Risk- and protective factors, delict history and delict severity among youth offenders inside the Local Facilities compared to the Juvenile Detention Centers

The present study aims to compare the risk and protective factors, delict history and delict severity amongst youth offenders inside the Local Facilities (LFs) compared to the Juvenile Detention Centers (JJIs). Because of strict selection criteria for the LFs it was expected that the LF would have had less risk and more protective factors compared to the JJI. To compare the risk and protective factors The Structured Assessment of Violence Risk in Youth (SAVRY) and the The Structured Assessment of Protective Factors for Violence Risk Youth Version (SAPROF-YV) were used. Data from 59 male youth offenders was used. An ANCOVA was used to compare both groups on risk and protective factors with age covariate. Results showed that there were no differences on the total score which combined the risk and protective factors and on risk and protective factors separately. There were some significant differences on item level. Risk taxation instruments may be beneficial for the LFs' selection process. Future research should focus on differences in violence behavior and environmental influences between both groups. It is important to look at other (long term) outcome measures like recidivism to see whether the risk and protective measurements can be of added predictive value.

Keywords: SAPROF-YV, SAVRY, JJI, LF, Risk Factors, Protective Factors, Violent Risk, Selection

Masterthesis

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Introduction

In the Netherlands youth offenders are generally detained in juvenile detention centers (JJI), but recently a new type of detention center exists, local facilities (LF). The LFs can differentiate in the level of security, and therefore have a lower security level. This is different from the JJIs that maintain a one size fits all approach and differentiation in levels of security is not possible. Because of the lower security level in the LFs it is essential to select youth offenders who fit inside the LFs, to ensure the safety for other youth offenders and their healthcare professionals. Risk taxation instruments predict violence behavior by comparing both groups on risk and protective factors. The goal of this research is therefore to compare a population of the JJIs with a population of the LFs on risk and protective factors. This may help to improve the selection process and therefore improve the safety inside the LFs.

Local Facilities

There is a growing need and desire to find an alternative for the JJIs for the execution of juvenile detention. This is driven by multiple factors, the three most important reasons will be discussed in this paragraph (van Alphen, Dorst, & Jongebreur, 2015; Koers en Kansen, 2017). Since youth criminality is significantly reducing, fewer JJIs are needed and the past years multiple JJIs were closed (Ministry of Justice and Security, 2017; de Looff, van de Haar, van Gemmert, & Valstar, 2017). Therefore, most JJs are at a greater distance from the youth offender's living environment, which negatively effects the continuation of protective factors such as supporting parents or school and other daytime activities (Koers en Kansen, 2017; van Alphen, Dorst, & Jongebreur, 2015). Secondly, the youth offender population diversifies with an increasing complexity of psychological problems. One of the reasons is the implementation of the adolescent criminal law in 2014; juvenile law can now be applied until the age of 23 instead of 18 (Netherlands Youth Institute, 2007). This increasingly diverse and complex population makes it difficult for the JJIs to offer personalized care and support (Koers en Kansen, 2017; van Alphen, Dorst, & Jongebreur, 2015). Thirdly, there is a growing need for an integral juvenile justice system, with a strong collaboration between stakeholders (i.e. child protection, the Parole Board and (special-need) educational institutions) viewing the period of detention as part of a continuous healthcare trajectory (Rovers, 2014). So that during the period of detention disruption of supporting daytime activities (e.g. school, work etc.) and

care are prevented, since research shows that this disruption is related to more recidivism (Abrams, 2006).

The Ministry of Justice set course for an exploration for new ways to shape the juvenile justice system. This resulted in a report which was presented to the house of representatives in 2015 (van Alphen, Dorst, & Jongebreur, 2015). Within this report important principles for the LFs were formulated: LFs must focus on a close-to-home, personal and collaborative approach. First, LFs should be able to differentiate their care and security levels depending on the individual needs of the youth offender. For example, differentiation can be made in daytime activities and security checks. Second, continuation or initiation of the supporting life system and positive daytime activities outside the LFs such as school, work and leisure time should be possible. Also, it is important to include family in the process and to make the transition from and to custody less abrupt. Last, the retaliation aspect should still be present (Koers en Kansen, 2017; Rovers, 2014).

Risk-Need-Responsivity model

These principles are in line with the Risk-Need-Responsivity (RNR) model (Andrews, Bonta, & Wormith, 2011). This model addresses three components of interventions, which increase the likelihood of reducing recidivism risk. First, there is the 'Risk Principle' that states that one needs to adapt the intensity of the program to recidivism risk, whereby intense level treatments are recommended for higher risk offenders (i.e. youth offenders with a long delict history, more psychical problems, or a high delict severity) minimal interventions are recommended for low-risk offenders (youth offenders with none or limited delict history, limited physical problems, or a low delict severity). The 'Need Principle' underlines that it is important to target offender needs that are functionally related to the criminal behavior. Criminogenic needs (dynamic risk factors) are characteristics of people and/or their circumstances that signal reward–cost contingencies favorable to criminal activity relative to noncriminal activity. For example, substance abuse and violent behavior are both examples of criminogenic needs (Andrews, Bonta, & Wormith, 2011). The 'Responsivity Principle' underlines the need to match the form of care to the offender's learning style and abilities, taking youth offenders' intelligence and possible psychological disorders into account (Andrews, Bonta, & Wormith, 2011).

Screening for the Local Facilities

In contrary to the JJIs, the LFs thus allow for variation in security and healthcare (Koers en Kansen, 2017). Moreover, to ensure continuation or initiation of school and care, the youth offenders will not be internally imprisoned for the whole duration of their stay, this means that there are differences in risks to take into account. In theory, youth offenders can choose not to return to the facility after their school or work. Also, the types of interaction between the youth offenders and their healthcare professionals will be less repressive. Moreover, rules are more personal-based in comparison to the JJIs, where rules and schedules are the same for every offender. For example, getting out of bed on your own time instead of standing up at the same time as everyone else. This individual approach asks for more self-responsibility from the youth offender. All of this asks for a careful selection procedure to determine whether placement in the LFs or JJIs is indicated.

Currently, the screening method for the selection of youth offenders for the LFs is based on consultations and non-structured guidelines consisting of indications and contra-indications, instead of structured evidence-based methods. A high motivation and being a first or second offender (i.e. first or second registered crime) are indications for placement in the LFs. Also, having a supporting family, having the possibility of starting/continuing a healthcare program and having daytime activities are indications for placement in the LFs (Het Poortje Jeugdinrichtingen, 2017).

Contra-indications for placement in de LFs include, the need for extensive psychological assessments, a large risk of escape, an indication of severe healthcare problems (extreme forms of addiction, suicidal risk or somatic healthcare), or an unsupportive social system. A high severity of the committed crime, lack of willingness to cooperate and limited distance between the LF and the victim are also contra-indications (Het Poortje Jeugdinrichtingen, 2017).

Risk taxation instruments could be a valuable addition to support this selection process to place youth offenders in either the LF or the JJI. To ultimately ensure the safety for other adolescents, healthcare professionals and for society as well, it is key that youth offenders should fulfill structured and comprehensible selection criteria to be placed in the LFs (Koers en Kansen, 2017). Moreover, risk taxation instruments could be used to provide inside and direction for healthcare professionals in the different life domains relevant for treatment (e.g. school, work, positive support from friends and family) (van der Put, et al., 2011).

Risk taxation instruments

Most risk taxation instruments estimate violence and risk behavior based on a structured weighing of risk and protective factors. Risk factors can be defined as factors that increase the probability of criminal behavior (de Vogel, de Ruiter, & Bouman, 2007). Drug abuse, delinquent parents, growing up in a deprived area and aggressive behavior are all risk factors for showing criminal behavior (Farrington, 1998; Loeber, 1990; Loeber, 1990; Bartol & Bartol, 2014). Protective factors on the other hand are factors that have a buffering effect on criminal behavior (de Vogel, de Ruiter, & Bouman, 2007). A problem-solving coping style, self-control, structured leisure activities and motivation are protective factors which reduce the change of criminal behavior (Farrington, 1998; Loeber, 1990; Loeber, 1990; Bartol & Bartol, 2014). The youth offender population is often characterized by an overrepresentation of risk factors and an underrepresentation of protective factors (Matkoski & Vervaeke, 2007). Increasing protective factors and reducing risk factors is therefore key for reducing recidivism risk (van Alphen, Dorst, & Jongebreur, 2015; Laan, van der Schans, van der Bogaerts, & Doreleijers, 2009). Risk taxation instruments can be used to identify these risk and protective factors and give guidance in providing care to youth offenders (Arthur, Hawkins, Pollard, & Caralano, 2002).

The use of risk taxation instruments over the years has increased due to a new view on risk indication measurements (de Vries Robbé, de Vogel, Douglas, & Nijman, 2014). In the past, risk factors where seen as stable and unchangeable but more and more research suggests that these factors are dimensional and can be altered to reduce recidivism risk (Campbell, Schmidt, & Wershler, 2016). Protective factors still receive less attention than risk factors, although in recent years protective factors are more often part of risk taxation instruments (Fortune, Ward, & Willis, 2012). Since protective factors are thought to reduce the risk of criminal behavior and risk factors are known to increase the change of criminal behavior (Lösel & Farrington, 2012), combining risk and protective factors suggest a better predictive value on violence and risk behavior (Lösel & Farrington, 2012; de Vries Robbé, de Vogel, Douglas, & Nijman, 2014; Veldhuizen, de Vries, Vullings, Helmers, & van Hoof, 2016). Because care in the LFs not only aims at reducing risk factors but also focuses on continuation and starting up protective factors, it is important that these protective factors are part of the risk taxation (Laan, van der Schans, van der Bogaerts, & Doreleijers, 2009).

Present study

This study aims to compare a JJI population with a LF population on risk and protective factors. To do so, youth offenders from the JJI and the LF will be compared using two structured measurements: 1. The Structured Assessment of Violence Risk in Youth (SAVRY; (Bartel, Borum, & Forth, 2000) 2. the Structured Assessment of Protective Factors for Risk Youth (SAPROF-YV; Bartel, Borum, & Forth, 2000; Bhanwer, 2016). The SAVRY is designed to predict violence in youth population and consists of 24 risks items divided into three domains: historical, social/contextual and individual/clinical. In addition, the SAVRY also includes 6 protective items (which will not be used in this study), but the main focus of this instrument lays on risk factors. The SAPROF-YV contains 17 protective factors organized within four domains: resilience, motivational, relational and external. Comparing outcomes on both the SAVRY and SAPROF will give a comprehensive view of the risk and protective factors.

The main question for this study is: Which differences can be found between the LF population and the JJI population regarding the total score of risk and protective factors, risk and protective factors and delict severity and history. First, an overall score combining the risk and protective factors - using the SAVRY risk factors in combination with the SAPROF-YV protective factors - will be determined to indicate potential violence risk (de Vries Robbé, Veldhuizen, Vullings, Helmers, & van Hoof, 2017). Because the lower level of security in the LF compared to the JJI it is expected that the overall score combining the risk and protective factors, will be higher in the JJI group than in the LF group. Secondly, a comparison will be made for the risk and protective factors on the total scores of both instruments separately. It is expected that the total score on risk factors will be higher and the total score on protective factors will be lower in the JJI population in comparison with the LF population. Thirdly, both groups will be compared on individual items scores of both risk taxation instruments. Looking at the protective factors of the SAPROF-YV, *motivation*, a *positive relation school/work* and a *supporting life system* overlap with the indication criteria for placement in a LF, therefore, it is expected that those items will be more present in the LF population. Looking at the SAVRY, it is expected that the risk factor items *violence history*, *lack of cooperation* and *limited interest in school/work* will be higher in the JJI population, because these are contra-indications for placement in the LFs. Fourth, we will explore whether there are any differences in delict severity and delict history. The expectation is that the JJI population have a higher average of delict severity and it is expected that the JJI population

will - on average – have committed more crimes per individual. This is because the LFs aim at selecting youth offenders with a limited crime record and a relatively low crime severity.

Method

Participants

The current study involved youth offenders who underwent preventive custody. The total sample included 59 male youth offenders ranging from 14 to 23 years old (mean=17.35, SD=2.01). The research consisted of two groups: The LF group with male youth offenders from the LF in Amsterdam ranging from 14 to 17 years old (mean=15.88, SD=0.90), and the JJI group with male youth offenders from different JJIs ranging from 15 to 23 years old (mean=18.36, SD=1.93). Only males could be placed in the LF, therefore this study consisted only of male youth offenders. The length of stay ranged from 1 to 202 days (mean=48.65, SD=47.20) in the LF population and from 16 to 110 days (mean=58.26, SD=26.04) in the JJI population.

Measures

SAVRY The Structured Assessment of Violence Risk in Youth (SAVRY; (Bartel, Borum, & Forth, 2000) was developed to estimate the risk of violence for boys and girls ranging from 12 till 18 years old, but can also be used for young adults (Vincent, Perrault, Guy, & Gershenson, 2012). Research shows that age has no influence on the relation between the SAVRY outcome and the recidivism risk (Vincent, Perrault, Guy, & Gershenson, 2012). The SAVRY consist of 24 risk items and 6 protective items. The 24 risk items are divided into 3 three domains: historical (10 items i.e. 'history of child abuse'), social/contextual (6 items i.e. 'rejection by peers') and individual/clinical (7 items i.e. 'impulsivity'). The risk items are measured on a three-point-scale: 0 being labeled as 'low risk', 1 being labeled as 'moderate risk' and 2 being labeled as 'high risk'. The protective factors are scored as being 'present' or 'absent'. The historical risk items are scored based on the whole life of the youth offender, while the dynamic risk items (i.e. social/contextual and individual clinical) are scored based on last 6 months prior to assessment. The SAVRY shows high internal consistency, inter-rater reliability and predictive validity, especially for boys (Borum, Lodewijks, Bartel, & Forth, 2010). The SAVRY is an instrument that is designed to rely on a structured professional judgement, but most studies – including this one - only use the SAVRY total risk score (sum of items scores) to evaluate the reliability and validity of the SAVRY. The critical values for

single measures of Tavakol and Dennick (2011) where used for reliability. In this study acceptable reliability was found for the total score of the SAVRY (α=.72). For the protective factors of the SAVRY mixed results were found, this is also a reason why this study used the SAPROF-YV to score protective factors instead of the protective factors of the SAVRY (Lodewijks, de Ruiter, & Doreleijers, 2010; Hilterman, Nicholls, & van Nieuwenhuizen, 2014).

SAPROF-YV The Structured Assessment of Protective Factors for Violence Risk Youth Version (SAPROF-YV; de Vries, Geers, Stapel, Hilterman, & Vogel, 2015) was recently developed as a measurement to be used in combination with a risk-factor measurement like the SAVRY (de Vries, Geers, Stapel, Hilterman, & Vogel, 2015). The SAPROF-YV consists of 16 protective factors organized within four domains: resilience (4 items, i.e. 'coping skills'), motivational (6 items, i.e. 'school motivation'), relational (3 items, i.e. 'contact with peers') and external (3 items, i.e. 'healthcare quality'). All items are scored on a 7-point scale: 0, 0+,1-,1,1+,2-,2. Where 0 is labeled as 'the protective factor is not or is barely present', 1 is labeled as 'the protective factor is possibly or in a way present' and 2 is labeled as 'the protective factor is clearly present'. The SAPROF was initially designed for adults showing good predictive validity. Research on the SAPROF-YV is still limited, however the results are promising. The SAPROF-YV is predictive of verbal and physical aggression (de Vries, Veldhuizen, Vullings, Helmers, & van Hoof, 2017). Also, in combination with a risk taxation instrument (i.e. the SAVRY) the SAPROF showed a better prediction of recidivism risk then risk taxation instruments alone (de Vogel, de Vries Robbé, & de Spa, 2011). The SAPROF-YV was implemented in all JJI in the Netherlands and is being used to guide treatment and predict violence risk (Robbé & Willis, 2017). In this study, acceptable reliability was found for the total score of the SAPROF-YV (α=0.73).

Final Risk Score To compare both scales the SAVRY was recoded into a 7-point-scale (0/3/6) similar to the SAPROF-YV, in line with the study of de Vries Robbé and colleagues (2017). The total score of the SAPROF-YV (7-point scale) has been subtracted from the total score of the SAVRY risk factors (7-point scale). The SAPROF-YV showed better predictive validity than the SAVRY protective factors (Bhanwer, 2016). Moreover, converting the SAVRY risk factors and the SAPROF-YV into a total score showed good predictive validity in earlier study (de Vries, Veldhuizen, Vullings, Helmers, & van Hoof, 2017). Therefore, for this study the risk factors of the SAVRY in combination with the SAPROF-YV were used to give a total risk score.

Delict Severity Delict severity was scored using the twelve hieratic mutually exclusive categories of Kordelaar (2002) based on the maximum sentence, the amount of harm and the amount of violence during the offense (van Kordelaar, 2002). This hieratic classification consists out of 12 increasing crime categories: (1) traffic violation or disruption, (2) opium, (3) demolition, (4) property crimes, (5) moderate violence or possession of weapons, (6) property and violence, (7) severe violence, (8) indecency offences, (9) indecency offences with under aged children, (10) manslaughter, (11) arson (12) and premeditated murder.

Delict History Delict history consists out of all earlier convicted crimes of the youth offender. All crimes were added together to get the total amount of convicted crimes per youth offender. Ongoing investigations in which the youth was not yet convicted were not included in this item.

Procedure

Ethic approval was obtained from the Medical Ethical Review Committee (METC) of the VU University Medical Center.

Both instruments were scored by trained assessors based on file information of the youth offenders. The training consisted of a one-day workshop, and several practice cases (fictional files and video's) were done individually and were compared and discussed to ensure scores from trained assessors were similar and comparable.

Data from the LF group was collected by using reports from the Raad voor de Kinderbescherming (RvdK; Child Protective Service). When arrested all juveniles will be visited and interviewed by the RvdK who will write an advisory report for the hearings and final court-case. These reports therefore contain a lot of information about the youth offender including information about the domestic situation, criminal records, school, relationships, leisure time, attitude, aggression and skills.

Data for the JJI group was derived from a pre-existing dataset. Data was collected by the team of A. Kleeven (who is currently writing her PhD research on the SAVRY and the SAPROF-YV) using the JVS (Youth Tracking System). This system is used to follow delinquents throughout their criminal career integrating information from different stakeholders and organizations like JJIs, child protection and other justice and healthcare organizations.

Statistical Analyses

IBM SPSS Statistics 24 was used to analyze the data. First the SAVRY and the SAPROF-YV were scored. To create an overall risk judgement SAPROF-YV scores were subtracted from the SAVRY risk scores. This method is similar to earlier research from de Vries and colleagues (2017). Comparing the JJI and the LF groups on age, using an ANOVA, showed a significant difference between both groups $F(1, 57) = 34.64$; $p < .001$, $\eta_p^2 = .38$, and hence ANCOVA's were used in further analyses to compare the groups controlling for *age*. Although some analyses did not meet the assumption of homogeneity, results were still reported, mainly because of the explorative nature of this study in combination with the acceptable sample sizes. Missing items were included as average of the corresponding item score.

Results

Information about the Mean, SD and ANCOVA outcomes are presented in table 1. First, the LF and JJI group did not significantly differ on the combined total score of the SAVRY – SAPROF-YV. This indicates that there is no difference in the chance of future violent behavior between the LF and the JJI group. Also, no significant differences were found on the total score of risk factors of the SAVRY and the total score of protective factors of the SAPROF-YV. So, the current selection method does not lead to differences on the total risk and total protective factors alone.

However, examining the SAVRY on item level, significant group differences were found on *violence history*, *rejection by pears* and *lack of support by other adults*. As shown in Tabel 1, youth offenders in the JJIs had a more violent history than youth offenders in the LF. *Lack of support by other adults* and *rejection by pears* both scored higher in the LF population.

On the SAPROF-YV significant differences between both groups were found on *attitudes towards rules*, *positive relationships with peers*, *other supporting relationships*, and *juridical framework*. The JJI population had a more positive *attitude towards rules* and scored higher on *other supporting relationships* than the LF population. The LF population scored higher on *positive relations by pears* and on *juridical framework*.

Last, *delict severity* was higher in the JJI group, but no group difference was found on *delict history*.

Age did not have an effect on the items that showed a significant difference between the JJI and the LF group. Also, age did not have an effect on the total score SAVRY –

SAPROF-YV, the total score of the SAVRY, the total score of the SAPROF-YV and *delict severity*. Age did have a significant effect on *delict history*. Age was significant related to the items *problems with drug abuse* and *coping*.

In conclusion, no significant results were found for the combined score of the risk and protective factors and for the total scores of the risk and protective factors separately. There were some differences found on item levels and a difference was found on *delict severity*.

Table 1

The mean, SD and ANCOVA outcomes controlling for age of SAVRY and SAPROF-YV, delict history and delict severity per group (JJI, LF)

	JJI		LF				
	Mean	SD	**Mean**	SD	*F*	*p*	η^2
SAVRY - SAPROF-YV	**23.71**	34.17	**16.11**	16.40	0.01	.92	
SAVRY	**20.40**	7.42	**18.92**	3.56	0.10	.75	
Violence history	**1.14**	0.73	**0.17**	0.38	16.67	<.001	.23
Rejection by peers	**0.24**	0.55	**0.59**	0.50	4.52	.04	.08
Lack of support by other adults	**1.09**	0.87	**1.46**	0.59	4.82	.03	.08
SAPROF-YV	**37.33**	15.30	**40.64**	8.68	0.05	.82	
Attitudes towards rules	**2.91**	1.62	**2.04**	0.81	5.96	.02	.10
Positive relationship with peers	**0.86**	1.35	**2.75**	1.29	10.72	<.001	.15
Other supporting relationship	**2.36**	1.83	**0.54**	1.50	14.12	<.001	.21
Juridical framework	**2.44**	0.36	**4.57**	0.45	11.25	<.001	.17
Delict Severity	**6.01**	1.16	**5.55**	1.07	5.25	.03	.10
Delict History	**3.66**	4.52	**1.00**	1.21	0.64	.43	

Note. SAVRY = The Structured Assessment of Violence Risk in Youth, SAPROF-YV: The Structured Assessment of Protective Factors for Violence Risk Youth Version

SAVRY - SAPROF-YV = Total score of total risk factors minus total protective factors, SAVRY = Total score of all risk factors,

SAPROF-YV = Total score of all protective factors. The covariate *age* had no effect on all significant results.

Discussion

The goal of this study was to compare the JJI population with the LF population on risk and protective factors. Age was used as a covariate considering that both groups differed in age. No significant effects where found between the groups on the overall violence risk score

(combined score of risk and protective factors) - and on the total scores of the risk and protective factors separately. On item level *violence history* was – as expected - higher in the JJIs compared to the LF. Also, some unexpected differences between both groups were found on item level. The risk factors *rejection by peers* and *lack of support by other adults* were higher in the LF group. The protective factors *attitude towards rules* and *other supporting relationship* were higher in the JJI group, having a *positive relationship with peers* and *juridical framework* were higher in the LF group. These results show that both groups do differ on risk and protective factors on item scores. Unexpectedly, the number of registered crimes did not differ between the groups, but the severity of the crime was - as expected - higher in the JJI group.

Looking at the total scores and the combined score of risk and protective factors, it is interesting that youth offenders placed in the JJIs do not differ in violence recidivism risk compared to youth offenders placed in the LF. If the LFs better match the Risk-Need-Responsivity approach, it could be expected that violence recidivism risk would be lower in the LF compared to the JJIs, especially because selection criteria also correspond with risk and protective factors (Andrews, 2012). This could indicate that different settings do not lead to the expected differences in recidivism risk. Possibly, more focus is needed on how to estimate youth offenders' needs to even better match the Risk-Need-Responsivity model and therefore reduce recidivism risk.

Looking at the item scores the JJI group scores higher on positive relationships with other adults and scores lower on lack of support by other adults. Bhanwer (2016) showed that a positive relationship with peers and lack of support by other adults are related to each other. On the other hand, the LF group scores higher on positive relationships with peers in comparison to the JJI group. A possible explanation can be that selection for the LFs focuses more on peer relationships than relationships with other adults. The differences in juridical framework may also be explained by the selection process of the LF. Because of the lesser security measurements and the opportunity to leave the LFs for example school and work, it may be more important to ensure that have a juridical safety net in place (e.g. probation officer, community service organizations).

Risk taxation and selection

Although the LFs use selection-criteria to select youth offenders for placement in their facilities (Het Poortje Jeugdinrichtingen, 2017), it seems that both groups are more similar

than anticipated. These results are interesting because they were not expected based on the selection-criteria for placement in the LFs. A structured selection method like the SAVRY and SAPORF-YV may offer an alternative to be able to differentiate between the groups based on risk and protective factors, therefore it may be beneficial to implement risk taxation instruments or other structured methods (Bartel, Borum, & Forth, 2000; de Vries, Geers, Stapel, Hilterman, & Vogel, 2015). Because risk factors like violence behavior and protective factors, like having a positive relationship with peers, could help to ensure the safety inside of the LFs and give more guidance to healthcare professionals on how to select youth offenders for the LFs. Moreover, it helps to prevent possible biases in the selection process, because the more structured selection takes place, the less biases appear (Paluck & Green, 2009). For example, it is notable that both groups differ in age, although both facilities offer placement for youth offenders of the same age range. It is possible that the selection procedure for the LFs causes prejudice assumptions in healthcare professionals regarding age. Healthcare professionals may have the belief that young offenders are more changeable than older offenders. There is still a lot of discussion on the effects of age on criminal behavior, so a higher age does not necessarily lead to more criminal or violent behavior (Ulmer & Steffensmeier, 2014). Risk and taxation instruments cannot make these prejudice assumptions entirely disappear, but by using a structured measurement, prejudices like age can have limited influence on the select process (Paluck & Green, 2009).

Limitations and further research

There were several limitations concerning this study. Limited differences between both groups, could be influenced by the time the JJI data was collected, because JJI data was gathered before the LFs were in place. This means, that some youth offenders from the JJI group – in a situation where the LF was available – would possibly be placed in the LF instead of the JJIs. It is therefore possible that the JJI group in this study scored higher on protective factors and lower on risk factors than the current JJI population. This can be a reason why there are little differences between the groups. On the other hand, the effect of the time of assessment may be limited, because nationwide around 30 youth offenders are able to stay in the LFs at once, which is a relative small group compared to the 500 youth offenders who are staying in the JJIs, so the groups may be more similar to each other than expected (Custodial Institutions Agency (DJI), 2017). Another limitation concerns the way the data was collected. For this study no inter-rater reliability was used, so it is unclear if the same results

were found when other individuals would score the risk taxation instruments. Furthermore, the JJI scoring group used different sources of information than the researchers who scored the LF group. Data from the LF was collected by the use of child protection reports and the JJI data was collected by using the Youth Tracking System (JVS). Because information can, for example, differ in comprehensiveness and focus considering the different original goals for collecting the data, it may have influenced the results. It could, for example, be that the *juridical framework* item was biased by the way information was collected. The juridical framework may be described in less detail when used for child protection reports then when collected out of the JVS database, which influences the scoring. Moreover, the JJI group and the LF group were scored by different individuals. It is likely that these possible differences in scoring influenced the scoring on item-level more than on the total scores of risk and protective factors. Because, the total scores use a combination of items, so differences in scoring on one item does have a limited effect on the total scores, but a large effect on the item itself. Lastly, for this study, an ANCOVA was used to control for age differences between both groups even though age was not independent between both groups. This means that it is possible that age takes away some of the variance that otherwise would be allocated to the differences between the JJI and the LF group, which is a possible explanation for the limited differences between both groups (Miller & Chapman, 2001).

Further research should focus on overcoming these issues. It is important to use JJI data that is collected at the same time as the LF data, and that same sources of information are used for the data collection, in other words data collection from the JJIs and the LF should be as similar as possible to reduce information biases. Also, every youth offender needs to be scored by at least two different researchers so inter-rater reliability can be taken into account. Information about violence behavior inside the JJIs and the LF can shine a light on whether or not there are differences in violence behavior between both institutions. If there are differences in violence behavior it is important to gain insight in underlying factors which cause these differences to be able to improve the institutions and their care. Last, it could be interesting to compare the risk and protective factors with different outcome measures, such as recidivism risk. If risk and protective factors can predict the recidivism risk it may be a helpful tool, not only for selection for the LFs, but also for reintegration in society. This can give insight in the predictive value of risk taxation instruments.

To conclude, in contrary to the expected differences in the LF and JJI group, no differences were found on total scores of the risk and protective measurements. The risk factor *violence history* was higher in the JJI population. The risk factors *rejection by peers* and *lack of support by other adults* were higher in the LF population. The protective factors *attitude towards rules* and *other supporting relationship* were higher in the JJI population and the protective factors *positive relationships with peers* and *juridical framework* were higher in the LF population. The JJI group scored higher on *delict severity*, but not on *delict history*. Interpretation of scores need to be done with caution, because the JJI data was collected before LFs were in place. Further research should collect data from the same time period, integrate inter-item reliability and needs to look at violence behavior in both the JJIs and LFs. Furthermore, research should focus on differences in violence behavior and environmental influences between both groups. It is important to look at other (long term) outcome measures like recidivism to see whether the risk and protective measurements can be of added predictive value. Findings in this study warrant further examination of the current selection process for the LFs groups.

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