Early Prevention of Adult Antisocial Behaviour

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Contents

Figures

Tables

1 Advancing knowledge about the early prevention of adult antisocial behaviour

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The main aims of this book are to review what is known about the causes and prevention of adult antisocial behaviour. The book aims to specify what we know, what we do not know, and what we need to know, recommending priority research that would address key questions and fill key gaps in knowledge. The main aim of this introductory chapter is to set the scene for the more detailed chapters that follow by outlining some of the key topics, issues and questions arising in the early prevention of adult antisocial behaviour. This chapter defines the territory by briefly reviewing epidemiology, development, risk and protective factors, and prevention programmes.

Four types of prevention can be distinguished (Tonry and Farrington, 1995). Criminal justice prevention refers to traditional deterrence, incapacitation and rehabilitation strategies operated by law enforcement and criminal justice agencies. Situational prevention refers to interventions designed to reduce the opportunities for antisocial behaviour and to increase the risk and difficulty of committing antisocial acts. Community prevention refers to interventions designed to change the social conditions and social institutions (e.g. community norms and organisations) that influence antisocial behaviour in communities. Developmental prevention refers to interventions designed to inhibit the development of antisocial behaviour in individuals, by targeting risk and protective factors that influence human development (see Farrington, 2000a).

This book concentrates on early developmental prevention programmes, including those implemented in pregnancy and infancy, parenting programmes, preschool programmes, individual skills training, and school programmes. Many of these involve primary prevention, targeting unselected individuals in the whole community, but secondary prevention programmes targeting children at risk are also reviewed. The focus of the book is on risk factors and early prevention in childhood and adolescence; for reviews of risk factors and early interventions for conduct disorder and delinquency, see Farrington (1999) and Rutter, Giller and Hagell (1998).

Definition and measurement

Definition of antisocial behaviour

There is clearly a syndrome of adult antisocial behaviour defined by a cluster of antisocial symptoms. This syndrome is given different names in different countries and different classification systems: antisocial personality disorder in DSM-IV (American Psychiatric Association, 1994), dissocial personality disorder in ICD-10 (World Health Organisation, 1992) and psychopathic disorder in the English Mental Health Act 1983, for example.

Both types of behaviour and features of personality are included in the antisocial behaviour syndrome. Types of behaviour include property crimes such as burglary, violent crimes, drug use, heavy drinking, drunk or reckless driving, sexual promiscuity or risky sex behaviour, divorce/separation or unstable sexual relationships, spouse or partner abuse, child abuse or neglect, unemployment or an unstable employment history, debts, dependence on welfare benefits, heavy gambling, heavy smoking, and repeated lying and conning. Personality features include impulsiveness and lack of planning, selfishness and egocentricity, callousness and lack of empathy, lack of remorse or guilt feelings, low frustration tolerance and high aggressiveness.

An important question is the relative importance of behavioural and personality symptoms in defining antisocial personality disorder. Hare and his colleagues (e.g. Hare, Hart and Harpur, 1991) have consistently criticised the DSM criteria for antisocial personality as too behavioural and insufficiently concerned with personality features. Hare's Psychopathy Checklist (PCL-R) distinguishes two factors. Factor 1 consists of personality features such as egocentricity, lack of remorse, and callousness, while factor 2 describes an impulsive, antisocial, and unstable lifestyle. The problem is that some features of an antisocial lifestyle (e.g. unemployment and dependence on welfare benefits) may either reflect an antisocial personality or may be caused by circumstances outside the person's own control. Because of this, it is desirable to include both behavioural and personality features in the definition of antisocial personality.

Another important question is whether individuals differ qualitatively (in kind) or quantitatively (in degree) in antisocial personality (Clark, Livesley and Morey, 1997). People can be scored according to their number of symptoms. For example, Robins and her colleagues (e.g. Robins and Price, 1991) have consistently argued that the number of childhood conduct disorder symptoms predicts the number of adult antisocial behaviour symptoms, rather than any specific childhood behaviour

predicting a specific adult behaviour. The key problem is where to set the boundary between normal and pathological, or between health and illness. Existing boundaries depend largely on clinical judgement. For example, according to DSM-IV, 'only when antisocial personality traits are inflexible, maladaptive and persistent and cause significant functional impairment or subjective distress do they constitute Antisocial Personality Disorder' (American Psychiatric Association, 1994, p. 649). Far more is known about the early prevention of particular types of antisocial behaviour than about the early prevention of antisocial personality disorder or psychopathy.

Measurement of antisocial behaviour

Antisocial behaviour can be measured in a variety of ways. Interviews by psychiatrists are necessary to yield psychiatric diagnoses in Great Britain, where explicit diagnostic criteria are not as widely used as in North America. However, psychiatrist interviews are not very practical for large-scale epidemiological studies. One possible strategy is to use a two-stage procedure in which the population is initially screened using brief symptom questionnaires (e.g. Bebbington *et al.*, 1981). Then, more intensive clinical interviews can be given to all those with high symptom scores and to a representative sample of those with low scores.

Another possible method is to use an interview designed for non-clinicians, such as the NIMH Diagnostic Interview Schedule used in the Epidemiological Catchment Area project (Robins and Regier, 1991). Ratings or checklists completed by informants such as institutional staff can also be used, based on interviews and records, as in the case of the PCL-R (Hare, 1991). Alternatively, semi-structured interviews with informants such as relatives or close friends can be used, as with the Standardized Assessment of Personality (Pilgrim and Mann, 1990), or psychological tests and self-completion questionnaires can be used (e.g. Blackburn, 1975).

It is important with all measurement techniques to assess validity and reliability. However, one problem in assessing validity is that the external criterion for antisocial personality disorder or psychopathy is often based on psychiatric diagnoses, which may have low reliability (Malgady, Rogler and Tryon, 1992). It is especially important to measure the predictive validity of instruments given at a relatively early age or stage of development.

In this chapter, I will refer to results obtained in the Cambridge Study in Delinquent Development, which is a prospective longitudinal survey of 411 South London males from age 8 to age 46 (Farrington, 1995,

2002c). At age 32, a measure of antisocial personality was devised, based on the following twelve items: convicted in the last five years, self-reported offender, involved in fights, drug-taker, heavy drinker, poor relationship with parents, poor relationship with wife/cohabitee, divorced/child living elsewhere, frequent unemployment, anti-establishment attitude, tattooed, and impulsive (Farrington, 1991). These were measured in a structured social interview. The reliability of this scale was 0.71, and the worst quarter of the males had four or more adverse features out of twelve.

Inter-relationships between behaviours

In general, all the behavioural and personality symptoms listed above tend to be intercorrelated, since people who show one of them have an increased risk of also showing any other. For example, the two factor scores of the PCL-R are highly intercorrelated (over 0.5: Hare *et al.*, 1991), and the total PCL-R score is highly correlated with the diagnosis of antisocial personality disorder (0.67 in Hare, 1985). Comorbidity is a common finding, and it is assumed that all of the symptoms reflect the same underlying theoretical construct. However, it is important to quantify the degree of versatility in antisocial behaviour, and to assess whether it is more reasonable to assume two or more underlying constructs rather than only one. Another important question is whether conclusions are different with continuous as opposed to dichotomous measures of symptoms.

To the extent that intercorrelated clusters of symptoms are identified within the general category of antisocial behaviour, it may be useful to distinguish typologies of individuals. For example, Moffitt (1993) distinguished between 'life-course-persistent' individuals, who began their antisocial behaviour at an early age and persisted for a long time, and 'adolescence-limited' ones who began later and desisted earlier. However, it is unclear how far these categories differ in degree rather than in kind.

Epidemiology and development

Epidemiology

It is important to establish the prevalence of antisocial symptoms, and of antisocial personality disorder, at different ages. It is useful to determine the peak ages of different types of antisocial behaviour, and the peak ages for acceleration and deceleration in prevalence. Information is also

needed about the frequency and seriousness of behaviours at different ages. Other important questions centre on how prevalence, frequency and seriousness vary with gender, ethnicity, and geographical area, and over time. Perhaps the most extensive data on the epidemiology of anti-social behaviour was provided by the Epidemiological Catchment Area Project (Robins, Tipp and Przybeck, 1991). For example, the estimated life-time prevalence of antisocial personality disorder in the USA was 7.3 per cent of males and 1.0 per cent of females. Similarly, Bland, Orn and Newman (1988) estimated that the life-time prevalence was 7 per cent of males in Edmonton, Canada. However, in Great Britain, the cur-rent prevalence of antisocial personality disorder was 1 per cent of males and 0.2 per cent of females in a national survey (Singleton *et al.*, 2002). The epidemiology of antisocial personality disorder has been most ex-tensively reviewed by Moran (1999). In chapter 2, Jeremy Coid reviews epidemiological data and its implications for early prevention.

Another important epidemiological question concerns how far antiso-cial behaviour is concentrated among a small segment of the population. For example, in the Cambridge Study in Delinquent Development, about 6 per cent of the cohort males accounted for half of all the convictions up to age 32 (Farrington and West, 1993). These 'chronic offenders' were particularly likely to show other symptoms of antisocial personality, such as an unstable employment record, spouse assault, involvement in fights, drug-taking, heavy drinking, and anti-establishment attitudes. It is useful to quantify the degree of concentration of antisocial behaviour using the Lorenz curve and the Gini coefficient (Wikström, 1991, p.29).

Development

It is important not only to establish the prevalence of antisocial behaviour but also key features of antisocial careers such as the age of onset, the probability of persistence after onset, the duration of antisocial behaviour, and the age of desistance. According to Robins (1978), most boys who eventually developed antisocial personality disorder showed signs of con-duct disorder (truancy, stealing and classroom disciplinary problems) as soon as they began attending school. This suggests that the antisocial syn-drome has a very early age of onset, and conversely that early prevention is useful. Many other features of antisocial careers could be measured, such as acceleration and deceleration in the frequency of committing antisocial behaviour, escalation and de-escalation in seriousness, diversi-fication, switching, and stabilisation (Loeber and LeBlanc, 1990). It may be difficult to distinguish between true desistance and intermittency or periods of remission.

More is known about criminal careers than about more general antisocial careers. For example, in the Cambridge Study up to age 40, the average age of the first conviction was 18.6, the average age of the last conviction was 25.8, the average length of the criminal career was 7.2 years, and the average number of offences leading to conviction was 4.6 (Farrington, Lambert and West, 1998). The males first convicted at the earliest ages (10–13) tended to become the most persistent offenders, committing an average 8.8 offences leading to convictions in an average criminal career spanning 9.9 years. It is generally true that an early onset of antisocial behaviour predicts a long and serious antisocial career.

It is important to study developmental sequences in antisocial careers, where one type of behaviour tends to be followed by another. Three types of sequences can be distinguished (Farrington, Loeber, Elliott *et al.*, 1990). First of all, different acts following each other may be different behavioural manifestations of the same underlying construct (e.g. antisocial personality) at different ages. Second, different acts may be different behavioural manifestations of the same or similar underlying constructs at different ages and also part of a developmental sequence, where one act is a stepping stone towards or facilitates another (e.g. where smoking cigarettes leads to marijuana use). Third, different acts may be indicators of different constructs and part of a causal sequence, where changes in an indicator of one construct cause changes in an indicator of a different construct (e.g. where low attainment leads to truancy). A further problem is that the same behaviour at different ages may reflect different underlying constructs (e.g. compare sexual intercourse at age 12, which is deviant, with sexual intercourse at age 25, which is normal).

Intragenerational continuity

It is important to assess the degree of continuity and stability in antisocial behaviour over time. Several researchers have reported that childhood conduct disorder tends to predict adult antisocial personality disorder. For example, in an Inner London study Zoccolillo *et al.* (1992) found that almost half of the males with three or more symptoms of conduct disorder at age 9–12 showed persistent antisocial behaviour after age 18 and fulfilled the criteria for adult antisocial personality disorder (see also Offord and Bennett, 1994; Rey *et al.*, 1995; Rutter *et al.*, 1994; Storm-Mathisen and Vaglum, 1994). In the Cambridge Study, the antisocial personality score at age 8–10 correlated 0.38 with the score at age 18, and the score at age 18 correlated 0.55 with the score at age 32 (Farrington, 1991).

These correlations help to quantify the degree of stability in the relative ordering of individuals as opposed to the degree of change. They do not indicate absolute stability in antisocial behaviour. For example, in the Cambridge Study the prevalence of marijuana use decreased significantly between ages 18 and 32, but there was a significant tendency for the users at age 18 also to be users at age 32 (Farrington, 1990). Conversely, binge drinking increased significantly between ages 18 and 32, and there was again significant consistency over time. Hence, relative stability often coincided with absolute change. It may be that stability varies according to the initial level of antisocial behaviour; for example, the most antisocial people may be the most stable.

Continuity refers to relationships between different behavioural manifestations over time. For example, hyperactivity at age 2 may predict cruelty to animals at age 6, which in turn predicts conduct disorder at age 10, which in turn predicts burglary at age 14, violence at age 18, partner abuse in the 20s and child abuse in the 30s. The major problem is how to establish that one behaviour leads to another in some way, since any behaviour A tends to be followed by many other behaviours (B, C, D...) with varying probabilities after varying time intervals.

Intergenerational continuity

Antisocial parents tend to have antisocial children. For example, in the Cambridge Study, 63 per cent of boys with convicted fathers were themselves convicted (odds ratio = 3.9), as were 61 per cent of boys with convicted mothers (odds ratio = 2.8). Convictions were highly concentrated in families; about 6 per cent of the cohort families accounted for about half of all the convictions of all family members (Farrington, Barnes and Lambert, 1996). Having a convicted parent at age 10 was the best single predictor of antisocial personality at age 32 (Farrington, 2000b).

It is unclear how far there is specific transmission of types of antisocial behaviour as opposed to general transmission of antisocial tendencies. For example, it is not clear that violent parents tend specifically to have violent children, or that drug-using parents tend specifically to have drug-using children, over and above the general tendency for antisocial parents to have antisocial children. Nor is it clear how far this transmission is attributable to genetic as opposed to environmental factors; behaviour-genetic designs (e.g. twin or adoption studies) are needed to disentangle these factors. Chapter 4 by Terrie Moffitt and Avshalom Caspi discusses intergenerational continuity in more detail, with special reference to partner violence.

Risk and protective factors

Risk factors are prior factors that predict an increased probability of anti-social behaviour. Longitudinal data are required to establish the relative ordering of risk factors and antisocial outcomes. Few longitudinal studies have explicitly investigated risk factors for antisocial personality; the most relevant available information usually concerns risk factors for offending. Apart from the seminal work of Robins (1979), 'we have relatively few studies that have measured the effects of these [child and family] risks, prospectively measured, on adult personality disorder symptoms' (Cohen, 1996, p.126). However, in the Cambridge Study, risk factors for antisocial personality at age 32 (Farrington, 2000b) and for chronic offending (Farrington and West, 1993) were investigated.

Few studies have conducted research on risk factors for career features such as onset, persistence, escalation, and desistance as opposed to risk factors for antisocial behaviour in general. It is sometimes difficult to disentangle risk factors from antisocial outcomes. For example, impulsiveness may be regarded as a cause of antisocial behaviour or as an element of the antisocial personality syndrome. Because of the overall emphasis on prevention in this book, this chapter will concentrate on potentially changeable risk factors that could have causal effects on antisocial behaviour. It is important to study the independent, interactive, and sequential effects of risk factors on antisocial behaviour, but these factors will be briefly reviewed one by one in this chapter. Only a brief review of risk factors can be presented here; chapter 3 by Rolf Loeber, Stephanie Green and Ben Lahey provides a more extensive review of risk factors for antisocial personality.

Biological and individual risk factors

A number of biological risk factors for antisocial behaviour have been identified (Raine, 1993). How far these are changeable is not always clear. For example, there may be some genetic contribution. In the Minnesota study of identical twins brought up apart, the heritability of adult antisocial personality disorder was estimated to be 0.28 (Grove *et al.*, 1990). Neurochemical factors (e.g. testosterone), neurotransmitters (e.g. serotonin), psychophysiological factors (e.g. a low heart rate), and neuropsychological deficits (e.g. in executive functions) have all been linked to antisocial behaviour (Raine *et al.*, 1997). Other relevant factors include head injuries, pregnancy and birth complications, low birth weight of the child, and substance use in pregnancy by the mother (e.g. Kolvin *et al.*, 1990; Raine, Brennan and Mednick, 1994).

A major cluster of individual risk factors includes hyperactivity, impulsivity, attention problems, clumsiness, daring or risk-taking, and other elements of Attention Deficit Hyperactivity Disorder (ADHD). These factors are often closely linked to childhood conduct disorder, but hyperactivity-impulsivity-attention deficit and conduct problems at age 8–10 were independent predictors of later convictions in the Cambridge Study (Farrington, Loeber and van Kammen, 1990). Lynam (1996) argued that children who had both hyperactivity-impulsivity-attention deficit and conduct problems were especially at risk of becoming psychopaths. Also in the Cambridge Study, daring and poor concentration were among the best independent predictors of chronic offenders (Farrington and West, 1993).

The most extensive research on different measures of impulsiveness was carried out in another longitudinal study of males (the Pittsburgh Youth Study) 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. 'unable to delay gratification'), motor restlessness (from videotaped observations), and psychomotor impulsiveness (on the Trail Making Test). Generally, the verbal behaviour rating tests produced stronger relationships with offending than the psychomotor performance tests, suggesting that cognitive impulsiveness (based on thinking processes) was more relevant than behavioural impulsiveness (based on test performance).

Other important individual risk factors for antisocial behaviour include low intelligence, low attainment, low empathy, low guilt, unpopularity, and poor interpersonal skills (Blackburn, 1993). For example, in the Cambridge Study, low non-verbal IQ and low junior school attainment were strong childhood predictors of antisocial personality at age 32 (Farrington, 2000b). Similar results have been obtained in other projects (Lynam, Moffitt and Stouthamer-Loeber, 1993; Wilson and Herrnstein, 1985). Delinquents often do better on non-verbal performance tests, such as object assembly and block design, than on verbal tests (Walsh, Petee and Beyer, 1987), suggesting that they find it easier to deal with concrete objects than with abstract concepts.

Family interaction and socio-economic risk factors

Numerous family factors predict a child's later antisocial behaviour. Having criminal or antisocial parents has already been mentioned. Important family interaction factors include inconsistent, harsh or abusive parenting, cold or rejecting parental attitude, poor parental supervision or

monitoring, low parental involvement with the child, separation/divorce and parental conflict (Farrington, 2002b; Smith and Stern, 1997). For example, in the Cambridge Study, poor parental supervision was an important childhood predictor of both chronic offending and antisocial personality at age 32. However, poor child-rearing (harsh or erratic attitude or discipline) predicted chronic offending but not antisocial personality, and separation from a parent (usually the father) predicted antisocial personality but not chronic offending (Farrington, 2000b; Farrington and West, 1993).

Numerous socio-economic factors predict a child's later antisocial behaviour, including low family income, large family size (which is also a family interaction factor), poor housing, a teenage mother, dependence on welfare benefits, and unemployed parents. For example, in the Cambridge Study, low family income, large family size (four or more biological siblings) and low socio-economic status (but not poor housing) were important childhood predictors of chronic offending and antisocial personality at age 32 (Farrington, 2000b; Farrington and West, 1993).

Peer, school and community risk factors

It is well established that having delinquent friends is an important correlate of offending; in the Cambridge Study, 75 per cent of chronic offenders had highly delinquent friends at age 14, compared with 33 per cent of non-chronic offenders and 16 per cent of non-offenders (Farrington and West, 1993). What is less clear is how far antisocial peers encourage and facilitate antisocial behaviour, or whether it is merely that "birds of a feather flock together". Delinquents may have delinquent friends because of co-offending, which is particularly common under age 21 (Reiss and Farrington, 1991). Interestingly, withdrawal from the delinquent peer group seemed to be an important influence on desistance in the Cambridge Study (West and Farrington, 1977).

It is also well established that delinquents disproportionately attend high delinquency rate schools, which have high levels of distrust between teachers and students, low commitment to the school by students, and unclear and inconsistently enforced rules (Graham, 1988). In the Cambridge Study, attending a high delinquency-rate school at age 11 significantly predicted both chronic offending and antisocial personality at age 32 (Farrington, 2000b; Farrington and West, 1993). However, what is less clear is how far the schools themselves influence antisocial behaviour by their organisation, climate and practices, and how far the concentration of offenders in certain schools is mainly a function of their intakes.

In the Cambridge Study, most of the variation between schools in their delinquency rates could be explained by differences in their intakes of troublesome boys at age 11 (Farrington, 1972).

Another well known result is that offenders disproportionately live in inner-city areas characterised by physical deterioration, neighbourhood disorganisation, and high residential mobility (Shaw and McKay, 1969). However, again, it is difficult to determine how far the areas themselves influence antisocial behaviour and how far it is merely the case that anti-social people tend to live in deprived areas (e.g. because of their poverty or council housing allocation policies). Interestingly, both neighbour-hood researchers such as Gottfredson, McNeil and Gottfredson (1991) and longitudinal researchers such as Rutter (1981) have concluded that neighbourhoods have only indirect effects on antisocial behaviour via their effects on individuals and families.

Protective factors

There are several different definitions of protective factors. One suggests that protective factors are merely the opposite end of the scale from risk factors. For example, just as low intelligence is a risk factor, high in-telligence may be a protective factor. Rae-Grant *et al.* (1989) used this definition in the Ontario Child Health Study and reported that the major protective factors for conduct disorder were getting along well with oth-ers, good academic performance and participation in organised activities.

On other definitions, protective factors are not just the opposite of risk factors. For example, a variable with a non-linear relationship to anti-social behaviour might be regarded as a protective factor but not a risk factor. This would be true if the risk of antisocial behaviour declined from medium to high levels of the factor but did not increase from medium to low levels. If high intelligence was linked to a low risk of antisocial behaviour, while medium and low intelligence were linked to a fairly constant average risk, intelligence could be regarded as a protective fac-tor but not a risk factor. However, the reverse finding is more common (Farrington and Hawkins, 1991). In the Cambridge Study, the risk of conviction was high for males from large-sized families, but fairly con-stant over lower levels of family size. Therefore, large family size was a risk factor but small family size was not a protective factor in this sense.

Another possible definition of a protective factor is a variable that in-teracts with a risk factor to minimise the risk factor's effects (Rutter, 1985). If low intelligence was related to offending only for males from low income families, and not for males from higher income families, then

higher income might be regarded as a protective factor against the effects of the risk factor of low intelligence. It is usual to investigate protective factors by identifying a subsample at risk (with some combination of risk factors) and then searching for factors that predict successful members of this subsample (those who do not have the antisocial outcome). For example, in Hawaii, Werner and Smith (1982) studied children who possessed four or more risk factors for delinquency before age 2 but who nevertheless did not develop behavioural difficulties during childhood or adolescence. They found that the major protective factors included being first-born, active and affectionate infants, small family size and receiving a large amount of attention from caretakers. More information about protective factors is provided in chapter 5 by Friedrich Lösel and Doris Bender.

Other issues

There is not space here to review many other issues. For example, it is important to study the effects of life events on the course of development of antisocial behaviour. In the Cambridge Study, getting married was followed by a decrease in offending compared with staying single, and separating from a wife was followed by an increase in offending compared with staying married (Farrington and West, 1995). Similarly, men committed more crimes during periods of unemployment than during periods of employment (Farrington *et al*., 1986). Since crimes involving material gain (e.g. theft, burglary, robbery) increased during periods of unemployment, it seemed likely that financial need was an important link in the causal chain between unemployment and crime.

It is also desirable to investigate how accurately antisocial behaviour can be predicted, and what are the best risk assessment or screening devices (see Augimeri *et al.*, 2001). Ideally, onset, persistence, escalation and desistance should be predicted separately. There are many ways of measuring predictive accuracy other than focusing on false positives. For example, antisocial personality at age 8–10 predicted antisocial personality at age 32 in the Cambridge Study. While the false positive rate was high (63 per cent), the odds ratio for this comparison was 2.3, showing that the risk of adult antisocial personality was twice as great among antisocial boys (Farrington, 2000b).

Finally, it is important to formulate and test theories of the development of adult antisocial behaviour that can explain all the results reviewed so far in this chapter. Existing theories are too specific, in focusing only on a limited range of risk factors and on a limited number of outcomes (most commonly, offending). My own theory (Farrington, 2001, 2002a)

attempts to integrate a number of earlier theories, but there is not space to outline it here.

Early prevention

In the remainder of this chapter, I will review some promising methods, applicable at an early age, of preventing adult antisocial behaviour. Unfortunately, much of the research on early prevention has not studied antisocial behaviour in general as an outcome, but more specific outcomes such as juvenile delinquency or adult crime (see Moran and Hagell, 2001). Also, most research has not assessed the effects of prevention programmes on the extreme (pathological) cases of antisocial behaviour, but rather on the full range of variation. Also, most research has focused on males, but chapter 9 by Deborah Gorman-Smith reviews prevention research with females.

Ideally, methods of preventing antisocial behaviour should be based on empirically validated theories about causes, but such theories are conspicuous by their absence. Consequently, the most useful prevention techniques are risk-focused ones that aim to tackle known risk factors (Farrington, 2000a). Because of limitations of space, I can only mention some of the more important programmes in this chapter; subsequent chapters (especially 6, 7 and 8) will provide more extensive reviews. Existing reviews of the literature on the prevention of antisocial behaviour (e.g. McCord and Tremblay, 1992; Tremblay and Craig, 1995) focus on antisocial behaviour in childhood and adolescence rather than in adulthood. I will focus on randomised experiments with reasonably large samples, since the effect of any intervention can be demonstrated most convincingly in such experiments (Farrington, 1983; Farrington, Ohlin and Wilson, 1986).

Pregnancy and infancy programmes

Problems in pregnancy and infancy can be alleviated by home visiting programmes designed to help mothers. For example, in New York State, Olds *et al.* (1986) 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 the avoidance of smoking and drinking during pregnancy.

The results of this experiment showed that the postnatal home visits caused a decrease in recorded child physical abuse and neglect during the first two years of life, especially by poor unmarried teenage mothers; 4 per cent of visited versus 19 per cent of non-visited mothers of this type were guilty of child abuse or neglect. This last result is important because of the finding that children who are physically abused or neglected tend to become violent offenders later in life (Widom, 1989). In a fifteen-year follow-up, the main focus was on lower class unmarried mothers. Among these mothers, those who received prenatal and postnatal home visits had fewer arrests than those who received prenatal visits or no visits (Olds *et al.*, 1997). 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 (Olds *et al.*, 1998).

One of the very few prevention experiments beginning in pregnancy and collecting outcome data on delinquency was the Syracuse (New York) Family Development Research Programme (Lally, Mangione and Honig, 1988). The researchers began with a sample of pregnant women and gave them weekly help with child-rearing, health, nutrition and other problems. In addition, their children received free day care, designed to develop their intellectual abilities, up to age 5. This was not a randomised experiment, but a matched control group was chosen when the children were aged 3. The treated children had significantly higher intelligence than the controls at age 3 but were not different at age 5.

Ten years later, about 120 treated and control children were followed up to about age 15. Significantly fewer of the treated children (2 per cent as opposed to 17 per cent) had been referred to the juvenile court for delinquency offences, and the treated girls showed better school attendance and school performance. Hence, this prevention experiment agrees with others in showing that early home visits providing advice and support to mothers can have later beneficial outcomes, including the reduction of offending. Chapter 6 by Richard Tremblay and Christa Japel provides more details about these programmes.

Preschool programmes

One of the most successful prevention programmes has been the Perry Preschool Project carried out in Michigan by Schweinhart and Weikart (1980). This was essentially a 'Head Start' programme targeted on disadvantaged African-American children, who were allocated (approximately at random) to experimental and control groups. The experimental children attended a daily preschool programme, backed up by weekly home visits, usually lasting two years (covering ages 3–4). The aim of the

'plan-do-review' programme was to provide intellectual stimulation, to increase thinking and reasoning abilities, and to increase later school achievement.

About 120 children in the two groups were followed up to age 15, using teacher ratings, parent and youth interviews, and school records. As demonstrated in several other Head Start projects, the experimental group showed gains in intelligence that were rather short-lived. However, they were significantly better in elementary school motivation, school achievement at age 14, teacher ratings of classroom behaviour at 6 to 9, self-reports of classroom behaviour at 15 and self-reports of offending at 15. Furthermore, a later follow-up of this sample (Berrueta-Clement *et al.*, 1984) showed that, 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 (Schweinhart, Barnes and Weikart, 1993). 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 had been born out of wedlock. Hence, this preschool intellectual enrichment programme led to decreases in school failure, to decreases in offending, and to decreases in other undesirable outcomes.

The Perry Project is admittedly only one study based on relatively small numbers. However, its results become more compelling when viewed in the context of ten other similar American Head Start projects followed up by the Consortium for Longitudinal Studies (1983) and other preschool programmes such as the Carolina 'Abecedarian' Project, which began at age 3 months (Horacek *et al.*, 1987). With quite impressive consistency, all studies show that preschool intellectual enrichment programmes have long-term beneficial effects on school success, especially in increasing the rate of high school graduation and decreasing the rate of special education placements. The Perry Project was the only one to study offending, but the consistency of the school success results in all projects suggests that the effects on offending and antisocial behaviour might also be replicable. Chapter 6 by Richard Tremblay and Christa Japel provides more details about these programmes.

Parenting programmes

Many different types of parent training programmes have been used (Barlow, 1997; Kazdin, 1997), but the behavioural parent management

training developed by Patterson (1982) in Oregon is one of the most promising approaches. His careful observations of parent–child interaction showed that parents of antisocial children were deficient in their methods of child rearing. These parents failed to tell their children how they were expected to behave, failed to monitor their behaviour to ensure that it was desirable, and failed to enforce rules promptly and unambiguously with appropriate rewards and penalties. The parents of antisocial children used more punishment (such as scolding, shouting, or threatening), but failed to make it contingent on the child's behaviour.

Patterson attempted to train these parents in effective child rearing methods, namely noticing what a child is doing, monitoring behaviour over long periods, clearly stating house rules, making rewards and punishments contingent on behaviour, and negotiating disagreements so that conflicts and crises did not escalate. His treatment was shown to be effective in reducing child stealing and antisocial behaviour over short periods in small-scale studies (Dishion, Patterson and Kavanagh, 1992; Patterson, Chamberlain and Reid, 1982; Patterson, Reid and Dishion, 1992). Chapter 7 by David Utting provides more details about these programmes.

Parent training was shown to reduce childhood antisocial behaviour in an experiment conducted by Scott *et al.* (2001) in London and Chichester. About 140 mainly poor, disadvantaged children aged 3–8 referred for aggressive and antisocial behaviour were allocated to experimental (parent training) or control (waiting list) groups. The parent training programme, based on videotapes, was given for two hours a week over thirteen–sixteen weeks, covering praise and rewards, setting limits, and handling misbehaviour. Follow-up parent interviews and observations showed that the antisocial behaviour of the experimental children decreased significantly compared to that of the controls. Furthermore, after the intervention, experimental parents gave their children far more praise to encourage desirable behaviour, and used more effective commands to obtain compliance.

Skills training

The most important prevention techniques that target the risk factors of impulsiveness and low empathy are cognitive-behavioural skills training programmes. For example, Ross and Ross (1995) devised a programme that aimed to teach people to stop and think before acting, to consider the consequences of their behaviour, to conceptualise alternative ways of solving interpersonal problems, and to consider the impact of their behaviour on other people, especially victims. It included social skills training,

lateral thinking (to teach creative problem-solving), critical thinking (to teach logical reasoning), values education (to teach non-aggressive, socially appropriate ways to obtain desired outcomes), negotiation skills training, interpersonal cognitive problem-solving (to teach thinking skills for solving interpersonal problems), social perspective training (to teach how to recognise and understand other people's feelings), role-playing and modelling (demonstration and practice of effective and acceptable interpersonal behaviour).

Ross and Ross (1988) implemented this 'Reasoning and Rehabilitation' programme in Ottawa, and found (in a randomised experiment) that it led to a large decrease in reoffending for a small sample of adult offenders in a short nine-month follow-up period. Their training was carried out by probation officers, but they believed that it could be carried out by parents or teachers. This programme has been implemented widely in several different countries, and forms the basis of many accredited cognitive-behavioural programmes used in the UK prison and probation services, including the Pathfinder projects (McGuire, 2001).

Peer programmes

There are no outstanding examples of effective intervention programmes for antisocial behaviour on peer risk factors. The most hopeful programmes involve using high-status conventional peers to teach children ways of resisting peer pressure; this has been effective in reducing drug use (Tobler *et al.*, 1999). Also, in a randomised experiment in St Louis, Feldman, Caplinger and Wodarski (1983) showed that placing antisocial adolescents in activity groups dominated by prosocial adolescents led to a reduction in their antisocial behaviour (compared with antisocial adolescents placed in antisocial groups). This suggests that the influence of prosocial peers can be harnessed to reduce antisocial behaviour.

The most important intervention programme whose success seems to be based mainly on reducing peer risk factors is the Children at Risk programme (Harrell *et al.*, 1997), which targeted high risk youths (average age 12.4) in poor neighbourhoods of five cities across the United States. Eligible youths were identified in schools, and randomly assigned to experimental or control groups. The programme was a comprehensive community-based prevention strategy targeting risk factors for delinquency, including case management and family counselling, family skills training, tutoring, mentoring, after-school activities and community policing. The programme was different in each neighbourhood.

The initial results of the programme were disappointing, but a one-year follow-up showed that (according to self-reports) experimental youths

were less likely to have committed violent crimes and used or sold drugs (Harrell, Cavanagh and Sridharan, 1999). The process evaluation showed that the greatest change was in peer risk factors. Experimental youths associated less often with delinquent peers, felt less peer pressure to engage in delinquency, and had more positive peer support. In contrast, there were few changes in individual, family or community risk factors, possibly linked to the low participation of parents in parent training and of youths in mentoring and tutoring (Harrell *et al.*, 1997, p.87). In other words, there were problems of implementation of the programme, linked to the serious and multiple needs and problems of the families.

School programmes

As important school-based prevention experiment was carried out by Kolvin *et al.* (1981) in Newcastle upon Tyne. They randomly allocated 270 junior school children (age 7–8) and 322 secondary school children (age 11–12) to experimental or control groups. All children had been identified as showing some kind of social or psychiatric disturbance or learning problems (according to teacher and peer ratings). There were three types of experimental programmes: (a) behaviour modification-reinforcement with the seniors, "nurture work" teaching healthy interactions with the juniors; (b) parent counselling-teacher consultations with both; and (c) group therapy with the seniors, play groups with the juniors.

The programmes were evaluated after eighteen months and after three years using clinical ratings of conduct disturbance. Generally, the experimental and control groups were not significantly different for the juniors, although there was some tendency for those in the nurture work and play group conditions to be better behaved than the controls at the three-year follow-up. For the seniors, those who received group therapy showed significantly less conduct disturbance at both follow-ups, and there was some tendency for the other two programmes also to be effective at the three-year follow-up. Other school-based prevention experiments have also been successful in reducing antisocial behaviour (Catalano *et al.*, 1998).

School bullying, of course, is a risk factor for offending (Farrington, 1993). Several school-based programmes have been effective in reducing bullying. The most famous of these was implemented by Olweus (1994) in Norway. It aimed to increase awareness and knowledge of teachers, parents and children about bullying and to dispel myths about it. A thirty-page booklet was distributed to all schools in Norway describing what was known about bullying and recommending what steps schools and teachers could take to reduce it. Also, a twenty-five-minute video about bullying

was made available to schools. Simultaneously, the schools distributed to all parents a four-page folder containing information and advice about bullying. In addition, anonymous self-report questionnaires about bullying were completed by all children.

The programme was evaluated in Bergen. Each of the forty-two participating schools received feedback information from the questionnaire, about the prevalence of bullies and victims, in a specially arranged school conference day. Also, teachers were encouraged to develop explicit rules about bullying (e.g. do not bully, tell someone when bullying happens, bullying will not be tolerated, try to help victims, try to include children who are being left out) and to discuss bullying in class, using the video and role-playing exercises. Also, actions were taken to improve monitoring and supervision of children, especially in the playground. The programme was successful in reducing the prevalence of bullying by half.

A similar programme was implemented in twenty-three Sheffield schools by Smith and Sharp (1994). The core programme involved establishing a 'whole-school' anti-bullying policy, raising awareness of bullying and clearly defining roles and responsibilities of teachers and students, so that everyone knew what bullying was and what they should do about it. In addition, there were optional interventions tailored to particular schools: curriculum work (e.g. reading books, watching videos), direct work with students (e.g. assertiveness training for those who were bullied) and playground work (e.g. training lunch-time supervisors). This programme was successful in reducing bullying (by 15 per cent) in primary schools, but had a relatively small effect (a 5 per cent reduction) in secondary schools. The effects of these anti-bullying programmes on later antisocial behaviour need to be investigated. Chapter 8 by David Hawkins and Todd Herrenkohl provides more information about school-based prevention programmes.

Multiple component programmes

A combination of interventions may be more effective than a single method. For example, Tremblay *et al.* (1995) in Montreal identified about 250 disruptive (aggressive/hyperactive) boys at age 6 for a prevention experiment. Between ages 7 and 9, the experimental group received training 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'. Also, their parents were trained using the parent management training techniques developed by Patterson (1982).

This prevention programme was quite 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. Also, the experimental boys had higher school achievement. At every age from 10 to 15, the experimental boys had lower self-reported delinquency scores than the control boys (Tremblay *et al.*, 1995). Interestingly, the differences in antisocial behaviour between experimental and control boys increased as the follow-up progressed.

One of the most important multiple component school-based prevention experiments was carried out in Seattle by Hawkins, von Cleve and Catalano (1991). This combined parent training, teacher training and child skills training. About 500 first grade children (aged 6) in 21 classes in 8 schools were randomly assigned to be in experimental or control classes. The children in the experimental classes received special treatment at home and school which was designed to increase their attachment to their parents and their bonding to the school. Also, they were trained in interpersonal cognitive problem-solving. Their parents were trained to notice and reinforce socially desirable behaviour in a programme called 'Catch them being good'. Their teachers were trained in classroom management, for example to provide clear instructions and expectations to children, to reward children for participation in desired behaviour, and to teach children prosocial (socially desirable) methods of solving problems.

This programme had long-term benefits. O'Donnell *et al.* (1995) focused on children in low income families and reported that, in the sixth grade (age 12), experimental boys were less likely to have initiated delinquency, while experimental girls were less likely to have initiated drug use. In the latest follow-up, Hawkins *et al.* (1999) found that, at age 18, the full intervention group (receiving the intervention from grades 1–6) admitted less violence, less alcohol abuse and fewer sexual partners than the late intervention group (grades 5–6 only) or the controls. It is generally true that a combination of interventions is more effective than a single technique (Wasserman and Miller, 1998), although combining interventions makes it harder to identify which was the 'active ingredient'.

Community programmes

One of the best ways of achieving risk-focused prevention is through multiple component community-based programmes including several of the successful interventions listed above, and *Communities that Care* (CTC) has many attractions (Farrington, 2002a). Perhaps more than any other programme, it is evidence-based and systematic: the choice of interventions depends on empirical evidence about what are the important