David P. Farrington

Psychological Contributions to the Explanation and Prevention of Offending[1]

Abstract

The main aims of this article are to review evidence about the role of individual and family factors in offending, and to review methods of reducing offending based on individual and family factors. Psychological explanations of offending focus on individual difference factors and family influences, which have been investigated in prospective longitudinal surveys. The most important individual factors are hyperactivity and impulsivity, and low intelligence and attainment. The most important family influences are parental supervision and discipline, disrupted families, criminal parents, and large family size. The most important prevention techniques target individual and family risk factors, and have been evaluated in experimental and quasi-experimental research. Cognitive-behavioral skills training programs target impulsivity, while preschool intellectual enrichment programs target low school attainment. Home visiting programs, parent training programs, Functional Family Therapy, Treatment Foster Care, and Multisystemic Therapy target poor parental supervision and discipline. It is concluded that more early intervention efforts are urgently needed to tackle the roots of crime.
Keywords: psychology, longitudinal, risk factors, prevention, experiments

1 Introduction

Psychological explanations of crime focus on individual difference factors such as personality, empathy, impulsivity and intelligence, and on family features such as parental supervision, parental discipline, broken homes, and large family size. Psychologists are also interested in biological factors that may underlie psychological constructs, but biological factors cannot be reviewed here (see e.g., Raine, 2013). The main aims of this article are to review evidence about the role of individual and family factors (especially measured in childhood and adolescence) in offending, and to review methods of reducing offending based on individual and family factors. There is not space in this article

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1 This article is based on a plenary presentation given at the European Association of Psychology and Law meeting in Nuremberg in August 2015. It is an extensively updated version of an earlier chapter by Farrington (1996).

to review later influences, peer, school or situational factors, or more sociological research on socioeconomic, demographic, neighborhood, community, or societal features that influence offending (see e.g., Farrington, 2015b).

Psychologists believe that, like other types of behavior, criminal behavior results from the interaction between a person (with a certain degree of criminal potential or antisocial tendency) and the environment (which provides criminal opportunities). Some people are consistently more likely than others to commit offenses in different environments, and conversely the same person will be more likely to commit offenses in some environments than in others. A major problem in psychological theories is to explain the development of individual differences in criminal potential, or conversely in the strength of internal inhibitions against offending.

There is not space in this article to review psychological theories of offending (see Farrington & Ttofi, 2017). For example, Moffitt's (1993) theory suggests that there are two types of offenders, adolescence-limited and life-course-persistent, with different childhood precursors. This article reviews predictors of offending in general, not predictors of types of offenders. The ICAP theory of Farrington (2005) distinguishes between long-term antisocial potential, which varies between individuals and is influenced by childhood risk factors, and short-term antisocial potential, which varies within individuals and is influenced by immediate situational factors. It is important that theories should be tested by independent researchers, and the ICAP theory was tested and largely confirmed by Van Der Laan, Blom, and Kleemans (2009) in The Netherlands.

Psychologists view offending as a type of behavior, similar in many respects to other types of antisocial or deviant behavior, and distinctive mainly in being prohibited by the law. Therefore, the theories, methods, and knowledge about other types of antisocial behavior can be applied to the study of crime. Generally, psychologists are committed to the scientific study of human behavior, with its emphasis on theories that can be tested and falsified using empirical, quantitative data, controlled experiments, systematic observation, valid and reliable measures, and replications of empirical results.

Psychologists argue that officially recorded offenders and nonoffenders (or, in self-report studies, more or less frequent or serious offenders) are significantly different in numerous respects before, during, and after their offending careers. Generally, the worst offenders according to self-reports (taking account of frequency and seriousness) tend also to be the worst offenders according to official records, and the correlates of official and self-reported offending are quite similar. Therefore, conclusions about individual characteristics of offenders can be drawn validly from both convictions and self-reports. In this article, the word "offenders" refers to officially recorded offenders, unless otherwise stated.

Psychologists have made many contributions to knowledge about offending, and it is only possible to mention a small number of these in this article, focussing on individual and family factors. More extensive reviews of psychological research on crime are available (e.g., Bonta & Andrews, 2017; Hollin, 2013). This article will be very selective in focussing on some of the more important and replicable findings obtained in

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some of the projects with the strongest methodology, namely prospective longitudinal follow-up studies of large community samples. Particular attention will be given to systematic reviews and meta-analyses of risk factors and interventions (see e.g., Farrington, Ttofi, & Lösel, 2016). Risk factors predict a high probability of offending, whereas protective factors predict a low probability of offending in the presence of risk.

Reference will be made especially to knowledge gained in the Cambridge Study in Delinquent Development (CSDD), which is a prospective longitudinal survey of over 400 London males – now termed generation 2 (G2) – from age 8 to age 56 (Farrington, Piquero, & Jennings, 2013). Their parents are now termed generation 1 (G1). Recently, a follow-up of over 550 children of these males – now termed generation 3 (G3) – has also been completed (Farrington, Ttofi, Crago, & Coid, 2015). This article will focus on the prediction by childhood risk factors measured at age 8-10 of offending up to age 50 by G2 males; 41% were convicted up to age 50 (Farrington, Coid, & West, 2009).

Fortunately, results obtained in British longitudinal surveys of offending are highly concordant with results obtained in comparable surveys in North America, the Scandinavian countries and New Zealand and indeed with results obtained in British cross-sectional surveys. For purposes of comparison, reference will also be made to knowledge gained in the Pittsburgh Youth Study (PYS), which is a prospective longitudinal survey of over 1,500 Pittsburgh boys from age 7 to age 25 (Loeber, Farrington, Stouthamer-Loeber, & White, 2008). A systematic comparison of the CSDD and the PYS showed that there were numerous replicable predictors of offending over time and place, including impulsivity, attention problems, low school attainment, poor parental supervision, parental conflict, an antisocial parent, a young mother, large family size, low family income, and coming from a broken family (Farrington & Loeber, 1999).

The most effective intervention programs target risk factors for offending. The basic idea of developmental or risk-focussed prevention is very simple: Identify the key risk factors for offending and implement prevention techniques designed to counteract them. There is often a related attempt to identify key protective factors against offending and to implement prevention techniques designed to enhance or strengthen them (Farrington, Loeber, & Ttofi, 2012). Longitudinal surveys are used to advance knowledge about risk and protective factors, and experimental and quasi-experimental methods are used to evaluate the impact of prevention and intervention programs.

2 Individual risk factors

Lipsey and Derzon (1998) reviewed the predictors at age 6-11 of serious or violent offending at age 15-25. The best explanatory predictors (i.e., predictors not measuring some aspect of the child's antisocial behavior) were antisocial parents, male gender, low socio-economic status of the family, and psychological factors (daring, impulsiveness,

poor concentration, etc.). Other moderately strong predictors were minority race, poor parent-child relations (poor supervision, discipline, low parental involvement, low parental warmth), other family characteristics (parent stress, family size, parental discord), antisocial peers, low intelligence, and low school achievement. In contrast, abusive parents and broken homes were relatively weak predictors. It is clear that some individual and family factors are at least as important in the prediction of offending as are gender and race.

There are many individual risk factors for offending, including low empathy and low popularity, but there is only space here to discuss hyperactivity and impulsivity, and low intelligence and attainment. Risk factors for offending are replicable not only over time and place (see above) but also between generations. In the CSDD, the strength of 20 risk factors for G2 offending up to age 21 correlated .80 with the strength of the same 20 risk factors for G3 offending up to age 21 (Farrington et al., 2015).

2.1 Hyperactivity and impulsivity

Impulsiveness is the most crucial personality dimension that predicts antisocial behavior (Lipsey & Derzon, 1998). Unfortunately, there are a bewildering number of constructs referring to a poor ability to control behavior. These include impulsiveness, hyperactivity, restlessness, clumsiness, not considering consequences before acting, a poor ability to plan ahead, short time horizons, low self-control, sensation-seeking, risk-taking, and a poor ability to delay gratification. Many studies show that hyperactivity, or Attention Deficit-Hyperactivity Disorder (ADHD), predicts later offending. Pratt et al. (2002) carried out a meta-analysis of research on ADHD and delinquency, and concluded that they were strongly associated.

A systematic review by Jolliffe and Farrington (2009) showed that early measures of impulsiveness (especially daring and risk-taking) predicted later measures of violence. In the CSDD, boys nominated by teachers as lacking in concentration or restless, those nominated by parents, peers, or teachers as the most daring or taking most risks, and those who were the most impulsive on psychomotor tests at age 8-10, all tended to become offenders later in life. Daring, poor concentration and restlessness all predicted both official convictions and self-reported delinquency, and daring was consistently one of the best independent predictors. Up to age 50, 60% of daring boys were convicted, compared with 34% of other boys, and 59% of boys with poor concentration were convicted, compared with 37% of other boys (Farrington et al., 2009). Just as daring predicted offending for G2 boys, risk-taking predicted offending for G3 boys (Farrington et al., 2015).

The most extensive research on different measures of impulsiveness was carried out in the PYS by White et al. (1994). The measures that were most strongly related to self-reported delinquency at ages 10 and 13 were teacher-rated impulsiveness (e.g. acts without thinking), self-reported impulsiveness, self-reported under-control (e.g. un-

able to delay gratification), motor restlessness (from videotaped observations), and psychomotor impulsiveness (on the Trail Making Test). Interestingly, ADHD seemed to be more of a protective factor than a risk factor in the PYS (Loeber et al., 2008). Also in the PYS, Defoe, Farrington, and Loeber (2013) concluded that hyperactivity caused low school attainment, which in turn caused offending.

2.2 Low intelligence and attainment

Low IQ and low school achievement also predict delinquency and violence. In the CS-DD, twice as many of the boys scoring 90 or less on a nonverbal IQ test (Raven's Progressive Matrices) at age 8-10 were convicted as juveniles as of the remainder. However, it was difficult to disentangle low IQ from low school achievement, because they were highly intercorrelated and both predicted delinquency. Low nonverbal IQ predicted juvenile self-reported delinquency to almost exactly the same degree as juvenile convictions, suggesting that the link between low IQ and delinquency was not caused by the less intelligent boys having a greater probability of being caught. Also, low IQ and low school achievement predicted offending independently of other variables such as low family income and large family size. Up to age 50, 58% of G2 boys with low nonverbal IQ were convicted, compared with 36% of other boys, and 62% of boys with low attainment were convicted, compared with 34% of other boys (Farrington et al., 2009). Low attainment also predicted offending for G3 boys (Farrington et al., 2015).

Low IQ may lead to delinquency through the intervening factor of school failure. In the PYS, Lynam, Moffitt, and Stouthamer-Loeber (1993) concluded that low verbal IQ led to school failure and subsequently to self-reported delinquency, but only for African American boys. Ttofi et al. (2016) reviewed research on IQ as a protective factor against offending.

3 Family risk factors

Derzon (2009) carried out a meta-analysis of family factors as predictors of criminal and violent behavior (as well as aggressive and problem behavior). The meta-analysis was based on longitudinal studies, but many predictions were over short time periods (less than four years in 55% of cases), many outcome variables were measured at relatively young ages (up to 15 in 40% of cases), and many studies were relatively small (less than 200 participants in 43% of cases). The strongest predictors of criminal or violent behavior were parental education (r =.30 for criminal behavior), parental supervision (r =.29 for violent behavior), child rearing skills (r =.26 for criminal behavior), parental discord (r =.26 for criminal behavior), and family size (r =.24 for violent behavior). Notably weak predictors were young parents, broken homes, and socio-economic status.

Reviewing these kinds of results reveals the bewildering variety of family constructs that have been studied, and also the variety of methods used to classify them into categories. In this article, family factors are grouped into four categories: (a) child-rearing methods (poor supervision, harsh discipline); (b) disrupted families; (c) criminal and antisocial parents; and (d) large family size. These groupings are somewhat arbitrary and reflect the organization of topics of investigation within the field. For example, harsh discipline is usually studied along with poor supervision but, at the extreme, it could shade into physical abuse. As mentioned, socioeconomic aspects of the family (e.g. family poverty) are not reviewed. There is only space here to review a small number of family risk factors; for example, parental warmth or coldness, child abuse, and young or depressed parents are not reviewed.

3.1 Child-rearing

Many different types of child-rearing methods predict offending. The most important dimensions of child-rearing are supervision or monitoring of children, discipline or parental reinforcement, warmth or coldness of emotional relationships, and parental involvement with children. Parental supervision refers to the degree of monitoring by parents of the child's activities, and their degree of watchfulness or vigilance. Of all these child-rearing methods, poor parental supervision is usually the strongest and most replicable predictor of offending. Many studies show that parents who do not know where their children are when they are out, and parents who let their children roam the streets unsupervised from an early age, tend to have delinquent children. In the CSDD, 61% of G2 boys who were poorly supervised at age 8 were convicted up to age 50, compared with 36% of the remainder (Farrington et al., 2009). Poor parental supervision also predicted offending for G3 boys (Farrington et al., 2015).

Parental discipline refers to how parents react to a child's behavior. It is clear that harsh or punitive discipline (involving physical punishment) predicts offending. This can involve either erratic discipline by one parent, sometimes turning a blind eye to bad behavior and sometimes punishing it severely, or inconsistency between two parents, with one parent being tolerant or indulgent and the other being harshly punitive. In the CSDD, harsh or erratic parental discipline, cruel, passive or neglecting parental attitudes, and poor parental supervision, all measured at age 8, all predicted later juvenile convictions and self-reported delinquency. Generally, the presence of any of these adverse family background features doubled the risk of a later juvenile conviction.

3.2 Disrupted families

There is no doubt that parental conflict and interparental violence predict adolescent antisocial behavior. Also, many studies show that broken homes or disrupted families predict delinquency. Disrupted families were similarly important in the CSDD and PYS, even though divorce was much more common in Pittsburgh in the 1990s than in

London in the 1960s (Farrington & Loeber, 1999). The meta-analysis by Wells and Rankin (1991) showed that broken homes were more strongly related to delinquency when they are caused by parental separation or divorce rather than by death.

In the CSDD, both permanent and temporary separations from a biological parent before age 10 (usually from the father) predicted convictions and self-reported delinquency, providing that they were not caused by death or hospitalization. However, homes broken at an early age (under age 5) were not unusually criminogenic. Separation before age 10 predicted both juvenile and adult convictions, and it predicted adult convictions independently of other factors such as low family income or poor school attainment; 60% of G2 boys who had been separated from a parent by their tenth birthday were convicted up to age 50, compared with 36% of the remainder (Farrington et al., 2009). Separation from a parent also predicted offending by G3 boys (Farrington et al., 2015). An analysis of mediators suggested that broken homes caused hyperactivity, which in turn caused offending (Theobald, Farrington, & Piquero, 2013).

3.3 Criminal parents

In the CSDD, the concentration of offending in a small number of families was remarkable. Less than 6% of the original G1-G2 families were responsible for half of the criminal convictions of all members (fathers, mothers, sons, and daughters) of all 400 families. Similarly, 9% of the next generation of G2-G3 families accounted for half of all convictions of these family members (Farrington & Crago, 2016). Having a convicted mother or father significantly predicted the convictions of both G2 and G3 boys (Farrington et al., 2015). Furthermore, convicted parents predicted self-reported as well as official offending. Therefore, there is intergenerational continuity in offending.

Similar results were obtained in the PYS. Arrests of fathers, mothers, brothers, sisters, uncles, aunts, grandfathers and grandmothers all predicted the boy's own delinquency (Farrington et al., 2001). The most important relative was the father; arrests of the father predicted the boy's delinquency independently of all other arrested relatives. Only 8% of families accounted for 43% of arrested family members.

3.4 Large family size

Large family size (a large number of children in the family) is a relatively strong and highly replicable predictor of offending. It was similarly important in the CSDD and PYS, even though families were on average smaller in Pittsburgh in the 1990s than in London in the 1960s (Farrington & Loeber, 1999). In the CSDD, if a boy had four or more siblings by his tenth birthday, this doubled his risk of being convicted as a juvenile, and large family size predicted self-reported offending as well as convictions. It was the most important independent predictor of convictions up to age 32 in a logistic regression analysis. Up to age 50, 61% of boys from large families were convicted,

compared with 35% of other boys (Farrington et al., 2009). Large family size also predicted offending by G3 boys (Farrington et al., 2015).

4 Individually-based prevention

The best evidence about the effectiveness of intervention programs has been obtained in randomized experiments, especially those that have included a cost-benefit analysis. A randomized experiment ensures that those who are treated are equivalent before the intervention to those who are not treated, on all possible measured and unmeasured variables. Therefore, it is possible to disentangle the effects of the treatment from pre-existing differences and the influence of all other variables. The focus here is especially on programs evaluated in randomized experiments with reasonably large samples, since the effect of any intervention on delinquency can be demonstrated most convincingly in such experiments (Farrington & Welsh, 2006). There is also a focus on randomized experiments with long-term follow-ups, which make it possible to determine if effects persist or wear off (Farrington & Welsh, 2013). The most important individually-based prevention techniques are cognitive-behavioral skills training programs and preschool programs.

4.1 Skills training

The most important prevention techniques that target the risk factors of high impulsiveness and low empathy are cognitive-behavioral skills training programs, which have been reviewed by Zara and Farrington (2014). The "Stop Now and Plan" (SNAP) program is one of the most important skills training programs for children aged 6-11. It was developed in Toronto by Augimeri, Walsh, Liddon, and Dassinger (2011). Children referred by the police for problematic behavior are taught to calm down, take deep breaths, and count to 10 when they are angry. They are also taught coping statements and effective solutions to interpersonal problems. Small-scale experiments showed that SNAP was effective in reducing delinquency and aggression. This was confirmed by large-scale independent evaluations (e.g., Burke & Loeber, 2015).

The Montreal Longitudinal-Experimental Study combined child skills training and parent training. Tremblay et al. (1995) identified disruptive (aggressive or hyperactive) boys at age 6, and randomly allocated over 300 of these to experimental or control conditions. Between ages 7 and 9, the experimental group received training designed to foster social skills and self-control. Coaching, peer modelling, role playing and reinforcement contingencies were used in small group sessions on such topics as "how to help", "what to do when you are angry" and "how to react to teasing".

This prevention program was successful. By age 12, the experimental boys committed less burglary and theft, were less likely to get drunk, and were less likely to be involved in fights than the controls (according to self-reports). Also, the experimental boys had higher school achievement. At every age from 10 to 15, the experimental

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boys had lower self-reported delinquency scores than the control boys. Interestingly, the differences in antisocial behavior between experimental and control boys increased as the follow-up progressed. Later follow-ups showed that fewer experimental boys had a criminal record by age 24, and that the experimental boys self-reported less property crime at age 28 (Vitaro, Brendgen, Giguere, & Tremblay, 2013).

4.2 Preschool programs

If low intelligence and school failure are causes of offending, then any program that leads to an increase in school success should lead to a decrease in offending. One of the most successful delinquency prevention programs was the Perry preschool project carried out in Michigan by Schweinhart and Weikart (1980). This was essentially a "Head Start" program targeted on disadvantaged African American children. A small sample of 123 children were allocated (approximately at random) to experimental and control groups. The experimental children attended a daily pre-school program, backed up by weekly home visits, usually lasting two years (covering ages 3-4). The aim of the "plan-do-review" program was to provide intellectual stimulation, to increase thinking and reasoning abilities, and to increase later school achievement.

This program had long-term benefits. At age 19, the experimental group was more likely to be employed, more likely to have graduated from high school, more likely to have received college or vocational training, and less likely to have been arrested. By age 27, the experimental group had accumulated only half as many arrests on average as the controls. Also, they had significantly higher earnings and were more likely to be home-owners. More of the experimental women were married, and fewer of their children were born to unmarried mothers.

The most recent follow-up of this program at age 40 found that it continued to make an important difference in the lives of the participants (Schweinhart et al., 2005). Compared to the control group, those who received the program had significantly fewer life-time arrests for violent crimes (32% vs. 48%), property crimes (36% vs. 56%), and drug crimes (14% vs. 34%), and they were significantly less likely to be arrested five or more times (36% vs. 55%). Improvements were also recorded in many other important life course outcomes. For example, significantly higher levels of schooling (77% vs. 60% graduating from high school), better records of employment (76% vs. 62%), and higher annual incomes were reported by the program group compared to the controls.

5 *Family-based prevention*

Family programs are usually targeted on risk factors such as poor parental supervision and inconsistent discipline. The most important types of family-based programs are home visiting programs (especially the work of David Olds), parent training programs (especially those used by Matthew Sanders), home or community programs with older

children (especially those implemented by James Alexander and Patricia Chamberlain) and multiple component programs (especially the one devised by Scott Henggeler).

5.1 Home visiting programs

In the most famous intensive home visiting program, Olds, Henderson, Chamberlin, and Tatelbaum (1986) in Elmira (New York State) randomly allocated 400 mothers either to receive home visits from nurses during pregnancy, or to receive visits both during pregnancy and during the first two years of life, or to a control group who received no visits. Each visit lasted about one and a quarter hours, and the mothers were visited on average every two weeks. The home visitors gave advice about prenatal and postnatal care of the child, about infant development, and about the importance of proper nutrition and avoiding smoking and drinking during pregnancy. Therefore, this was a general parent education program.

In a 15-year follow-up, the effects on delinquency of this Nurse Family Partnership (NFP) program were evaluated Among lower class unmarried mothers, those who received prenatal and postnatal home visits had fewer arrests than those who received prenatal visits or no visits. Also, children of these mothers who received prenatal and/or postnatal home visits had less than half as many arrests as children of mothers who received no visits. Up to age 19, 25% of the treated children were arrested, compared with 37% of the controls. (For reviews of home visiting programs, see Olds, Sadler, & Kitzman, 2007.)

5.2 Parent training

One of the most famous parent training programs, the Triple-P Parenting program, was developed by Sanders, Markie-Dadds, Tully, and Bor (2000) in Brisbane, Australia.. (For reviews of parent training programs, see Piquero et al., 2016.) The Triple-P program either can be delivered to the whole community in primary prevention using the mass media or can be used in secondary prevention with high-risk or clinic samples. The success of Triple-P was evaluated with over 300 high-risk children aged 3 by randomly allocating them either to receive Triple-P or to be in a control group. The Triple-P program involves teaching parents 17 child management strategies including talking with children, giving physical affection, praising, giving attention, setting a good example, setting rules, giving clear instructions, and using appropriate penalties for misbehavior ("time-out", or sending the child to his or her room). The evaluation showed that Triple-P was successful in reducing children's antisocial behavior. The effectiveness of Triple-P has been confirmed in meta-analyses (e.g., Sanders, Kirby, Tellegen, & Day, 2014).

5.3 Programs for older children

Another parenting intervention, termed Functional Family Therapy, was developed by Alexander and Parsons (1973) in Utah. This aimed to modify patterns of family interaction by modeling, prompting and reinforcement, to encourage clear communication between family members about requests and solutions, and to minimize conflict. Essentially, all family members were trained to negotiate effectively, to set clear rules about privileges and responsibilities, and to use techniques of reciprocal reinforcement with each other. The program was evaluated by randomly allocating 86 delinquents to experimental or control conditions. The results showed that this technique halved the recidivism rate of minor delinquents in comparison with other approaches (client-centered or psychodynamic therapy). Its effectiveness with more serious offenders has been replicated in many studies with high quality designs (e.g., Sexton & Turner, 2010).

Chamberlain and Reid (1998) in Oregon evaluated Treatment Foster Care (TFC), which was used as an alternative to custody for delinquents. Custodial sentences for delinquents were thought to have undesirable effects especially because of the bad influence of delinquent peers. In TFC, families in the community were recruited and trained to provide a placement for delinquent youths. The TFC youths were closely supervised at home, in the community, and in the school, and their contacts with delinquent peers were minimized. The foster parents provided a structured daily living environment, with clear rules and limits, consistent discipline for rule violations and one-to-one monitoring. The youths were encouraged to develop academic skills and desirable work habits.

In their evaluation, 79 chronic male delinquents were randomly assigned to TFC or to regular group homes where they lived with other delinquents. A one-year follow-up showed that the TFC boys had fewer criminal referrals and lower self-reported delinquency. Therefore, this program seemed to be an effective treatment for delinquency. Similarly encouraging results were obtained in an evaluation of TFC for delinquent girls. The effectiveness of TFC has been confirmed in systematic reviews (e.g., Turner & MacDonald, 2011).

5.4 Multiple component programs

Multisystemic Therapy (MST) is an important multiple-component family preservation program that was developed by Henggeler et al. (2009) in South Carolina. The particular type of treatment is chosen according to the particular needs of the youth. Therefore, the nature of the treatment is different for each person. MST is delivered in the youth's home, school and community settings. The treatment typically includes family intervention to promote the parent's ability to monitor and discipline the adolescent, peer intervention to encourage the choice of prosocial friends, and school intervention to enhance competence and school achievement.

In an evaluation in Missouri, Borduin et al. (1995) randomly assigned 176 juvenile offenders (with an average age of 14) either to MST or to individual therapy focussing

on personal, family and academic issues. Four years later, only 26% of the MST offenders had been rearrested, compared with 71% of the individual therapy group. Later follow-ups to ages 29 and 37 (Sawyer & Borduin, 2011) demonstrated the cumulative benefits of MST. The effectiveness of MST was confirmed in a meta-analysis by Curtis, Ronan, and Borduin (2004).

6 Conclusions

The most important individual factors in offending are high impulsivity and low intelligence. Both of these may be linked to a poor ability to manipulate abstract concepts, which may also be related to other individual factors such as self-centeredness and low empathy.

The most important family factors are poor parental supervision, harsh and erratic parental discipline, separation from a parent, large family size, and having a criminal parent.

While much is known about risk factors, the precise causal chains that link these factors with antisocial behavior, mediators and moderators, and the ways in which these factors have independent, interactive or sequential effects, are not well understood. However, it is clear that individuals at risk can be identified with quite good accuracy. For example, Farrington et al. (2009) found that the percent convicted up to age 50 increased with the number of risk factors at age 8-10, from 20% of boys with no risk factors to 85% of boys with 5-6 risk factors. More longitudinal studies are needed in different countries, with frequent repeated measurement of risk factors and offending.

The major implications of research on individual and family factors are for early prevention rather than for treatment. Cognitive-behavioral interpersonal skills training, preschool intellectual enrichment programs, general parent education, and parent training all seem to be effective methods of preventing offending. These programs could be implemented within a community prevention system such as "Communities That Care", which has been shown to be effective in a large scale randomized trial (Hawkins et al., 2012). While most is known about programs for boys, there are also effective interventions designed specifically for girls (Hipwell & Loeber, 2006).

This article argues that the roots of crime lie in individual and family factors and describes methods of reducing crime by targeting these factors. Because of the link between offending and numerous other social problems, any measure that succeeds in reducing crime will have benefits that go far beyond this. Any measure that reduces crime will probably also reduce alcohol abuse, drunk driving, drug abuse, sexual promiscuity, family violence, truancy, school failure, unemployment, parental disharmony and divorce.

It is clear that problem children tend to grow up into problem adults, and that problem adults tend to produce more problem children. More early intervention efforts are urgently needed to tackle the roots of crime.

Literature

Alexander, J. F. & Parsons, B. V. (1973). Short-term behavioral intervention with delinquent families: Impact on family process and recidivism. *Journal of Abnormal Psychology, 81*, 219-225.

Augimeri, L. K., Walsh, M. M., Liddon, A. D., & Dassinger, C. R. (2011). From risk identification to risk management: A comprehensive strategy for young children engaged in antisocial behaviour. In D. W. Springer & A. Roberts (Eds.), *Juvenile justice and delinquency* (pp. 117-140)*.* Sudbury, MA: Jones and Bartlett.

Bonta, J., & Andrews, D.A. (2017). *The psychology of criminal conduct* (6th ed.). New York: Routledge.

Borduin, C. M., Mann, B. J., Cone, L. T., Henggeler, S. W., Fucci, B. R., Blaske, D. M., & Williams, R. A. (1995). Multisystemic treatment of serious juvenile offenders: Long-term prevention of criminality and violence. *Journal of Consulting and Clinical Psychology, 63*, 569-587.

Burke, J.D., & Loeber, R. (2015). The effectiveness of the Stop Now And Plan (SNAP) Program for boys at risk for violence and delinquency. *Prevention Science*, 16, 242-253.

Chamberlain, P., & Reid, J. B. (1998). Comparison of two community alternatives to incarceration for chronic juvenile offenders. *Journal of Consulting and Clinical Psychology, 66*, 624-633.

Curtis, N. M., Ronan, K. R., & Borduin, C. M. (2004). Multisystemic treatment: A meta-analysis of outcome studies. *Journal of Family Psychology, 18*, 411-419.

Defoe, I. N., Farrington, D. P., & Loeber, R. (2013). Disentangling the relationship between delinquency and hyperactivity, low achievement, depression, and low socio-economic status: Analysis of repeated longitudinal data. *Journal of Criminal Justice*, 41, 100-107.

Derzon, J. H. (2009). The correspondence of family features with problem, aggressive, criminal, and violent behavior: A meta-analysis. *Journal of Experimental Criminology, 6*, 263-292.

Farrington, D. P. (2005). The Integrated Cognitive Antisocial Potential (ICAP) theory. In D. P. Farrington (Ed.), *Integrated developmental and life-course theories of offending* (pp. 73-92). New Brunswick, NJ: Transaction.

Farrington, D. P. (2015a). The developmental evidence base: Prevention. In D.A. Crighton & G.J. Towl (Eds.), *Forensic sychology* (2nd ed., pp. 141-159). Chichester, UK: Wiley.

Farrington, D. P. (2015b). The developmental evidence base: Psychosocial research. In D.A. Crighton & G.J. Towl (Eds.), *Forensic psychology* (2nd ed., pp. 161-181). Chichester, UK: Wiley.

Farrington, D. P., Coid, J. W., & West, D. J. (2009). The development of offending from age 8 to age 50: Recent results from the Cambridge Study in Delinquent Development. *Monatsschrift fur Kriminologie und Strafrechtsreform (Journal of Criminology and Penal Reform)* 92, 160-173.

Farrington, D.P., & Crago, R.V. (2016) The concentration of convictions in two generations of families. In A. Kapardis & D.P. Farrington (Eds.), *The psychology of crime, policing and courts* (pp. 7-23). Abingdon, UK: Routledge.

Farrington, D. P., Jolliffe, D., Loeber, R., Stouthamer-Loeber, M., & Kalb, L. M. (2001). The concentration of offenders in families, and family criminality in the prediction of boys' delinquency. *Journal of Adolescence*, 24, 579-596.

Farrington, D. P., & Loeber, R. (1999). Transatlantic replicability of risk factors in the development of delinquency. In P. Cohen, C. Slomkowski & L. N. Robins (Eds*.) Historical and geographical influences on psychopathology* (pp. 299-329). Mahwah, NJ: Lawrence Erlbaum.

Farrington, D. P., Loeber, R., & Ttofi, M. M. (2012). Risk and protective factors for offending. In B.C. Welsh & D.P. Farrington (Eds.), *The Oxford handbook of crime prevention* (pp. 46-69)*.* Oxford, UK: Oxford University Press.

Farrington, D. P., Piquero, A. R., & Jennings, W. G. (2013) *Offending from childhood to late middle age: Recent results from the Cambridge Study in Delinquent Development.* New York: Springer.

Farrington, D. P. & Ttofi, M. M. (2017) Developmental and psychological theories of offending. In G.M. Davies & A.R. Beech (Eds.), *Forensic psychology: Crime, justice, law, interventions* (3rd ed.). Chichester, UK: Wiley, in press.

Farrington, D. P., Ttofi, M. M., Crago, R. V., & Coid, J. W. (2015). Intergenerational similarities in risk factors for offending. *Journal of Developmental and Life-Course Criminology*, 1, 48-62.

Farrington, D.P., Ttofi, M.M., & Lösel, F.A. (2016) Developmental and social prevention. In Weisburd, D.P. Farrington, & C. Gill (Eds.) *What works in crime prevention and rehabilitation: Lessons from systematic reviews (pp. 15-75).* New York: Springer.

Farrington, D. P., & Welsh, B. C. (2006). A half-century of randomized experiments on crime and justice. In M. Tonry (Ed.), *Crime and justice* (vol. 34, pp. 55-132). Chicago: University of Chicago Press.

Farrington, D. P., & Welsh, B. C. (2013). Randomized experiments in criminology: What has been learned from long-term follow-ups? In B. C. Welsh, A. A. Braga, & G. J. N. Bruinsma (Eds.) *Experimental criminology: Prospects for advancing science and public policy* (pp. 111-140)*.* New York: Cambridge University Press.

Hawkins, J. D., Oesterle, S., Brown, E. C., Monahan, K. C., Abbott, R. D., Arthur, M. W., & Catalano, R. F. (2012). Sustained decreases in risk exposure and youth problem

behaviors after installation of the Communities That Care prevention system in a randomized trial. *Archives of Pediatrics and Adolescent Medicine*, 166, 141-148.

Henggeler, S. W., Schoenwald, S. K., Borduin, C. M., Rowland, M. D., & Cunningham, P. B. (2009). *Multisystemic therapy for antisocial behavior in children and adolescents* (2nd ed.). New York: Guilford.

Hipwell, A. E., & Loeber, R. (2006). Do we know which interventions are effective for disruptive and delinquent girls? *Clinical Child and Family Psychology Review,* 9, 221-255.

Hollin, C.R. (2013). *Psychology and crime* (2nd ed.). London: Routledge.

Jolliffe, D., & Farrington, D. P. (2009). A systematic review of the relationship between childhood impulsiveness and later violence. In M. McMurran & R. Howard (Eds.), *Personality, personality disorder, and risk of violence* (pp. 41-61)*.* Chichester, UK: Wiley.

Lipsey, M. W., & Derzon, J. H. (1998). Predictors of violent or serious delinquency in adolescence and early adulthood: A synthesis of longitudinal research. In R. Loeber & D. P. Farrington (Eds.), *Serious and violent juvenile offenders: Risk factors and successful interventions* (pp. 86-105). Thousand Oaks, CA: Sage.

Loeber, R., Farrington, D. P., Stouthamer-Loeber, M., & White, H. R. (2008). *Violence and serious theft: Development and prediction from childhood to adulthood.* New York: Routledge.

Lynam, D., Moffitt, T. E., & Stouthamer-Loeber, M. (1993). Explaining the relation between IQ and delinquency: Class, race, test motivation, school failure or self-control? *Journal of Abnormal Psychology*, 102, 187-196.

Moffitt, T. E. (1993). Adolescence-limited and life-course-persistent antisocial behavior: A developmental taxonomy. *Psychological Review,* 100, 674-701.

Olds, D. L., Henderson, C. R., Chamberlin, R., & Tatelbaum, R. (1986). Preventing child abuse and neglect: A randomized trial of nurse home visitation. *Pediatrics*, 78, 65-78.

Olds, D. L. Sadler, L., & Kitzman, H. (2007). Programs for parents of infants and toddlers: Recent evidence from randomized trials. *Journal of Child Psychology and Psychiatry*, 48, 355-391.

Piquero, A., Jennings, W.G., Diamond, B., Farrington, D. P., Tremblay, R. E., Welsh, B.C., & Gonzalez, J.M.R. (2016). A meta-analysis update on the effects of early family/parent training programs on antisocial behavior and delinquency. *Journal of Experimental Criminology, 12*, 229-248.

Pratt, T. C., Cullen, F. T., Blevins, K. R., Daigle, L., & Unnever, J. D. (2002). The relationship of attention deficit hyperactivity disorder to crime and delinquency: A meta-analysis. *International Journal of Police Science and Management,* 4, 344-360.

Raine, A. (2013). *The anatomy of violence: The biological roots of crime.* London: Allen Lane.

Sanders, M. R., Kirby, J. N., Tellegen, C. L., & Day, J. J. (2014). The Triple-P Positive Parenting program: A systematic review and meta-analysis of a multi-level system of parenting support. *Clinical Psychology Review*, 34, 337-357.

Sanders, M. R., Markie-Dadds, C., Tully, L. A., & Bor, W. (2000). The Triple P-Positive Parenting Program: A comparison of enhanced, standard and self-directed behavioral family intervention for parents of children with early onset conduct problems. *Journal of Consulting and Clinical Psychology,* 68, 624-640.

Sawyer, A. M., & Borduin, C. M. (2011). Effects of multisystemic therapy through midlife: A 21.9-year follow-up to a randomized clinical trial with serious and violent juvenile offenders. *Journal of Consulting and Clinical Psychology,* 79, 643-652.

Schweinhart, L. J., Montie, J., Zongping, X., Barnett, W. S., Belfield, C. R., & Nores, M. (2005). *Lifetime effects: The High/Scope Perry Preschool Study through age 40.* Ypsilanti, MI: High/Scope Press.

Schweinhart, L. J., & Weikart, D. P. (1980) *Young children grow up: The effects of the Perry Preschool Program on youths through age 15*. Ypsilanti, MI: High/Scope Press.

Sexton, T., & Turner, C.W. (2010). The effectiveness of Functional Family Therapy for youth with behavioral problems in a community practice setting. *Journal of Family Psychology,* 24, 339-348.

Theobald, D., Farrington, D. P., & Piquero, A. R. (2013). Childhood broken homes and adult violence: An analysis of moderators and mediators. *Journal of Criminal Justice,* 41, 44-52.

Tremblay, R. E., Pagani-Kurtz, L., Masse, L. C., Vitaro, F., & Pihl, R. O. (1995). A bimodal preventive intervention for disruptive kindergarten boys: Its impact through mid-adolescence. *Journal of Consulting and Clinical Psychology*, 63, 560-568.

Ttofi, M.M., Farrington, D.P., Piquero, A.R., Losel, F., DeLisi, M., & Murray, J. (2016). Intelligence as a protective factor against offending: A meta-analytic review of prospective longitudinal studies. *Journal of Criminal Justice*, 45, 4-18.

Turner, W., & MacDonald, G. (2011). Treatment Foster Care for improving outcomes in children and young people: A systematic review. *Research on Social Work Practice,* 21, 501-527.

Van Der Laan, A., Blom, M., & Kleemans, E. R. (2009). Exploring long-term and short-term risk factors for serious delinquency. *European Journal of Criminology,* 6, 419-438.

Vitaro, F., Brendgen, M., Giguere, C-E., & Tremblay, R. E. (2013). Early prevention of life-course personal and property violence: A 19-year follow-up of the Montreal Longitudinal-Experimental Study (MLES). *Journal of Experimental Criminology,* 9, 411-427.
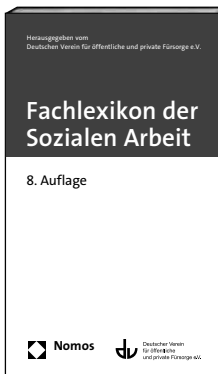
ORIGINALBEITRÄGE

Wells, L. E., & Rankin, J. H. (1991). Families and delinquency: A meta-analysis of the impact of broken homes. *Social Problems,* 38, 71-93.

White, J. L., Moffitt, T. E., Caspi, A., Bartusch, D. J., Needles, D. J., & Stouthamer-Loeber, M. (1994). Measuring impulsivity and examining its relationship to delinquency. *Journal of Abnormal Psychology*, 103, 192-205.

Zara, G. & Farrington, D. P. (2014). Cognitive-behavioral skills training in preventing offending and reducing recidivism. In E.M. Jiminez Gonzalez & J.L. Alba Robles (Eds.), *Criminology and forensic psychology* (pp. 55-102). Charleston, SC: Criminology and Justice Publisher.

Korrespondenzadresse:

Prof. Dr. David P. Farrington,
Cambridge University, Institute of Criminology,
Sidgwick Avenue, Cambridge CB3 9DA, UK
email: dpf1@cam.ac.uk