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CHAPTER 7

Summary and general discussion

Summary

In the Netherlands, yearly four to five thousand children under age twelve are registered by the police because they are suspected of having committed an offence (van der Laan et al., 2008). Early onset offending, and in particular a police arrest in childhood, increases the risk of chronic and serious offending later in life (Snyder, 2001). It is, furthermore, often associated with multiple problems in the individual and his or her environment such as mental health problems, school problems, substance use and family problems (Loeber & Farrington, 2000; Moffitt & Caspi, 2001; Doreleijers et al., 2001; Dembo et al., 2008; van Domburgh et al., 2009a). Over time these problems are likely to develop into adverse outcomes, including psychiatric problems, physical health problems, victimization and unemployment (Snyder, 2001; Loeber & Farrington, 2001b; Moffitt et al., 2002; Odgers et al., 2007). Studying childhood arrestees is, therefore, highly relevant both from a re-offending-risk perspective as well as from a clinical point of view.

However, notwithstanding their elevated risk of a delinquent and disturbed development, a substantial part of childhood arrestees does not develop into chronic offenders, as not all children have co-occurring problems to the same degree (van Domburgh et al., 2009b; van Domburgh et al., 2011; Cohn et al., 2012). This heterogeneity poses a challenge to police practice and in defining policy regarding childhood arrestees. Effective recognition of the children most at risk and the development of adequate interventions are presently complicated by a lack of knowledge on childhood arrestees and potential subgroup specific risks of problematic development within this group. In order to direct effective intervention to those children, knowledge on the development of problems co-occurring with offending per se, as well as in relation to persistent offending, is crucial for both clinical and police practice. Addressing children's co-occurring problems at an early stage is likely to reduce the risk of later adverse outcome.

For a more comprehensive picture of childhood arrestees' needs and risks, a better knowledge of their problems as well as on the interplay between these problems and their delinquent development is needed. Therefore, in this thesis, the two-year development of very young offenders was investigated with regard to offending and co-occurring problems. Specific aims of the thesis were:

- to investigate the presence of clusters characterized by distinct profiles of correlates of early onset offending and their association with later offending and victimization;

- to describe the presence and course of mental health problems and impaired psychosocial functioning over time;
- to investigate the association between mental health problems and persistent offending.

The development of childhood arrestees was investigated in a prospective longitudinal study. Children registered by the police in the period from 2003 to 2005 because of committing a first offence under the age of 12 were selected from local police registration systems in three police districts in The Netherlands (Rotterdam-Rijnmond, Gelderland-Midden and Utrecht). Offending was defined as behavior that could be prosecuted if displayed by someone aged twelve years or older, excluding status offences. The final sample consisted of 308 children between 5 and 11 years of age at the time of first arrest. Children were followed up after one and two years, respectively. At each assessment, standardized instruments - interviews as well as questionnaires - were administered to the children, their parents and their teachers. Complete follow-up data were available for 76.3% of the children. Participants who dropped out during follow-up did not differ on age, sex, ethnicity and socio-economic status (SES), as defined by neighborhood, from participants who completed all assessments.

In **chapter 2** the presence of clusters characterized by distinct profiles of problems co-occurring with early onset offending among our group of childhood arrestees was explored in order to enhance effective recognition of children in need of care and to provide directions for targeted prevention and intervention. In addition, cluster membership transition after two-year follow-up was described. Three distinct clusters could be identified. A *low problem group* (40.2 %) characterized by few problems across all domains, with cluster membership remaining stable after two year follow-up for the majority of its members. An *externalizing intermediate problem group* (39.4 %) characterized by predominantly externalizing problems in the individual and peer domain, while parenting problems were relatively low. At two-year follow-up, nearly half of the children remained in this cluster. Transition from this cluster was more often to the *low problem group* than to the *pervasive high problem group*. In the *pervasive high problem group* (20.4 %) many problems across all domains were present. Cluster membership was least stable in this group; in almost two thirds of the children less problems were present at follow-up as compared to baseline.

In **chapter 3** the investigation of differences in level of antisocial behavior and victimization between the clusters found in chapter 2 was described. Furthermore, in order to determine their clinical value in predicting such adverse outcomes, the association between the observed clusters and co-occurrence of antisocial behavior and victimization was analyzed. Both the *externalizing intermediate problem group* and the *pervasive high problem group* re-offended more frequently during follow-up than the *low problem group*. In addition, *the pervasive high problem group* was more likely to both re-offend and get victimized than the *externalizing intermediate problem group*.

In **chapter 4** the prevalence of mental health problems and impaired psychosocial functioning at baseline and during follow up was described. Mental health problems and indicators of psychosocial functioning were measured at baseline, one-year and two-year follow-up using standardized instruments. The two-year course of these problems was studied both at group and individual level. At baseline, high prevalence of mental health problems, both internalizing and externalizing, was found: 33.5% of the children suffered from one or more externalizing problems and 17.3% experienced emotional problems. Moreover, at baseline impaired psychosocial functioning, such as problems at school, problems in relationships with peers, and growing up with parents experiencing mental health problems and parenting stress, was frequently found, ranging from 22.5% for peer relationship problems to 47.5% for poor school achievement. Analysis of the course of these problems at group level, i.e. the change of prevalence rates over time, showed that the prevalence of most problems slightly decreased during follow-up. Only substance use increased over time. Analysis of the course at individual level, represented by the likelihood of persistence of problems once present, showed high individual stability of mental health problems, except for substance use. Individual stability varied more for indicators of functional impairment.

In **chapter 5** the association between mental health problems and offending in childhood first-time arrestees was explored by investigating the predictive value of these problems for future offending. In order to improve identification of at-risk children, the predictive value of mental health problems based on single assessment compared to multiple assessments for future offending was evaluated. The course of both self-reported and registered offending was also described. The level of offending reported by children and parents did not change during the two-year

follow-up period, while registered re-offending significantly increased over time. In addition, a higher re-offending rate with increasing age of first registered offence was found. Mental health problems were positively associated with future offending; both child- and parent-reported externalizing problems and parent-reported internalizing and peer relationship problems were predictive. The strength of these associations increased when multiple assessments were used. For this improvement, mean levels rather than escalation of mental health problems over time proved relevant.

In **chapter 6** we specifically focused on autistic symptoms in relation to offending. The study described in this chapter aimed to investigate the presence of autistic symptoms in childhood arrestees by comparing our sample on levels of autistic symptoms with matched comparison groups. At each assessment, levels of autistic symptoms in childhood arrestees were in between the levels found in the general population and autism spectrum disorder samples. In addition, for our group of childhood arrestees, the unique predictive value of autistic symptoms for future offending was assessed, corrected for co-occurring externalizing disorders. Autistic symptoms were positively associated with delinquent behavior in childhood arrestees, even after adjustment for externalizing disorders. Autism-related features may thus predispose to delinquent behavior in childhood arrestees.

General discussion

This study on the two-year development of very young offenders aimed to increase our knowledge on which children are at high risk of a worrisome development.

Identification of subgroups of childhood arrestees

Three distinct subgroups were identified that differed in the presence of problems co-occurring with offending (chapter 2) as well as in the risk of persistent offending and victimization over time (chapter 3):

The *pervasive high problem group* can be regarded the most problematic group. With their high likelihood of impulsivity, hyperactivity and educational difficulties together with family adversities and parenting problems, and their high risk of future offending and victimization, children in this group seem to resemble the early onset persistent offenders described by Moffitt (1993). This should, however, be considered within the limits of the relatively short follow-up period, as well as the lack of information on children's early neurodevelopmental characteristics. In

addition to being a burden to society, their problematic development is likely to severely affect the children themselves.

The *externalizing intermediate problem group* appears to have a more impulsive and experimental pattern of behavior represented by the temporary risk of mainly externalizing behavior and high likelihood of reactive aggression and sensation seeking. This is supported by a decrease over time in the likelihood of co-occurring problems for a large part of children in this cluster as indicated by transition to the *low problem group*. Better parenting skills as compared to the *pervasive high problem group* may partly account for this observed lower likelihood and decrease of co-occurring problems. As co-occurring problems have been shown to follow the course of disruptive behavior over time (Barker et al., 2010), the temporary nature of the problems of at least part of the *externalizing intermediate problem group* may imply a temporary nature of their offending as well. Until there are data available on the long-term development of problems specific to this subgroup in relation to delinquent development, it remains only speculative whether these children will actually discontinue offending in the long run.

Of importance, in addition to the recognition of the two most problematic subgroups, is the finding that a substantial part of the childhood arrestees were at low risk of re-offending and victimization over time (*low problem group*). Their relatively stable low risk of adverse outcomes may not only result from the limited presence of problems co-occurring with offending, but could also indicate the presence of factors counterbalancing the risk of a deviant development (Stouthamer-Loeber et al., 2004). Furthermore, for some children their misbehavior and subsequent police arrest may have simply been an incident. Further insight into the characteristics and development of this cluster may reveal factors contributing to a healthy development relevant to all childhood arrestees.

These findings confirm the previously found heterogeneity among childhood arrestees with regard to delinquent development (van Domburgh et al., 2009b) and have further extended knowledge on the problems associated with the course of offending in these children. Two of the three clusters (*pervasive high problem group* and *externalizing intermediate problem group*) were particularly at risk of offending and victimization, further substantiating that part of the childhood arrestees can indeed be considered at high risk of a deviant development. However, almost half of the children had a low likelihood of problems and associated low risk of re-offending and victimization over time (*low problem group*). This indicates

that a first police arrest can also be an incident and may not necessarily be the beginning of a pattern of long-term frequent and serious antisocial behavior. The risk of persistent offending and victimization increased with the level of problems in the subgroups. This supports previous findings suggesting a dose-response relationship between the number of risk factors and the risk of persistent offending (Stouthamer-Loeber et al., 2004; van Domburgh et al., 2009b). It is, furthermore, also in line with the notion that a deviant development results from the frequency and accumulation of problems across various life domains rather than specific problems (Loeber et al., 2008b). However, when taking into account other detrimental outcomes besides offending such as victimization, it could be argued that the clusters not only differ in a quantitative way, but that the specific problem profiles are also related to specific outcomes. The problems across all domains of the *pervasive high problem group* make them more vulnerable to victimization compared to the mainly externalizing problems of the *externalizing intermediate problem group*. Their wide range of problems may, furthermore, limit the ability to acquire and develop prosocial skills (Moffitt, 1993), which in turn may put them at risk of social exclusion and subsequent victimization. This is supported by the observed high levels of problems in the relationship with peers in this cluster as opposed to the *externalizing intermediate problem group*.

Presence and course of mental health problems and functional impairment

In line with findings in older offender populations and consistent with known risk factors of early onset offending (e.g. Loeber & Farrington, 2000; Vermeiren et al., 2006; Fazel et al., 2008; Dembo et al., 2008), high levels of mental health problems, i.e. externalizing problems, internalizing problems and autistic symptoms can be found in childhood arrestees (chapters 4 and 6). Prevalence rates of mental health problems in the childhood arrestees were higher than prevalence rates found in the general population (Verhulst et al., 1997; Youth in Mind, 2001; Costello et al., 2003). In addition, relatively high comorbidity of problems and functional impairment are present, as co-occurring problems at school, in relationships with peers and family problems are frequently observed as well (chapter 2).

High rates of externalizing problems can be expected because offending is one of the symptoms of externalizing behavior. Elevated levels of internalizing mental health problems may partly be explained by high comorbidity rates described in childhood psychiatric disorders and in particular in disruptive behavior disorders (Angold et al., 1999). Additionally, internalizing problems may also arise

as a result of experiencing a stressful event such as a police contact and its consequences, or family adversities. Behavioral problems and offending can, furthermore, lead to social exclusion, which in turn could also be a cause of internalizing mental health problems. This view is supported by the observed high levels of problems in the relationship with peers. Another possible explanation for the high observed co-occurrence of problems could be that other underlying problems are expressed as externalizing behavior, including antisocial behavior and offending. For instance, limited understanding of social situations and the consequences of actions which may result from cognitive impairment or autism-related problems could result in antisocial behavior (Howlin, 2004; Mouridsen et al., 2008). No conclusions, however, on causality and reciprocity of relationships between the observed problems can be drawn from the present study.

A slight decrease in problems co-occurring with early onset of offending was consistently observed at group level (chapters 2, 4 and 6). There may be several explanations for this decrease. First, the design and timing of the assessments of the present study. Our baseline assessment following a stressful event (i.e. a police arrest), could have caused a temporary increase in problems, while at follow-up, participants may have been inclined to emphasize that they are currently doing well. The police arrest itself may also have raised parents' awareness of their children's behavior leading to better supervision or seeking support of youth care services resulting in a subsequent decrease in problem behavior at follow-up. Moreover, considering the age of our participants, transition into adolescence is likely to have caused changes in the presence of measured correlates of early onset offending. The influence of parents is decreasing, while the influence of peers is increasing with children's transition into adolescence and spending more time unsupervised and outside the home (Patterson et al., 1989; Boyer, 2006). For those children on the pathway of persistent offending, a decrease in social and emotional problems may result from a decrease in social exclusion as a consequence of becoming a role model to those engaging in late onset temporary offending (Moffitt, 1993). More knowledge on factors associated with the increase or decrease of problems could contribute to further improvement of intervention strategies.

Mental health problems in relation to persistent offending

Given the high level of mental health problems, their high level of stability and their relevance in the clusters at high risk of offending, the association with persistent offending was studied. Mental health problems were not only frequently present among childhood arrestees, but they were also predictive of future (re-)offending (chapter 3, 5 and 6). This is particularly relevant since other well-known indicators of re-offending risk, such as offending history, are often unknown in these children.

Specific psychiatric symptoms that have lately been of interest in relation to offending are autistic symptoms. Our findings show that autistic symptoms predicted delinquent behavior over and above externalizing disorders. These findings may indicate specific impairments and associated features related to ASD, to comprise vulnerability for (re)offending. For example, violence may result from lack of social understanding as well as from limited understanding of the implications of certain behaviors for others. Rigidity or the pursuit of obsessive interests could also lead to problems with rules (Howlin, 2004; Woodbury-Smith et al., 2005; Mouridsen et al., 2008).

Our findings further show that periodically repeated assessments of mental health problems only slightly improves their predictive value for future offending, consistent with the high level of stability found for mental health problems (chapter 4). As such, an indication of the presence of severe mental health problems based on a single assessment can be considered sufficient reason to initiate immediate intervention for those problems in order to reduce children's risk of persistent offending. It should, however, be borne in mind that for other concurrent problems periodic monitoring and re-assessment are warranted, as individual stability shows that initial presence of such problems does not necessarily indicate long-term persistence. Similarly, in case of less severe mental health problems, multiple assessments over a period of time can be informative to further clarifying the course of such problems and associated need for intervention. Effective intervention may improve children's well-being, while a decrease in mental health problems may consequently decrease the risk of future offending. This should, therefore, be the subject of further research.

Strengths and limitations

Strengths of this study are its longitudinal design with yearly assessments, the large sample of high-risk children, data obtained from multiple informants and the focus on a broad range of co-occurring problems of offending. Yet, the findings on the development of very young offenders with regard to offending and co-occurring problems presented in this thesis should be viewed in the light of some limitations. First, the follow-up period of this study was relatively short. Participants were followed-up for two years after their first police registration because of committing an offence. Data on offending and victimization from police registration systems were available for three years after the first registered offence. Transition into adolescence may cause changes in the presence and relevance of measured correlates of offending. A more extensive follow-up period, covering adolescence, may provide a more comprehensive picture of childhood arrestees' potential deviant development and the various individual and environmental correlates associated with it. Second, childhood arrestees are a highly specific group. Being arrested may not necessarily represent children's actual offending behavior. Future studies in other childhood offender populations, for instance identified through self-reported delinquent behavior, will provide insight into the generalizability and external validity of our findings. However, irrespective of extrapolation to other young offender population, the present findings are relevant to the well-defined and problematic group of childhood arrestees. Third, although our attrition rate was limited in view of our high-risk population, up to one quarter of the participants were lost during follow-up. Comparison of participants and dropouts on baseline determinants did, however, not show evidence for substantial selective drop out. Likewise, despite the limited response rates of teachers, children for whom teacher information was available did not differ on the determinants investigated from children for whom teacher information was not available. Fourth, despite their relevance in relation to offending, in our study promotive or protective factors preventing a deviant development were not investigated. Incorporation of such correlates in future studies will further extend our understanding of the development of very young offenders with regard to offending and related problems. Fifth, our group of childhood arrestees included both boys and girls as well as children of both Dutch and non-Dutch origin. Despite indications that concurrent problems of early onset offending and predictors of a deviant development may differ between these groups, the group of childhood arrestees

was studied as a whole. To take into account potential differences, analyses were corrected for sex and ethnicity where possible, or interactions with these factors were analyzed.

Implications and directions for future research

The worrisome levels of mental health problems and impaired psychosocial functioning observed among part of the childhood arrestees stress the need for adequate intervention for those children displaying externalizing problem behavior and concurrent psychosocial problems. However, our findings also show that there is a large group of children with a stable low likelihood of problems or decreasing problems. Effective recognition of these children for whom the police arrest was only an incident and is not necessarily the beginning of a pattern of long-term frequent and serious antisocial behavior is important to prevent stigmatization and unnecessary intervention in generally healthy developing children. A police arrest should be considered an opportunity for recognition of problems requiring intervention. In particular the persistence of mental health problems emphasizes the necessity of timely and adequate diagnostic assessment and intervention. An additional advantage of using such police contact may be that it allows contacting families who themselves do not easily seek or find their way to youth care services. Intervention is important from a mental health care perspective, as it may prevent a further adverse development. Moreover, based on the predictive value of mental health problems for (re)offending, intervention is also important to prevent persistent delinquent behavior. Our findings further emphasize that in the light of intervention, the potential presence of multiple problems in various life domains and autistic symptoms should thereby be taken into account.

In recent years, effort has been made by the police to develop standardized procedures for early detection and referral of at-risk children in close cooperation with *youth care services* (Buro Jeugdzorg). However, so far there are no uniform procedures and regional differences exist in the collaboration between the police and *youth care services*. Furthermore, at present such procedures are mainly aimed at recognizing re-offending risk. The observed subgroups with their distinct problem profiles and associated risk of a deviant outcome, as well as the development of problems co-occurring with offending once more indicate the need for careful screening procedures following a first police arrest to identify those children most at risk of a deviant development. These should not only be aimed at

children's re-offending risk, but should also focus on children's mental health needs and risk of dysfunctioning in later life.

Our findings point to the need for stepwise and repeated screening. Ideally, this would include a short questionnaire or interview collecting information on children's mental health problems and functioning, as well as on their family situation, such as for instance the SDQ or the Early Assessment Risk Lists (EARL-20B and EARL-21G). Children with high scores on such instruments, who are likely to fit in the *pervasive high problem group*, should be immediately referred for further and more extensive diagnostic assessment, as well as adequate targeted intervention. Internationally, good results in decreasing children's disruptive behavior have been obtained with the SNAP Under 12 Outreach Project (Koegl et al., 2008). In this program, the Early Assessment Risk Lists (EARL-20B and EARL-21G) are used to determine children's risks and needs. These are then addressed with an intervention that combines elements from cognitive behavioral therapy, social skills training and parent training modalities (Koegl et al., 2008). Such treatment may not only have a beneficial effect on children's antisocial behavior, but may also positively affect other problems, such as problems in relationships with peers and parental stress.

In addition, there is a subgroup of childhood arrestees that appear to experience less intense and more temporary problems that may fit the *externalizing intermediate problem group*. Given the more temporary nature of the problems in this group, periodically repeated assessment of these children's needs and risks could enhance decision making on required interventions. For some children, less intensive intervention as compared to children in the *pervasive high problem group* might be effective, because problems appear less pervasive and children in this group tend to have parents with better parenting skills. For other children in this group, a wait-and-see approach may be appropriate.

However, for police contacts to become opportunities for recognition of children with mental health needs and risk of dysfunctioning in later life, and subsequent referral and management is possible, correct and comprehensive registration by the police of all incidents involving children below the age of twelve committing offences is required first. Not registering these children, or incomplete registration, bears the consequence that indicators of problematic development may be missed. Such problematic development may then only come to the attention of the police or other relevant agencies when already at an advanced stage

and may thereby be more difficult to correct. Screening methods and procedures should, furthermore, be well-validated in future studies. Although a police contact may be the ground for such a screening procedure, police officers do often not have the training or the time to focus on children's potential mental health problems or functional impairment. Screening focusing on such specific problems should, therefore, be performed by qualified and well-trained professionals in close co-operation with the police. Given the frequently observed problems co-occurring with offending, awareness of the presence of such problems in very young offenders should be increased. Increased awareness might encourage police officers to correctly register and refer very young offenders and not underestimate their potential risks.

In order to optimize early recognition of at-risk children and enable effective follow-up procedures targeted at children's needs and risks, further research is needed to confirm and extend our findings. The identified distinct clusters, differing in correlates of offending and associated re-offending and victimization risks, should, therefore, be further investigated, including their relevance for clinical practice. Replication of this classification and external validation of the observed clusters would enable conclusions regarding the generalizability of subgroups among childhood arrestees. Future research should, furthermore, investigate potential causes of change of cluster membership. In addition, knowledge on the long-term development of these clusters with regard to offending and related problems by incorporating longer follow-up periods is needed. Inclusion of promotive or protective factors in such future studies will increase our knowledge on the distinct risk profiles of the clusters and may further clarify cluster membership transition. Such additional information is needed to improve our understanding of the exact associations between specific correlates of early onset offending in relation to other problems and problematic development.

Furthermore, our findings indicate that mental health problems predispose to re-offending. Future research should investigate the underlying mechanisms of this observed association. This may include: impulsive and experimental behavior as seen in both the *externalizing intermediate problem* and *pervasive high problem* groups, or adverse environmental factors that contribute to emotional problems as is seen in the *pervasive high problem group*. Moreover specific factors related to autism spectrum symptoms, such as lack of social understanding, limited understanding of the implications of certain behaviors for others, and rigidity or the

pursuit of obsessive interests may be important, also in relation to victimization. Whether effective intervention for these problems at an early stage may prevent delinquent development and improve children's long-term well-being should also be the subject of future intervention studies.

Overall, offending should not be seen as an ultimate result of the presence of risk factors, but rather as part of a multi-problem profile in children. This implies that in these children screening and intervention should not solely aim to decrease re-offending risk, but that it may be more successful to focus on the broader set of problems and attempt to initiate and improve a healthy development.

