

## **The Scope for Preventing Antisocial Personality Disorder by Intervening in Adolescence**

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## National R&D Programme on Forensic Mental Health

The National Programme on Forensic Mental Health R&D was established in April 1999. It has built on the work of the R&D Programme set up as part of the High Security Psychiatric Services Commissioning Board, which was first established in September 1996. The Programme funds research which supports the provision of mental health services for people with mental disorders who are offenders or at risk of offending. Services are provided in secure and community NHS and criminal justice settings.

An Advisory Group informs the Programme on the commissioning, dissemination and implementation of R&D in this area. In April 2000 this group commissioned expert papers to be written covering the categories identified from an earlier priority question setting exercise undertaken by representatives of key stakeholder groups. These papers were written to provide an overview of ongoing and completed research in addition to proposing a future programme of research. They include the following:

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- Sex Offenders Research
- Social Division and Difference : Women
- Mental Illness and Serious Harm to Others
- Personality Disorder (commissioned 2002)
- Neurobiological approaches to Disorders of Personality (commissioned 2002)
- User involvement in Forensic Mental Health R&D (commissioned 2002)

Expert papers based on the proceedings of seminars on key issues in forensic mental health:

- The Scope for Preventing Antisocial Personality Disorder by Intervening in Adolescence

The views expressed in this publication are those of the authors and not necessarily those of the National R&D Programme Forensic Mental Health, the Advisory Group, or the Department of Health.

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## In Memorium

### **Professor Richard Harrington 1956-2004**

Professor Harrington died after a short illness as this paper was going to press.

I am extremely grateful that Dick lent his great learning, energy and good humour to research relating to the mental health of young people at risk of offending. Dick brought experts together, at the seminar upon which this paper is based, to examine the evidence for preventing anti-social personality disorder by intervening in adolescence. I hope that this paper will now help those who plan and undertake research in this important area.



Professor Clair Chilvers  
Director

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## Executive Summary

Antisocial personality is one of the most common and important of the personality disorders. It is strongly associated not only with social impairment but also with increased risks of both mental and physical health problems. There are in addition great costs to society in terms of lower earnings and costs to the criminal justice system. Established antisocial personality disorder is difficult to treat. There has therefore been much interest in its prevention. The processes leading to adult antisocial personality often start during infancy and childhood and most preventive programmes have therefore focused on these periods. Early prevention is certainly desirable but it is not always possible because many individuals who go on to develop adult antisocial personality cannot be identified before adolescence. Moreover, recent evidence suggests that early preventive programmes may be less effective at a community level than was previously supposed.

This essay reviews some of the ways that intervening in adolescence could prevent antisocial personality disorder in adulthood. It is argued that although a great deal more research remains to be done on the processes leading to personality disorder we know enough about these processes to implement some preventive measures during adolescence. It is suggested that there are not only policy measures that could help to protect from later personality disorder but also measures directed at recognizing and treating early cases. Policies that might reduce the risk of later antisocial behaviour include measures to reduce school exclusion, anti-bullying programmes and measures to promote preventive activities by mental health professionals. In terms of early treatment, the most effective preventive measure is likely to be better recognition and treatment of behavioural disorder, particularly conduct disorder.

The paper concludes with a review of gaps in current knowledge. Perhaps the most immediately pressing research priority is to evaluate the long-term effectiveness of interventions that are known to improve the short-term outcomes of adolescents with conduct disorder. Further research on risk assessment and prediction is also needed.

## 2. Introduction

The development of preventive programmes has been slower and more tentative in child and adolescent mental health than in many parts of healthcare. The hopes of the Child Guidance movement during the first half of the last century that mental problems later in life could be prevented by intensive early interventions were not realized. Subsequently, child and adolescent mental health services in the United Kingdom became increasingly allied with hospital-based disciplines and more concerned with the treatment of patients who had established disorders than with prevention. Indeed it was widely supposed that concepts borrowed from public health programmes for preventing physical diseases would not carry over well in the child and adolescent mental health field (Kolvin, 1994).

Over the past fifteen years there has however been renewed interest in the possibility that early intervention might prevent mental disorders later in life. Indeed, recent research suggests that a significant proportion of adult mental health problems start in childhood or adolescence (Kim-Cohen et al., 2003). In Britain, children's mental health services have undergone major changes with an increasing focus on community-based treatment programmes and on interventions delivered through the primary care, educational or social care systems (Health Advisory Service, 1995). There has also been an increase in the number of other services for children at risk of mental health problems because of experiences such as abuse or bereavement. All of these developments provide opportunities for early preventive interventions (Kurtz, 1996). Indeed, the Department of Health in the UK recommends that health promotion should be one of the main functions of child and adolescent mental health services (Department of Health, 1995), which is also the view of professional bodies (Child and Adolescent Section of the Royal College of Psychiatrists, 1990) and a Parliamentary Select Committee (Parliamentary Select Committee. Number 4, 1997).

It is not difficult to see why both professional bodies and politicians find the idea of prevention attractive. But will it work in practice? There have been several reviews on the early prevention of adult antisocial behaviour (LeMarquand, Tremblay & Vitaro, 2001; Offord & Bennett, 2002; Rutter, Giller & Hagell, 1998). However, much of this work has focused on programmes delivered during infancy or childhood. Early prevention is clearly desirable but as we shall discuss below it is not always possible. We also need to know therefore whether prevention of adult antisocial behaviour is possible during adolescence.

This paper is concerned with the issue of what measures might be taken during adolescence to prevent personality disorder in adult life. Because of space limitations, it is not possible to describe in detail all the risk factors for personality disorder and all of the interventions that could be implemented. We have therefore been very selective and have focussed on those risk factors that have been demonstrated in high quality longitudinal studies and on those interventions that have been evaluated experimentally, usually in randomised trials. We will focus particularly on risk factors and interventions

that fall within the current sphere of activity of health, social and allied professionals. We will not cover juvenile justice approaches such as electronic monitoring (reviewed by Cullen et al (Cullen, Wright & Appelgate, 1996)) or sentencing, nor measures to reduce opportunities for antisocial behaviour. We will discuss only briefly educational approaches. However, we recognise of course that like many mental health problems personality disorder occurs within a wider social, educational and legal context.

The paper begins with a description of the phenomenology of personality disorder and its risk factors. It then goes on to describe a framework for prevention and within that framework explores whether there is an adequate knowledge base. The general perspective that is presented is one of cautious optimism. It is argued that although a great deal more research remains to be done on the processes leading to personality disorder we know enough about these processes to implement some preventive measures during adolescence. It is suggested that there are not only policy measures that could help to protect from later personality disorder but also measures directed at recognizing and treating early cases.

## 2.1 What is being prevented?

Effective preventive programmes require a clear definition of the problem to be prevented. There are many different definitions of personality disorder but behind most of them is the concept of a pervasive and persistent abnormality of personality functioning that leads to suffering to the person or others and which causes social impairment. Personality disorders are usually regarded as different from mental illnesses such as depression or anxiety, which tend to follow a more relapsing and remitting course.

The main classification systems, the tenth revision of the International Classification of Diseases (ICD-10) (World Health Organization, 1992) and the fourth revision of the Diagnostic and Statistical Manual (DSM-IV) (American Psychiatric Association, 1994), differentiate between organic personality disorders resulting from problems such as severe head injury, personality abnormalities that are thought to be the result of mental illness and primary personality disorders. Each classification system specifies several primary personality disorder types, nine in ICD-10 and eleven in DSM-IV. There is however substantial heterogeneity in the concepts behind the different subtypes (Hill, 2002). Some of them for example have their origins in empirical studies of continuities between behavioural problems in childhood and pervasive social dysfunction in adult life. Perhaps the best validated example of this type is the concept of antisocial personality disorder in DSM-IV, which is defined almost entirely by antisocial behaviours such as aggression. Other categories come from theoretical, often psychoanalytic, concepts. The concept of borderline personality for instance is based to a large extent on the idea of borderline personality organization. Yet other subtypes of personality disorder appear to be variants of illness. For example, the concept of schizotypal personality disorder came from genetic studies conducted in the 1960s and 1970s, which showed that the relatives of probands with schizophrenia were more likely than controls to have personality features resembling some aspects of schizophrenia.

There is a great deal of overlap between these supposedly separate personality disorder subtypes (Hudziak et al., 1997; Oldham et al., 1992). Nevertheless, it seems unlikely that they all share the same risk factors and causal processes and can be prevented in the

same ways. For example, a programme to prevent personality disorder following head injury might well include policies that make it mandatory that motorcyclists wear helmets, but such a measure is not likely to prevent many cases of paranoid personality disorder! In this paper we shall therefore focus on those varieties of personality disorder that are likely to be of most relevance in forensic settings, particularly antisocial personality disorder. Antisocial personality disorder (ASPD) is defined by antisocial acts, aggression, problems at work, failure to plan ahead, recklessness and a lack of remorse.

## 2.2 Why prevent it?

There is a strong case for preventing antisocial personality disorder. The prevalence in the general population is approximately 2% (Coid, 2003; Torgersen, Kringlen & Cramer, 2001). Antisocial personality disorder is associated with much social handicap and once established it is hard to treat. There is also an association with increased morbidity and mortality. Individuals with antisocial personality are at increased risk of death through accidents, suicide, substance abuse and murder (Robins & Rutter, 1990).

It is sometimes argued that preventing mental disorder will not only improve health but also save money. Indeed, there is evidence that antisocial personality is associated with a variety of economic costs both to the individual and to society (Welsh, 2003). Scott and colleagues (Scott, Knapp, Henderson & Maughan, 2001) provided costs data on children with conduct disorder who were followed up into adulthood when many of them showed antisocial behaviour. By the age of 28 years they had cost society approximately ten times as much as their non-antisocial counterparts.

There are however several reasons for thinking that savings that might come from preventing personality disorders would be less than anticipated. First, reducing the incidence of a disorder does not necessarily mean that the costs of treating it become less. The rising costs of health and social care mean that even if a smaller number of people develop a problem they can cost more to treat. Rates of heart disease have gone down over the past 20 years in the UK, but the number of bypass operations has greatly increased and heart surgeons are busier than ever. Even if preventive programmes reduced the number of people with personality disorder, those that remain could be very expensive to treat.

Secondly, the idea that reducing the incidence of a disorder leads to a reduction in treatment costs assumes that we live in an ideal world in which demands for care accurately reflect needs, which are themselves closely linked to service provision and costs. However, in the world in which most of us actually work there is only a weak relationship between costs of mental health care and the mental health needs of young people. The money that is spent on the care of antisocial young people is influenced by many other factors, such as the attitudes of politicians and the public towards mental and behavioural disorder, newspaper reports, the location of existing services, government policies and, perhaps most importantly, the organisation and attitudes of agencies who fund services. Research on juvenile offenders in secure care (Kroll et al., 2002), many of whom will go on to develop antisocial personality, has shown that service provision is only partly related to need. The secure system meets some of the needs of juveniles who have committed serious offences very well, such as their need for educational services. However, services for other needs are very patchy, being excellent in some geographical

areas and virtually absent in others. It is unlikely therefore that changes in the incidence of mental health problems would lead automatically to changes in spending.

The main argument for preventing personality disorder, therefore, is as much humanitarian as it is economic. Personality disorder causes great suffering to many individuals, their families and to society.

## 2.3 Risk factors

Knowledge of risk factors is essential in planning prevention programmes. A risk factor is a characteristic of an individual or his environment that (a) is present before the onset of the disorder, and (b) increases the risk of disorder in individuals exposed to that factor, compared with those who are not. Although cross-sectional studies can provide important clues about risk factors, longitudinal studies are usually necessary to confirm them. Longitudinal research on the precursors of ASPD does however have some limitations (Loeber, Burke & Lahey, 2002). The relatively low rate of ASPD in the general population means that few studies have had enough cases, and those that do have rarely had the resources to assess all relevant risk factors using state-of-the-art measures. Much of what we know comes from either high risk studies or from general population studies in which the outcome has been antisocial behaviour of one kind or another but not ASPD as such.

Table 1 summarises the findings from reviews (Farrington, 2003; Loeber, Green & Lahey, 2003; Rutter et al., 1998) and from some of the best-known longitudinal studies, including the Cambridge Study (Farrington, 1995), the Pittsburgh studies (Loeber et al., 2002b), and the Dunedin Study (Moffitt, Caspi, Harrington & Milne, 2002).

**Table 1. Child and adolescent risk factors for antisocial behaviour in adulthood**

Risk factor	Age	Adult outcome	Reference
<b>Temperament/personality</b>			
Undercontrolled	3	Aggression	(Caspi, 2000)
Impulsive	8-10	Offending	(Farrington, 1995),
Hyperactive	13	Violence	(Klinterberg, Andersson, Magnusson & Stattin, 1993)
Callous	7-12	ASPD	(Loeber et al., 2002a)
<b>Low IQ &amp; low educational achievement</b>	4-11	Arrests	(Moffitt, 1993b)
<b>Psychopathology</b>			
Depression	14	ASPD	(Kasen et al., 2001)
Oppositional disorder	7-12	ASPD	(Loeber et al., 2002a)
Conduct disorder	9-16	ASPD	(Harrington, Fudge, Rutter, Pickles & Hill, 1991)
Substance abuse	7-12	ASPD	(Loeber et al., 2002a)
<b>Parents &amp; parenting</b>			
Antisocial parent	8-10	Offending	(Smith & Farrington, 2003)
Poor supervision	8	Offending	(Farrington, 1995)
Abuse	< 12	Violence	(Widom, 1989)
Violence between parents	3-16	Violence Violence to children	(Moffitt & Caspi, 2003)
<b>Deviant peer group</b>	11-16	Offending	(Lipsey & Derzon, 1998)
<b>High delinquency school</b>	11	Offending	(Farrington, 1995)

As the table indicates, research has identified a large number of child or adolescent risk factors for ASPD. These include individual characteristics such as impulsivity or low IQ, behavioural disorders such as conduct disorder, family factors such as poor supervision or abuse, and wider societal factors such as school setting or peers.

It will be appreciated that in planning preventive programmes it is essential to identify risk factors that both cause disorders and can be modified. Such risk factors need to be distinguished from (a) risk factors that are not modifiable such as gender (known as markers), (b) modifiable risk factors that precede the disorder but are not causal, and (c) correlates that have little or no impact on the disorder and which may even be caused by it (Kraemer, Kazdin, Offord, Kessler & Jensen, 1997). In this regard it has to be said that we are still a long way from understanding which of the risk factors listed in table 1 are the most important and should be the focus of prevention programmes. For some risk factors it is still not clear whether they are causal. For example, peer delinquency may be as much a consequence of behavioural disorder as a cause (Farrington, Loeber, Yin & Anderson, 2002). However, this uncertainty about causal processes does not mean that we should do nothing. We know enough about the risk factors for antisocial behaviour to plan intervention programmes. Indeed, the success or failure of intervention programmes can tell us much about causes.

In planning intervention programmes it is helpful to know the strength of the relationship between the risk factor and the disorder. The most widely used statistics are positive predictive power, the odds ratio and the population attributable risk. The positive predictive power is the proportion of cases with the risk factor who go on to develop the disorder. The odds ratio tells us how much the risk is increased by the risk factor. The population attributable risk is the proportion of cases in the population that is attributable to the risk factor, assuming of course that it is causal. In other words, it tells us how much scope there is for preventing the disorder if the risk factor was removed. For example, if everyone stopped smoking then more than 80% of most types of lung cancer could be prevented (Yang et al., 2002). The population attributable risk is a function of both the size of the risk that a given factor represents and of the prevalence of that risk factor.

Table 2 shows results from a follow-up study of children and adolescents who attended the Maudsley Hospital Children's Department in the late 1960s and early 1970s and who were followed up nearly 20 years later in adulthood (Harrington et al., 1991). As the table shows, conduct disorder was a strong predictor of antisocial personality disorder in adulthood, with more than half of cases going on to develop ASPD and an odds ratio of 13. In other words, children with conduct disorder were 13 times more likely to have ASPD in adulthood than children without. Moreover, the proportion of cases of ASPD that could be attributed to conduct disorder was relatively high, at around 55%. Assuming that conduct disorder causes ASPD, then if all cases of conduct disorder had been treated successfully then the rate of ASPD in this population would have halved.

## 2.4 Risk processes

No other risk factor predicts antisocial personality as strongly as the severity and extent of child and adolescent conduct symptoms (Robins, 1966). Nevertheless, many of the risk factors shown in table 1 have been robust predictors across many studies of subsequent

**Table 2. Relationship between conduct disorder in childhood and adolescence and antisocial personality in adulthood (Harrington et al., 1991)**

		Antisocial personality		
		Present	Absent	
Conduct disorder	Present	17 (a)	13 (b)	
	Absent	9 (c)	92 (d)	
		26	105	131
Odds ratio = (a)(d)/(c)(b) = (17)(92)/(9)(13) = 1564/117 = 13.4				
Population attributable risk = (rate of ASPD in population - rate ASPD in those without CD)/Rate of ASPD in population = (26/131) – (9/101)/(26/131) = 0.2 – 0.09/0.2 = .11/.2 = 0.55 or 55%				

antisocial behaviour. Most of these risk factors are quite prevalent and predict relatively strongly, with an odds ratio of 2 or more. It should also be borne in mind that they are often correlated and probably combine and interact with each other over time to produce antisocial behaviour. For example, there is evidence that the higher the number of risk domains (i.e. in the child, family, school) the higher the risk of subsequent antisocial behaviour (Loeber et al., 2002b). The development of chronic antisocial behaviour can be seen as a chain of events in which different risks accumulate and reinforce each other over development (Maughan & Rutter, 2001). For example low intelligence increases the risk of problems at school, which in turn leads to school exclusion and employment problems, which then contribute to persistent antisocial behaviour. These kinds of models have implications for preventive programmes. In particular, they suggest that prevention programmes need to target multiple risk factors.

**2.5 Protective factors**

Most research on antisocial behaviour has focused on risks. Less attention has been paid to factors that improve outcomes, so-called protective factors. A protective factor is not simply the absence of a risk factor. Rather, it reduces the risk of the disorder in the presence of a risk factor (Garmezy & Masten, 1994). Protective factors for later antisocial behaviour include temperamental characteristics such as shyness and inhibition, intelligence, a close relationship with at least one adult, good school or sporting achievement, and non-antisocial peers (Losel & Bender, 2003). These protective mechanisms can interrupt the causal risk chains described above at various points.

Programmes that aim to enhance protective factors could in theory have an important advantage over programmes that target risk factors, which is that they might be more acceptable to participants. It is not difficult to understand, for example, why a parent might not want to take part in a programme of parent skills training because such programmes can imply that the child’s problems are in some way the parent’s fault. By contrast a programme that focuses on developing strengths such as educational attainment or peer relationships might be more attractive.

**2.6 When should it be prevented?**

There are good reasons for starting prevention programmes as early as possible in children’s lives. Although not enough is known about the processes leading to antisocial

behaviour, it is likely that most risk factors accumulate over years. Moreover, some interventions such as parent skills training seem to be most effective when delivered during childhood rather than adolescence (Kazdin, 1997).

Programmes to prevent antisocial behaviour during adolescence are also necessary however, for several reasons. First, as we saw earlier by far the strongest risk factor for antisocial personality disorder in adults is conduct disorder, yet many cases of conduct disorder do not appear until adolescence. Although such cases tend to do better in adult-life than life course persistent cases (i.e. those whose antisocial behaviour begins in childhood and worsens through adolescence (Moffitt, 1993a)) a recent report from the Dunedin follow-up has shown that adolescent onset cases have more problems with antisocial personality symptoms in adult life than the general population (Moffitt et al., 2002). Moreover, in the Dunedin study adolescent onset cases were nearly three times as common as life course persistent cases, meaning that they account for a relatively high proportion of the total morbidity arising from antisocial personality.

Second, prevention programmes that focus on infancy and childhood may be less effective than previously thought. Thus although many small-scale studies have found benefits, effectiveness has been lower in the larger studies (LeMarquand et al., 2001). For example, one of the largest and most systematic studies of the prevention of antisocial behaviour in early and middle childhood found only a small effect of an intensive intervention (Conduct Problems Prevention Research Group, 1999a; Conduct Problems Prevention Research Group, 1999b). This is a significant problem because of course primary prevention programmes have to work on a large scale.

The third reason for intervening in adolescence is the evidence that whilst most adolescents with behavioural disorders have some problems in adult life (Maughan & Rutter, 2001), many will not meet the criteria for antisocial personality disorder (Robins, 1991). The maintenance of antisocial tendencies during this period is probably not therefore simply due to the autonomous unfolding of pathological processes but depends on the evolving interaction between individual and environmental effects. Some of the key processes involve social cognitions, neighbourhoods, peer relations, substance abuse and early adult role transitions such as leaving education, entry to the workforce and early partnership formation (reviewed by Maughan & Rutter (Maughan & Rutter, 2001)). Hence there may be opportunities for breaking the chain linking childhood behavioural problems and adult personality disorder by intervening during adolescence. It is not inevitable that antisocial adolescents will develop antisocial personality disorder in adult life.

### 3. A framework for preventing antisocial personality disorder by intervening in adolescence

Public health definitions of prevention (Caplan, 1964; National Academy of Sciences, 1994) recognize three kinds of preventive activity (table 3). Prevention (primary prevention) involves activities that reduce the incidence of disorder in those who do not already have it. Treatment (secondary prevention) includes case identification and standard treatment for established disorder. *Maintenance* treatments (tertiary prevention) have a similar objective but aim to reduce the risk of recurrence of disorder and to reduce complications arising from it.

**Table 3. A practical framework for interventions in adolescence to prevent personality disorder in adult life**

<b>Prevention</b>	Universal (aimed at the whole population)
	Selective (aimed at groups at high risk because of risk factors)
	Indicated (aimed at groups who have minimal but detectable signs of the disorder)
<b>Treatment</b>	Case identification
	Standard treatment for disorders known to increase the risk of ASPD
<b>Maintenance</b>	Compliance with long-term interventions
	Aftercare and reduction of complications

There has been some debate as to whether treatment and maintenance activities qualify as prevention proper or whether they are better regarded simply as part of routine clinical work (Newton, 1988). In our view such strategies do qualify as prevention simply because they could prevent something. Even when conduct disorder is well established in mid-adolescence there are plenty of individuals who do not go on to develop ASPD (Loeber et al., 2003). Secondary and tertiary prevention strategies could therefore prevent progression. Moreover, we now know that conduct disorder is followed by all kinds of complications and secondary morbidities, which include substance abuse, poor physical health, cigarette smoking, psychiatric disorders such as depression, and attempted suicide (Fombonne, Wostear, Cooper, Harrington & Rutter, 2001a; Fombonne, Wostear, Cooper, Harrington & Rutter, 2001b; Kim-Cohen et al., 2003; Maughan & Rutter, 2001). The long-term care of adolescents with conduct disorder could therefore help to prevent some of these problems.

Although the framework described above is widely used in child and adolescent mental health prevention programmes (Harrington & Clark, 1998; Offord & Bennett, 2002) it has some limitations. There is no clear dividing line for example between minor behavioural problems and conduct disorder. Similarly, from a developmental perspective it is not obvious where conduct disorder in adolescence ends and antisocial personality disorder in adults begins. Although the current convention is not to diagnose personality disorder

under the age of 18 (World Health Organization, 1992), it seems that behavioural disorders resembling adult personality disorders can and do occur from middle adolescence upwards (Hill, 2002). In this paper we shall use the term prevention for interventions that target risk factors (universal or selective prevention). Interventions that target symptoms of behavioural disorder such as delinquency (indicated prevention) and established conduct disorder will both be referred to as treatment because many studies do not distinguish between them.

## **3.1 Universal prevention**

### **3.1.1 Definition and characteristics**

Universal prevention interventions are aimed at the whole population, regardless of their degree of risk. Childhood immunization is a good example of a universal intervention for infectious diseases such as diphtheria. Because universal interventions are aimed at everyone they have the potential to produce large changes in the incidence of a disorder. Moreover, since antisocial behaviour is distributed across much of the population, nearly everyone could benefit a little (Coid, 2003). Another advantage of universal interventions is that they are less stigmatizing than selective strategies.

Universal programmes for behavioural disorders in older children and adolescents are less prominent because in this age group more emphasis is placed on recognizing and treating high risk cases. Moreover, since healthcare and social agencies generally have less contact with adolescents than with younger age groups, the framework for these agencies delivering universal preventive strategies is more limited.

### **3.1.2 Examples**

Nevertheless, since most older children and adolescents attend school, school programmes could provide a useful framework for universal preventive activities. A variety of school-based programmes have been studied. Most of them target the three main risk factors for adult antisocial behaviour that are seen in school settings and therefore could be changed by school-based interventions. These are physically aggressive behaviour such as bullying, academic failure and low commitment to school. School-based prevention programmes have usually aimed both to promote protective factors and to reduce antisocial behaviour. They can be divided broadly into programmes that attempt to change the ways that the schools and classes are organised or managed, and specific prevention curricula that are added to the normal school curriculum.

Many modifications to schools that are intended to reduce problem behaviour and promote academic success have been proposed. Those that have shown positive effects include reduction in class size, improved classroom organization, behaviour management strategies and skills thought to promote good citizenship (Hawkins & Herrenkohl, 2003). Most of these programmes start at elementary school. However there is evidence that effects can persist into adolescence and early adult life.

One of the best known examples of a specific prevention curriculum targeting antisocial behaviour is the major evaluation of a nationwide campaign against bullying that was carried out in Norway (Olweus, 1994). The main aim of the programme was to increase awareness and knowledge of teachers, parents and young people about bullying. Booklets

and videos were made available to schools and the schools in turn distributed information to parents. The programme was evaluated in one city, in which measures of bullying were made before and after the programme. Whilst this design has problems, the results were impressive with a 50% reduction in bullying. In a large study in Sheffield positive results were also found, though not as large as in Norway (Smith & Sharp, 1994).

An example of a specific school programme that aimed to develop competencies is the PATHE programme (Positive Action Through Holistic Education). This is a school development model that has been applied in secondary schools and which consists of organisational change strategies and the provision of services to high risk students. The universal components of this programme include reviews of school policies, development of school and classroom goals, and school-wide academic and climate innovations. Student reports suggest that the programme results in fewer delinquent acts (Gottfredson, 1986).

There are also some examples of community-based experiments. One of the best known is a study that was carried out in an area of public housing in Ottawa Canada (Jones & Offord, 1989). A comprehensive programme of non-academic skills development was delivered to boys aged between 5 and 15 years in one area and comparisons were made with similar boys in another area. The programme included many after-school recreational activities aimed at improving skills in sports, music, dance and other domains. In the area receiving the intervention the number of police and firecalls was reduced and the children achieved new athletic and physical skills.

On a more negative note, the Cambridge Somerville Study deserves some comment. Boys at around the age of 11 years were randomly allocated to an intervention delivered by a social worker or not (McCord, 1978). The role of the social worker was to develop a personal relationship with the boy and his family. Follow-up into adulthood when the participants were aged 40 to 50 years found that on all kinds of outcomes, such as crime, physical health and even mortality, those who had had the intervention were worse off. Although the reasons for the failure of the intervention are not clear, the study does highlight the fact that preventive interventions can sometimes be harmful.

## **3.2 Selective prevention**

### **3.2.1 Definition and characteristics**

Universal preventive programmes have huge potential, but also some disadvantages. From the perspective of trying to prevent personality disorder, perhaps the most important is that because universal interventions must by definition be applicable to everyone, even if they are low risk, they may be of relatively little benefit to those at greatest risk. The 'dose' of a psychosocial intervention that can be delivered to the whole community will inevitably be relatively small, and perhaps insufficient to prevent high risk cases.

Another strategy is to target resources towards high risk groups, so-called selective interventions. In the context of the prevention of personality disorder, two types of strategy can usefully be distinguished. Vulnerability-focused interventions target individuals who are high risk because of some individual characteristic. Situation-

focused interventions target individuals in whom the risk comes from the extrinsic situation they are in.

### 3.2.2 Vulnerability-focused interventions

There are many examples of intrinsic risk factors for ASPD, including conditions as diverse as intrauterine malnutrition (Neugebauer, Wijbrand Hoek & Susser, 1999), brain damage (constitutional or acquired), mental retardation, sex chromosome disorders (Ratcliffe, 1994), psychiatric disorders, epilepsy and difficult temperament (Prior, 1992). Within the limits of a short paper, it is obviously not possible to provide a detailed overview of all of these. However, we will discuss the role that treatment of child mental disorders other than conduct disorder might play in a programme to prevent antisocial personality.

One of the most important of these is attention deficit hyperactivity disorder (ADHD). Originally, ADHD was thought to be a transient phenomenon that diminished as children reached adolescence. However, it is now clear that the disorder persists into adolescence in a half or more of affected children, and into adulthood in half or more of adolescent cases (Klein & Mannuzza, 1991). Follow-up studies have consistently emphasised the extent to which children with hyperactivity are at increased risk of antisocial behaviour and alcohol abuse in adult life. The presence of hyperactivity is associated not only with early offending, but also with an increased likelihood of offending persisting into adult life (Farrington, 1995). The prognosis is worse when the ADHD symptoms are associated with conduct problems or learning difficulties. However, ADHD increases the risk of a poor outcome even when the association with these other problems is taken into account (Taylor, Chadwick, Heptinstall & Danckaerts, 1996).

Attention deficit hyperactivity disorder is an appealing target for a prevention programme as there is evidence that both psychological and pharmacological treatments are effective (Taylor, 1994b). There is now good evidence for example that stimulant medications such as methylphenidate are a useful short-term treatment for attention deficit and hyperactivity symptoms. Controlled trials have also suggested that benefits of stimulants may persist for up to a year. Probably the best known of the published trials is the multi-modal treatment study of attention deficit disorder (MTA) trial (The MTA Cooperative Group, 1999a; The MTA Cooperative Group, 1999b). The MTA trial showed that stimulant medication alone was just as effective as stimulant medication plus an intensive psychosocial intervention, and significantly more effective than either routine clinical care or a psychosocial intervention alone. It remains to be seen however whether benefits will persist for any longer.

Another route into antisocial personality disorder could be through depressive disorder in adolescence. Two studies have shown that early depressive disorder predicts the later development of ASPD even when the association with other problems is taken into account (Kasen et al., 2001; Loeber et al., 2002a). The mechanism is not clear, but could involve the disinhibition that depressed mood can cause (Loeber et al., 2002a). This finding is important both because it suggests that there are routes to ASPD that do not go through conduct disorder and because depression is potentially treatable. There is now substantial evidence that moderately severe depressive disorder in adolescence can be treated with psychological therapies such as cognitive-behaviour therapy (Harrington,

Whittaker, Shoebridge & Campbell, 1998) and the efficacy, and risk, benefit of SSRI's is currently under review (Committee on Safety of Medicines - latest guidance September 2003).

A further pathway to antisocial personality could go through disorders of attachment. Attachment disorders are characterised by the early onset of persistent failure to initiate developmentally appropriate social interactions and by diffuse attachments, as manifest by indiscriminate sociability. These disorders are widely believed to be linked to an insecure relationship with a parent figure during infancy, which in turn leads to distorted internal working models of relationships. Attachment problems do indeed predict the subsequent development of problem behaviour and relationship difficulties (DeKlyen & Speltz, 2001). Attachment theories and related treatments are increasingly used clinically in the management of adolescents with severe behavioural problems, particularly in those who have a history of prolonged early deprivation, multiple carers or abuse. One limitation of such approaches however is that it is not clear whether concepts that were first developed and validated with infants will work with adolescents (O'Connor, 2002). For example, the criteria for diagnosing attachment disorder in adolescents are unclear. Moreover, the value of treatments for antisocial children and adolescents that are based on attachment theory, such as psychodynamic therapy (Fonagy & Target, 1994), intensive residential programs (Moretti, Holland & Peterson, 1994) and holding therapies (Myeroff, Mertlich & Gross, 1999) has not yet been proven. Nevertheless these approaches deserve mention in this review because they are attracting increasing attention both in juvenile justice settings and in related contexts such as care settings.

### **3.2.3 Situation-focused interventions**

Many risk situations are associated with an increased risk of personality disorder. This section covers two of the most important: child abuse, and parenting problems.

The prevention of child abuse is a particularly important target for several reasons. First, there is a strong association between child abuse of all kinds and the development of personality disorder in adult life (Johnson, Cohen, Brown, Smailes & Bernstein, 1999). Second, abuse is relatively common (Emery & Laumann-Billings, 2002). It is likely then that the proportion of mental health problems that can be attributed to abuse will be relatively high.

The most successful interventions for child abuse tend to be those that start early, such as early home visitation by health visitors (Olds et al., 1997; Olds et al., 1998). However, educational programmes delivered in adolescence can improve safety skills and knowledge about sexual abuse (MacMillan, 2000) and there is some preliminary evidence that prevention of maltreatment reduces antisocial behaviour during this age period (MacMillan, 2001).

A history of being parented poorly is another robust correlate of the development of personality problems in adult life. For example, an adult follow-up of the children of parents with psychiatric disorders showed that much of the association between parental psychiatric disorder and subsequent personality problems in offspring was due to experiences of poor parenting (Quinton, Gulliver & Rutter, 1995). Continuities in antisocial behaviour across generations are partly mediated by parenting (Smith &

Farrington, 2003). There have been many studies of the effectiveness of family-based interventions in the reduction of antisocial behaviour (Farrington & Welsh, 2003). Most of these studies were based on children or adolescents with established antisocial behaviour (see below) but in some the starting point was a risk situation that included parenting problems. The Children At Risk programme targeted high risk adolescents with a programme that included family skills training, mentoring and community policing. Although the initial results were negative, follow-up at one year showed a reduced risk of violent crimes (Harrell and colleagues, cited by Farrington & Welsh, 2003).

### 3.3 Barriers to primary prevention programmes

Clearly, then, primary prevention programmes have potential. There are however several barriers to be overcome in implementing them. First, uptake of primary prevention programmes by clients may be low. Young people and their parents may not be motivated to take part in programmes in which the main purpose is to prevent an outcome several years later for only a few who take part. Second, it has in practice been difficult to sustain many primary prevention programmes even when scientific studies have clearly demonstrated their benefits. For example, the Newcastle Study of Kolvin and his colleagues (Kolvin et al., 1981) found benefits from a psychosocial intervention delivered through schools that persisted for three years. Yet the intervention is hardly used at all now in UK schools. Third, community-based prevention initiatives require a civic minded community that is able to accommodate and support a prevention programme (Offord & Bennett, 2002). This may not always be the case. For example, a school-based prevention initiative will have little chance of success if the school is demoralised and disorganised, or if its value system gives priority to other aspects of school life. Fourth existing funding arrangements often do not support preventive programmes. For example, although in the NHS some funds have specifically been allocated for preventive activities such as work with schools (Department of Health, 1996), the main outcome measures for mental health services seldom include this activity. Rather, there is much more concern with patient-level measures such as the time from referral by the GP to the first outpatient appointment. A final obstacle is that many mental health professionals are not trained in preventive activities; their expertise lies mainly in individual clinical work.

### 3.4 Case identification

For most disorders the earlier the treatment the better the outcome. Since it often takes years for minor disruptive behaviours to escalate into serious behavioural problems there should in theory be much time to intervene before serious antisocial behaviour becomes ingrained (Stouthamer-Loeber & Loeber, 2002). But how can cases at high risk of serious antisocial behaviour be identified and who is best placed to identify them? There are a number of possible settings in which screening can take place.

#### 3.4.1 Youth justice system

In many developed countries the youth justice system has a specific mandate to intervene with juvenile offenders. In the UK, for example, prevention of offending is an explicit part of the mission statement for the Youth Justice Board. As a result, in the UK increasing resources are being put into screening cases who come into contact with the youth justice system for problems such as serious aggression. Similar initiatives are

taking place in the USA (Wasserman et al., 2003).

There are a number of robust clinical indicators that can help to identify offenders at high risk of ASPD. For example, we have known for a long time that among children with conduct disorder features such as an early age at onset and having many different conduct problems predict ASPD in adult life (Robins, 1966). Clinical instruments also exist for identifying cases at high risk of violence, such as the Structured Assessment of Violence Risk in Youth (Borum, Bartel & Forth, 2000). The SAVRY is designed for use as an aid in clinical risk assessments and intervention planning. It includes scales measuring historical items such as history of violence, social/contextual items, individual items (e.g. callousness) and protective factors (e.g. strong social support, strong commitment to school). The ratings can therefore be used to construct an intervention programme and to monitor change in risk.

### **3.4.2 Schools**

It will be appreciated however that by the time young offenders first come into contact with the youth justice system many have been involved in disruptive or delinquent activities for years (Stouthamer-Loeber & Loeber, 2002). Another approach is to screen for behavioural problems using other agencies, of which the most obvious are schools. This could be done by asking teachers to nominate children that cause them concern, or by using standardised teacher or parent questionnaires. There are a wide variety of questionnaires and rating scales that can be used for this purpose, such as the Strengths and Difficulties Questionnaire (Goodman, 1997b) or the Child Behaviour Checklist (Achenbach & Edelbrock, 1983). One of the major advantages of this approach is that since most children attend school during their early teenage years it should in principle be possible to identify many cases of behavioural disorder.

However, there could be significant difficulties in introducing such mass population screening. The first one is what would happen with screen positives. Many child and adolescent mental services would not have the capacity to deal with a large number of new referrals. A second difficulty is that the screening properties of many questionnaires are only modest, so there will be high rates of false positives and false negatives. False positives could be a particular problem because if large numbers of healthy adolescents were wrongly referred for treatment then the screening programme could quickly lose credibility. A third issue is that the take-up of treatment by adolescents with emotional or behavioural difficulties who have screened positive on questionnaires distributed through schools has often been low (Harrington & Clark, 1998).

### **3.4.3 Health and social services**

A third strategy is to make better use of existing opportunities to identify and treat the cases of behavioural disorder who currently come into contact with health or social services. In the UK, for example, less than 25% of young people with behavioural disorder have no contact with primary health care or secondary services regarding the young person's behavioural problems (Meltzer, Gatward, Goodman & Ford, 2000). The problem therefore is not simply failure to identify them; the majority of cases are presented to services. Rather, the problem may be more complex, and concerns issues such as the attitudes of general practitioners and families towards behavioural disorder, and expectations about the benefits of treatment. The response of secondary services is

also important. As described earlier, many secondary services have very limited capacity. Moreover, some take the view that behavioural disorder is not their responsibility but rather that of social or educational services (Goodman, 1997a). It must also be said that even when cases are taken on by services they do not always engage. In the Pittsburgh Youth Study only 75% of serious offenders who attended a mental health service attended for more than two sessions (Stouthamer-Loeber & Loeber, 2002).

## 4. Treatment

A large number of different treatments have been used to reduce antisocial behaviour. These include psychotherapy, pharmacotherapy, school interventions, residential programmes, and social treatments. Indeed, Kazdin (Kazdin, 1993) documented over 230 psychotherapies that were available, the great majority of which had not been systematically studied. As Kazdin pointed out, conduct disorder is a dysfunction with such pervasive problems that one can point to virtually any domain (e.g. cognitive, psychodynamic, family) and find deficits and deficiencies. In this review we have therefore focused on treatments with a testable scientific basis and which have been evaluated in randomised trials.

### 4.1 Meta-analyses of psychosocial therapies for antisocial adolescents

First, it is necessary to turn attention to the multiple meta-analyses that have been undertaken. It will be appreciated that this must be done with caution in view of the many different approaches that have been taken to juvenile offending. There is always a danger, for example, of diluting positive effects from well-conducted studies with negative effects from studies that have been less rigorously undertaken. Nevertheless, the findings are informative and sufficiently consistent to provide some guidelines for policy and practice.

Meta-analyses of treatment approaches to juvenile delinquency have produced reasonably consistent findings (Andrews et al., 1990; Lipsey, 1995; Lipsey & Wilson, 1993; Losel, 1995). Lipsey (Lipsey, 1995) considered nearly 400 group-comparison studies published since 1950. The main finding was that there was an overall reduction of 10% in reoffending rates in treatment groups as compared to untreated groups. As might be expected, there were of course considerable variations in the results of individual studies. The best results were obtained from behavioural, skills-orientated, and multi-modal methods. Group counselling did not seem to be effective and there is some evidence it could be harmful (Dishion, McCord & Poulin, 1999). The results from deterrent trials were particularly poor, though the numbers in these studies were relatively small.

The conclusion that cognitive-behavioural and skills-orientated methods are likely to be relatively effective was supported in a UK Home Office research study report (Vennard, Sugg & Hedderman, 1997). That report concluded that cognitive-behavioural methods were most promising. Specifically, treatment approaches that were participatory, collaborative and problem-solving were particularly likely to be beneficial. Family and parenting interventions also seem to reduce the risk of subsequent delinquency among older children and adolescents (Woolfenden, Williams & Peat, 2003).

McGuire and Priestley (McGuire & Priestley, 1995) identified six principles for effective programmes. First, the intensity should match the extent of the risk posed by the offender. Second, there should be a focus on active collaboration, which is not too didactic

or unstructured. Third, there should be close integration with the community from which the offender came. Fourth, there should be an emphasis on behavioural or cognitive approaches. Fifth, the programme should be delivered with high quality and the staff should be trained adequately and monitored. Finally, there should be a focus on the proximal causes of offending behaviour rather than distal causes. In other words, the programme should focus on peer groups, promoting current family communication, and enhancing self-management and problem-solving skills. There should not be a focus on early childhood or other distal causes of delinquency.

All of these reviews suggest that there are a number of promising targets for treatment programmes, which include antisocial thoughts, antisocial peer associations, promotion of family communication and affection, promotion of family supervision, identification of positive role models, improving problem-solving skills, reducing chemical dependencies, provision of adequate living conditions, and helping the young offender to identify high-risk situations for antisocial behaviours. Conversely, the systematic reviews have also suggested a number of approaches that are unlikely to be promising. For instance, improving self-esteem without reducing antisocial cognitions is unlikely to be of value. Similarly, it is unlikely that a focus on emotional symptoms that is not clearly linked to criminal conduct will be of great benefit (this is contrary to what many mental health professionals believe). There are also some interventions that are not only unpromising but could be positively harmful. An example would be any intervention that, in effect, increased the cohesiveness of antisocial peer groups (Dishion et al., 1999).

In the sections that follow, we will now consider a number of the most promising interventions for adolescent antisocial behaviour.

## 4.2 Family-based Interventions

Family therapy approaches conceptualise juvenile antisocial behaviour from the standpoint of the purposes that these behaviours could serve in the family as a system, as well as for individuals within the family (Gorell Barnes, 1994). It is assumed that the problem behaviour is, in one sense or another, fulfilling some kind of function for the family. Maladaptive processes within the family are hypothesized to block a better way of fulfilling these functions.

A goal of treatment therefore is to change patterns of communication within the family, in such a way that the family becomes more adaptive. Functional family therapy requires that the family sees the antisocial behaviour from the function it serves within the family. The therapist's role is to point out the dependencies, and the extent to which the adolescent's behaviour reflects problems for the family as a whole. Once the family has alternative ways of viewing the problem then (at least in theory) there should be an impetus for change.

Few outcome studies have evaluated functional family therapy alone (Kazdin, 1997). In an incompletely randomised design, Alexander & Parsons (Alexander & Parsons, 1973) contrasted functional family therapy with client centered and psychodynamic family interventions as well as with placebo and no treatment. Functional family therapy was superior to the other treatments. The recidivism rate was 26% for the functional family

therapy group, and 50% in the no treatment group. Rates of offending in siblings over the three-year follow-up were also significantly reduced (Klein, Alexander & Parsons, 1977). A strengthened version of the family therapy programme, which included remedial education and job training, was studied in families of multiply offending or previously imprisoned adolescent offenders (Barton, Alexander, Waldron, Turner & Warburton, 1985). Only three fifths of juvenile offenders in the functional family therapy condition committed a further offence, compared with more than 90% in the comparison.

Structural family therapy was compared with psychodynamic therapy by Szapocznik and coworkers (Szapocznik et al., 1989). Families in the family effectiveness training condition showed much greater improvement on independent measures of family functioning, and on problem behaviours of the child as reported by the parents. At one-year follow-up those in the family therapy group improved, but those in the child therapy group did not.

Functional family therapy is a promising treatment for antisocial behaviour in youth. Several studies have produced consistent effects, and there is some evidence that outcomes are related to the processes targeted by the therapy. A significant advantage of family therapy is that family therapy skills are widely available in child mental health settings. Several manuals describing family therapy are available.

### 4.3 Parent management training

Parent-training is based on the assumption that conduct problems develop and are sustained by maladaptive parent-child interactions. It is recognised, however, that influences are bi-directional and that the child influences the parent as well. Indeed, in some cases the children engage in antisocial behaviour to help prompt interaction sequences. Among the many interaction patterns, those involved in coercion have received the greatest attention (Patterson, 1982). Coercion refers to deviant behaviour on the part of one person (e.g. the child) that it is in effect rewarded by another person (e.g. the parent). Thus, for example, aggressive children are inadvertently rewarded for their aggressive interactions by parenting practices that reinforce them (such as giving them sweets after they have had a tantrum).

Parent management training refers to procedures in which parents are trained to alter their child's behaviour in the home. There are many different varieties of parent management training, but at the core of most are attempts both to promote pro-social behaviour and to decrease deviant behaviour. Parent management training differs from functional family therapy in many ways. Perhaps the most important is that the treatment is conducted primarily with the parents rather than the young person. Parents are trained to identify, define and observe problem behaviour in new ways. Treatment sessions are usually based on social learning principles, and parents are taught to reinforce good behaviours, as well as to punish (mildly) antisocial behaviours.

Parent management training is one of the most well researched therapy techniques for the treatment of antisocial young people (Kazdin, 1993). Treatment effects have been evident in marked improvements in child behaviour on a wide range of measures, including parent and teacher reports of deviant behaviour, and direct observation at home and at school. Follow-up assessment has shown that the gains are often maintained for

one to three years after treatment (Webster-Stratton, 1982).

However, as a general rule, attempts to apply parent management training principles to the severe behavioural disorders of adolescents have been less successful. Bank et al (Bank, Marlowe, Reid, Patterson & Weinrott, 1991) randomly assigned more than 50 boys to parent training or treatment as usual. The primary outcome was court-documented offences. There were some effects of the intervention, but in general these were quite small and had disappeared by the third year follow-up. Dishion and Andrews (Dishion & Andrews, 1995) studied a version of parent management training developed by Patterson and colleagues in Oregon, which had been proven to work in children of primary school age (Patterson, 1974). More than 150 adolescents aged between 10 and 14 years were randomly assigned to groups for parent training, self regulation enhancement, combined parent and adolescent treatment, self directed change, and quasi-placebo. The parent training programme was based on the Oregon 12 session group model. On parents' reports there were significant decreases in externalising behaviours in all groups, but these were not maintained at follow-up.

The available evidence therefore suggests that parent management training is not particularly effective for adolescents with behavioural problems, particularly when they are chronic (Serketich & Dumas, 1996). This contrasts with the very consistent finding of the effectiveness of this approach with younger children with oppositional behaviours. It seems that by adolescence antisocial behaviours are too well established to be changed by offering parent management practices, even though these management practices were (in all probability) important in the genesis of the antisocial behaviour in the first place.

#### 4.4 Multisystemic therapy

Multisystemic therapy is a family-systems based approach to treatment (Henggeler & Borduin, 1990). However, multisystemic therapy differs from systemic family therapy in that it views the family as just one component of the wider system surrounding the adolescent. In a multisystemic formulation the young person is viewed as being embedded in a number of systems, which include not only the family but also peer groups, schools and neighbourhoods. Because multiple influences are thought to be involved, many treatment approaches are required. Multisystemic therapy can therefore be regarded as a programme of interventions, which are given as needed to address individual, family, and wider systemic influences on antisocial behaviour in the young offender.

At the centre of multisystemic therapy is a family based approach to treatment. Several family therapy approaches are used. However, multisystemic therapy also calls on several other techniques, which include parent management training, marital therapy, parental advice and individual cognitive-behaviour therapy with the adolescent. Multisystemic therapy may also tackle other issues such as parental stress and substance abuse.

There have been a number of trials of multisystemic therapy (Borduin, 1999). Whilst many of these have been conducted by the same research group, the results have been promising. Henggeler et al (Henggeler et al., 1986) evaluated multisystemic therapy with repeat offenders. The results showed that the number of behavioural problems reported by parents decreased significantly compared to the alternative intervention. In a second randomised trial, Henggeler et al (Henggeler, Melton & Smith, 1992) showed that young

people whose families participated in multisystemic therapy were less likely to be arrested or incarcerated than young people in a control condition. The costs of multisystemic therapy were less than the costs encountered in the control group, who were much more frequent users of the juvenile justice system. Benefits of multisystemic therapy were maintained at follow-up. Multisystemic therapy may also reduce the need for admission to mental health inpatient units (Henggeler et al., 1999).

One of the impressive features of multisystemic therapy is the report of long-term effects on the prevention of criminal activity. Borduin and colleagues (Borduin, 1999) assigned more than a 150 families with juvenile delinquents to multisystemic or individual therapy. Four years later rates of criminal activity in the group who had multisystemic therapy were reduced compared to those who had individual therapy. Multisystemic therapy also shows some promise as a treatment of substance abusing delinquents (Borduin, 1999). Another strength of multisystemic therapy is a relatively low drop out rate. This is important because of course drop out is a major problem in severely delinquent populations (Kazdin, 1997).

A challenge, however, for multisystemic therapy is whether the promising results obtained by the researchers and clinicians who developed it can be generalised. There have been negative trials with MST when it has been tested by other groups (Leschied, 2002). Moreover, multisystemic therapy requires therapists to be expert in several different therapeutic modalities, something that can be difficult to achieve in routine clinical practice. Another issue is that because by definition MST relies on the mobilisation of the adolescent's existing system of carers, such as school and parents, it may not work if these systems are not available (Myatt et al., 2003). For example an adolescent who is not in school and whose parents refuse to have anything to do with him may not be suitable.

#### **4.5 Cognitive Problem-Solving Skills Training**

Young people who engage in antisocial behaviour, particularly aggression, have repeatedly been found to show distortions and deficiencies in various thinking processes (Coie & Dodge, 1998; Dodge & Frame, 1982; Kupersmidt & Patterson, 1991). These deficiencies, which are not merely due to impaired intelligence, include difficulties generating alternative solutions to interpersonal problems, problems understanding how others feel and the tendency to attribute hostile intent to others in ambiguous social situations.

Problem-solving skills training attempts to remedy some of these problems by developing interpersonal cognitive problem-solving skills. There are a great many different varieties of this form of intervention, but they all have the following common characteristics. First, there is an emphasis on helping young people to approach situations in a more structured way. They may make statements to themselves that direct attention to certain aspects of the problem. Second, the young person is helped to generate and then select a range of different solutions to the interpersonal situation being confronted. Third, there is a great emphasis on developing social behaviours as part of the process of solving difficulties. This is important because research has consistently shown that aggressive children are much more likely to choose aggressive solutions to difficult problems than their non-aggressive peers (Coie & Dodge, 1998). Finally, treatment often involves structured tasks and games

in the therapy sessions. As the treatment proceeds these new problem-solving skills are increasingly applied to real life situations.

Several outcome studies have been completed with aggressive and antisocial children and adolescents (see Durlak et al for a review (1991)). Cognitively based treatments have significantly reduced aggressive and antisocial behaviour at home, and in the wider community. These gains have been documented at follow-up.

Attempts have also been made to use social skills training with delinquents. Spence & Marzillier (Spence & Marzillier, 1981) studied the efficacy of a social skills training package that included role play, videotape modelling, homework tasks and feedback. Significant improvements were observed in social skills, but there were problems in generalising these skills to other situations. Social skills training may be less effective than cognitively based techniques (Deffenbacher, Lynch, Oetting & Kemper, 1996).

Problem solving and cognitive approaches are promising. A considerable practical advantage of these approaches is that many are available in manual form. One of the challenges, however, for cognitive approaches is to ensure adequate training. In many parts of the UK, for instance, it is very difficult to get adequate training in cognitive therapy with adolescents. Another is to reduce the dropout rate, which is often around a third of young people (Kazdin & Holland, 1997; Kazdin & Mazurick, 1994).

#### 4.6 Anger Management and Anger Coping Courses

A related group of interventions focus on teaching young people anger management and anger coping skills. These interventions have many similarities with cognitive and problem solving interventions. They are based on the frequent observation that antisocial young people often have distorted appraisals of social situations, and tend to be more likely to use aggressive solutions to problems.

Anger coping seems to be helpful with aggressive primary school children. One of the best known programmes is that devised by Lochman and colleagues (Lochman & Wells, 1996). This programme, known as “Coping Power”, was specifically designed for use with primary school children. It is a highly structured programme that includes sessions on problem solving, generating alternative solutions, managing anger arousal, and reducing angry self-talk. The first controlled evaluation showed that the programme was more effective than a behavioural programme with goal setting or no treatment (Lochman, Burch, Curry & Lampron, 1984). Subsequent studies have also produced encouraging results in children (Lochman, Coie, Underwood & Terry, 1993).

Although anger management is widely used clinically and in the youth justice system, there is much less recent evidence about its efficacy in older age groups (Fonagy, Target, Cottrell, Phillips & Kurtz, 2002). Feindler and colleagues (Feindler, Marriott & Iwata, 1984) evaluated an anger management programme in a high school setting. The programme appeared to reduce suspensions and exclusions from the school. Snyder et al (Snyder, Kymissis & Kessler, 1999) reported some positive findings with a group intervention, but these were mainly on adolescents’ perceptions of anger. Anger control

training probably works best when it is combined with other treatments but when given alone it seems not to generalise beyond treatment settings (Feindler, 1991).

#### 4.7 Special education

In many countries there has been a trend towards the inclusion of children with behavioural disorders in mainstream schools. This has not always been successful. In the UK for example this trend has been accompanied by government demands for an improvement in educational attainments. Teachers have often found it difficult to manage what seem like competing demands, and the official rate of exclusion from school on behavioural grounds has increased considerably. Children with behavioural disorders who are excluded from mainstream schools often do very badly, with low rates of return to any kind of fulltime educational provision (Howlin, 2002). Against this background, there may be a case for placing some adolescents with behavioural problems in special educational establishments. There is some evidence that such placements can help disruptive adolescents (Hawkins & Herrenkohl, 2003).

#### 4.8 Pharmacological Therapies

Most authorities agree that, on present evidence, psychopharmacological treatments alone are unlikely to be an effective treatment for behavioural problems in adolescents (Campbell & Cueva, 1995; Taylor, 1994a). Medications are usually regarded as second line additional treatments rather than as main line interventions.

##### 4.8.1 Stimulants (methylphenidate, dexamphetamine)

Decades of research have shown the beneficial effects of stimulant medication in reducing the level of hyperactive behaviour. The effect size is large, amounting to more than one standard deviation. This is large enough to make a substantial clinical difference. Interestingly, the effects of stimulants are not dependant on the diagnosis of attention deficit disorder. Children and adolescents with hyperactivity arising from any cause are also likely to benefit (Taylor, 1994b). In the UK, it is recommended that stimulants are initiated and monitored by a professional with expertise in this syndrome (National Institute for Clinical Excellence, 2000).

Although many of the early studies of stimulants were conducted with children, it is now clear that stimulants are also an effective treatment for hyperactivity in adolescents (American Academy of Child and Adolescent Psychiatry, 1997). In addition, many trials with both children and adolescents with hyperactive behaviour have made it clear that defiant aggressive and otherwise antisocial behaviours are also reduced (National Institutes of Health, 2000). The strongest evidence comes from blind placebo-controlled trials using direct observation of aggressive behaviour (Hinshaw & Erhardt, 1991).

Studies of the effect of stimulant medication on children referred primarily because of behavioural difficulties are fewer, and are sometimes difficult to interpret because of the very strong association between disturbances of conduct and hyperactivity disorder (see above). One of the best-designed studies was conducted by Klein et al (Klein et al., 1997), in which methylphenidate for five weeks was compared with placebo in 84 children and adolescents with conduct disorder. Two thirds of them also met criteria for attention

deficit hyperactivity disorder. Contrary to expectations, ratings of antisocial behaviours were significantly reduced by methylphenidate. Controlling for the severity of attention deficit hyperactivity disorder did not alter the superiority of methylphenidate on ratings on antisocial behaviour. This suggests that methylphenidate may be relevant to the treatment of conduct problems.

#### **4.8.2 Lithium**

The effects of lithium on aggressive behaviour have been documented in several trials (see, for example, Campbell's studies (Campbell et al., 1995; Malone, Delaney, Luebbert, Cater & Campbell, 2000)). Three trials have shown superiority over placebo in aggressive young people, especially in those with a pattern of explosive outbursts of aggression in response to minimal provocation. For example, Malone et al (Malone et al., 2000) studied the efficacy of lithium compared with placebo on inpatients with conduct disorder hospitalised because of severe and chronic aggression. 16 of 20 subjects in the lithium group responded, compared with 6 out of 20 in the placebo group. Ratings of overt aggression decreased considerably.

It should be borne in mind however that lithium can have some undesirable side effects. For example, in the study of Malone et al more than half of the subjects in the lithium group experienced nausea, vomiting, and urinary frequency. Lithium should be a third line treatment, reserved for cases who show severe episodic aggression that has not responded to other forms of intervention.

#### **4.8.3 Carbamazepine and other anticonvulsants**

It has been speculated for a long time that the aggressive outbursts that are common in antisocial adolescents may have their origins in abnormal electrical activity in the temporal lobe of the brain. Anticonvulsant medication, normally given to young people with epilepsy, might therefore be expected to control such neural overactivity. Early results from uncontrolled trials produced some promising results. Trials with better controls have however yielded less promising outcomes. For example, in a double-blind placebo controlled trial, Cueva and colleagues (Cueva et al., 1996) did not find carbamazepine superior to placebo in reducing aggression in children.

In summary, anticonvulsants have not as yet been properly tested for antisocial behaviour in children and adolescents, and they should not in general be recommended. One exception however, would be for those rare instances where antisocial behaviour in adolescents is obviously due to an underlying bipolar disorder, for which there is evidence that the anticonvulsants are an effective treatment (Prien & Potter, 1990).

#### **4.8.4 Neuroleptics**

This group of drugs include several chemical classes, such as the phenothiazines (e.g. chlorpromazine), and butyrophenones. Over the past ten years a significant number of new neuroleptics have been introduced, which are known as the "atypicals". These drugs include clozapine and risperidone.

The neuroleptics are well established as an effective treatment for psychotic disorders such as schizophrenia. They have also been used to reduce stereotyped obsessive behaviours in young people with autism and there is much evidence from controlled trials

that they are an effective treatment for multiple tics (Leckman et al., 1997).

Interestingly, however, in young people one of the most common reasons for prescribing neuroleptics is for aggressive behaviour. In the short term, there is evidence from controlled trials that drugs such as chlorpromazine and thioridazine are superior to placebo in reducing assaultive and aggressive behaviour in children with intellectual impairment (Campbell, Rapoport & Simpson, 1999). There is also preliminary evidence that one of the new anti-psychotics, risperidone, reduces aggression in young people with conduct disorder when given for a few weeks (Findling et al., 2000).

However, this is not the usual way that such drugs are given in clinical practice, where long-term high dose therapy is all too common. Moreover, any short-term benefits from anti-psychotics need to be balanced against their potential for long-term side effects. Most anti-psychotics produce a significant degree of sedation, and might therefore be expected to affect the young person's learning. In addition they are associated with a range of hazards, ranging from minor movement disturbances to severe and potentially life threatening conditions such as the neuroleptic malignant syndrome.

It can be concluded that although there is perhaps a role for short term prescribing of major tranquillisers for acute aggression where other interventions have failed, there is no indication for long-term prescribing of these drugs.

## 5. Maintenance strategies

Maintenance strategies (also known as tertiary prevention) aims to reduce disabilities arising as a consequence of disorder. Two kinds of maintenance strategies can be identified: (a) prevention of recurrence, and (b) prevention of complications and comorbid disorders.

### 5.1 Prevention of recurrence

If remission of conduct disorder is achieved then in many cases it is necessary to have some kind of strategy to prevent relapse. A variety of methods can be used (Kazdin, 1997). These include “top ups” of the therapy that led to the initial improvement, regular check-ups, or educating the young person and his or her carers about the early signs of relapse.

### 5.2 Prevention of complications and comorbid disorders

Conduct disorders are associated with a large number of comorbid problems. In this section we will focus on just two of them: substance abuse and depression/self-harm.

#### 5.2.1 Substance abuse

Many studies have demonstrated associations between adolescent drug and alcohol use and various forms of antisocial behaviour (see Angold et al (1999)). To a considerable extent, both problems involve similar risk factors, and it seems reasonable therefore to regard them both as part of the same underlying propensity to engage in socially disapproved behaviour (Jessor & Jessor, 1977). However, there is likely to be more to it than that because studies of temporal ordering have generally found that onset of antisocial behaviour usually precedes alcohol or substance abuse (Gittelman, Mannuzza, Shenker & Bonagura, 1985). Loeber (1988) concluded that twice as many delinquents initiated drug use after their delinquent involvement compared with initiating delinquency after drug use. In other words antisocial behaviour seems to predispose to illicit drug taking.

But does the converse also apply? Does taking drugs increase the likelihood of criminality? There is evidence that it does, both because antisocial peer groups increase the likelihood of drug taking, and because for certain kinds of drugs stealing may be necessary to finance their purchase. The complexity of this association is illustrated by Cohen & Brook's longitudinal study of primary school children in New York (Cohen & Brook, 1987). They found that childhood aggression was associated with an increased risk of adolescent substance abuse. In turn, substance abuse in adolescence increased the risk of subsequent delinquency, even when childhood aggression was taken in account. On the basis of these data, the authors concluded that in addition to shared risk factors, drug use pre-disposed to crime by several mechanisms. First, it helped reduce inhibitions. Second, it provided a need for money to purchase drugs. Third, it created a peer group culture that fostered further drug use and delinquency. It seems then that both alcohol and drug abuse show a substantial association with crime, with bi-directional course and processes.

There have been few well-controlled studies of specific treatments for adolescent substance abuse. It can be said that some treatment is better than no treatment (Catalano, Hawkins, Wells, Miller & Brewer, 1990). Factors for success include therapist characteristics, the availability of special services, and family participation. Length of treatment is related to reduced alcohol and drug abuse in residential treatment

programmes. Characteristics that predict poor compliance are younger age of onset, serious alcohol abuse, use of multiple drugs, and severity of behavioural disorder. Predictors of relapse post-treatment include cravings about drugs or alcohol, low involvement in work, and low involvement in hobbies or other leisure-time activities (American Academy of Child and Adolescent Psychiatry, 1998).

Family therapy approaches have received most attention in clinical research on treatment for adolescents with substance abuse. In a meta-analysis, Stanton and Shadish (Stanton & Shadish, 1997) found support for the superiority of family therapy (but not family education or support) for adolescent substance use disorders over other modalities. One commonly used model is structural strategic family therapy (Szapocznik et al., 1989). In structural strategic family therapy, treatments involve all family members, whether present or not at the sessions, because substance abuse is understood as being related to family dysfunction. Common patterns of family dysfunction targeted in the sessions include under- or over-involvement, avoidance of conflict, and levels of supervision. Family therapy is often accompanied by skills training for the parents. Such approaches aim to reduce the adolescent's substance abuse by changing the caretakers' management practices. Schmidt et al (Schmidt, Liddle & Dakof, 1996) found substantial improvements in parenting after multi-dimensional family therapy. Joanning et al (Joanning, Quinn & Mullen, 1992) conducted a pre-test/post-test comparison of three models of adolescent drug abuse treatment; family systems therapy, adolescent group therapy, and family drug education. There were indications that family systems therapy was superior. Community-based interventions with a focus on family problems may also be effective. Studies of multisystemic therapy have shown reductions in substance abuse and deviant behaviours (Henggeler & Borduin, 1990).

Individual approaches to treatment have been based mostly on cognitive-behavioural principles. By identifying and modifying maladaptive thinking patterns, adolescents can reduce their negative thoughts, and abusive behaviour, including substance use and associated behaviours. Myers et al (Myers, Brown & Mott, 1993) recruited 80 teenagers admitted to inpatient adolescent drug and alcohol programmes. Problem-focused coping predicted less use of drugs and alcohol at follow-up.

Participation in self-help groups is an important feature of many treatment programmes. Meetings are often held on treatment units to expose patients to the core principles of the group therapy. Community meetings can also facilitate the patients' transmission from the core programme to after-care or follow-up. Adolescents attending these groups receive support from recovering peers and older members. Peers remind the adolescent of the negative consequences of abuse.

### **5.2.2 Depression and suicidal behaviour**

Behavioural disorders are strongly associated with emotional disorders such as depression, anxiety disorder, and posttraumatic stress disorder. In a systematic review, Angold et al (Angold et al., 1999) identified 19 epidemiological studies of the association between antisocial behaviour and depression. In almost all these studies the rate of depression in antisocial children and adolescents was greater than in non-antisocial children. In three of the studies the rate of depression was more than 40%, and in the majority it exceeded 15%. The association between antisocial behaviour and anxiety seems to be a little weaker (Angold et al., 1999), but is still statistically significant. Most community surveys find that the rate of anxiety disorders among antisocial children and adolescents is at least 10%.

There is also an association between conduct disorder and suicidal behaviour. Longitudinal studies have shown that conduct disorder increases the risk of subsequent suicidal attempts (Fombonne et al., 2001b). Psychological autopsy studies have found that

around one third of suicides in adolescence had significant behavioural problems (Marttunen, Aro & Lonnqvist, 1993).

Much of the literature on the psychological and pharmacological treatment of emotional disorder and suicidal behaviour in adolescents has excluded cases with severe antisocial behaviour. However there is some evidence that psychological treatments can be used successfully to treat emotional problems in antisocial adolescents. Rohde et al (Rohde, Clarke, Mace, Jorgensen & Seeley, 2001) reported that adolescents with comorbid depression and conduct disorder had lower levels of depression if given cognitive behaviour therapy than if they had academic tutoring. Wood and colleagues (Wood, Trainor, Rothwell, Moore & Harrington, 2001) obtained similarly encouraging results within an equally challenging sample. They conducted the first randomised trial of treatment for adolescents who repeatedly harmed themselves. Around 80% of these adolescents had major depression, the great majority came from very disadvantaged backgrounds, and about two thirds had a behavioural disorder. Wood et al found that a group-delivered treatment with many cognitive behavioural treatment elements led to a significantly lower risk of repetition of self-harm than routine care.

## 6. Conclusions

The burgeoning interest in the potential for early intervention is evident across much of mental health practice, as shown for example by the great expansion of early intervention services for psychosis. There is now increasing interest in the prevention of personality disorder. It is clear that the prevention of personality disorder is a complex issue and that for many interventions we lack the scientific evidence on which to base our decisions. Nevertheless, it is possible to reach some tentative conclusions about what could be included in a strategy to prevent antisocial personality development in adult life.

The first point is that such a strategy must include provision for the early recognition and treatment of conduct disorder. Conduct disorder is not only a very strong risk factor for the development of later ASPD but there is also evidence that it can be treated, at least in the short-term. The most promising interventions are here-and-now behavioural or cognitive approaches that focus on the proximal causes of antisocial behaviour rather than distal events. Multimodal therapies that include parents in such programmes are particularly valuable. It seems, however, that current opportunities for treatment are often being missed. Outside of research settings treatment compliance is often poor and some child mental health services do not regard conduct disorder as part of their core activity, but rather as a youth justice or social services problem. The difficulty is that by the time adolescents with behavioural disorder have appeared in court or become known to social services their problems may have become entrenched and secondary disabilities may have arisen.

The second point is that even when conduct disorder is well established there may still be opportunities for preventing ASPD. Although we do not know nearly enough about the processes leading to continuities of antisocial behaviour, a substantial minority of individuals with conduct disorder seem to escape from ASPD. It is possible that some of the factors that lead to a poor outcome are treatable. Examples include substance abuse and perhaps even affective disorder. Moreover, it seems that conduct disorder is not only a risk factor for ASPD but also for many other adult mental health problems (Kim-Cohen et al., 2003). So treatment and aftercare of conduct disorder could help to prevent all kinds of adverse outcomes.

The third point is that there may be opportunities for primary preventive strategies. Good examples include universal anti-bullying programmes, and selective interventions for high risk groups such as adolescents living in high risk situations. However, one of the challenges for the future is to sustain primary preventive strategies.

The final point is that it makes little sense to regard prevention and treatment as separate enterprises (Offord & Bennett, 2002). There is much potential for collaboration between prevention and treatment programmes. Indeed, it is becoming clear that problems like conduct disorder are both outcomes of earlier problems and risk factors for later ones. Treatment and prevention are sometimes one and the same thing.

## 7. Future challenges

The past fifteen years have seen important advances in research into the epidemiology, longitudinal course and treatment of antisocial behaviour among the young. We are beginning to understand how risk factors combine to precipitate and maintain antisocial behaviour. Progress has also been made in the development of effective treatments. This section will consider some of the challenges that remain.

### 7.1 Delineation of risk processes

There need to be more in depth longitudinal studies of the processes leading to continuity of antisocial behaviour. Extant studies have provided important information, but a lot more remains to be done. For example, although many of the most important risk factors for antisocial behaviour are familial, it is still not clear how far continuities over time stem from genes, environment or both. The data from studies carried out thus far suggest that genetic effects are often indirect, and operate by making it more likely that individuals will experience risk environments or be susceptible to such environments (Rutter, Silberg, O'Connor & Simonoff, 1999a; Rutter, Silberg, O'Connor & Simonoff, 1999b). Risk environments are often very persistent. However, antisocial behaviour is unquestionably a heterogeneous phenomenon and it is possible that for some sub-groups genetic effects are more direct, such as early onset forms of the disorder with hyperactivity. Much more research is also needed on whether the processes leading to adverse outcomes are the same in males as in females. Most extant research has been based on males. Longitudinal research could also tell us much about the processes leading to the comorbidities that are often found with antisocial behaviour, such as with depression and suicidal behaviour.

### 7.2 Identification of high risk groups

Another important issue is the identification of groups at high risk of serious outcomes such as severe aggression. Many adolescents with conduct disorder pose a relatively low risk to others, or only present a risk in certain situations. However, some of them engage in a pattern of highly risky behaviour and we need to understand how best to identify and help them. Clinical experience suggests that some of these individuals have variants of mental illness such as Asperger Syndrome or schizophrenia. Others seem to have pronounced psychopathic traits or are lacking in empathy. Detailed studies of large samples of young people with conduct disorder could help us to establish how common these comorbid problems are and whether they predict poor outcomes.

### 7.3 Development and testing of primary prevention programmes for adolescents

Much of the literature on primary prevention of antisocial behaviour has focused on preadolescents. For the reasons given earlier, however, more needs to be known about the value of universal and selective programmes in adolescents. Improvements in school

organisation, for example, might be expected to reduce antisocial behaviour. More also needs to be known about the value of special educational approaches. One of the most striking things about offenders who have committed serious offences is the very high proportion who have special educational needs but who have been out of education for years (Kroll et al., 2002).

#### **7.4 Development and implementation of effective treatments**

Many challenges remain in the development of effective treatments for antisocial disorders, of which four stand out. First, although several promising treatments have been developed, we know relatively little about their relative demerits and merits. For example, a key question for future research is how individual psychological treatments such as CBT compare with intensive multimodal interventions. Second, there needs to be greater appreciation of the limitations of current designs for clinical practice. Much extant research has been based on selected samples of cases with only moderately difficulties and without the comorbid problems that often complicate the cases that are seen in everyday practice. ‘Pragmatic’ studies (Hotopf, Churchill & Lewis, 1999) with large samples of the kinds of adolescents who present in routine practice are also required. In particular, information is needed on the efficacy of treatments within severely impaired samples. Third, the idea of “treatment” needs to be reconsidered. Treatment researchers have, up to now, tended to conceptualise an intervention as just one treatment modality given for a short time. This strategy has been a necessary first step in the development of coherent, theory driven interventions. The complexity of factors that precipitate and maintain juvenile antisocial behaviour suggests, however, that it is unlikely that any single treatment will be effective in all cases. ‘Treatment’ in research studies needs therefore to be conceptualised more often as a programme of interventions used singly or in combination that will often follow one after the other, depending on the likely causes of the young person’s problems and response to treatment. Finally, there has been little attention so far to ways of preventing relapse or other complications such as suicidal behaviour.

#### **7.5 Establishing whether treatment effects persist**

Perhaps the most immediately pressing need is to mount large randomised trials with extensive follow-up periods to evaluate the long-term effectiveness of interventions that seem to be effective in the short-term. These trials are necessary because ultimately we need to know whether the benefits that have been documented in short term studies persist into adult life. For all the reasons given above it cannot be assumed that treatment effects will be maintained. The most promising candidates for such trials are mainly psychological and social interventions, such as skills training and intensive work with families. However, since attention deficit disorder appears to be a strong risk factor for subsequent antisocial behaviour it would also be of interest to evaluate the long-term benefits of stimulant treatment within samples diagnosed with this disorder.

## 8. High priority research questions

With so much more to be done, prioritising is inevitably difficult. The following however are three suggestions for high priority research questions.

**1. For adolescents at high risk of antisocial personality disorder what is the long-term benefit of interventions that are effective in the short-term?**

- A randomised trial of interventions of proven short-term benefit for behavioural problems, such as skills training or intensive parental work, with an explicit focus on evaluating effectiveness in the long-term.
- Long-term follow-up studies of extant treatment samples, such as samples previously recruited for randomised trials of treatment of risk factors for later antisocial behaviour.

**2. Can the identification of high risk adolescent cases be improved in clinical practice?**

- In adolescent samples with risk factors for later antisocial personality which features best predict later adverse outcomes?

**3. What are the most promising primary preventive universal approaches in adolescence?**

- Systematic review of the psychological, educational, criminological and sociological literatures relevant to the development, implementation and maintenance of universal preventive programmes among adolescents.

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