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7.

General Discussion

This dissertation concentrated on adolescents at risk for a persistent criminal behavior pattern. Three objectives dealing with prevention and juvenile delinquency were examined. The first objective focused on the mediating role of potential risk and protective factors of individual and social functioning in the association between attachment and externalizing behavior (aggression and delinquency). The second objective was to synthesize the extent of empirical evidence of the effectiveness of youth crime prevention programs, and whether the effects were influenced by type and intensity of the program (specific program ingredients), characteristics of participants, design of the study, and type of outcome. The examination of short- and long-term effectiveness of one specific youth crime prevention program, New Perspectives (NP), was the third objective of present dissertation. In light of the overall effectiveness of youth crime prevention, we focused also on the question “what works for whom?” by examining the influence of demographic factors (gender, age, and ethnicity) and delinquency factors (history of offending, age of first offense, and severity of prior offenses) on the program outcomes.

In part 7.1 the main findings of the present dissertation will be discussed. Part 7.2 will describe methodological shortcomings and strengths of this dissertation. Recommendations for future studies and clinical practice will be provided in the next parts (7.3 and 7.4). Finally, this chapter will be closed with conclusions about the main findings (part 7.5).

7.1 Discussion of Main Findings

7.1.1 Individual and Social Mediational Processes

A small group of serious and persistent offenders (6 to 7% of the juvenile population), starts committing delinquent acts at an early age, their behavior becomes gradually more serious, and their criminal behavior continues well into adulthood (Loeber, Burke, & Pardini, 2009). As people grow older they become more resistant to change (Bernazzani, Cothe, & Tremblay, 2001; Gottfredson & Hirschi, 1990). We therefore should invest in (early) youth prevention programs. The present research concentrated on youngsters experiencing multiple problems in various life domains (school, family, peers, and leisure time), and being at elevated risk for persistent delinquency. At the time of referral to the NP program, these youngsters had been identified as predelinquents with antisocial behavior, first time offenders, or adolescents with mainly minor police contacts and offenses.

In order to prevent that these at-risk youngsters develop a chronic criminal behavior pattern, many studies have pointed to the need for parents to occupy the central focus for prevention. Proximal family factors are considered as important causal mechanisms of juvenile delinquency (Patterson & Yoerger, 2002). Among these family factors, a poor relationship between parent and child is a significant risk factor for later problems in life, including delinquency, and other forms of externalizing problem behavior (Bowlby, 1944; Hirschi, 1969; Fearon, Bakermans-Kranenburg, Van IJzendoorn, Lapsley, & Roisman, 2010; Hovee et al., 2012). However, an important question is how a poor attachment bond between the adolescent and parent is related to adolescents’ antisocial behavior.

The first question of the present dissertation (chapter 2) was whether the association between adolescent-parent attachment and externalizing behavior (i.e., aggression and delinquency) was mediated by self-serving cognitive distortions, low levels of self-esteem, affiliations with deviant peers, and low degree of parental monitoring. The examination of these mediational pathways provides a better understanding of the processes by which representations of attachment may be related to adolescents' aggressive and delinquent behavior.

The findings showed that the associations between attachment and aggression and between attachment and delinquency were mediated by different mechanisms. As expected, the association between poor attachment and (direct and indirect) aggression was mediated by individual factors (adolescents' cognitive distortions), whereas the association between attachment and delinquency was mediated by social factors, that is, affiliations with deviant peers and poor parental monitoring. These different mediational pathways could be explained by the different developmental trajectories of aggressive and delinquent behavior (Stanger, Achenbach, & Verhulst, 1997). The hypothesized mediating role of self-esteem in the relation between attachment and aggression was not supported.

Self-serving cognitive distortions particularly played a mediating role in the relation between attachment and direct forms of aggression. The association between attachment and indirect aggression was only partly mediated through cognitive distortions. These mediating effects can be interpreted in terms of attachment theory, suggesting that negative attachment experiences create insecure internal working models (Blatt & Homann, 1992), which could produce biased cognitions and perspectives, such as self-serving cognitive distortions (e.g., assuming the worst), which in turn are linked to aggression (Barriga, Landau, Stinson, Liau, Gibbs, 2000; Helmond, Overbeek, Brugman, & Gibbs, 2014). The somewhat different mediational pathways of direct and indirect aggression could be explained by distinct etiological levels of these two subtypes of aggression, which is indicated by the overt-ness-covert-ness dimension of antisocial behavior (Loeber & Schmalzing, 1985). Other aspects of adolescents' cognitions may mediate the association between attachment and the indirect and covert subtype of aggression, for example, the perspective-taking component of empathy (Capuano, 2011).

In addition, self-esteem proved not to be a significant mediator of the links between attachment and both types of aggressive behavior. Researchers have questioned the relation between self-esteem and externalizing behavior (Jang & Thornberry, 1998; Matsueda, 1992; Rosenberg, Schooler, Schoenbach, & Rosenberg, 1995). Notably, Rosenberg et al. (1995) showed that content-specific self-concept is more strongly related to behavioral outcomes, whereas global self-esteem is associated with psychosocial well-being. Accordingly, the present results could be explained by the way in which self-esteem was measured.

A poor attachment bond was found to be associated with delinquency through affiliations with deviant peers and low levels of parental monitoring. Experiences in attachment relationships with parents are thought to be generalized to other relationships,

such as peer friendships (Bowlby, 1973). Consistent with the social control theory (Hirschi, 1969) and social development model (Hawkins & Weis, 1985), adolescents with positive representations of the attachment bond with parents are less prone to seek contact with deviant peers, which in turn, decreases the likelihood of delinquent behavior. The results of the present study demonstrated that adolescents' insecure representations of attachments to parents affect an adolescent's behavior towards a parent (a greater reluctance of sharing information), which leads to lower levels of parental monitoring, and a greater probability to be involved in delinquency. Finally, the present findings confirm our expectations that social factors play a more relevant role in mediating the link between attachment and delinquency than in the association between attachment and aggression. This assumption could be explained by the fact that shared environmental factors are more influential in predicting delinquent behavior than in the development of aggressive behavior (Tackett, Krueger, Iacono, & McGue, 2005).

7.1.2 Effective Ingredients of Youth Crime Prevention Programs

The second objective of this dissertation (chapter 3) was to investigate the overall effectiveness of youth crime prevention programs, and which specific program, sample, and study features influenced the program outcomes (i.e., a reduction of delinquency and recidivism). The overall effect size was significant, but small in magnitude ($d = .23$), corresponding to 13% reduction in delinquency compared to care as usual or no treatment. Although the impact of prevention programs on delinquency remains small, preventive interventions seem to have stronger effects than treatment of severe juvenile offenders (see studies of James, Asscher, Dekovic, Van der Laan, & Stams, 2013; Lipsey, 1992; 2009).

The findings of the meta-analytic study proved that the effects of youth crime prevention programs increased under specific conditions. Even though differences in program outcomes were not dependent on treatment type (e.g., skills training, mediation or mentoring programs), specific program components, in particular training parenting skills, positively influenced program effects. The results are in line with findings of previous studies (e.g., Andrews & Dowden, 2007; Lipsey, 2009; Lösel & Beelmann, 2003), indicating that skills building approaches are most successful in preventing and reducing juvenile delinquency. The absence of differential effects of program types may be explained by the fact that most programs were based on social learning theories and partially overlap in their contents (Lösel & Beelmann, 2003).

Family-based, individual, and multimodal programs were most effective in preventing a persistent criminal career. The positive impact of multimodal programs has repeatedly been proven in previous meta-analytic studies (Lipsey, 1992; 1995; Lipsey & Wilson, 1998). A multimodal approach addresses a number of risk factors, which is more successful than a narrowly focused approach addressing one or very few risk factors (McCord, Widom, & Crowell, 2001). Group-based programs, involving homogeneous groups of peers showing antisocial behavior, were ineffective, which can be explained by the 'deviancy learning process'

(see Dishion, McCord, & Poulin, 1999). Additionally, highly intensive programs, in terms of number of treatment sessions, were less effective. The prevention programs included in our meta-analytic study mainly concentrated on adolescents at onset of a criminal career. Highly intensive programs could be counterproductive for less serious offenders, which is consistent with results of previous studies and the dose-response principle (see Andrews, Bonta, & Hoge, 1990a; Koehler, Lösel, Akoensi, & Humphreys, 2013; Lipsey, 2009; Wilson & Hoge, 2012). Moreover, the results suggested that reductions in the participation and frequency of delinquent acts not necessarily concur with reductions in seriousness of delinquent acts. As a consequence, it is important to take into account various dimensions of delinquency when performing evaluation research.

Finally, consistent with earlier systematic reviews (see Wilson, Lipsey, & Soydan, 2003; Zahn, Day, Mihalic, & Tichavsky, 2009), we found no differential effects for different subgroups, assuming that prevention programs are equally effective for boys and girls, younger and older adolescents, and adolescents from different cultural backgrounds. However, this does not mean that sensitivity to specific risk factors of different subgroups is irrelevant. More tailored preventive interventions adhere to the *needs* and *responsivity* principles (Andrews et al., 1990a) by adapting the program to specific characteristics and abilities of adolescents, which might lead to larger effects. As a consequence, more outcome studies focusing on the effects of programs targeting specific risk factors of different subgroups are needed to establish if they result in larger effects than comparable programs without specific adaptations (Wilson et al., 2003).

7.1.3 Effectiveness of New Perspectives

The last three chapters of this dissertation focused on the effectiveness of the Dutch youth crime prevention program, New Perspectives. At-risk youth ($N = 101$) aged 12 to 19 years were randomly assigned to the intervention (NP, $n = 47$) or other existing youth care programs ('care as usual', $n = 54$).

First, NP-adolescents showed short-term (6 months after program start) improvements in primary (delinquency) and secondary outcomes (e.g., parenting), but not more than in the comparison group. Therefore, these changes cannot be attributed to NP. In the short-term, age influenced adolescents' prosocial behavior. The (prosocial) behavior of older NP-adolescents (16 years and older) improved during the NP intensive program phase, whereas older adolescents in CAU showed a deterioration. Opposite effects were found for the aftercare phase (see chapter 5). Second, no significant long-term effects were found in percentage, frequency, and seriousness of delinquency and recidivism. However, NP was effective in terms of time to re-arrest (at 12 months follow-up). Also, self-reported delinquency at 18 months follow-up was significantly influenced by criminal history: adolescents with prior offenses showed more improvement in the NP than in the CAU condition, whereas adolescents without prior offenses performed better in the CAU than the NP condition (see chapter 6).

Several explanations can be given with regard to the overall null-effects of NP. First, the use of an active control condition (CAU) may have resulted in an underestimation of the program effects. Although NP differs from care as usual programs in following principles of the RNR-model and relative high intensity levels, the type of program and care workers of the two conditions (NP and CAU) are generally comparable. Possibly, the NP program is not specific and structured enough to effectively change adolescents' and parents' behavior. Also, the condition of the control group consisted of a broad variety of interventions that could have included some elements of evidence-based treatments, thus reducing the difference between NP and CAU (Weisz, et al., 2013). However, after comparing adolescents with and without treatment (21% of the total sample followed no treatment) similar results were found: no significant differences between the groups, which seems to rule out positive effects of NP or CAU.

A second plausible explanation of not finding evidence to support the effectiveness of NP may be related to low program integrity levels. A study of De Vries et al. (2014a) examining program integrity levels in treatment of 76 NP-adolescents (meeting NP selection criteria), showed that program integrity levels of the aftercare program phase were below the recommended minimum levels of Durlak and DuPre (< 60%, 2008). The lower levels of program integrity were explained by unclear descriptions of guidelines and activities of the aftercare program phase (De Vries, Hoeve, Asscher, & Stams, 2014a).

Third, as concluded in previous evaluation studies (e.g., Buysse, Van den Anel, & Van Dijk, 2008; Geldorp, Groen, Hilhorst, Burmann, & Rietveld, 2004; De Vries, Hoeve, Asscher, & Stams, 2014a; 2015b; Loef, Nauta, & Abraham, 2011), a mismatch between the program intensity and client's risk levels (risk principle, Andrews et al. 1990a) may be an additional explanation of the null-effects. The program intensity of NP is too high for a subgroup of NP-clients (included in the present study) showing a very low risk of reoffending. Notably, results of the present study confirmed that NP is most effective for adolescents showing minimal delinquency levels (a history of crime). On the other hand, the present study included NP-clients showing very high risks of re-offending. These higher risk adolescents may need a more long-lasting and specialized intervention. Consequently, in order to reach program effectiveness, clients need to be carefully screened on risk levels before entering NP.

Finally, no consistent moderator effects were found, suggesting that effects of NP were about the same for boys and girls, older and younger adolescents, and native Dutch adolescents and adolescents from ethnic minority groups, which is consistent with findings of previous meta-analytic studies (De Vries, Hoeve, Assink, Stams, & Asscher, 2015; Wilson et al., 2003; Zahn et al., 2009).

7.2 Strengths and Limitations

Several general limitations of the present dissertation should be kept in mind. A first limitation is that the number of participating adolescents ($N = 101$) and parents ($N = 61$) was relatively small. During our study (2011-2013), the continuation of the NP intervention was put under

pressure due to large-scale reforms in the Dutch youth care system. Local governments became responsible for the organization and funding of child welfare agencies. As a result of financial pressure (budget cuts), youth care organizations, such as the provider of the NP program, restructured their youth care services. In order to guarantee that there were no changes in the format and content of the NP program, we had to terminate recruiting participants earlier than expected. Consequently, it became more difficult to recruit sufficient numbers of participants to obtain adequate statistical power. However, according to Weisz, Doss, and Hawley (2005), a sample size of approximately 50 participants in both groups ($n = 47$, NP; $n = 54$, CAU) is considered to be sufficient for intervention outcome research.

As in other effectiveness trial studies under real-world conditions, the small sample size was also a consequence of “natural” drop-outs in our study (Asscher, Deković, Manders, Van der Laan, & Prins, 2007b). Despite these threats, attrition analyses of the present study indicated no differences between participants and drop-outs. Although a sample size of 101 participants may be sufficient for intervention outcome research, the small sample size restricted conducting multiple group analyses to test mediation models of attachment and externalizing behavior for gender- and age groups. Also, the total sample size of parents ($N = 61$) was not large enough to be able to conduct moderator analyses. Even though the sample size of our study is comparable to other RCTs examining intervention effects on externalizing problem behavior (e.g., Berry, Little, Axford, & Cusick, 2009; Leijten, Overbeek, & Janssens, 2012; Stickle, Connell, Wilson, & Gottfredson, 2008), larger samples are needed to examine mediator and moderator effects.

In the present dissertation, we were not able to test the influence of program integrity and offending risk level (problem severity) on program effectiveness. As there was no standardized, valid, and reliable monitoring system of treatment adherence implemented in the (clinical) practice of NP, we were not able to include all NP-adolescents of the present effectiveness study into the study of program integrity. As a consequence, we could not assess the influence of program integrity on program effects. Furthermore, we were not able to examine the influence of (static and dynamic criminogenic) risk levels on program effectiveness, while risk profiles were not available for all participants in the present study (only for participants in the NP group). Referral agencies did not use valid risk assessment instruments. Therefore, it would be valuable for research and clinical practice purposes to implement standardized assessments of (changeable) risk and protective factors in the practice of youth care (Broeders, Van der Helm, & Stams, 2015).

Despite these limitations, the present dissertation makes an important contribution to the field of youth crime prevention. The first study of this dissertation unraveled which processes mediate the association between adolescent-parent attachment bonds and subtypes of externalizing behavior. The results contribute to a better understanding of the mechanisms underlying the development of externalizing problem behavior among adolescents.

The meta-analytic study provided more insight into which elements of prevention programs are effective and which elements are not. Knowledge on which elements work for whom can be used to tailor interventions to the needs of clients (Leijten et al., 2015). This study also gained more insight into ineffective intervention strategies, which is crucial information for decisions about the implementation and continuation of programs (and elements) producing unintended harmful effects on adolescents' development.

The present dissertation included one of the few randomized criminological experiments outside the USA (Farrington & Welsh, 2005) that examined the effectiveness of programs for adolescents at risk for persistent delinquency. Thus, by using a high quality research design (RCT), this research made a valuable contribution to the development of youth crime prevention programs. Furthermore, the effectiveness of the NP program was tested in a naturalistic setting (effectiveness study), which contributes to high levels of external validity. The comparison between NP and other existing services (care as usual) contribute to more realistic results than when the study would have been conducted in a clinically controlled setting (efficacy study). In efficacy studies program effects are tested under optimal conditions, including selected and motivated respondents and well-trained clinical practitioners. Therefore, the present effectiveness study is more clinically representative than efficacy studies (Kendall, 1999; Weisz, Doss, & Hawley, 2005). Other strengths of the present study included application of multiple measurements (pre-test, two post-tests, and follow-up), multiple informants and sources (youth-, parent reports, and official judicial records), and finally, the assessment of different types of antisocial behavior (delinquency, aggression).

7.3 Future Research

The implementation of randomized controlled trials (RCT) provides answers on whether interventions are effective as a whole, and for whom these interventions are effective. However, there is a need for more specific knowledge on which elements of youth crime prevention programs cause their effectiveness (Leijten et al., 2015). Many prevention programs are multimodal, which creates difficulties in isolating the independent effects of different components. Future experiments should attempt to disentangle the effects of different elements of the most effective programs (Welsh & Farrington, 2002). Leijten et al. (2015) proposed a model in which randomized controlled microtrials (i.e., a study of discrete intervention elements) and randomized controlled trials (i.e., a study of comprehensive programs) are combined, which contributes to the optimization of intervention effectiveness. Knowledge on specific effective elements can provide a scientific basis for tailoring interventions to individual needs.

Another future line of research closely linked to the focus on program elements is analyzing mediational processes through which interventions affect adolescents' problem behavior (DeGarmo, Eddy, Reid, & Fetrow, 2009). Research about mechanisms of change contributes to the development and improvement of effective interventions (Cheong, MacKinnon, & Khoo, 2003). In addition, given that interventions could benefit from family-

based strategies that focus on the bonds between parents and the adolescent (Hoeve et al., 2009; 2012), we should further investigate which other social and individual mechanisms may mediate and explain the relation between attachment bonds and externalizing behavior. In addition, it would be valuable to examine these mediation patterns for different age groups, since the impact of family risk factors (such as, attachment) decreases with age (Van der Put et al., 2011). A longitudinal research design, based on a more heterogeneous and larger sample is needed to test mediation models of attachment and problem behavior for different phases in childhood and (pre-, middle, and late) adolescence.

A final issue that might be worthwhile examining in future research, is conducting cost-benefit analyses to assess if prevention programs, such as NP, are a worthwhile investment of government and taxpayers. Thus, future research and interventions should include, as part of the original research design, provision for an economic analysis, to allow for an assessment of the economic efficiency of the program (Welsh & Farrington, 2002).

7.4 Practical Implications

The present research has several practical implications for programs that aim to prevent that youngsters at onset of a criminal trajectory will develop a persistent deviant lifestyle. First, clinical practitioners should focus on the attachment relationship between adolescent and parents in order to positively affect risk and protective factors for adolescents' delinquent behavior. Family ties are considered as important factors in the process of desistance from crime (Laub & Sampson, 1993). Although researchers have stated that the adolescent-parent relationship quality is an important target in both preventive and curative intervention (e.g., Asscher, Wissink, Deković, Prinzie, & Stams, 2014b; Cottle, Lee, & Heilbrun, 2001; Piquero, Farrington, Welsh, Trembley, & Jennings, 2009), the impact of family risk factors decreases as children grow older (Van der Put et al., 2011). Social bonds to peers become more important as youth enter adolescence (Hawkins & Weis, 1985). Therefore, it is reasonable to adapt the focus of prevention to the specific developmental periods and transitions in the adolescent's life. As a consequence, the critical period of influencing the attachment bond with parents by prevention programs should take place before children enter the phase of adolescence.

Given that NP proved to be most effective for adolescents with a criminal history, the effectiveness could be enhanced by focusing on adolescents with minimal and detectable delinquency levels. It is well known that prevention programs targeting at-risk groups (selective/indicated prevention) show better results than universal programs. However, this should not be overgeneralized to extremely high risk youngsters, such as those exhibiting psychopathic tendencies who may need longer and specialized treatment (Lösel & Beelmann, 2003). Reliable and valid assessment of care needs, (changeable) risk and protective factors is necessary to refer youth to the appropriate program (Broeders et al., 2015), and to find a careful match between problem severity and level of program intensity (according to the *risk* principle of Andrews et al., 1990a).

Moreover, youth crime prevention programs (such as NP) could be enriched by establishing a clear program focus, which is based on theoretical models explaining criminal behavior (e.g., targeting poor adolescent-parent bonds). In this respect, it would be advisable to target the NP program at youth whose antisocial behavior is the product of poor bonds with peers, parents, and other important persons in the social network, the area where NP is thought to make a difference. Additionally, the effectiveness can be enhanced by integrating effective components that are based on a strong therapeutic and (cognitive) behavioral-oriented approach (Lipsey, 2009). On the basis of our meta-analytic study, the largest effects can be expected if prevention programs are carried out in a family-based or multimodal format in which behavioral-oriented techniques (i.e., behavioral modeling and contracting) and parenting skills training are embedded. Prevention programs should avoid group sessions that exclusively involve peers exhibiting antisocial behavior. Also, the weekly amount of sessions, within programs targeting youngsters at onset of a criminal career, should be kept low.

Since program integrity is an essential factor influencing program effectiveness (Lipsey, 2009), interventions should meet important preconditions to reinforce levels of program integrity. Although NP was considered as a well-implemented program in previous studies (e.g., Van den Braak & Konijn, 2006), the program lacked a high quality (reliable and valid) and standardized treatment adherence monitoring system. To ensure that the program is implemented as intended, there are four important preconditions. First, treatment integrity encompasses three aspects, which should be addressed in the measurement of treatment integrity: (1) therapist adherence, (2) therapist competence, and (3) treatment differentiation. Second, a global and specific manual in which the program components are operationally defined is needed to reduce treatment implementation variability, which also facilitates the examination of program integrity. For example, guidelines and activities of the aftercare NP-program phase could be described more explicitly to enhance levels of therapist adherence. Third, training and supervision of care workers is an essential condition for an adequate treatment delivery. Finally, effective procedures for the evaluation of treatment integrity involve direct instruments (observation of treatment delivery, such as videotape of the session), training of raters, and the assessment of interrater reliability (Goense, Boendermaker, Van Yperen, Stams, & Van Laar, 2014).

Finally, preventive intervention programs may only have a limited effect under conditions of chronic familial and socio-economic adversity (Deković et al., 2011). Negative child outcomes may be related to factors beyond parenting skills, such as disorganized neighborhoods (Piquero et al., 2009). Policymakers should therefore place such programs within the broader context of support in disadvantaged conditions (Deković et al., 2011). Consequently, improvements should also be made on a macro-level, in the neighborhood, and with the provision of effectively coordinated good quality medical, social and child care services (Broeders et al., 2015; Henggeler & Schoenwald, 2011; Lipsey, Howell, Kelly, Chapman, & Carver, 2010).

7.5 Conclusions

This dissertation aimed to examine potential underlying mechanisms of delinquent behavior and the effectiveness of prevention programs targeting youth at risk for a persistent criminal behavior pattern. Different mediational pathways were found depending on the type of adolescents' externalizing behavior (aggression and delinquency). The results suggested that self-serving cognitive distortions is one cognitive mechanism by which attachment is related to aggression, in particular direct aggression. Social factors, that is, affiliations with deviant peers and low levels of parental monitoring, played a mediating role in the relation between attachment and delinquent activities. These findings imply that improving parental attachment should be an important focus in prevention, which is consistent with positive effects of interventions targeting adolescent-parent attachment as a way to prevent a persistent criminal trajectory (e.g., Laub & Sampson, 1993; Piquero et al., 2009).

The overall effect of preventive interventions was small, indicating that these programs had a modest effect on delinquency and recidivism reduction. The effectiveness of prevention programs increased if programs included components of training parenting skills, had low intensity levels, and used individual-, family-based or multimodal formats instead of group-based treatment. Consequently, youth crime prevention programs could be improved by implementing effective specific program ingredients.

Finally, no solid evidence was found for the effectiveness of NP in preventing and reducing persistent (juvenile) delinquency. Both groups showed improvements on primary and secondary outcomes at post-test. The intensive program phase of NP proved to be effective for older adolescents, whereas the aftercare phase was ineffective for the older age group. In the long-term, NP only was effective in terms of time to re-arrest. Moreover, NP proved to be effective for adolescents with a criminal history, whereas adolescents without a criminal history benefited most from CAU. On the basis of these results, the performance of NP could be enhanced by concentrating on improvement of social ties with close family members and important others, and by implementing clear effective behavioral-oriented techniques within a multimodal or family-based format. Given that program integrity and reaching an appropriate target group are important factors influencing program effectiveness, it is advisable to implement high quality standardized treatment adherence monitoring systems and comprehensive, scientifically sound diagnostic instruments in the clinical practice.

Although effective interventions have been developed during the past 20 years, the vast majority of services implemented in the juvenile justice system have not been proven effective or have not yet been evaluated. Only a small percentage (fewer than 5%) of eligible high-risk juvenile offenders are treated with an evidence-based intervention annually (Henggeler & Schoenwald, 2011). In order to enhance our knowledge about the effectiveness of youth crime prevention, we should continue conducting randomized controlled trials. Hopefully, researchers, clinical practitioners and policymakers are encouraged to work

together in implementing randomized experiments. As Weisburd (2003, p. 336) stated, it is our professional obligation to provide valid answers about the effectiveness of interventions.