A preventive intervention of Bureau Halt:

Characteristics of adolescents involved in Bureau Halt and differences of risk factors between adolescents at the starting point and the end of the preventive intervention

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Abstract (English)

Bureau Halt has recently started a pilot of a preventive intervention targeting adolescents at risk of getting involved in criminal behavior. This study focuses on describing characteristics of these at-risk adolescents and examining the differences between adolescents at the start and end of the intervention with regard to risk factors. It is important to prevent adolescents from getting involved in criminal behavior because there are several adverse outcomes associated with criminal behavior during adolescence. This study contributes to gaining more knowledge on at-risk adolescents and provides information that can be useful for implementation of the intervention. Using a quantitative research design (N = 96), criminal behavior and the risk factors aggression, bullying, school absence, (soft) substance use, impulsivity, familial criminal history and parent-child relationship were studied. The results indicated that the population is predominantly male, from divorced families and in lower levels of education. Furtherly, the intervention seemed to be effective in decreasing the levels of all risk factors. It is concluded that the intervention could be effective in preventing at-risk adolescents from engaging in criminal behavior but longitudinal research is needed to draw robust conclusions regarding criminal behavior.

Abstract (Dutch)

Bureau Halt is recent een pilot gestart omtrent een preventieve interventie voor adolescenten die risico lopen om crimineel gedrag te gaan vertonen. Deze studie onderzoekt karakteristieken van deze adolescenten en onderzoekt de verschillen tussen adolescenten aan het begin van de interventie en adolescenten aan het eind van de interventie op verschillende risicofactoren. Het is belangrijk om te voorkomen dat jongeren crimineel gedrag gaan vertonen aangezien er diverse negatieve gevolgen verbonden zijn aan crimineel gedrag. Deze studie draagt bij aan meer kennis rondom deze doelgroep en biedt informatie die bruikbaar kan zijn bij de implementatie van de interventie. Er is een kwantitatief design gebruikt (N = 96) om crimineel gedrag en de risicofactoren agressie, pesten, afwezigheid op school, middelengebruik, impulsiviteit, criminele geschiedenis van familie en ouder-kind relaties te onderzoeken. De resultaten tonen aan dat de populatie overwegend mannelijk, uit gescheiden gezinnen en laag opgeleid is. Verder lijkt de interventie effectief te zijn in het verminderen van alle risicofactoren. Er kan geconcludeerd worden dat de interventie mogelijk effectief is in het voorkomen van crimineel gedrag bij risicojongeren maar longitudinaal onderzoek is nodig om conclusies te trekken met betrekking tot crimineel gedrag.

Introduction

The absolute number of criminality amongst Dutch adolescents has decreased between 2007 and 2015 with 9% (CBS, 2016). The age-crime curve, however, shows that within adolescent individuals the number of criminal activities keeps increasing between age 12 and 20, which has remained stable over time (Goudriaan & van der Laan, 2016). The study of Goudriaan and van der Laan (2016) indicated that 35 % of 12 to 17 year-old adolescents reported having committed crimes. Criminal behavior is commonly defined as law-violating behavior and thus behavior that has been recognized as criminal by political authorities (Clinard, Quinney, & Wildeman, 2014). What is classified as crime varies between countries. In this study the Dutch law is directive in determining what criminal behavior is. There are several risks associated with involvement in criminal behavior during adolescence, such as the continuation of criminal behavior in young adulthood, alcohol use disorders and hazardous sex (Hawkins, Herrenkohl, Hitch, Kosterman, Mason, & McCarty, 2010).This makes it imperative to study criminal behavior amongst adolescents.

Halt is a Dutch organization focused on crime prevention and punishment of adolescents aged 12 to 23 year olds. Halt is deployed by the Dutch government and operates under the responsibility of the Department of Justice and Security (www.halt.nl). One aim of this organization is to offer adolescents a second chance when they have engaged in (mild) criminal activities, these adolescents are the so-called first offenders. By intervening, Halt prevents the adolescents from getting a criminal record which, Halt believes, allows the adolescent to have a better chance in the future. Adolescents can choose whether they want to take part in the intervention or if they want their case to be handled justiciar.

In September 2017 Halt has started a pilot study of the implementation of an adapted version of the original Halt intervention.In the adapted intervention, adolescents can be included who would not fit in the regular Halt program. These adolescents were under the age of 12 and / or have engaged in unacceptable behavior that is not prosecutable. Participation in this intervention program takes place on a voluntary basis. Yet, this is an important at-risk group to target for this intervention, as this group show signs of becoming criminally involved or have already committed small crimes. Like previously mentioned, involvement in criminal behavior can cause continuation of this behavior in adulthood and this makes it imperative to offer these adolescents an intervention. The intervention consists of multiple components of the

regular Halt program that have been proved to be effective (Buyse, Abraham, Hofstra, & van Dijk, 2017), the emphasis is on learning-assignments and apologizing to persons involved in the incident. Usually there are three meetings, of one hour, with the adolescent and a parent and Halt employee, but that is not a fixed number. The goal of this intervention is to prevent suspension, getting in contact with criminal law and to prevent unacceptable behavior in the future. After the pilot of the intervention, the program is now being phased in in some municipalities.

The Halt program is a preventive intervention, focusing on re-socialization of the adolescents. A meta-analysis on the effectiveness on Dutch interventions regarding criminality showed that interventions focused on re-socialization were more effective than interventions focused on punishing adolescents (Wartna & Alberda, 2013). In fact, preventive interventions regarding adolescents at risk of becoming involved in crime, are more cost-effective than confinement (Bakker, 2012). Besides, preventive interventions targeting specifically risky adolescents (i.e. selective interventions) are more cost-effective than interventions targeting all adolescents (i.e. general interventions). Besides the new preventive intervention, the other form of prevention Halt offers is an intervention to primary and middle schools which is targeting all students and thus is a general intervention. The new preventive intervention might be more (cost-)effective than the regular prevention method because this new intervention is targeting at risk adolescents.

Several risk factors of at-risk adolescents are being studied to gain more insight in the target group and this could be helpful in adapting the intervention to the needs of at-risk adolescents. Previous research has extensively examined the influence of risk factors on criminal behavior among adolescents, such as aggressive behavior and school absence (Kalvin & Bierman, 2017; Cohn, 1997). Wilson and Herrnstein (1998) developed a theory known as the operant-utilitarian theory of criminality. According to Wilson and Herrnstein there is an abundance of sociological theories of crime, but criminality cannot be explained without taking into account genetics and personal predispositions. This theory thus attempts to explain criminal behavior by three factors: social environment, family relationships and biological makeup. The theory states that social environment contributes to criminal behavior by stimulating narcissistic traits in individuals. Individuals with high levels of narcissistic traits are supposedly more likely to show criminal behavior. The factor 'family relationships' is said to be important in explaining crime, the authors specifically refer to the

relationship between a parent and their child. They stress that the relationship is not of influence on criminal behavior by impactful life events such as divorce but rather that ineffective parenting fails to teach children the consequences of their actions correctly. By biological makeup, Wilson and Herrnstein refer to factors that are partly genetically transmitted such as gender, low intelligence and high impulsiveness. This theory emphasizes the interplay between these three factors and thereby supports the importance of taking into account the personal and contextual factors studied in this writing. A limitation of this theory is however that, as the authors did not operationalize the terms profoundly, Wilson and Herrnstein (1998) have not been able to test the theory empirically. However, a lot of research suggests a relation between criminal behavior and narcissistic traits, parenting skills and genetical factors (Johnson et al., 2000; Leschied, Chiodo, Nowicki, & Rodger, 2008; Klein, Forehead, Armistead, & Long, 1997; Raine, 2002).

In the personal domain, one of the factors that has an influence on involvement in criminal behavior is bullying peers (Olweus, 1994; Hornung & Perren, 2005; Wolke, Copeland, Angold, & Costello, 2013). Adolescents who bully are assaulting their peer repetitively in a physical and/or verbal manner in which the bullied peer perceives the bully as having more power or strength than them (Olweus, 1993; Rigby, Cox, & Black, 1997). Several large studies found bullies to be at higher risk of multiple adverse outcomes such as substance use, formal school penalties and crime and delinquency (Cullen, Unnever, Hartman, Turner, & Agnew, 2008; Ragatz, Anderson, Fremouw, & Schwartz, 2011; Carbone-Lopez, Esbensen, & Brick, 2010; Renda, Vassallo, & Edwards, 2011; DeCamp & Newby, 2014). Physical and verbal bullying were found to be associated with criminal adolescent behavior (Moon & Alarid, 2014). Being a bully causes higher rates of criminal cognitions, aggression, psychopathy, anti-social behavior and substance use, factors which may subsequently result in criminal behavior (Ragatz et al., 2010; Renda et al., 2011).

Another factor, in the personal domain, that has an effect on criminal behavior is overt aggression (Farrington, 1989; Leschied et al., 2008; Huesmann, Dubow, & Boxer, 2009; Kalvin & Bierman, 2017). Overt aggression is visible aggressive behavior such as fighting, arguing and threatening (Putallaz et al., 2007). Previous longitudinal studies have demonstrated the influence of overt aggression on negative life outcomes such as criminal involvement (Leschied et al., 2008; Huesmann et al., 2009; Kalvin & Bierman, 2017). Kalvin and Bierman (2017) studied specifically

violent crime versus non-violent crime and found that overt aggression was a predictor for both violent and non-violent crime but the relationship was stronger for violent crime. Not only did aggression predict criminal involvement during adolescence but also during adulthood, so it is also life-course persistent (Leschied et al., 2008; Huesmann et al., 2009). This influence of aggression on adolescent and adult criminal behavior appeared to be stronger when aggressive behavior appeared at a later point in time during adolescence.

School absence is also a risk factor associated with criminal behavior (Baker, Sigmon, & Nugent, 2001). School absence is the unexcused absence from school or class without permission (Baker et al., 2001). A meta-analysis, on longitudinal studies, of Hawkins and colleagues showed that truancy was a predictor for criminal behavior (Hawkins, Herrenkohl, Farrington, Brewer, Catalano, Harachi, & Cothern, 2000). There is no consensus on whether school absence only has an effect on non-violent crime (Roque, Jennings, Piquero, Ozkan, & Farrington, 2017) or also to violent criminal behavior (Martin & Pruett, 1998; Payne, 1999 in Farrington et al., 2017). All studies did show the relationship between school absence and criminal behavior in general.

Substance use is also a well-known risk factor for adolescent criminal behavior (Rayner, Kelly, & Graham, 2005; van der Put, Creemers, & Hoeve, 2014; Harford, Yi, Chen, & Grant, 2018). Adolescent soft substance use is associated with deviant behavior, criminal activity and self- and other aimed violence (van der Put et al., 2014; Harford et al., 2018; Ebeling et al., 2014). In a study of Campbell and colleagues (2015) alcohol and cannabis use were found to have an effect on criminal behavior. This effect was stronger for boys than for girls. Ebeling and colleagues (2014) only found the association between substance use and criminal behavior for boys. It is not sure whether substance use precedes criminal behavior or if it is a reciprocal relationship. Some studies have shown that substance use and criminal behavior influences each other (Mason & Windle, 2002; White, 2015). Substance use has a larger effect on criminal behavior than the reverse but this effect was exclusively found during adolescence (Mason & Windle, 2002).

Another factor, in the personal domain, which is associated with adolescent criminal behavior is impulsivity. Impulsivity is the inability to suppress responses even if the behavior is known to be associated with adverse outcomes (Cooper & Stautz, 2013). Impulsivity is a risk factor that has an effect on anti-social behavior,

including criminal behavior (Caspi, Loeber, Lynam, Moffitt, Novak, & Wikstrom, 2000; Carrillo-de-la-Pena, Luengo, Otero, & Romero, 1994; Piquero, Steinberg, & Sweeten, 2013). A low score on impulsivity is shown to be a protective factor with regard to criminal behavior (Durrant, Neumann, Robertson, & Vitacco, 2010). Adolescents scoring high on impulsivity are also more likely to start offending at an early age than their non-impulsive peers (Carroll et al., 2006). Thus it is plausible that impulsivity in adolescents is of influence on criminal behavior.

In the contextual domain, a relation was found between adolescent criminal behavior and the criminal history of their family (i.e. criminal history of a parent, caregiver or sibling) (Preski & Shelton, 2001; Robertson, Baird-Thomas, & Stein, 2008). One study reported that almost two third of juvenile offenders has a parent or sibling with a criminal background (Robertson et al., 2008). A conviction of a family member not only increases the risk of criminal behavior but these adolescents also start engaging in criminal behavior at an earlier age than their peers (Alltucker, Bullis, Close, & Yovanoff, 2006). These adolescents often report being neglected or physically and/or emotionally abused which is suggested to be the explanation of why familial criminal history is a risk factor for adolescent criminal behavior (Robertson et al., 2008; Brendgen, Tremblay, Vitaro, & Wanner, 2002). The influence of parental criminality on adolescent criminality is stronger when the frequency of parental criminal behavior is higher and when both parents have a criminal history (Engels, de Kemp, & Nijhof, 2009).

Another factor, associated with criminal behavior, in the contextual domain is the relationship between parents and their children. There are multiple ways in which the relationship between parents and children can influence adolescent criminal behavior. A strong relationship between parent and child, in terms of parental warmth, has an influence on externalizing problems (Eisenberg et al., 2005), more parental warmth predicts low externalizing problems during adolescence. Also, a weak relationship, indicated by high conflict rates and parental perception of the relationship, has an effect on strong anti-social behavior (Ingoldsby et al., 2006). In addition, a meta-analysis of Hoeve and colleagues (2009) showed the link between multiple parenting dimensions and criminal behavior, for example parenting styles, support and monitoring. These dimensions of parenting are likely to affect the relationship between a parent and their child. This meta-analysis also showed that 'poor parenting' precedes criminal behavior (Hoeve et al., 2009). It is suggested that

poor parenting styles and adolescent criminal behavior is mediated by adolescents' involvement with engaging with deviant peers (Stoolmiller, 1994). The relationship between parents and children is important for children's well-being and children whose parents have been divorced are more likely to get involved in criminal behavior (Videon, 2002).

As there is empirical evidence that the risk factors bullying, aggression, impulsivity, substance use, parent-child relationship, familial criminal history and school absence are risk factors for criminal behavior during adolescents it is important to intervene on adolescents who show signs of these risk factors. A meta review of meta-analyses and systematic reviews showed that the preventive interventions for adolescents, targeting violence specifically and criminal behavior globally, range from weak to moderate and strong effects (Matjasko et al., 2012). The authors do however conclude that most of the reviews of early intervening had moderate effects. In addition, it is concluded that reviews on selective interventions and interventions involving the adolescent as well as the parent found strong effects. Hence the preventive intervention in this research is selective and involves parents, the program might have a strong effect.

Current Study

To gain some more insight in the target group (i.e. at-risk adolescents who are in contact with Halt) of this preventive intervention, characteristics of the target group will be studied. The characteristics, used to describe the at-risk adolescents, are both selection criteria for involvement in the preventive intervention and some additional risk factors that are known to be influential in adolescent criminal behavior (e.g. bullying, aggression, school absence, (soft) substance use, impulsivity, familial criminal history and parent-child relationship). Better insight into this at-risk group of adolescents may contribute to better meet the needs of adolescents and subsequent intervention refinement. In addition, adolescents who have just started the program will be compared to adolescents who have finished the program regarding the risk factors. The research question will thus be:

What are the characteristics of at-risk adolescents involved in the new preventive intervention of Bureau Halt and how do adolescents who have completed the Halt program differ, with regard to risk factors, from adolescents who are at the starting point of the Halt program?

The first hypothesis is that all risk factors are related to more criminal behavior. The second hypothesis is that at the end of the intervention the level of risk factors are decreased. For the adolescents who have finished the intervention it is expected that they are less aggressive, bullying less, using less substances and being less absent at school, this is hypothesized because the intervention will focus on these risk factors. The factors familial criminal history, parent-child relationship and impulsivity are useful in describing the at-risk adolescents. As the intervention does not specifically focus on these factors (i.e. familial criminal history, parent-child relationship and impulsivity) it is hypothesized that they remain stable over time.

Method

Procedure and Participants

In this study, adolescents up to 18 years old who were in treatment at Bureau Halt but did not have a criminal record were included. Data among participating adolescents were retrieved by conducting a paper survey and thus had a quantitative research design. Four out of five departments of Halt, who started the preventive intervention, agreed to distribute the surveys. The data were collected in a period of three weeks. The adolescents who filled out the survey had been directed to Halt by a teacher, police officer or school attendance officer because they were engaged in unacceptable behavior. In each department there was one employee of Halt who received the printed surveys and who distributed the survey to every client who had their first or last meeting at Halt. The participants filled out the questionnaire at their first meeting at Halt or their last meeting, they did not fill the survey twice. An informed consent was used to ask the participants for permission to use the data. The survey was only offered if there was a parent present to make sure there was also parental consent. The Halt employees gave the adolescents some privacy to fill out the questionnaire. After they finished the questionnaire the adolescent put the survey in an envelope which was sealed directly after. The adolescents could seal the envelope themselves in order to make sure the Halt employee would not read the survey. In this way privacy was tried to be guaranteed. The surveys were completed anonymously and no information was asked that could lead to an individual. Information about participants were handled with care and confidentiality.

In total there were 96 participants included (66.7% male) with a mean age of 15.07 (SD = 15.06; range 13 to 18). Of the 96 participants 47 (49%) filled out the questionnaire prior to the first introductory meeting at and 49 (51%) after the final

meeting was finished, the participants at T0 and T1 are not the same adolescents.

Measuring Instruments

The following measures were used to assess the variables of interest.

Aggression. Aggression is visible aggressive behavior such as fighting, calling names and threatening (Putallaz et al., 2007). Aggression was measured with six items. These items were obtained from the Washington State Juvenile Court Assessment (WAJA) (Barnoski, 2004). The WAJA contains questions that professionals working with young offenders can use and is intended to use in a conversational situation. For the survey used in this study the items regarding aggression were selected and rephrased in order to produce suitable questions for a questionnaire. An example of an item for aggression is 'I have tantrums' with answer options: 'never' (1), 'rarely' (2), 'sometimes' (3) and 'often' (4). To compute the variable mean scores were created. A higher score indicates a higher level of aggression. This variable showed a Cronbach's Alpha of .880 at T0 and .505 at T1.

Bullying. Bullying is the extent to which the adolescent is involved in physically and/or verbally assaulting their peer (Olweus, 1993). This variable is measured with four questions derived from the Bully/Victim Questionnaire (Olweus & Solberg, 2003). An example of an item of bullying is: 'How often have you taken part in bullying another student at school in the past couple of months?' with answer options: 'not bullied others' (1), 'once or twice' (2), '2-3 times a month' (3), 'about once a week' (4), 'several times a week' (5). A mean score was computed for bullying. A higher score represents a higher level of bullying. This variable showed a Cronbach's Alpha of .846 at T0 and .682 at T1.

Parent-child relationship. The relationship between parent and child reflects the attitude the participant has regarding their relationship with their mother and father or caretakers. This variable is measured with six items that have been retrieved from the Parent-Child Relationship survey (Fine, Moreland, & Schwebel, 1983). An example of an item is 'I trust my father / male caretaker' with answer options: 'completely disagree' (1), 'disagree' (2), 'agree' (3) and 'completely agree' (4). A mean score of these items was computed. A higher score represents a stronger relationship between the adolescent and the parents. Parent-child relationship showed a Cronbach's alpha of .906 at T0 and .876 at T1.

Criminal history of family. Criminal history of family is measured with two items. These items are derived from the WAJA (Barnoski, 2004). The items used to

measure this variable were: ‘Does a family member, who lived in your house for at least 3 months, have a criminal history? If yes, what family member? and ‘Does a family member, who is currently living in your house, have a criminal history? If yes, what family member?' with answer options: 'no criminal history in family' (1), 'mother/female caretaker' (2), 'father/male caretaker' (3), 'older sibling' (4), 'younger sibling' (5), 'other member' (6). The answer ‘No criminal history in family’ was scored as 0 and the other answer categories were scored as 1. This variable was computed as a sum score. A higher score reflects a higher level of criminal history in the family. A Spearman’s rho correlation between these two items was computed for this variable (T0: r = .754, p = <.001; T1: r = .377, p = .008).

Impulsivity. Impulsivity is the inability to suppress responses (Cooper & Stautz, 2013). This variable is measured with four items that are retrieved from the Substance Use Risk Profile Scale (SURPS) (Woicik, Stewart, Pihl, & Conrod, 2009). An example of an item of impulsivity is 'I usually act without thinking' with answer options: 'completely disagree' (1), 'disagree' (2), 'agree' (3), 'completely agree' (4). A mean score of these items was computed. A higher score indicates a higher level of impulsivity. This variable showed a Cronbach's Alpha of .775 at T0 and .676 at T1.

Substance use. Substance use is measured with two items that are also retrieved from the WAJA (Barnoski, 2004). Alcohol and drug use were assessed by asking how much alcohol / drugs is used with answer categories: 'I do not drink alcohol / use drugs' (1), 'I drank alcohol / used drugs in the past but not anymore' (2), 'I drink alcohol / use drugs occasionally' (3), 'I drink alcohol / use drugs regularly' (4) and 'I am or have been in treatment for my alcohol / drug use' (5). A mean score of these items was computed. A higher score reflects a higher rate of substance use. A Pearson correlation between the measures of drugs and alcohol use was computed in SPSS (T0: r = .267, p = .070; T1: r = .299, p = .037).*School absence*. School absence is the unexcused absence from school without permission (Baker et al., 2001). This variable was measured with one item. This item was also retrieved from the WAJA (Barnoski, 2004). The item is 'What is your presence at school like?' with answer options: 'Good, only a few well-grounded absences' (1), 'Never absent without a well-grounded excuse' (2), ‘A few partial-day unexcused absences' (3), 'Some full-day unexcused absences' (4) and ‘I am seeing a school attendance officer because of my absence at school’ (5). A higher score indicates a higher level of school absence.

Criminal behavior. Criminal behavior is the extent to which the participant has

been involved in several criminal activities, namely threatening, violence, coercion, sexual harassment, stealing, shoplifting and vandalism. This variable is measured with eight items. The items were derived from the WAJA (Barnoski, 2004). An example of an item is: 'How many times have you stolen something from a store?' with answer options: 'never' (1), 'once' (2), two or three times' (3) and 'four times or more' (4). A mean score was computed for criminal behavior and a higher score indicates a higher rate of involvement in criminal behavior. Criminal behavior showed a Cronbach's Alpha of .269 at T0 and .591 at T1.

At the end of the survey demographics such as age, gender and educational level were included. For education 'What is your current education level?' was asked, with answer options 'vmbo', 'havo', 'vwo', 'MBO', 'HBO', 'WO', 'Other, …'.

Analyses

The data were analyzed by using SPSS. First the descriptive statistics were computed for all the variables in order to describe the target group. Pearson correlation analyses were executed to find possible relations between the risk factors and criminal behavior. To compare the mean scores of the risk factors included (e.g. bullying, aggression, school absence, (soft) substance use, impulsivity, familial criminal history and parent-child relationship) between T0 and T1, independent samples t-tests were executed. This statistical test was chosen because there are two separate groups who do not involve the same participants. To be able to perform an independent samples t-test we first tested for normality and homogeneity. There was no missing data.

Results

Descriptive Statistics

Table 1 shows the descriptive statistics regarding characteristics of the population and mean scores of the variables of interest. These statistics are presented for the purpose of gaining more insight in the population.

More than half of the adolescents were male (66.7%), from divorced families (59.4%) and in lower levels of education (53.1%). At baseline, more risky scores were found for impulsivity (M = 2.91, SD = .57), substance use (M = 2.61, SD = .90) and school absence (M = 3.26, SD = 1.54). At follow-up, more risky scores were found for school absence (M = 2.35, SD = 1.45) and impulsivity (M = 2.07, SD = .45). The highest score at T1 was found for parent-child relationship (a higher score indicating a stronger relationship) (M = 3.37, SD = .52).

The most prevalent criminal behavior that the adolescents had engaged in were

the same for both groups, namely violence (T0: M = 2.13, SD = .97; T1: M = 2.33, SD = .94) and shoplifting (T0: M = 2.02, SD = .99; T1: M = 2.00, SD = .87).

Table 1

Descriptive statistics

Variables	N (%)	T0 (N=47) M	SD	T1 (N = 49) M	SD
Characteristics population					
Gender					
Male	64 (66.7)				
Female	32 (33.3)				
Education					
Vmbo	51 (53.1)				
Havo	30 (31.3)				
Vwo	2 (2.1)				
Mbo	8 (8.3)				
Hbo	5 (5.2)				
Parents divorced (1 = yes)	57 (59.4)				
Age		15.02	1.32	15.11	1.32
Research variables					
Aggression [1-4]		2.34	.62	1.61	.27
Bullying [1-5]		1.71	.63	1.10	.24
Parent-child relationship [1-4]		2.81	.63	3.37	.52
Criminal history of family [0-5]		.49	.80	.14	.41
Impulsivity [1-4]		2.91	.57	2.07	.45
Substance use [1-5]		2.61	.90	1.86	.69
School absence [1-5]		3.26	1.54	2.35	1.45
Criminal behavior [1-4]		1.63	.28	1.62	.35
Threatening		1.57	.71	1.41	.64
Violence		2.13	.97	2.33	.94
Coercion		1.17	.38	1.00	.00
Sexual harassment		1.04	.20	1.00	.00
Stealing		1.45	.62	1.69	.98
Shoplifting		2.02	.99	2.00	.87
Vandalism		1.38	.57	1.41	.70

Correlations

Table 2 shows correlations of the risk factors and criminal behavior. Criminal behavior is significantly related to all the risk factors except for school absence. Adolescents who were more aggressive (r = .410, p = .004), bullying more (r = .352, p = .002), more impulsive (r = .450, p = .001) and using more substances (r = .365, p = .012) were more likely to be involved in criminal behavior. For parent-child relationship (r = -.366, p = .011) a lower score on these factors were related to more criminal behavior.

Table 2

Correlations between risk factors and criminal behavior at T0

	1	2	3	4	5	6	7	8
1. Aggression	-							
2. Bullying	.352*	-						
3. P-C relationship	-.636**	-.542**	-					
4. Criminal history family	.130	.158	-.284	-				
5. Impulsivity	.338*	.410**	-.533**	.375**	-			
6. Substance use	-.137	.068	-.244	.526**	.322*	-		
7. School absence	-.036	.272	-.286	.248	.474**	.340*	-	
8. Criminal behavior	.410**	.434**	-.366*	.346*	.450**	.365*	.178	-

* p < .05, ** p < .01, Pearson correlation, P-C = parent-child

Difference between Baseline and Follow-up

In order to test the difference of scores on risk factors between T0 and T1, an independent samples *t*-test was conducted. Significant differences between baseline and follow-up were found for all the risk factors (e.g. aggression, bullying, parent-child relationship, criminal history of family, impulsivity, substance use and school

absence). At follow-up, adolescents scored significantly lower rates on aggression (t (61.76) = 7.42, p < .001), bullying (t (58.31) = 6.18, p = < .001), impulsivity (t (94) = 8.03, p = < .001), criminal history of family (t (67.60) = 2.65, p = .010), substance use (t (86.24) = 4.55, p = < .001) and school absence (t (94) = 2.98, p = .004), compared to T1. In addition, at T1, a significant better parent-child relationship (t (89.25) = -4.80, p = <.001) was found compared to baseline.

Table 3

Independents Samples T-Test for risk factors

					95% CI	
	MD	*t*	df	*p*	Lower	Upper
Aggression	.73	7.42	61.76	<.001**	.53	.93
Bullying	.61	6.18	58.31	<.001**	.41	.80
P-C relationship	-.57	-4.80	89.25	<.001**	-.80	-.33
Criminal history family	.35	2.65	67.60	.010*	.09	.61
Impulsivity	.84	8.03	94.00	<.001**	.63	1.05
Substance use	.75	4.55	86.24	<.001**	.42	1.08
School absence	.91	2.98	94.00	.004**	.30	1.51

Note: reference group is T0; * significant with p < .05 **significant with p < .01; MD = Mean Difference, df = degrees of freedom, CI = Confidence Interval

Discussion

The goal of this study was to gain insight in the adolescents participating in a pilot program of Bureau Halt and to investigate whether adolescents who completed the intervention significantly reported lower rates of the risk factors (i.e. aggression, bullying, parent-child relationship, impulsivity, substance use and suspension).

First, taking a closer look at the participating adolescents, more than half of the adolescents were male, from divorced families and in lower education. These findings are in line with experiences from Halt employees. Research of Halt also shows that there are significantly more boys involved in their interventions (Halt, 2016). In an additional qualitative study (not published), Halt employees also indicated to see more boys than girls, adolescents from divorced families and in lower levels of education. Taking these two findings together it makes it imperative that the adolescents in this intervention are predominantly male, from divorced families and in lower levels of education.

The first hypothesis was that all risk factors would be related to criminal behavior. This hypothesis is not accepted. For aggression, bullying, parent-child relationship, criminal history of family, impulsivity and substance use the expected relation with criminal behavior was found but not for school absence. More aggression, bullying, impulsivity and substance use and a weaker relationship between parent and child relate to a high degree of criminal behavior. This finding suggests that these risk factors are indeed related to criminal behavior, which makes it imperative to include adolescents who show elevated risks of these factors in the intervention. As school absence was not related to criminal behavior, this risk factor might not be a correct inclusion criterion for the intervention.

The second hypothesis was that the adolescents who completed the intervention would show lower levels of the risk factors aggression, bullying, substance use and school absence compared to the adolescents at the start of the intervention. This hypothesis is accepted. This can be concluded because the scores on all the risk factors were significantly lower in the group of adolescents who had finished the intervention. Considering the differences between the groups, it is suggested that the intervention was successful in targeting these risk factors.

The third hypothesis stated that parent-child relationship and impulsivity would remain stable over time. Although the quality of the relationship between the adolescent and their parents was not a specific target of the intervention, we did find a

stronger relationship among adolescents who had finished the intervention and so the hypothesis in rejected. As parents were involved in the intervention, though not actively, it could have been the case that parents gained a better understanding of the problems their child had and that talking about this problems could have helped them to communicate better. Research shows that effective communication between parent and child leads to a better relationship (Laurson & Collins, 2004). Furthermore, also adolescents' level of impulsivity was lower among adolescents who completed the intervention. Research shows that increased parental knowledge (i.e. awareness of the whereabouts and actions of their child) can decrease impulsivity in their child (Neuman, Barker, Koot, & Maughan, 2010). Due to the intervention the parental knowledge might be increased, by talking about their child parents become more aware of the actions of their child which can result in decreased impulsivity of the adolescent. In addition, Jones, Cauffman and Piquero (2007) found that parental support can increase impulse control specifically for adolescents who are showing anti-social behavior. Parents might gain a better understanding of their child, due to the intervention, which could make them more supportive. If the adolescent has the perception that their parents are more supportive, that could decrease their impulsivity (Jones et al., 2007).

Limitations

There are some limitations of this study. This study does not have a longitudinal design because the group of adolescents at the beginning of the intervention are not the same adolescents at the end of the intervention. In order to follow the adolescents from beginning to end more time was needed then available for this study. Because of this limitation we should keep in mind that the adolescents could have differed on the risk factors at the start of the intervention. Furtherly, because this study is based on self-report the adolescents could have answered socially desirable. Even though privacy was ensured, the survey contained sensitive subjects and we cannot rule out the possibility of social desirability. Therefore, the results could differ from reality slightly. At last, ideally a larger sample could be included. Yet, as the preventive intervention is still in the pilot phase, there are not a lot of departments of Halt who have implemented this intervention. Therefore, it was not possible to obtain a larger sample. Because of the small sample size the results might not be generalizable to the whole population. However, it is quite common to use small samples for research in a pilot phase.

Suggestions for future research are first of all to follow the same adolescents from beginning to the end of the intervention to account for possible differences between the adolescents from start on. Because we could not measure what the effects on criminal behavior are, as these adolescents are not yet actively involved in crime, it would be interesting to do a follow up and see what the long-term effect is on the risk factors and criminal behavior.

Implications

The relation between criminal behavior and school absence was not found in this study which indicates that school absence might not be risk factor for criminal behavior. Bureau Halt could possibly remove school absence as an inclusion criterion for this intervention. However, more research is needed to find out whether it is or is not a risk factor for criminal behavior. With regard to the inclusion criteria, it could be useful to include adolescents with weak parent-child relationships and high impulsiveness as these factors are also related to more criminal behavior and the intervention already seems to be effective in decreasing the levels of these risk factors. Furtherly, it is suggested that the intervention is successful in decreasing the level of risk factors which makes it imperative to implement this preventive intervention on a larger scale.

Conclusion

It can be concluded that all variables (i.e. aggression, bullying, parent-child relationship, criminal history of family, impulsivity and substance use), except for school absence, are risk factors for criminal behavior. Therefore, these are proper inclusion criteria for the intervention. Furtherly, it can be carefully concluded, keeping in mind the previously mentioned limitations, that the intervention seems to be effective in decreasing the levels of the risk factors aggression, bullying, impulsivity and substance use and in improving the relationship between the adolescents and their parents. Since (most of the) risk factors are related to criminal behavior and the intervention seemed to be effective in lowering the levels of these risk factors it seems that the intervention could be effective in preventing criminal behavior among adolescents.

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