2008; Teplin et al., 2012).

Primary conduct and substance use disorders are found to be associated with reoffending (Vermeiren et al., 2000, 2002; Vreugdenhil et al., 2003). Interventions provided for young offenders with mental disorders in forensic young

offender custodial institutions (hereafter: FYCIs) generally focus on decreasing the presence or strength of risk factors and strengthening protective factors (Wartna et al., 2005). Consequently, prospective, longitudinal research into treatment outcomes of convicted and institutionalised young offenders is important to check effectiveness of interventions and ensure development (Boendermaker et al., 2015; Underwood et al., 2006). In the Netherlands, young offenders who have been convicted of a particularly serious offence may be placed under the so-called 'PIJ-measure' ('Placement in an Institution for Juveniles') (Reef et al., 2020). The PIJ-measure is the most severe sanction available in the Dutch young offender justice system, as it combines intensive and long-term treatment with deprivation of liberty (Asscher et al., 2020; Van den Brink & Lynch, 2021).

Young offenders who are subjected to this PIJ-measure will not only have committed serious violent or sexual crimes, including murder or manslaughter, but also be considered to pose a high ongoing risk to public safety. They represent the top 5% of the most serious young offenders (Hill et al., 2021). In the Dutch sanctioning system, psychosocially immature young adult offenders may be sentenced under youth justice law and benefit from specific interventions accordingly. Thus, the courts may impose the PIJ-measure on anyone between the ages of 12 and 23 who has a developmental or psychological disorder at the time of committing a serious offence, *and* if the measure is deemed necessary to protect the safety of persons or property, *and* the measure is considered to be in the best interests of further development of the young offender. At least two forensic experts (a psychiatrist and a psychologist) who make a pre-trial forensic mental health evaluation ('pro Justitia' evaluation) of the young offender have to recommend the court to impose the PIJ-measure. Their reports include risk of reoffending assessments, both based on clinical judgement and actuarially informed instruments (e.g. the Structured Assessment of Violence Risk in Youth [SAVRY]; Borum et al., 2006). If the PIJ-measure is imposed, the report serves as a starting or reference point for treatment. The PIJ-measure is imposed for 3 years in the first instance, during the last year of which the young offender may leave the institution under certain conditions but may be extended to a maximum of 7 years (of which again the last year is similarly conditional).

Young offenders who have been put under a PIJ-measure make up 43% of the total of FYCI residents in the Netherlands. This compares with only 9% of residents serving a youth offender detention sentence with a maximum sentence of 2 years, for example, for drug dealing, robbery or reoffending; the remaining 48% are under pre-trial detention (Custodial Institutions Agency [Judicial Institutions Service, hereinafter DJI], 2018). During their stay in the FYCI, young offenders under a PIJ-measure are treated, both individually and in groups, by practitioners who are expert in behavioural therapies. Since 2011, only formally recognised behavioural interventions are used (Ministry of Security and Justice, 2010). All Dutch forensic youth custodial institutions work with the basic YOUTURN method. This method is a competence model aiming for a positive group culture and secure environment and is mainly based on two existing learning methods (WODC, 2008): (1) Integrated Social Competency, supporting skill development for reduction of negative behaviours and growth of positive behaviours (Slot & Spanjaard, 2004); (2) Integrated 'EQUIP', referring to the programme equipping young people for prosocial lifestyles through discussing moral development, anger management and social skills in groups, directed at enhancing constructive thinking and acting (Gibbs et al., 1995). Training courses are repetitive, and the method works with development profiles and mentors. Ultimately these interventions aim to prepare the young person for her/his reintegration into society. If the treatment goes well, the young person gradually gains more liberties and is allowed to follow (parts of) the treatment outside the institution. Inherent to the nature of the PIJ-measure, the success of the treatment, as reported by the behavioural expert practitioners from the institution and assessed by two external experts, will largely determine whether the court will decide to extend the PIJ-measure or whether the PIJ-measure ends conditionally.

Building further on previous research (Brand et al., 2020; Mulder et al., 2012; Reef et al., 2020), our aim for this research was to provide an in-depth picture of the outcomes for young people under a PIJ-measure and of the elements that may contribute to their positive development and the reduction of reoffending. We do not report on particular YOUTURN treatment effects or individual effects of other independent variables, such as rules, structure, positive adult role models, substance abstinence, but rather on the overall contribution of the custodial treatment package in FYCIs to reducing reoffending and improving behavioural skills. In particular, we investigated the

extent to which confinement in the context of the PIJ-measure is related to an improvement in (dynamic) personal characteristics, behaviour and skills of the youth and to a reduction of reincarceration.

## 2 | METHODS

### 2.1 | Ethics

Ethical approval for this study was provided by the ethical committee of the Forensic Care division of the Dutch National Agency of Correctional Institutions (DJI) in The Hague (The Netherlands) (2019).

### 2.2 | Design

We adopted a records-based design for this study.

### 2.3 | Sample

The sample was drawn from all adolescents aged 12–23 years sentenced between 1 January 2013 and 31 December 2016 under a mandatory treatment order (PIJ) for placement in a Dutch juvenile institution for compulsory treatment ( $n = 302$ ). Hence, these young people are likely to represent the most serious young offenders in the Netherlands. All records of the adolescents under the PIJ treatment order were stored in the digital environment of the Custodial Institutions Agency (DJI). Contents included *pro Justitia* reports, progress reports from the FYCIs (over a 6–12-month period at entry and exit), information on incidents in the institution and selection and placement recommendations.

For inclusion of the individual in the sample, record-data on two measurement points (entry into and exit from the PIJ) were required. In many records, either behavioural information for the entry year, exit year, or sometimes both, was missing. We added a further inclusion criterion of a minimum of 2 years of treatment because behavioural change measures would otherwise be overlapping and thus unreliable for measuring behavioural change. The records of 124 youth offenders (41%) were thus excluded. The final sample therefore consists of 178 young people, who completed the PIJ-measure in one of the years 2013, 2014, 2015 or 2016.

### 2.4 | Procedures

In each file, the forensic profile of young offenders was determined by extracting the data in the individual record to a case report form (Juvenile Forensic Profile [JFP]) to convert the information from the young person's personal (FYCI-treatment) file into research data. The profile was scored with similar case report forms at the two timepoints during the PIJ-measure required for this research—the intake year, in which the young person started the PIJ-measure after entering the FYCI and the exit year. To ensure that the reports of the intake and exit year did not overlap (reports sometimes cover several months), we kept a minimum of 2 years between two treatment reports.

In addition to the FYCI file data, we used officially registered data from the crime registration system of the Ministry of Justice (TULP). These data include information concerning the criminal histories of incarcerated persons, both charges and convictions. For the follow-up period, we included officially registered crimes which resulted in reincarceration.

The files were scored using a JFP, a form specially developed for forensic research based on file data (Brand & Van Heerde, 2004, and below in *the measures*). After screening and receiving approval from the ethical committee of the Forensic Care division of the Dutch Ministry of Justice, junior researchers were trained and located at the Ministry of Justice to systematically collect data from the case files. The junior researchers were supervised and guided by

researchers of the Custodial Institutions Agency (DJI) and by two of the authors (Reef, Jeldes) during reading of the files and scoring with the JFP. After the data collection, the authors (Brand, Reef) analysed the data (Analyses section).

## 2.5 | The measures

The JFP, a case report form developed for use with file data, was used to score systematically the information from the data files (Brand, 2005). It was constructed from internationally and nationally validated instruments for risk assessment together with instruments for measuring problem behaviour, including the Child Behaviour Check List (Achenbach, 1991), the Structured Assessment of Violence Risk in Youth (Borum et al., 2006), the Psychopathy Check List: Youth Version (Forth & Kosson, 2003), the Juvenile-Sex Offender Assessment Protocol (Prentky & Righthand, 2003) and the HCR-20 Violence Risk Assessment Scheme (Webster et al., 1997). The JFP as used in the current study includes potential risk factors covering four domains: (1) 'psychological factors', (2) 'psychopathology', (3) 'social behaviour/interpersonal relationships' and (4) 'behaviour during stay in the institution'. For time 1 and time 2 these 26 'dynamic risk factors' (see Table 1) were scored on a five-point scale (0 = no problems, 1 = minor problems, 2 = unequivocal problems, 3 = presence of serious problems and 4 = very serious problems) (Brand & Van Heerde, 2010).

Some items had a highly specific scoring scheme. 'Ego strength', for example, had a detailed indication and was scored between ranges 0 (no sign of potential to be unduly influenced by others) and 4 (unmatured compared to peers, unstable, easy influenced). The item 'impulse control' was scored between ranges 0 (no problems) and 4 (regularly/often impulse control loss/physical aggression [to people]). Alcohol abuse was scored between 0 (no alcohol abuse) and 4 (very problematic alcohol use). Drug use items were scored between 0 (no drug use), 3 (soft drug use) and 4 (hard drug use). ADHD and psychotic problems were also scored within 0 (no problems) and 4 (severe problems [diagnosed by psychiatrist]). Network items were scored along the line of 0 (present network) and 4 (no contact/support). Relational skills were scored between 0 (no problems found in relational skills) and 4 (severe relational problems (relational, interactional and emotional)). Coping items were all scored along the line of 0 (no negative/positive

TABLE 1 Dynamic factors of the Juvenile Forensic Profile (JFP) case report form

Dynamic risk factors	
Psychology & functions	Behaviour during JJI stay
Ego strength	Anti-social behaviour on ward
Impulse control	Social skills
Problem awareness/insight	Coping, avoidant behaviour in problem situations
	Coping, negative coping strategy
Psychiatry and disorders	Coping, positive coping strategy
Alcohol abuse	Contact, trust and openness
Drug abuse	Lack of cooperation
ADHD hyperactive. Problems (/medication effect)	Incidents—aggression in the facility
Psychotic symptoms (/medication effect)	Motivation for the treatment
	Self-reliance and self-care
Social/Relational - dynamic	Positive focus on school/work
Network, emotional support	Escaping/withdrawing from supervision
Network, total network	Agreement on conditions
Network, secondary network	Breach of agreements
Relational skills	Substance use during measure JJI

Abbreviations: ADHD, attention deficit hyperactivity disorder; JJI, Juvenile Forensic Profile.

copied behaviour/shows positive coping behaviour) and 4 (severe negative coping behaviour/absence of positive coping skills). Regarding treatment compliance, scores were ranged 0 (active participation) to 4 (no intrinsic motivation, negative attitude towards treatment). Substance use during PIJ-measure was scored between 0 (no substance use) and 4 (3 or more incidents with substance use).

Previous research using data extracted from the JFP report form from this Dutch young offender dataset has shown that the available file information is thorough and complete enough to be able to score the instrument (Mulder, 2010; Mulder et al., 2012; Van't Hoff et al., 2002). The inter-rater reliability was acceptable (double scoring of 250 files,  $r = 0.73$ ;  $K = 0.61$ ), and a high convergent validity was found with the Structured Assessment of Violence Risk in Youth (van Heerde et al., 2004).

## 2.6 | Planned analyses

The sample was first divided into three subgroups of equal size: short stay (less than 3 years in the PIJ), medium stay (3 years or longer but less than 4 years) and long stay (4–7 years).

First, to investigate the extent to which a change in dynamic risk factors of youth offenders took place between measurements 1 (arrival of the young person in FYCI) and 2 (their final year in FYCI), we performed paired *t*-tests. Secondly, to investigate whether there is a relationship between individual characteristics and the duration of the PIJ, the scores on the dynamic factors of the FPJ in the intake year were separately analysed for the short-stay group, the medium-stay group and the long-stay group. The relationship between the dynamic factors of the FPJ list and reincarceration was investigated by comparing the scores in the exit year with reincarceration by deploying a one-way analysis of variance (ANOVA). Thirdly, the association between the degree of behavioural change during the PIJ-measure and reincarceration was investigated by calculating the correlation between the difference scores on the dynamic characteristics and relating these scores to their reincarceration. This has been calculated over the total study population. The relationship between a decrease in risk factor scores and reincarceration cannot be measured for all variables for the whole sample, because, although young offenders with a PIJ often have many different risk factors, they often do not have a score of maximum severity on every factor at the start of the PIJ.

## 3 | RESULTS

### 3.1 | General description of the sample

The final sample consisted of 178 young people, who completed their PIJ-measure treatment in the year 2013, 2014, 2015 or 2016. The sample included significantly more boys ( $n = 166$ , 93%) than girls ( $n = 12$ , 7%). Average age was 18 years old ( $SD = 1.44$ ) at the start of the PIJ-measure, with a range from 13 to 21 years (the minimum age of criminal responsibility in the Dutch justice system is 12 years). The average length of stay in the FYCI under the PIJ-measure was 3.8 years ( $SD = 1.10$ ; range 2–6 years).

We compared the scores of the current study sample (with a PIJ duration of 2 years or more) with the 'normative' scores of complete cohorts (see the FPJ manual—Brand et al., 2020) accrued over almost 20 years and including almost 2000 young adults. The mean scores per item show a very close similarity with the mean scores of those in our sample in the present study. We were able to include 67% of young adults across the five complete year cohorts. For only a small number, no complete files were found, inclusion was mainly based on the criterion of having had a treatment for 2 years or longer. There were very small differences in demographics, with about 7% of girls in our sample compared with 5% in the cohort; regarding age, the average in our sample was about 18 years compared to 17 years in the overarching cohort. To check for bias in our sample regarding seriousness of cases, we compared consequential length of stay under the order; little difference was observed between our sample, in which the average length was 1376 days, and the overarching cohort which was 1415 days in the 2011–2014 cohort (Ministry of Security and Justice, 2016) and 1386 days in the 2013–2017 cohort (Ministry of Security and Justice, 2018). We also compared

scores from our sample (2013–2016) and mean ‘normscores’ (1995–2010; Brand et al., 2020) at the factor level. We report the psychiatry and psychology factors (*current sample:norm*): ego strength (1.24:1.46), impulse control (1.53:1.43), problem awareness (1.60:1.55), alcohol abuse (0.55:0.42), drug abuse (0.93:0.98), ADHD (0.53:0.44) and psychotic symptoms (0.19:0.17). The figures in our sample were, thus, very similar to those for the full cohort suggesting minimal selection bias in respect of these key qualities.

### 3.2 | Behavioural change after treatment

Table 2 shows the average scores of the dynamic factors during the intake and exit year. Scores on 18 of the 26 dynamic factors are significantly different at time 2 compared with time 1, in most cases indicating a decrease in rated risk. All three ‘Psychology & Functions’ item scores significantly improved (ego strength, impulse control and problem awareness/insight). Three of four ‘Psychiatry & Disorders’ dynamic item scores had significantly improved (alcohol abuse, drug abuse and ADHD) as well as three of four ‘Social/Relational’ item scores (network/emotional support, network/total network and relational skills). Six of 15 ‘Behaviour during stay JJI’ item scores significantly improved (anti-social behaviour, social skills, coping/negative coping ways, coping/positive coping ways, lack of cooperation and incidents–aggression). Three items, however, showed increased scale scores after treatment (escaping/withdrawal from supervision, agreement on conditions and breach of agreements).

The factors that showed little or no change were psychotic symptoms, having a secondary network and relational skills. Although treatment motivation, self-reliance/self-care and clear positive focus on school/work did not, on average, improve between the moment of entry and exit from the FYCI, time 1 scores were very low, indicating few or no problems in these areas on entry.

### 3.3 | Reincarceration

Twenty-four (13.5%) of the 178 young offenders under the PIJ-measure were sentenced to prison again within 2 years after leaving the FYCI. Of the 24 young people who committed at least one further offence, 15 were convicted more than once. Of the young people who were reincarcerated 18 (75%) committed a non-violent reoffence only, but nearly half ( $N = 11$ , 46%) were reconvicted of at least one violent offence; one further person's reconviction was of a sex offence.

Table 3 shows the results of the one-way ANOVAs testing the relationship between any reincarceration with each of the dynamic factor scores as measured in the year of discharge to the community. Four of the dynamic factor scores in the exit year are significantly associated with reincarceration. The use of substances during incarceration under the PIJ-measure is most strongly associated with reincarceration ( $p < 0.01$ ), followed by problems associated with relational skills ( $p < 0.05$ ), negative coping ways ( $p < 0.05$ ) and self-reliance/self-care ( $p < 0.05$ ).

Relationships between behavioural improvement according to scores on dynamic characteristics during the PIJ-measure and reincarceration were explored in subgroups rather than the full sample because not all of these young people had elevated scores on every JFP item at the start of the measure; where there is a zero score, indicative of no problems on that item no evidence of improvement could be expected according to that scale. Thus, to explore the possible influence of a *decrease* in behavioural problems, a sum score of all dynamic items was used. A subsample of the young people with the highest sum score of problems ( $n = 66$ ) was examined (see also Brand, 2020). Degree of change was classified into three levels: low improvement of the overall behaviour (from 3.5 to –5 points;  $N = 24$ ; 36%), medium improvement (from –8 to –3.5 points  $N = 20$ ; 30%) and high improvement in the overall behaviour (from –18 to –8 points;  $N = 22$ ; 33%). The relationship is not linear, but there is a clear dichotomy. The group with hardly any reduction in problems had a 21% recidivism and redetention rate; the other two groups together had an average of 12% recidivism and redetention rate (10% and 13.6% per group respectively). Although this difference was not statistically significant (due to small numbers), the finding is indicative of an area worth further exploration with larger samples.

TABLE 2 Average scores and score changes on dynamic risk factor items

Dynamic factors	Entry year			Exit year			Difference			Sign.
	N	T1	SD	N	T2	SD	N	T2-T1	SD	
Psychology & functions										
Ego strength	177	1.237	0.672	161	1.047	0.680	161	-0.205	0.393	0.000*
Impulse control	177	1.534	0.578	164	1.034	0.672	164	-0.482	0.621	0.000*
Problem awareness/insight	177	1.602	0.489	163	1.433	0.554	163	-0.169	0.386	0.000*
Psychiatry & disorders										
Alcohol abuse	173	0.555	0.679	172	0.105	0.312	169	-0.435	0.683	0.000*
Drug abuse	170	0.926	0.715	171	0.456	0.576	166	-0.479	0.739	0.000*
ADHD (/medication effect)	177	0.531	0.776	175	0.337	0.621	175	-0.183	0.430	0.000*
Psychotic symptoms (/medication effect)	178	0.185	0.504	176	0.142	0.495	176	-0.028	0.315	0.233
Social/relational										
Network, emotional support	171	0.360	0.592	174	0.216	0.451	171	-0.0140	0.483	0.000*
Network, total network	177	0.876	0.578	178	0.654	0.562	177	-0.223	0.446	0.000*
Network, secondary network	176	1.793	0.497	174	1.753	0.526	173	-0.049	0.557	0.247
Relational skills	174	0.425	0.652	173	0.309	0.548	170	-0.094	0.293	0.000*
Behaviour during stay JJI										
Anti-social behaviour	178	0.674	0.715	176	0.466	0.700	176	-0.202	0.691	0.000*
Social skills	178	0.424	0.541	172	0.250	0.444	172	-0.154	0.352	0.000*
Coping, avoidant behaviour	167	0.913	0.720	153	0.817	0.718	146	-0.068	0.604	0.172
Coping, negative coping ways	173	1.035	0.618	167	0.838	0.612	165	-0.209	0.503	0.001*
Coping, positive coping ways	170	1.150	0.530	163	0.908	0.534	159	-0.261	0.496	0.001*
Contact, trust and openness	171	0.687	0.594	171	0.623	0.648	166	-0.087	0.628	0.075
Lack of cooperation	177	0.463	0.525	176	0.304	0.501	175	-0.163	0.498	0.000*
Incidents—aggression	175	0.611	0.768	177	0.379	0.673	174	-0.236	0.765	0.000*
Motivation for treatment	171	0.544	0.579	174	0.549	0.658	167	-0.003	0.723	0.957
Self-reliance and self-care	174	0.181	0.349	172	0.140	0.343	171	-0.035	0.350	0.191
Positive focus on school/work	173	0.621	0.607	173	0.564	0.637	169	-0.038	0.684	0.466
Escaping/withdrawal from supervision	178	0.157	0.461	178	0.357	0.590	178	+0.199	0.726	0.000*
Agreement on conditions	168	0.149	0.385	167	0.293	0.602	162	+0.130	0.553	0.003*
Breach of agreements	175	0.674	0.786	173	0.902	0.840	173	+0.220	1.00	0.005*
Substance use during measure JJI	171	0.474	0.724	170	0.624	0.773	163	+0.147	0.793	0.019

Abbreviations: ADHD, attention deficit hyperactivity disorder; JJI, Juvenile Forensic Profile.

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

## 4 | DISCUSSION

This study reports risk scale reduction scores during forensic custodial treatment of the most serious young offenders in the Netherlands besides their recidivism with re-detention outcomes after release. Given the nature of the detention measure, it may be presumed that these young offenders were considered to pose an immediate risk to public safety at the time of sentencing and with expectation of continuing their offending behaviour into and during adulthood (Moffitt & Caspi, 2001; Reef et al., 2011). Since risk factors among young offenders have been found to



TABLE 3 Relationship between dynamic risk factor scores in the exit year and reincarceration

	N	F <sup>a</sup>	p
Psychology & functions			
Ego strength	161	0.479	0.751
Impulse control	164	1.298	0.273
Problem awareness/problem insight	163	0.457	0.767
Psychiatry & disorders			
Alcohol abuse	172	4.406	0.005**
Drug abuse	171	1.109	0.354
ADHD (medication effect)	175	1.369	0.247
Psychotic symptoms (medication effect)	176	0.735	0.532
Social/relational			
Network, emotional support	174	1.034	0.391
Network, total network	178	0.652	0.626
Network, secondary network	174	0.473	0.756
Relational skills	173	2.888	0.024*
Conduct during stay JJIs			
Anti-social behaviour in the department	176	1.291	0.276
Social skills	172	0.272	0.896
Coping, avoidant behaviour in problem situations	153	0.971	0.425
Coping, negative coping ways	167	2.459	0.048*
Coping, positive coping manners	163	1.017	0.400
Contact, trust and openness	171	0.853	0.494
Lack of cooperation: Working against the department	176	0.334	0.855
Incidents—aggression in the facility	177	1.092	0.362
Motivation for the treatment	174	0.974	0.423
Self-reliance and self-care	172	2.931	0.022*
Clear positive focus on school/work	173	0.723	0.578
Escaping/withdrawing from supervision	178	2.249	0.066
Agreement on conditions	167	2.394	0.070
Breach of agreements	173	1.750	0.141
Substance use during measure JJI	170	1.458	0.217

Abbreviations: ADHD, attention deficit hyperactivity disorder; JJI, Juvenile Forensic Profile.

<sup>a</sup>One-way analysis of variance (ANOVA) test statistics.

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

be replicable in Europe and the United States (Loeber & Farrington, 1998), our results may be regarded as relevant for the management of young serious offenders across jurisdictions.

#### 4.1 | Improvement or deterioration of dynamic factors

The results suggest that completing mandatory custodial treatment within a FYCI is associated with positive changes, here reduction in rated dynamic risk factor scores. Most improvements were found in the factors—impulse control, alcohol abuse and drug abuse. An explanation for this result may not be straightforward. As previous studies

consistently show that individual 'risks and needs' approaches in treatment only partially contribute to improvements in risk factors (Abrams & Snyder, 2010), improvements (such as in impulse control) might well be the effect of a process of maturing out of crime, linked to the process of (neuropsychological) maturing more generally (Steinberg et al., 2015; Van der Put et al., 2011).

In the last year of the PIJ-measure (phase 4 of the YOUTURN programme (WODC, 2008)), testing of abilities to use increasing freedom appropriately is practiced during the Education and Training Programme ('STP'). During this time, the young offender stays outside the FYCI for at least 26 h a week to participate in training and schooling and to gradually reintegrate into society. In the final phase, the young person may stay with his or her parents or in sheltered housing units. This reintegration process, in which the young person has to learn to deal with more and more freedom and responsibilities outside the institution, will often be accompanied by lapses and their management (Boendermaker et al., 2015). In this period, violation of agreements, such as unauthorised absence and substance abuse, was seen in the results. It would be interesting to study associations between violations, responses and further progress of young offenders during this practicing with freedom period. If managed thoughtfully by the FYCI, these lower-level risky behaviours could help the young person with interpersonal boundary management and eventually be associated with less reoffending.

Recent ideas about the re-entry of young offenders into wider society point to an ecological approach (Abrams & Snyder, 2010). Interventions to help with this are currently largely focussed on changing the attitudes and behaviours of the individual offender, but studies show that the social and environmental context or neighbourhood conditions in which re-entry occurs, can play a significant role in the success of the re-entry; availability of houses, jobs, alcohol, drugs, violence, mental health problems, for example, may all have a role (Abrams & Snyder, 2010). Including a social ecological focus in treatment programmes may increase successful re-entry and decrease reoffending.

## 4.2 | Reincarceration

The new imprisonment rate of young offenders within 2 years of leaving the FYCI was 13.5% and reflects only the most serious reoffenders. The 2-year reoffending rate overall for community returning FYCI young people is about 55% (Verweij et al., 2021). Although these young offenders showed an overall reduction in risk factor scores, or an improvement in skill scores considered indicative of protective factors, the association between this and reincarceration was less striking. Having no improvement in alcohol-related problems while serving the PIJ-measure, however, seems to be strongly related to reoffending. This is in line with previous research that consistently reports a relationship between substance use and delinquent behaviour (Ford, 2005; Prinz & Kerns, 2003; Vreugdenhil et al., 2003; Wilson et al., 2001). Currently, substance abuse treatment is started soon after arrival in the FYCI if pre-trial forensic mental health evaluation (i.e., SAVRY risk assessment (Borum et al., 2006)) indicates substance abuse. Also, substance abuse treatment forms a component in the YOUTURN method; phase 3 of the method is focussed on personal development and in this phase of the intervention programme, the youth offender works on skills to improve his own criminogenic risk factors, such as substance abuse and antisocial behaviour. Our results indicate that current interventions may not be adequate.

The results also show that problems associated with relational skills, negative coping manners and self-reliance/self-care are strongly associated with reincarceration. Although the aim of the YOUTURN programme is to provide intensive treatment and support to young offenders and their families, perhaps it too is falling short. With respect to the (primary and secondary) network of the youth offender, it became clear that this social protective factor is generally absent or at least insufficient both at the time of intake and exit from the FYCI.

It is hard to know which risk factors have the largest effect on reincarceration because risk factors are known to interact with each other (Basto-Pereira & Farrington, 2022; Dodge & Petit, 2003; Loeber & Farrington, 2000). Our findings, however, give reason to pay specific and perhaps different attention to substance use and improving social behaviours of the youth offender while under a PIJ-measure, and to focus more on strengthening social networks.

### 4.3 | Strengths and limitations

This study has several limitations. First, 'scoring' changes in youth offenders' behaviour at two timepoints on the basis of (treatment) files can never fully capture the complexity, individuality and stratification of human behaviour. Secondly, although the 'time at risk' is longer than in many previous studies, the analysis of reincarceration rates captured new prison admissions within 2 years after the young offender's (conditional) release from custody in the context of the PIJ-measure (2013 at the earliest, 2016 at the latest). A final limitation concerns the exclusion of incomplete records—both in terms of expected ratings not being present and in terms of the absence of any record of reoffending not associated with reincarceration. The former is a common limitation in record studies in which records are analysed that are not composed for scientific purpose; the latter reflects official concerns about the potential for dangerous behaviour among these specially treated young offenders. We had no reason to suspect bias in the sample because of the exclusion of incomplete records and expected that, given the nature of the sample, any offending during the first 2 years of release would be highly likely to result in reincarceration at least for a period. Nevertheless, in order to analyse fully the changes in behaviour relating to the PIJ-measure, a full, researcher-driven prospective study would have to take place.

## 5 | CONCLUSION

Dynamic risk score ratings from most domains in a well-established scale tend to change in a positive direction between the first and last in-institution years of young offenders receiving the most serious form of sanction the Dutch courts may impose. Changes in less positive directions, for example, unauthorised absence during a community try-out or disagreement with a supervisor, may better reflect a period of 'testing' than an increase of risk, but continued substance use is associated with reincarceration. This is of particular concern as the programme associated with the PIJ-measure includes a lot of work on substance use, so these findings may indicate a need for programme review in this area. New directions in social ecological or neighbourhood approaches also seem warranted in the light of our findings.

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### DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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